# **EXTERIOR LIGHTING SYSTEM**

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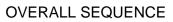
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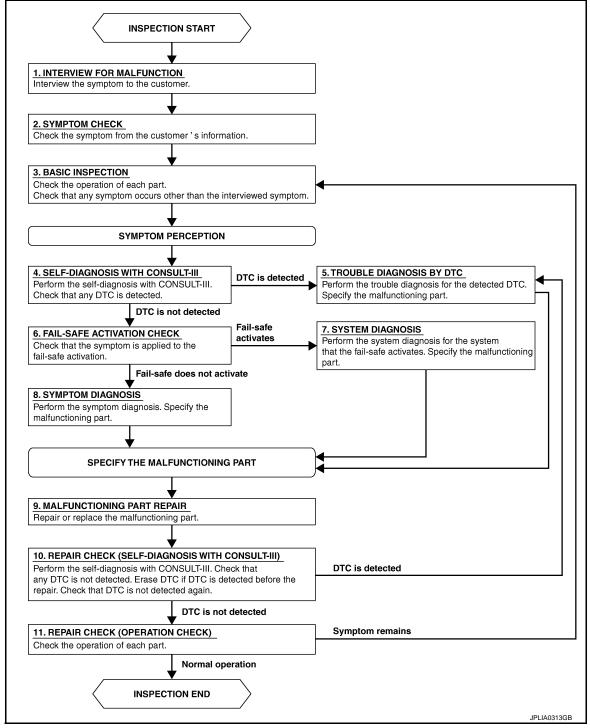
[XENON TYPE]

# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

# Work Flow

INFOID:000000006201060





# DETAILED FLOW **1.**INTERVIEW FOR MALFUNCTION

Interview the symptom to the customer.

# DIAGNOSIS AND REPAIR WORKFLOW

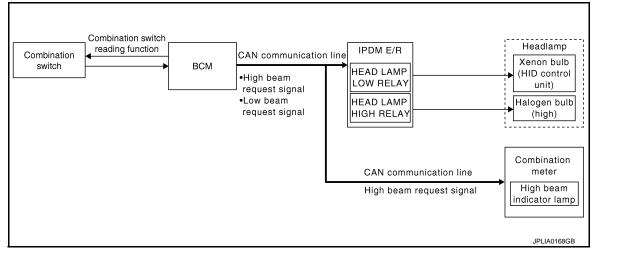
< BASIC INSPECTION > [XENON TYPE]
>> GO TO 2.
2. SYMPTOM CHECK
Check the symptom from the customer's information.
>> GO TO 3.
3. BASIC INSPECTION
Check the operation of each part. Check that any symptom occurs other than the interviewed symptom.
>> GO TO 4.
4.SELF-DIAGNOSIS WITH CONSULT-III
Perform the self-diagnosis with CONSULT-III. Check that any DTC is detected.
Is any DTC detected?
YES >> GO TO 5. NO >> GO TO 6.
5. TROUBLE DIAGNOSIS BY DTC
Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part.
>> GO TO 9.
6.FAIL-SAFE ACTIVATION CHECK
Check that the symptom is applied to the fail-safe activation.
Does the fail-safe activate?
YES >> GO TO 7.
NO >> GO TO 8. 7.SYSTEM DIAGNOSIS
Perform the system diagnosis for the system that the fail-safe activates. Specify the malfunctioning part.
>> GO TO 9.
8.SYMPTOM DIAGNOSIS
Perform the symptom diagnosis. Specify the malfunctioning part.
>> GO TO 9. 9.MALFUNCTION PART REPAIR
Repair or replace the malfunctioning part.
>> GO TO 10.
10. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III)
Perform the self-diagnosis with CONSULT-III. Check that any DTC is not detected. Erase DTC if DTC is
detected before the repair. Check that DTC is not detected again.
Is any DTC detected?
YES >> GO TO 5. NO >> GO TO 11.
11. REPAIR CHECK (OPERATION CHECK)
Check the operation of each part.
Does it operate normally?
YES >> INSPECTION END

NO >> GO TO 3.

INFOID:000000006201061

# <u>SYSTEM DESCRIPTION ></u> SYSTEM DESCRIPTION HEADLAMP SYSTEM

# System Diagram



# System Description

INFOID:000000006201062

# 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, and the auto light function ON judgment
- 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
- Lighting switch PASS
- Lighting switch AUTO, and the auto light function ON judgment
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.
- IPDM E/R turns the integrated headlamp high relay ON, and turns the headlamp ON according to the high beam request signal.

# **HEADLAMP SYSTEM**

### < SYSTEM DESCRIPTION >

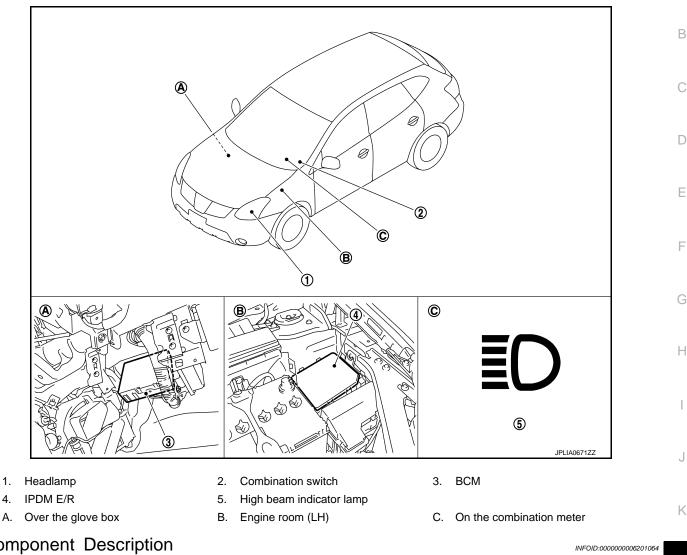
# **Component Parts Location**

# [XENON TYPE]

INFOID:000000006201063

А

EXL



# **Component Description**

4.

Part Description • Detects each switch condition by the combination switch reading function. Μ Judges that the headlamp is turned ON according to the vehicle condition. BCM Requests the headlamp relay (HI/LO) ON to IPDM E/R (with CAN communication). -Requests the high beam indicator lamp ON to the combination meter (with CAN -Ν communication). Controls the integrated relay, and supplies voltage to the load according to the request IPDM E/R from BCM (with CAN communication). 0 Combination switch Refer to BCS-9, "System Diagram". (Lighting & turn signal switch) Combination meter Turns the high beam indicator lamp ON according to the request from BCM (with CAN (High beam indicator lamp) communication). Ρ HID control unit Front combination ٠ Refer to EXL-36, "Description". Xenon bulb lamp assembly

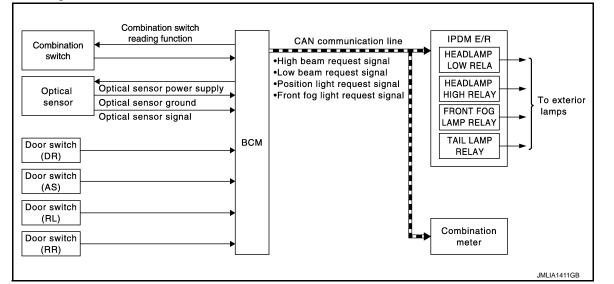
# AUTO LIGHT SYSTEM

# < SYSTEM DESCRIPTION >

# AUTO LIGHT SYSTEM

INFOID:00000006457795

# System Diagram



# System Description

INFOID:000000006457796

#### 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

#### Control by IPDM E/R

- Relay control function
- Auto light system has the auto light function and the delay timer function.
- Auto light function turns the exterior lamps\* and each illumination ON/OFF automatically according to 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, license plate 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 with 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-III. Refer to <u>EXL-21, "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)"</u>.

#### 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).

# **EXL-10**

# **AUTO LIGHT SYSTEM**

#### < SYSTEM DESCRIPTION >

[XENON TYPE]

INFOID:000000006457797

В

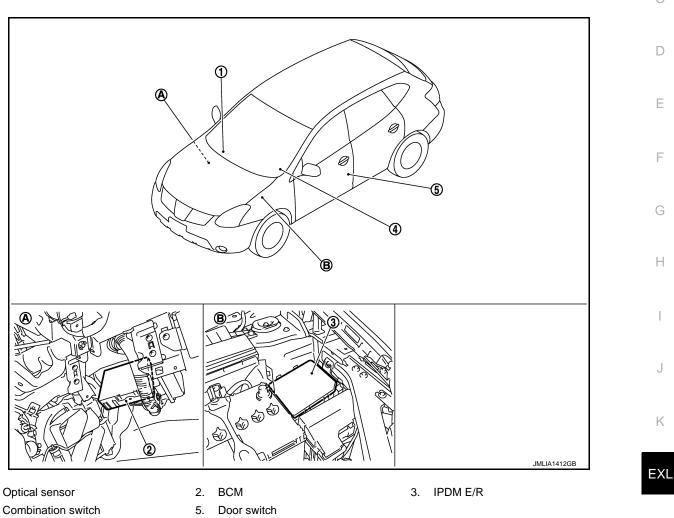
• Turns the exterior lamp OFF with the ignition switch ACC or the light switch OFF.

\*: The preset time is 45 seconds. The timer operating time can be set by CONSULT-III. Refer to EXL-21, A "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)".

#### NOTE:

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

# **Component Parts Location**



4. Combination switchA. Over the glove box

1.

B. Engine room (LH)

# **Component Description**

INFOID:000000006457798	

Μ

Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the outside brightness from the optical sensor signal.</li> <li>Judges the OFF timing according to the vehicle condition.</li> <li>Judges the ON/OFF status of the exterior lamp and each illumination according to the outside brightness and the vehicle condition.</li> <li>Requests ON/OFF of each relay to IPDM E/R (with CAN communication).</li> </ul>
IPDM E/R	Controls the integrated relay, and supplies voltage to the load according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signal switch)	Refer to BCS-9, "System Diagram".
Optical sensor	Refer to EXL-49, "Description".

Revision: 2010 July

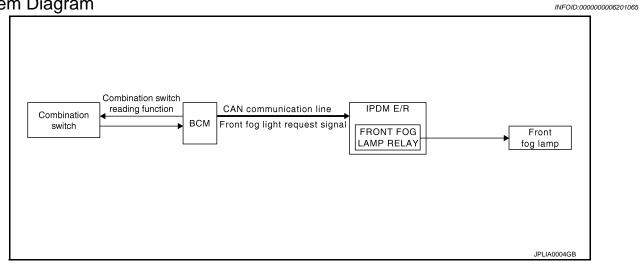
# FRONT FOG LAMP SYSTEM

# < SYSTEM DESCRIPTION >

# FRONT FOG LAMP SYSTEM



# System Diagram



# System Description

INFOID:000000006201066

#### OUTLINE

Front fog lamp is controlled by combination switch reading function and 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 with CAN communication according to the front fog lamp ON condition.

Front fog lamp ON condition

- Front fog lamp switch ON with headlamp ON (except for the high beam ON)
- 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.

# **FRONT FOG LAMP SYSTEM**

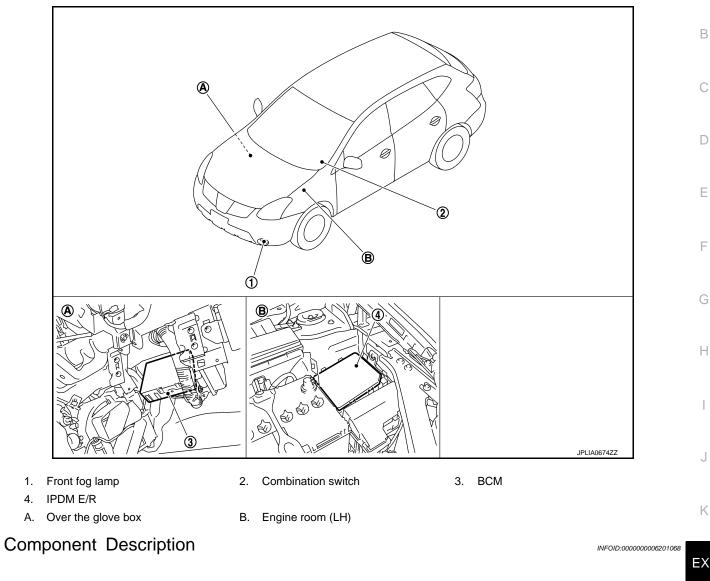
# < SYSTEM DESCRIPTION >

# **Component Parts Location**

# [XENON TYPE]

INFOID:000000006201067

А



E	Х	

Part	Description	
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the front fog lamp ON/OFF status according to the vehicle condition.</li> <li>Requests the front fog lamp relay ON to IPDM E/R (with CAN communication).</li> </ul>	M
IPDM E/R	Controls the integrated relay and supplies voltage to the load according to the request from BCM (with CAN communication).	Ν
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-9, "System Diagram"</u> .	0

Ρ

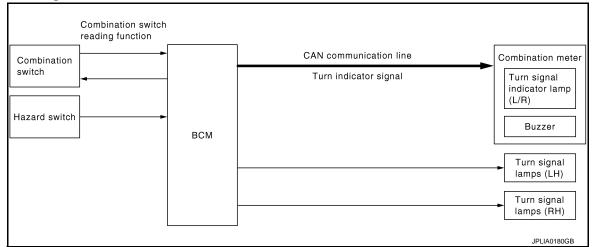
4.

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

# < SYSTEM DESCRIPTION >

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

# System Diagram



# System Description

INFOID:000000006201070

[XENON TYPE]

INFOID:000000006201069

#### OUTLINE

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

#### TURN SIGNAL LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM supplies voltage to the right (left) turn signal lamp circuit when the 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 with CAN communication while the turn signal lamp and the hazard warning lamp are operating.
- Combination meter outputs the turn signal sound with the integrated buzzer while blinking the turn signal indicator lamp according to the turn indicator signal.

#### HIGH FLASHER OPERATION (FAIL-SAFE)

- BCM detects the turn signal lamp circuit status by the terminal 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.

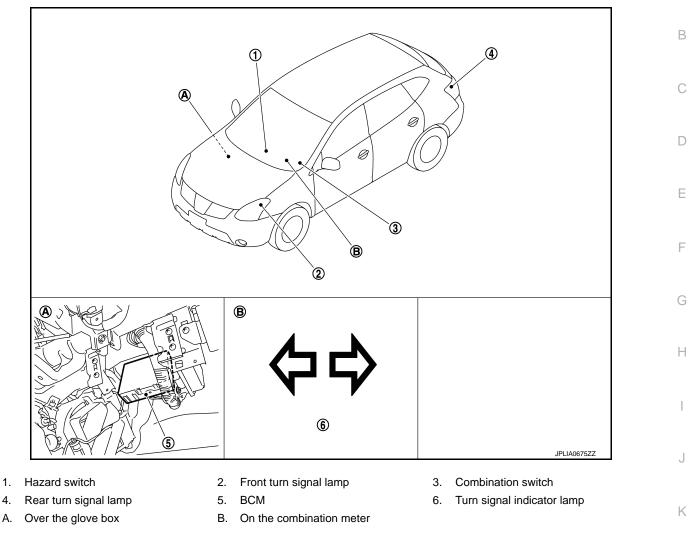
# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM [XENON TYPE]

# < SYSTEM DESCRIPTION >

# **Component Parts Location**

INFOID:000000006201071

А



# **Component Description**

4.

INFOID:000000006201072

Part	Description
ВСМ	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the blinks of the turn signal lamp and the hazard warning lamp from each switch status. The applicable turn signal lamp blinks.</li> <li>Requests the turn signal indicator lamp blink to the combination meter (with CAN communication).</li> </ul>
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-9, "System Diagram"</u> .
Hazard switch	Inputs the hazard switch ON/OFF signal to BCM.
Combination meter (Turn signal indicator lamp & buzzer)	Blinks the turn signal indicator lamp and outputs the turn signal operating sound with integrated buzzer according to the request from BCM (with CAN communication).

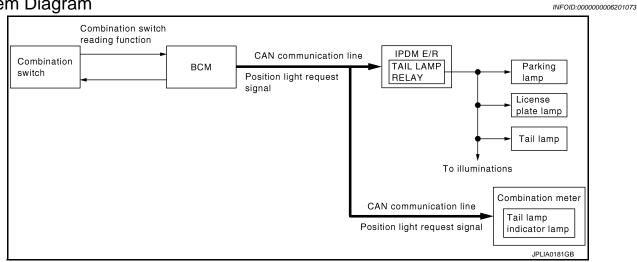
EXL

#### PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

# < SYSTEM DESCRIPTION >

# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

# System Diagram



# System Description

INFOID:000000006201074

[XENON TYPE]

#### OUTLINE

Parking<sup>\*</sup>, license plate and tail<sup>\*</sup> lamps are controlled by combination switch reading function and headlamp control function of BCM, and relay control function of IPDM E/R.

\*: Illuminated as side maker lamps too.

#### PARKING, LICENSE PLATE 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 with CAN communication according to the ON/OFF condition of the parking, license plate and tail lamps.

Parking, license plate and tail lamps ON condition

- Lighting switch 1ST
- Lighting switch 2ND
- IPDM E/R turns the integrated tail lamp relay ON and turns the parking lamp, the license plate 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 AND TAIL LAMPS SYSTEM

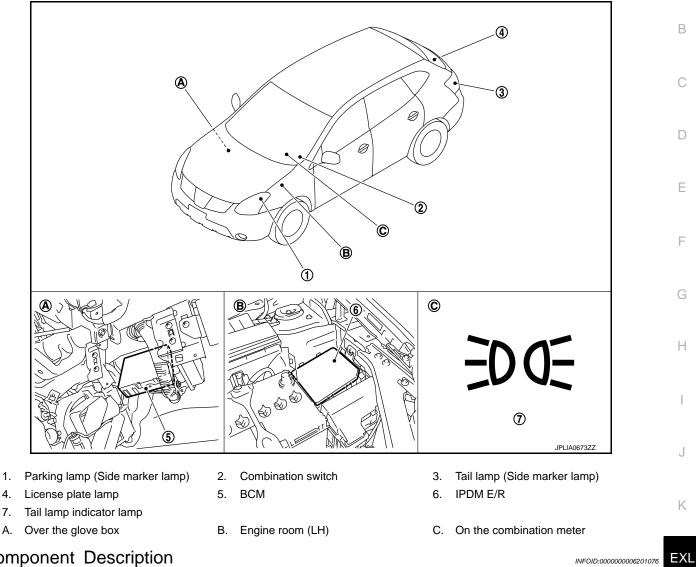
# < SYSTEM DESCRIPTION >

# **Component Parts Location**

#### INFOID:000000006201075

А

[XENON TYPE]



# **Component Description**

4.

7.

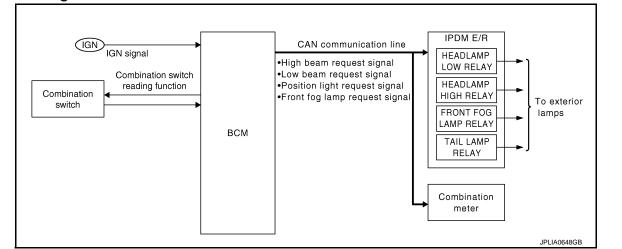
Part	Description		
ВСМ	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the ON/OFF status of the parking, license plate and tail lamps according to the vehicle condition.</li> <li>Requests the tail lamp relay ON to IPDM E/R (with CAN communication).</li> <li>Requests the tail lamp indicator lamp ON to the combination meter (with CAN communication).</li> </ul>		
IPDM E/R	Controls the integrated relay and supplies voltage to the load according to the request from BCM (with CAN communication).		
Combination switch (Lighting & turn signal switch)	Refer to BCS-9, "System Diagram".		
Combination meter (Tail lamp indicator lamp)	Turns the tail lamp indicator lamp ON according to the request from BCM (with CAN communication).		

# EXTERIOR LAMP BATTERY SAVER SYSTEM

### < SYSTEM DESCRIPTION >

# EXTERIOR LAMP BATTERY SAVER SYSTEM

System Diagram



# System Description

INFOID:000000006201078

#### 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 lamp\* OFF after a period of time to prevent the battery from over-discharge when the ignition switch is turned OFF with the exterior lamp ON.
- \*: Headlamp (LO/HI), parking lamp, tail lamp, license plate lamp and front fog lamp

#### EXTERIOR LAMP BATTERY SAVER ACTIVATION

BCM activates the timer and turns the exterior lamp OFF 5 minutes after the 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 the engine started (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 lamp OFF.

INFOID:000000006201077

# EXTERIOR LAMP BATTERY SAVER SYSTEM

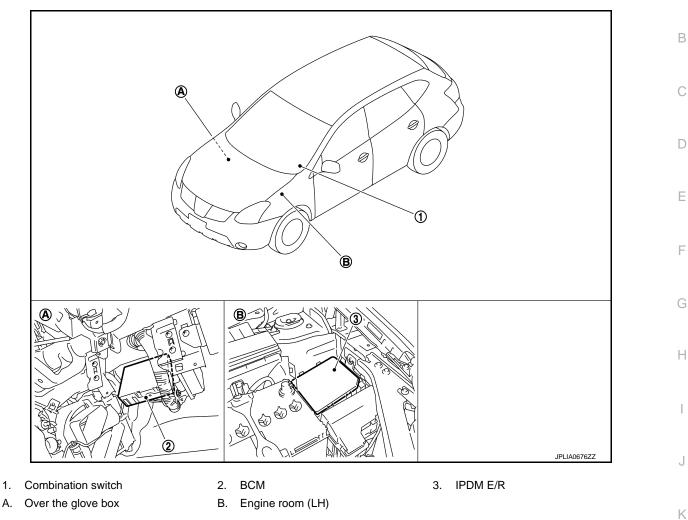
# < SYSTEM DESCRIPTION >

# **Component Parts Location**

[XENON TYPE]

INFOID:000000006201079

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# **Component Description**

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Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Activates the battery saver to turn the exterior lamps OFF according to the vehicle condition.</li> <li>Requests each relay OFF to IPDM E/R (with CAN communication).</li> </ul>
IPDM E/R	Controls the integrated relay according to the request from BCM (with CAN communi- cation).
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-9, "System Diagram"</u> .

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# DIAGNOSIS SYSTEM (BCM) COMMON ITEM

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

INFOID:000000006484170

# APPLICATION ITEM

CONSULT-III can display each diagnostic item using the diagnostic test modes shown following.

Diagnosis mode	Function description
ECU Identification	BCM part number is displayed.
Self-Diagnostic Result	Displays the diagnosis results judged by BCM. Refer to BCS-62, "DTC Index".
Data Monitor	BCM input/output signals are displayed.
Active Test	The signals used to activate each device are forcibly supplied from BCM.
Work Support	Changes the setting for each system function.
Configuration	<ul><li>Read and save the vehicle specification.</li><li>Write the vehicle specification when replacing BCM.</li></ul>
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM.

# 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.

 $\times$ : Applicable item

System	CONSULT-III	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	INT LAMP	×	×	×
Remote keyless entry system	MULTI REMOTE ENT	×	×	×
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×	×	×
Turn signal and hazard warning lamps	FLASHER		×	×
<ul><li>Auto air conditioning system</li><li>Manual air conditioning system</li></ul>	AIR CONDITONER		×	
Intelligent Key system	system INTELLIGENT KEY		×	
Combination switch	COMB SW		×	
Body control system	BCM	×		
Immobilizer	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		×	Х
_	FUEL LID*			
TPMS	TPMS (AIR PRESSURE MONITOR)	×	×	×
Panic alarm system	PANIC ALARM			×

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

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

# WORK SUPPORT

Service item	Setting item		Setting		
CUSTOM A/LIGHT SETTING	MODE 1 <sup>*</sup>	Normal			
	MODE 2	More sensitive operation.)	More sensitive setting than normal setting (Turns ON earlier than normal operation.)		
	MODE 3	More sensitive	More sensitive setting than MODE 2 (Turns ON earlier than MODE2.)		
	MODE 4	Less sensitive eration.)	e setting than normal setting (Turns ON later than normal op-		
BATTERY SAVER SET	On <sup>*</sup>	With the exter	With the exterior lamp battery saver function		
	Off	Without the exterior lamp battery saver function			
	MODE 1 <sup>*</sup>	45 sec.			
	MODE 2	Without the function			
	MODE 3	30 sec			
ILL DELAY SET	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			

\*: Factory setting

#### DATA MONITOR

Monitor item [Unit]	Description	k
IGN ON SW [On/Off]	Ignition switch (ON) status judged from IGN signal (ignition power supply)	P
ACC ON SW [On/Off]	Ignition switch (ACC) status judged from ACC signal (ACC power supply)	EX
HI BEAM SW [On/Off]		D.
HEAD LAMP SW1 [On/Off]		N
HEAD LAMP SW2 [On/Off]		Ν
LIGHT SW 1ST [On/Off]	Each switch status that BCM judges from the combination switch reading function	
PASSING SW [On/Off]		C
FR FOG SW [On/Off]		F
AUTO LIGHT SW [On/Off]		
RR FOG SW [On/Off]	NOTE: The item is indicated, but not monitored	
DOOR SW-DR [On/Off]	The switch status input from front door switch (driver side)	

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# **DIAGNOSIS SYSTEM (BCM)**

#### < SYSTEM DESCRIPTION >

[XENON	TYPE]
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Monitor item [Unit]	Description	
DOOR SW-AS [On/Off]	The switch status input from front door switch (passenger side)	
DOOR SW-RR [On/Off]	The switch status input from rear door switch RH	
DOOR SW- RL [On/Off]	The switch status input from rear door switch LH	
BACK DOOR SW [On/Off]	The switch status input from back door switch	
TURN SIGNAL R [On/Off]	Each quitch status that PCM judges from the combination quitch reading function	
TURN SIGNAL L [On/Off]	Each switch status that BCM judges from the combination switch reading function	
ENGINE RUNNING [On/Off]	The engine status received from ECM with CAN communication	
PKB SW [On/Off]	The parking brake switch status received from combination meter with CAN commu- nication	
CARGO LAMP SW [On/Off]	NOTE: The item is indicated, but not monitored	
OPTICAL SENSOR [V]	The value of exterior brightness voltage input from the optical sensor	

# ACTIVE TEST

Test item	Operation	Description
TAIL LAMP	On	Transmits the position light request signal to IPDM E/R with CAN com- munication to turn the tail lamp ON.
	Off	Stops the tail lamp request signal transmission.
	Hi	Transmits the high beam request signal with CAN communication to turn the headlamp (HI).
HEAD LAMP	Lo	Transmits the low beam request signal with CAN communication to turn the headlamp (LO).
	Off	Stops the high & low beam request signal transmission.
FR FOG LAMP	On	Transmits the front fog lights request signal to IPDM E/R with CAN com- munication to turn the front fog lamp ON.
	Off	Stops the front fog lights request signal transmission.
DAYTIME RUNNING LIGHT	On	NOTE:
DAT TIME ROWNING LIGHT	Off	The item indicated, but not operate

# FLASHER

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

INFOID:000000006201083

# DATA MONITOR

Monitor item [Unit]	Description
IGN ON SW [On/Off]	Ignition switch (ON) status judged from IGN signal (ignition power supply)
HAZARD SW [On/Off]	The switch status input from the hazard switch

# **DIAGNOSIS SYSTEM (BCM)**

#### < SYSTEM DESCRIPTION >

# [XENON TYPE]

Monitor item [Unit]	Description	
TURN SIGNAL R [On/Off]	Each switch condition that BCM judges from the combination switch reading function	
TURN SIGNAL L [On/Off]	Each switch condition that BCM judges from the combination switch reading function	
BRAKE SW [On/Off]	The switch status input from the stop lamp switch	С

# ACTIVE TEST

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

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# **Diagnosis Description**

Auto active test

Description

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

- Oil pressure warning lamp
- Rear window defogger
- 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 (LO, MID, HI)

#### Operation procedure

1. 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 driver door switch 10 times. Then turn the ignition switch OFF.

# CAUTION:

#### Close passenger door.

4. Turn the ignition switch ON within 10 seconds. Then the horn sounds once and the auto active test starts. **NOTE:** 

Only a vehicle with the vehicle security system, the horn sounds.

- 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 mode has to be cancelled halfway through test, turn the ignition switch OFF. **CAUTION:** 

- If auto active test mode cannot be actuated, check door switch system.
- Never start the engine.

Inspection in auto active test mode

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

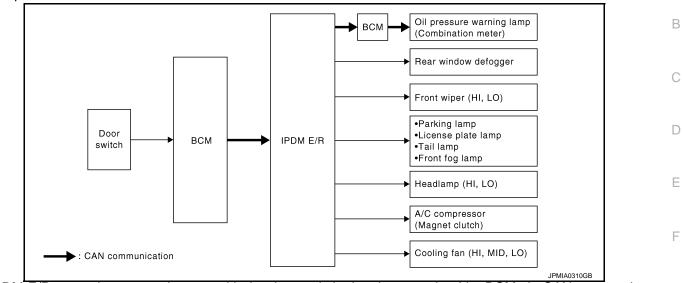
Operation sequence	Inspection location	Operation
A	Oil pressure warning lamp	Blinks continuously during operation of auto active test.
1	Rear window defogger	10 seconds
2	Front wiper motor	LO for 5 seconds $\rightarrow$ HI for 5 seconds
3	<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Tail lamp</li> <li>Side marker lamp</li> <li>Front fog lamp</li> <li>Headlamps HI (daytime running light operation)*</li> </ul>	10 seconds
4	Headlamp	LO 10 seconds $\rightarrow \Leftrightarrow OFF$ 5 times
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 >

#### NOTE:

\*: With daytime running light system





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

Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause
		YES	BCM signal input circuit
Rear window defogger does not operate	Perform auto active test. Does the rear window defog- ger operate?	NO	<ul> <li>Rear window defogger</li> <li>Rear window defogger ground circuit</li> <li>Harness or connector between IPDM E/R and rear window defogger</li> <li>IPDM E/R</li> </ul>
Any of the following components do not operate		YES	BCM signal input circuit
<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Tail lamp</li> <li>Side marker lamp</li> <li>Front fog lamp</li> <li>Headlamp (HI, LO)</li> <li>Front wiper motor (HI, LO)</li> </ul>	Perform auto active test. Does the applicable system operate?	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>
Headlamps HI (daytime running light operation) do not operate	Perform auto active test. Do headlamps HI (daytime	YES	<ul> <li>CAN communication signal between ECM and BCM</li> <li>CAN communication signal between combination meter and BCM</li> <li>BCM signal input circuit</li> </ul>
	running light operation) oper- ate?	NO	<ul> <li>Daytime running light relay power supply circuit</li> <li>Harness or connector between IPDM E/R and daytime running light relay</li> <li>Daytime running light relay</li> </ul>

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#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

Symptom	Inspection contents		Possible cause
Symptom A/C compressor does not operate Oil pressure warning lamp does not operate	Perform auto active test. Does the magnet clutch oper-	YES	<ul> <li>BCM signal input circuit</li> <li>CAN communication signal between BCM and ECM</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>
	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>
Oil pressure warning lamp does not operate	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>
	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>
		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 motor-2 power supply circuit</li> <li>Cooling fan motor-1 ground circuit</li> <li>Cooling fan relay-4 or cooling fan relay-5 power supply circuit</li> <li>Cooling fan relay-5 ground circuit</li> <li>Harness or connector between IPDM E/R and cooling fan motor</li> <li>Harness or connector between IPDM E/R, and cooling fan relay-4 or cooling fan relay-5</li> <li>Harness or connector between cooling fan motor-2, and cooling fan relay-4 or cooling fan relay-5</li> <li>Cooling fan relay-4 or cooling fan relay-5</li> <li>Cooling fan motor</li> <li>IPDM E/R</li> </ul>

# CONSULT-III Function (IPDM E/R)

INFOID:000000006484192

# APPLICATION ITEM

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

Diagnosis mode	Description
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 Refer to <u>PCS-26, "DTC Index"</u>.

DATA MONITOR Monitor item

#### < SYSTEM DESCRIPTION >

# [XENON TYPE]

Monitor Item [Unit]	MAIN SIGNALS	Description
MOTOR FAN REQ [1 - 4]	×	Displays the value of the cooling fan speed signal received from ECM via CAN commu- nication.
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 com- munication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN commu- nication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN com- munication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN com- munication. <b>NOTE:</b> This item is monitored only the vehicle with front fog lamp system.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN com- munication.
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.
ST RLY REQ [Off/On]		Displays the status of the starter request signal.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
RR DEF REQ [Off/On]	×	Displays the status of the rear defogger request signal received from BCM via CAN com- munication.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.
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 the vehicle with daytime running light system.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R. NOTE: This item is monitored only the vehicle for Mexico.
THFT HRN REQ [Off/On]		Displays the status of the horn request signal by vehicle security system or panic alarm system received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn request signal by key fob LOCK operation received from BCM via CAN communication.

#### ACTIVE TEST Test item

	Test item	Operation	Description	0
REAR DEFOGGER	Off	OFF		
	REAR DEFOGGER	On	Operates the rear window defogger relay.	Р
		Off	OFF	
FRONT WIPER	Lo	Operates the front wiper relay.		
	Hi	Operates the front wiper relay and front wiper high relay.		

#### < SYSTEM DESCRIPTION >

# [XENON TYPE]

Test item	Operation	Description
	1	OFF
MOTOR FAN	2	Operates the cooling fan relay (LO operation).
IOTOR FAN	3	Operates the cooling fan relay (MID operation).
	4	Operates the cooling fan relay (HI operation).
	Off	OFF
	TAIL	Operates the tail lamp relay and the daytime running light relay. <b>NOTE:</b> Daytime running light relay is with daytime running light system only.
EXTERNAL LAMPS	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 4 seconds intervals.
	Fog	Operates the front fog lamp relay. <b>NOTE:</b> This item can test only the vehicle with front fog lamp system.
HORN	On	Operates horn relay for 20 ms.

< DTC/CIR(	CUIT DIA	_		PPLY A	AND (	GROUND CIRCUIT [XENON TYPE]
DTC/C	IRCL	JIT DI	AGNO	DSIS		
POWER					SIRCI	
BCM (BC						
· ·					agnos	is Procedure INFOID:00000006485556
<b>1.</b> снеск				- <b>-</b> ) · <b>D</b>	agnee	C
Check that t	the followi	ng fuses a	nd fusible	link are n	ot fusir	ıg.
		Signal nan	ne			Fuses and fusible link No.
		-				10
	Ва	ttery power	supply			J
		CC power s				20
Is the fuse f		nition power	supply			1F
YES >> NO >>	Replace t blown. GO TO 2.			sible link a	after re	pairing the affected circuit if a fuse or fusible link is
						<u> </u>
2. Disconr	nect BCM	switch OFI connector tween BC	s.	s connecto	or and t	H ground.
	Terminals					I
(+)			– Igniti	on switch po	osition	
BC	М	()	OFF	ACC	ON	J
Connector	Terminal		OIT	ACC	ON	
M67	70 57		Battery voltage	Battery voltage	Batter voltag	
M65	11	Ground	Approx. 0 V	Battery voltage	Batter voltag	e EXI
	38		Approx. 0 V	Approx. 0 V	Batter voltag	
	GO TO 3. Repair the	e harness	or connec	tor.	1	M
Check conti	nuity betw	veen BCM	harness c	onnector	and the	e ground.
	BCM			~	optionit	0
Connector	r Te	erminal	Ground		ontinuity	
M67		67		I	Existed	P
NO >>	INSPECT Repair the	- ION END e harness	or connec NT POW		STRI	BUTION MODULE ENGINE ROOM)

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) : Di-

# **EXL-29**

# POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### agnosis Procedure

INFOID:000000006485558

# **1.**CHECK FUSIBLE LINK

Check that the following IPDM E/R fusible link is not blown.

Signal name	Fusible link No.
	С
Battery power supply	E
	К

Is the fusible link fusing?

YES >> Replace the blown fusible link after repairing the affected circuit if a fusible link is blown.

NO >> GO TO 2.

# 2. CHECK POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.

2. Disconnect IPDM E/R connectors.

3. Check voltage between IPDM E/R harness connectors and the ground.

	Terminals					
(	+)	()	Voltage (Approx.)			
IPDN	/I E/R	(-)				
Connector	Terminal					
E9	1	Ground	Battery voltage			
E9	2	Ground				
E10	6					

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair the harness or connector.

# 3. CHECK GROUND CIRCUIT

Check continuity between IPDM E/R harness connectors and the ground.

IPDN	/IE/R		Continuity
Connector	Terminal	Ground	Continuity
E11	11	Glound	Exist
E13	25	1	LAISU

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector.

# **EXTERIOR LAMP FUSE**

# < DTC/CIRCUIT DIAGNOSIS >

# EXTERIOR LAMP FUSE

# Description

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[XENON TYPE]

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Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	#44	10 A
Headlamp HI (RH)	IPDM E/R	#43	10 A
Headlamp LO (LH)	IPDM E/R	#49	15 A
Headlamp LO (RH)	IPDM E/R	#50	15 A
Front fog lamp	IPDM E/R	#65	15 A
Parking lamp	IPDM E/R	#46	10 A
<ul><li>Tail lamp</li><li>License plate lamp</li><li>Each illumination</li></ul>	IPDM E/R	#45	10 A
Stop lamp	FUSE BLOCK (J/B)	#11	10 A
Back-up lamp	IPDM E/R	#60	10 A

# **Diagnosis Procedure**

# 1.CHECK FUSE

Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	#44	10 A
Headlamp HI (RH)	IPDM E/R	#43	10 A
Headlamp LO (LH)	IPDM E/R	#49	15 A
Headlamp LO (RH)	IPDM E/R	#50	15 A
Front fog lamp	IPDM E/R	#65	15 A
Parking lamp	IPDM E/R	#46	10 A
<ul><li>Tail lamp</li><li>License plate lamp</li><li>Each illumination</li></ul>	IPDM E/R	#45	10 A
Stop lamp	FUSE BLOCK (J/B)	#11	10 A
Back-up lamp	IPDM E/R	#60	10 A

Is the fuse fusing?

YES >> Repair the applicable circuit. And then replace the fuse.

NO >> The fuse is normal.

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< DTC/CIRCUIT DIAGNOSIS >

# HEADLAMP (HI) CIRCUIT

# **Component Function Check**

1.CHECK HEADLAMP (HI) OPERATION

**©IPDM E/R AUTO ACTIVE TEST** 

1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".

2. Check that the headlamp switches to the high beam.

(E)CONSULT-III 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 headlamp (HI) turned ON?

- YES >> Headlamp (HI) circuit is normal.
- NO >> Refer to <u>EXL-32</u>, "Diagnosis Procedure".

# **Diagnosis** Procedure

1.CHECK HEADLAMP (HI) OUTPUT VOLTAGE

CONSULT-III ACTIVE TEST

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

	Т	erminals	Test item			
(+)			(-)	iest item	Voltage	
	IPDM E/R			EXTERNAL	(Approx.)	
Cor	Connector Terminal			LAMPS		
RH	E12	22	Ground	Hi	Battery voltage	
LH		21		Off	0 V	

Is the measurement value normal?

YES >> GO TO 2.

NO >> GO TO 3.

# 2. CHECK HEADLAMP (HI) OPEN CIRCUIT

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

	IPDM E	/R	Headlarr	Continuity	
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	F12	22	E75	1	Existed
LH	LIZ	21	E72	1	LAISted

Does continuity exist?

YES >> GO TO 5.

INFOID:000000006201090

# **HEADLAMP (HI) CIRCUIT**

[XENON TYPE] < DTC/CIRCUIT DIAGNOSIS > NO >> Repair the harnesses or connectors. 3. CHECK HEADLAMP (HI) FUSE А 1. Turn the ignition switch OFF. Check that the following fuses are not fusing. 2. В Unit Location Fuse No. Capacity Headlamp HI (LH) IPDM E/R #44 10 A Headlamp HI (RH) IPDM E/R #43 10 A Is the fuse fusing? D YES >> GO TO 4. NO >> Replace IPDM E/R. CHECK HEAD LAMP HIGH SHORT CIRCUIT Ε Disconnect IPDM E/R connector. 1. 2. Check continuity between the IPDM E/R harness connector terminal and the ground. F IPDM E/R Continuity Connector Terminal Ground RH 22 E12 Not existed LH 21 Does continuity exist? Н YES >> Repair the harnesses or connectors. And then replace the fuse. NO >> Replace the fuse. (Replace IPDM E/R if the fuse is fusing again.) 5. CHECK HEAD LAMP (HI) GROUND OPEN CIRCUIT 1. Turn the ignition switch OFF. 2. Disconnect the headlamp high connector. Check continuity between the headlamp high harness connector and the ground. 3. Headlamp high Continuity Κ Connector Terminal Ground RH E75 2 Existed LH E72 2 EXL Does continuity exist? YES >> Replace the headlamp (HI) bulb. (Bulb socket is abnormally.) NO >> Repair the harnesses or connectors. Μ Ν Ρ

# **HEADLAMP (LO) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# HEADLAMP (LO) CIRCUIT

# Description

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-36, "Description".

# **Component Function Check**

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

#### ⑧IPDM E/R AUTO ACTIVE TEST

- 1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".
- 2. Check that the headlamp is turned ON.
- (P)CONSULT-III 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 headlamp (LO) turned ON?

- YES >> Headlamp (LO) is normal.
- NO >> Refer to EXL-34, "Diagnosis Procedure".

# **Diagnosis Procedure**

# 1.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

# CONSULT-III ACTIVE TEST

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

		Terminals	Test item				
(+)			(–)	iest item	Voltage		
	IPDM E/R			EXTERNAL	(Approx.)		
Conr	nector	Terminal		LAMPS			
RH		20	Ground	Lo	Battery volt-		
	E12				age		
LH		18		Off	0 V		

Is the measurement value normal?

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

 $\sim$  >> GO 10 3.

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

1. Turn the ignition switch OFF.

- 2. Disconnect IPDM E/R connector.
- 3. Check continuity between the IPDM E/R harness connector and the headlamp low harness connector.

IPDI	M E/R	Headla	Continuity	
Connector	Terminal	Connector	Terminal	Continuity

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INFOID:000000006201092

INFOID:000000006201094

# HEADLAMP (LO) CIRCUIT

< DTC/CIRC	UIT DIAG	NOSIS					[XENON TYPE]
RH	20	E	74	1			
LH E12	18	E	71	1	Existed		
NO >> I 3.CHECK H 1. Turn the 2. Check th Un Headlamp LO Headlamp LO s the fuse fu YES >> 0 NO >> I	GO TO 5. Repair the H IEADLAMP ignition sw hat the follo hit (LH) (RH) Ising? GO TO 4. Replace IPI	(LO) F itch OF wing fu La IPD IPD	USE F. ses are otion M E/R M E/R	not fusin Fuse N #49 #50	g. Io. Capacity 15 A 15 A	- - -	
	ect IPDM E	/R coni	nector.			ctor and the ground.	
IF	PDM E/R				Continuity	-	
Connector	Term	inal	Gro	und	Continuity	_	
RH E1:	2 20				Not existed	_	
NO >> I 5.CHECK H 1. Turn the 2. Disconne	Repair the I Replace the IEADLAMP ignition sw ect the hea	e fuse. ( (LO) G itch OF dlamp l	(Replace ROUNI F. ow conr	e IPDM E D OPEN	E/R if the fuse CIRCUIT	eplace the fuse. is fusing again.) nnector and the ground.	
Неа	adlamp low				Continuity	-	
Connector	Term		Gro	und —	e e	_	
RH E74					Existed		
LH E7						-	
						EXL-36, "Description".	

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# < DTC/CIRCUIT DIAGNOSIS > XENON HEADLAMP

# Description

# 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

- 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.
- Temporarily install the headlamps on the vehicle. Connect the battery to the connector (vehicle side) when checking ON/OFF status.
- 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.

# **Diagnosis Procedure**

# **1.**CHECK XENON BULB

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

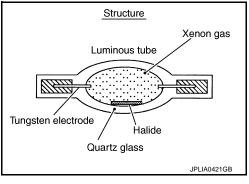
#### Is the headlamp turned ON?

YES >> Replace the 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>



# **EXL-36**

INFOID:000000006201096

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# **XENON HEADLAMP**

## [XENON TYPE]

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

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< DTC/CIRCUIT DIAGNOSIS >

# FRONT FOG LAMP CIRCUIT

Component Function Check

**1.**CHECK FRONT FOG LAMP OPERATION

**®IPDM E/R AUTO ACTIVE TEST** 

1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".

2. Check that the front fog lamp is turned ON.

**(E)CONSULT-III ACTIVE TEST** 

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

Fog : Front fog lamp ON

## Off : Front fog lamp OFF

Is the front fog lamp turned ON?

YES >> Front fog lamp circuit is normal.

NO >> Refer to EXL-38, "Diagnosis Procedure".

## Diagnosis Procedure

## 1.CHECK FRONT FOG LAMP FUSE

1. Turn the ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#65	15 A

Is the fuse fusing?

YES >> GO TO 2.

NO >> GO TO 3.

## 2.CHECK FRONT FOG LAMP SHORT CIRCUIT

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

IPDM E/R				Continuity
Con	Connector Terminal		Ground	Continuity
RH	E12	17	Giouna	Not existed
LH		16		NUL EXISTED

## Does continuity exist?

YES >> Repair the harnesses or connectors. And then replace the fuse.

NO >> Replace the fuse. (Replace IPDM E/R if the fuse is fusing again.)

## 3.CHECK FRONT FOG LAMP BULB

Check the applicable lamp bulb.

## Is the bulb normal?

YES >> GO TO 4.

NO >> Replace the bulb.

4.CHECK FRONT FOG LAMP OUTPUT VOLTAGE

## CONSULT-III ACTIVE TEST

- T. Disconnect the front fog lamp connector.
- 2. Turn the ignition switch ON.
- 3. Select "EXTERNAL LAMPS" of IPDM E/R active test item.

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# FRONT FOG LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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

Ũ					
	Т	erminals		Test item	
	(+)		(-)	iest item	Voltage
	IPDM E	/R		EXTERNAL (Approx.)	
Co	nnector	Terminal		LAMPS	
RH	E12	17	Ground	Fog	Battery voltage
LH		16		Off	0 V
	ECK FRC		AMP OPE	N CIRCUIT	
2. Di	sconnect neck conti	-	connector. een the IP[	DM E/R harn	ess connec
	IPDM E			fog lamp	Continuity
	nnector	Terminal	Connector		
RH	E12	17	E48	2	Existed
		16	E30	2	
YES NO <b>6.</b> СН	ECK FRC	TO 6. pair the har NT FOG L	AMP GRO	connectors. UND CIRCU g lamp harne	
	Front fo	og lamp			Continuity

RH         E48         1         Existed           LH         E30         1         Existed	Connector		Terminal	Ground	Continuity
	RH	E48	1	Ground	Evisted
	LH	E30	1		LAISIEU

Does continuity exist?

YES >> Replace the front fog lamp.

NO >> Repair the harnesses or connectors.

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< DTC/CIRCUIT DIAGNOSIS >

# PARKING LAMP CIRCUIT

## Component Function Check

1. CHECK PARKING LAMP OPERATION

**®**IPDM E/R AUTO ACTIVE TEST

1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".

2. Check that the parking lamp is turned ON.

**(E)CONSULT-III 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 parking lamp turned ON?

YES >> Parking lamp circuit is normal.

NO >> Refer to EXL-40, "Diagnosis Procedure".

## Diagnosis Procedure

## 1.CHECK PARKING LAMP FUSE

1. Turn the ignition switch OFF.

2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Parking lamp	IPDM E/R	#46	10 A

Is the fuse fusing?

YES >> GO TO 2.

NO >> GO TO 3.

## **2.**CHECK PARKING LAMP SHORT CIRCUIT

- 1. Disconnect IPDM E/R connector and the parking lamp connector.
- 2. Check continuity between the IPDM E/R harness connector and the ground.

IPDM E/R				Continuity	
Conr	nector	Terminal	Ground	Continuity	
RH	E14	39	Clound	Not existed	
LH	L14	38		NOT EXISTED	

#### Does continuity exist?

YES >> Repair the harnesses or connectors. And then replace the fuse.

NO >> Replace the fuse. (Replace IPDM E/R if fusing is found again.)

## **3.**CHECK PARKING LAMP BULB

Check the applicable lamp bulb.

#### Is the bulb normal?

YES >> GO TO 4.

NO >> Replace the bulb.

**4.**CHECK PARKING LAMP OUTPUT VOLTAGE

## CONSULT-III ACTIVE TEST

1. Disconnect the parking lamp connector.

2. Turn the ignition switch ON.

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

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# PARKING LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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

	Terminals		Test item		
	(+)		(-)		Voltage
	IPDM E	/R		EXTERNAL	(Approx.)
Cor	nnector	Terminal		LAMPS	
RH	E14	39	Ground	TAIL	Battery voltage
LH		38		Off	0 V
Is the r	neasuren	nent value	normal?		
YES NO		TO 5. place IPDM			

**5.**CHECK PARKING LAMP OPEN CIRCUIT

1. Turn the ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between the IPDM E/R harness connector and the parking lamp harness connector.

IPDM E/R			Parking	lamp	Continuity
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E14	39	E46	1	Existed
LH		38	E27	1	LAISIEU

#### Does continuity exist?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

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

Check continuity between the parking lamp harness connector and the ground.

	Parking la	mp		Continuity
Conr	nector	Terminal	Ground	Continuity
RH	E46	2	Giouna	Existed
LH	E27	2		EXISTED

Does continuity exist?

YES >> Replace the front combination lamp.

NO >> Repair the harnesses or connectors.

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## **TURN SIGNAL LAMP CIRCUIT**

## < DTC/CIRCUIT DIAGNOSIS >

# TURN SIGNAL LAMP CIRCUIT

## Description

BCM performs the high flasher operation (fail-safe) if any bulb or harness of the turn signal lamp circuit is open.

NOTE:

The turn signal lamp blinks at normal speed when using the hazard warning lamp.

## Component Function Check

## **1.**CHECK TURN SIGNAL LAMP

(E)CONSULT-III ACTIVE TEST

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

## Off : Turn signal lamps OFF

## Is the turn signal lamp turned ON?

- YES >> Turn signal lamp circuit is normal.
- NO >> Refer to EXL-42. "Diagnosis Procedure".

## Diagnosis Procedure

**1.**CHECK TURN SIGNAL LAMP BULB

Check the applicable lamp bulb.

## Is the bulb normal?

YES >> GO TO 2.

NO >> Replace the bulb.

## 2.CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

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

	Te	rminals		Condition		
	(+)		(–)	Condition	Voltage (Approx.)	
	BCM			Turn signal	voltage (Approx.)	
Со	Connector Terminal			switch		
RH		61				
LH	M67	60	Ground	LH or RH	(V) 15 10 50 1 1 1 1 1 1 1 1 1 1 1 1 1	
				OFF	0 V	

Is the measurement value normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-66, "Exploded View"</u>.

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# **TURN SIGNAL LAMP CIRCUIT**

## < DTC/CIRCUIT DIAGNOSIS >

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#### **3.**CHECK TURN SIGNAL LAMP OPEN CIRCUIT 1. Turn the ignition switch OFF. Disconnect BCM connector. 2. 3. Check continuity between the BCM harness connector and the front turn signal lamp, or the rear combination lamp harness connector. Front turn signal lamp BCM Front turn signal lamp Continuity Connector Terminal Connector Terminal RH 61 E46 M67 3 Existed E27 LH 60 Rear turn signal lamp BCM Rear combination lamp Continuity Connector Terminal Connector Terminal RH 61 B59 M67 3 Existed LH 60 B80 Does continuity exist? YES >> GO TO 4. NO >> Repair the harnesses or connectors. 4.CHECK TURN SIGNAL LAMP SHORT CIRCUIT Check continuity between the BCM harness connector and the ground. BCM Continuity Connector Terminal Ground RH 61 M67 Not existed LH 60 Does continuity exist? YES >> Repair the harnesses or connectors. NO >> GO TO 5. ${f 5.}$ CHECK TURN SIGNAL LAMP GROUND OPEN CIRCUIT Check continuity between the front turn signal lamp, or the rear combination lamp and the ground. Front turn signal lamp Front turn signal lamp Continuity Connector Terminal Ground RH E46 2 Existed LH E27 Rear turn signal lamp Rear combination lamp Continuity Connector Terminal Ground RH B59 4 Existed LH B80 Does continuity exist? YES >> Replace the front combination lamp or the rear combination lamp. NO >> Repair the harnesses or connectors.

## < DTC/CIRCUIT DIAGNOSIS >

# HAZARD SWITCH

# Component Function Check

# 1.CHECK HAZARD SWITCH SIGNAL BY CONSULT-III

CONSULT-III DATA MONITOR

1. Turn the 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	Hazard switch	ON	On
		OFF	Off

Is the item status normal?

YES >> Hazard switch circuit is normal.

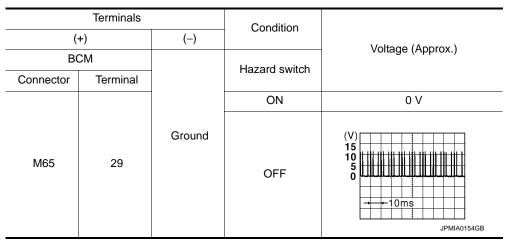
NO >> Refer to EXL-44, "Diagnosis Procedure".

# **Diagnosis Procedure**

INFOID:000000006201105

# 1.CHECK HAZARD SWITCH SIGNAL INPUT

With operating the hazard switch, check the voltage between the BCM harness connector and the ground.



Is the measurement value normal?

YES >> Replace BCM. Refer to <u>BCS-66, "Exploded View"</u>.

NO >> GO TO 2.

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

1. Turn the ignition switch OFF.

2. Disconnect the hazard switch connector and BCM connector.

3. Check continuity between the hazard switch harness connector and the BCM harness connector.

Hazaro	d switch	B	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M45	2	M65	29	Existed

Does continuity exist?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

 $\mathbf{3.}$  CHECK HAZARD SWITCH SIGNAL SHORT CIRCUIT

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

## EXL-44

# **HAZARD SWITCH**

## < DTC/CIRCUIT DIAGNOSIS >

Hazard	I switch		Continuity
Connector	Terminal	Ground	Continuity
M45	2		Not existed
Does continuity			
YES >> Re	pair the harnes	sses or connector	s.
	Ó TO 4.		
		H GROUND OPE	
Check continui	ty between the	hazard switch ha	arness connect
·	1	1	
	d switch		Continuity
Connector	Terminal	Ground	Enderte 1
M45	1		Existed
Does continuity YES >> Re		urd cwitch	
NO >> Re	place the haza	ira switch. sses or connector	S.
	1		-

## < DTC/CIRCUIT DIAGNOSIS >

# TAIL LAMP CIRCUIT

## **Component Function Check**

#### NOTE:

Check the license plate lamp circuit if the tail lamp and the license plate lamp are not turned ON. Refer to <u>EXL-</u> <u>48, "Component Function Check"</u>.

## **1.**CHECK TAIL LAMP OPERATION

**®**IPDM E/R AUTO ACTIVE TEST

1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".

2. Check that the tail lamp is turned ON.

(D)CONSULT-III ACTIVE TEST

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

TAIL : Tail Lamp ON

#### Off : Tail lamp OFF

#### Is the tail lamp turned ON?

YES >> Tail lamp circuit is normal.

NO >> Refer to EXL-46, "Diagnosis Procedure".

## Diagnosis Procedure

## **1.**CHECK TAIL LAMP FUSE

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

Unit	Location	Fuse No.	Capacity
Tail lamp	IPDM E/R	#45	10 A

#### Is the fuse fusing?

YES >> Repair the malfunctioning part before replacing the fuse.

NO >> GO TO 2.

2. CHECK TAIL LAMP OUTPUT VOLTAGE

(E)CONSULT-III ACTIVE TEST

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

	Terminals	Test item		
(+) (–)			iest item	Voltage
IPDN	1 E/R		EXTERNAL	(Approx.)
Connector	Terminal		LAMPS	
E14	37	Ground	TAIL	Battery volt- age
			Off	0 V

Is the measurement value normal?

YES >> GO TO 3.

NO >> Replace IPDM E/R.

**3.**CHECK TAIL LAMP OPEN CIRCUIT

1. Turn the ignition switch OFF.

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# TAIL LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### 2. Disconnect IPDM E/R connector.

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

IPDM E/R			Rear comb	Continuity	
C	Connector	Terminal	Connector	Terminal	Continuity
RH	F14	37	B59	1	Existed
LH	C14	57	B80	1	EXISTED

Does continuity exist?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4. CHECK TAIL LAMP GROUND OPEN CIRCUIT

Check continuity between the rear combination lamp harness connector and the ground.

	Rear combina	tion lamp		Continuity
	Connector	Terminal	Ground	Continuity
RH	B59	4	Existed	
LH	B80	4		LAISted

Does continuity exist?

YES >> Replace the rear combination lamp.

NO >> Repair the harnesses or connectors.

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< DTC/CIRCUIT DIAGNOSIS >

# LICENSE PLATE LAMP CIRCUIT

**Component Function Check** 

**1.**CHECK LICENSE PLATE LAMP OPERATION

**®**IPDM E/R AUTO ACTIVE TEST

1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".

2. Check that the license plate lamp is turned ON.

CONSULT-III ACTIVE TEST

- 1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
- 2. With operating the lighting switch, check that the license plate lamp is turned ON.

## TAIL : License plate lamp ON

## Off : License plate lamp OFF

Is the license plate lamp turned ON?

YES >> License plate lamp circuit is normal.

NO >> Refer to <u>EXL-48, "Diagnosis Procedure"</u>.

## **Diagnosis Procedure**

**1.**CHECK LICENSE PLATE LAMP BULB

Check the applicable lamp bulb.

Is the bulb normal?

YES >> GO TO 2.

NO >> Replace the bulb.

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

1. Turn the ignition switch OFF.

- 2. Disconnect IPDM E/R connector and the license plate lamp connector.
- Check continuity between the IPDM E/R harness connector and the license plate lamp harness connector.

IPDM E/R			License p	Continuity	
С	onnector	Terminal	Connector	Terminal	Continuity
RH	E14	37	D196	1	Existed
LH	<b>C</b> 14	57	D195	1	EXISTED

Does continuity exist?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

 $\mathbf{3}$ . Check license plate lamp ground open circuit

Check continuity between the license plate lamp harness connector and the ground.

	License plate	e lamp		Continuity
	Connector	Terminal	Ground	Continuity
RH	D196	2	Giouna	Existed
LH	D195	2		Existed

Does continuity exist?

YES >> Replace the license plate lamp.

NO >> Repair the harnesses or connectors.

INFOID:000000006201108

# **OPTICAL SENSOR**

# < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]

OPTICAL SI	ENSOR		
Description			INFOID:00000006484915
Optical sensor cc	onverts the outsid	de brightness (lux)	to voltage and transmits the optical sensor signal to BCM.
Component F	unction Che	ck	
		GIGNAL BY CONSI	ULT-III
	DATA MONITOR		
<ol> <li>Select "OPTI</li> <li>Turn the light</li> </ol>	ting switch AUT(		MP) data monitor item. nonitor status.
Monitor item		Condition	Voltage (Approx.)
		When illuminating	3.1 V or more *
OPTICAL SENSOR	Optical sensor	When shutting off light	
: Illuminates the opti	cal sensor. The valu		e standard value if brightness is weak.
s the item status		,	5
	cal sensor is nor		
NO >> Refe	r to <u>EXL-49, "Dia</u>	agnosis Procedure	<u></u>
Diagnosis Pro	ocedure		INFOID:00000006484917
		POWER SUPPLY I	NPUT
. Turn the ignit	tion switch ON.		NPUT
. Turn the ignit 2. Turn the light	tion switch ON. ting switch AUT(	D.	NPUT
. Turn the ignit 2. Turn the light	tion switch ON. ting switch AUT(	D.	
. Turn the ignit 2. Turn the light	tion switch ON. ting switch AUT(	D.	
. Turn the ignit 2. Turn the light	tion switch ON. ting switch AUT( oltage between t	D. he optical sensor h	narness connector and the ground.
<ol> <li>Turn the ignit</li> <li>Turn the light</li> <li>Check the volume</li> </ol>	tion switch ON. ting switch AUT( oltage between the Terminals	D. he optical sensor h	narness connector and the ground.
. Turn the ignit 2. Turn the light 3. Check the vo	tion switch ON. ting switch AUT( oltage between the Terminals	D. he optical sensor h	narness connector and the ground.
Turn the ignit     Turn the light     Check the vc     (+)     Optical se	tion switch ON. ting switch AUT( oltage between the Terminals	D. he optical sensor h	narness connector and the ground.
. Turn the ignit 2. Turn the light 3. Check the vo (+) Optical se Connector	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1	D. he optical sensor h	Voltage
. Turn the ignit 2. Turn the light 3. Check the vo (+) Optical se Connector M17 s the measureme YES >> GO 1	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma	D. he optical sensor h	Voltage
. Turn the ignit 2. Turn the light 3. Check the vo (+) Optical se Connector M17 S the measureme YES >> GO T NO >> GO T	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma FO 2. FO 4.	D. he optical sensor h	Voltage
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. Turn the ignit 2. Turn the light 3. Check the vo (+) Optical se Connector M17 S the measureme YES >> GO T NO >> GO T 2.CHECK OPTIC	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma TO 2. TO 4. CAL SENSOR 0	D. he optical sensor h	Voltage Approx.)
. Turn the ignit 2. Turn the light 3. Check the vol (+) Optical so Connector M17 S the measureme YES >> GO T NO >> GO T 2.CHECK OPTIC Check the voltage	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma FO 2. FO 4. CAL SENSOR C e between the o	D. he optical sensor h	Approx.) 5 V ess connector and the ground.
. Turn the ignit 2. Turn the light 3. Check the vol (+) Optical se Connector M17 S the measureme YES >> GO T NO >> GO T 2.CHECK OPTIC Check the voltage	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma TO 2. TO 4. CAL SENSOR 0 e between the o	D. he optical sensor h	Voltage Approx.)
. Turn the ignit 2. Turn the light 3. Check the vol (+) Optical se Connector M17 S the measureme YES >> GO T NO >> GO T 2.CHECK OPTIC Check the voltage (+) Optical se	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma TO 2. TO 4. CAL SENSOR 0 e between the o	D. he optical sensor h	Approx.)          5 V         ess connector and the ground.
. Turn the ignit 2. Turn the light 3. Check the vol (+) Optical se Connector M17 S the measureme YES >> GO T NO >> GO T 2.CHECK OPTIC Check the voltage (+) Optical se Connector	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma TO 2. TO 4. CAL SENSOR C e between the o Terminals	D. he optical sensor h (-) (A Ground 1? BROUND INPUT ptical sensor harne	Approx.) voltage Approx.) ess connector and the ground. Voltage Approx.)
Turn the ignit     Turn the light     Turn the light     Check the volume     (+)     Optical se     Connector     M17     S the measureme     YES >> GO T NO >> GO T CHECK OPTIC Check the voltage     (+)     Optical se     Connector     (+)     Optical se     Connector     M17	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma TO 2. TO 4. CAL SENSOR C e between the o Terminals ensor Terminal 3	D. he optical sensor h	Approx.)          5 V         ess connector and the ground.
. Turn the ignit 2. Turn the light 3. Check the vol (+) Optical se Connector M17 S the measureme YES >> GO T NO >> GO T 2.CHECK OPTIC Check the voltage (+) Optical se Connector (+) Optical se Connector M17	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma TO 2. TO 4. CAL SENSOR 0 e between the o Terminals ensor Terminal 3 ent value norma	D. he optical sensor h	Approx.) ess connector and the ground. Voltage Approx.)
Turn the ignit     Turn the light     Turn the light     Check the volume     (+)     Optical second of the measureme     YES >> GO T     NO >> GO T     NO >> GO T     Check the voltage     (+)     Optical second of the descendence     (+)	tion switch ON. ting switch AUT( oltage between the Terminals ensor Terminal 1 ent value norma TO 2. TO 4. CAL SENSOR C e between the o Terminals ensor Terminals ensor Terminal 3 ent value norma TO 3.	D. he optical sensor h	Approx.) ess connector and the ground. Voltage Approx.)

# **OPTICAL SENSOR**

## < DTC/CIRCUIT DIAGNOSIS >

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

	Terminals	Condition		
(·	+)	(–)	Condition	Voltage
Optical	sensor	Optical sen-		(Approx.)
Connector	Terminal		sor	
M17	2	Ground	When bright outside of the vehicle	Close to 5 V
10117	2		When dark outside of the vehicle	Close to 0 V

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

Is the measurement value normal?

NO >> Replace the optical sensor.

**4.**CHECK OPTICAL SENSOR OPEN CIRCUIT

1. Turn the ignition switch OFF.

- 2. Disconnect the optical sensor connector and the BCM connector.
- 3. Check continuity between the optical sensor harness connector and the BCM harness connector.

Optical	sensor	B	Continuity	
Connector	Terminal	Connector Terminal		Continuity
M17	1	M65	17	Existed

Does continuity exist?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

## 5.CHECK OPTICAL SENSOR SHORT CIRCUIT

Check the continuity between the optical sensor harness connector and the ground.

Optical	l sensor		Continuity
Connector	Connector Terminal		Continuity
M17	1		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> Replace BCM.

## **6.**CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

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

Optical	sensor	B	Continuity	
Connector	Terminal	Connector	Connector Terminal	
M17	3	M65	18	Existed

Does continuity exist?

YES >> Replace BCM.

NO >> Repair the harnesses or connectors.

7. CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

# **OPTICAL SENSOR**

## < DTC/CIRCUIT DIAGNOSIS >

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

Optical sensor		BCM		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M17	2	M65	14	Existed	

Does continuity exist?

YES >> GO TO 8.

NO >> Repair the harnesses or connectors.

# $8. {\sf CHECK OPTICAL SENSOR SHORT CIRCUIT}$

Check the continuity between the optical sensor harness connector and the ground.

Optical	sensor		Continuity
Connector	Terminal	Ground	Continuity
M17	2		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> Replace BCM.

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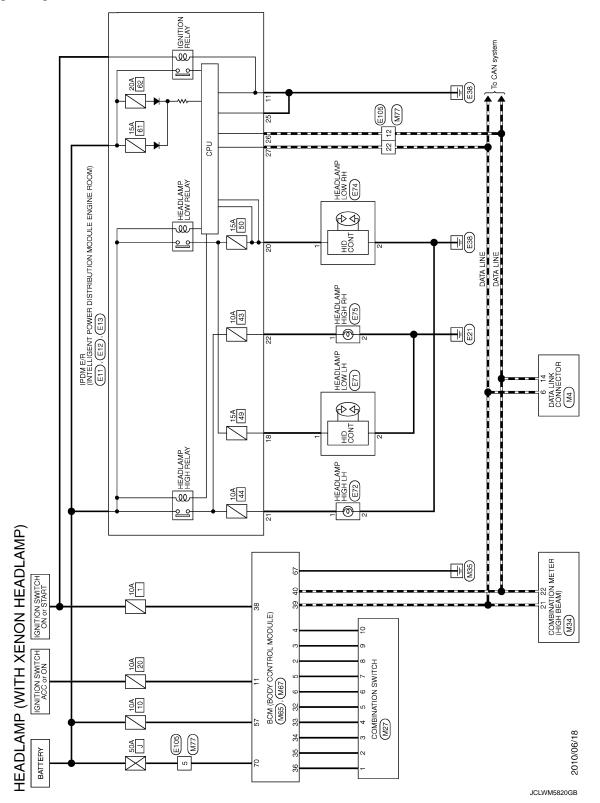
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# HEADLAMP SYSTEM

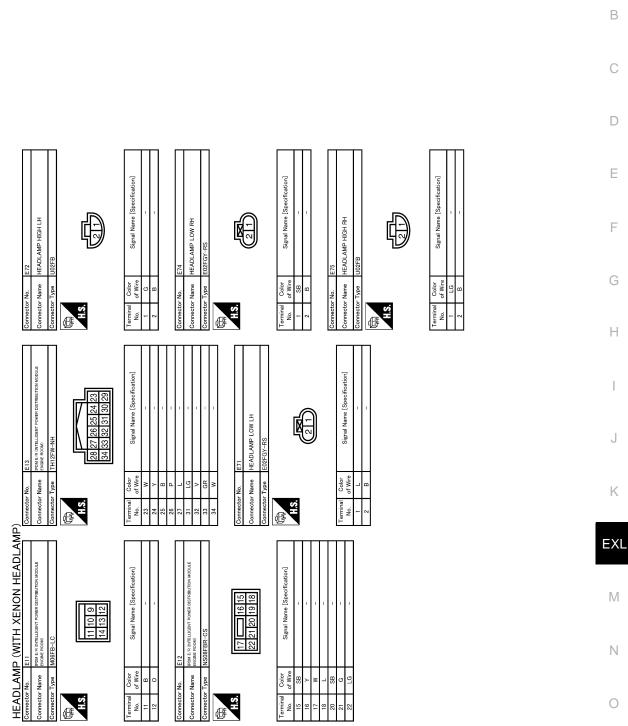
Wiring Diagram - HEADLAMP -



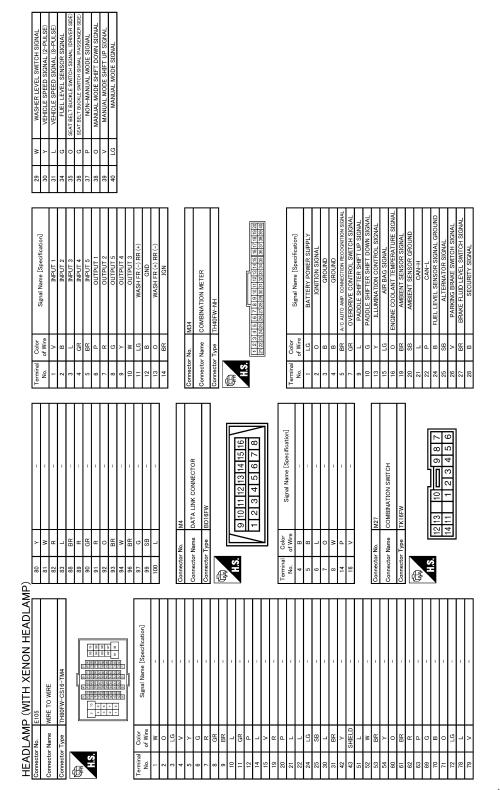
# **HEADLAMP SYSTEM**

## < DTC/CIRCUIT DIAGNOSIS >

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JCLWM5750GB



JCLWM5751GB

## < DTC/CIRCUIT DIAGNOSIS >

## **HEADLAMP SYSTEM**

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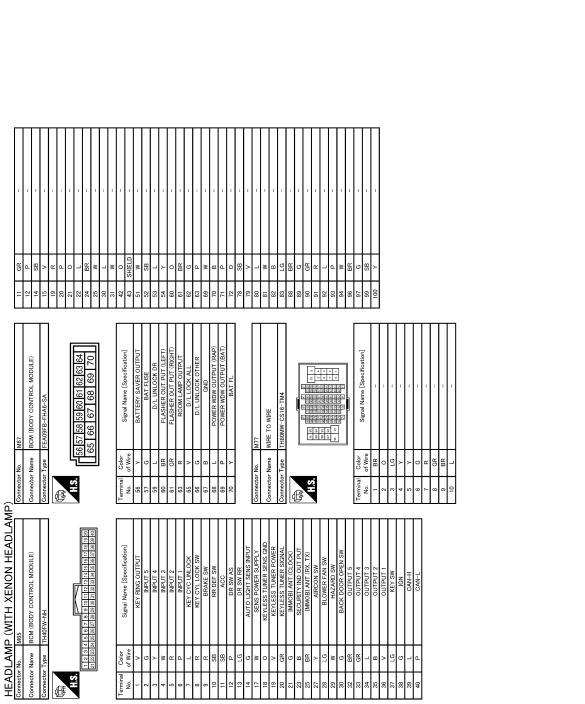
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# **HEADLAMP AIMING CONTROL SYSTEM (MANUAL)**

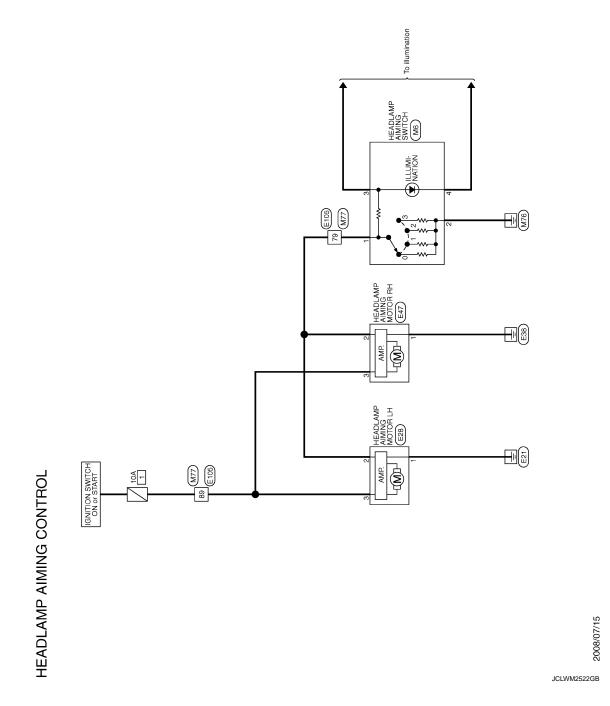
#### < DTC/CIRCUIT DIAGNOSIS >

# HEADLAMP AIMING CONTROL SYSTEM (MANUAL)

## Description

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

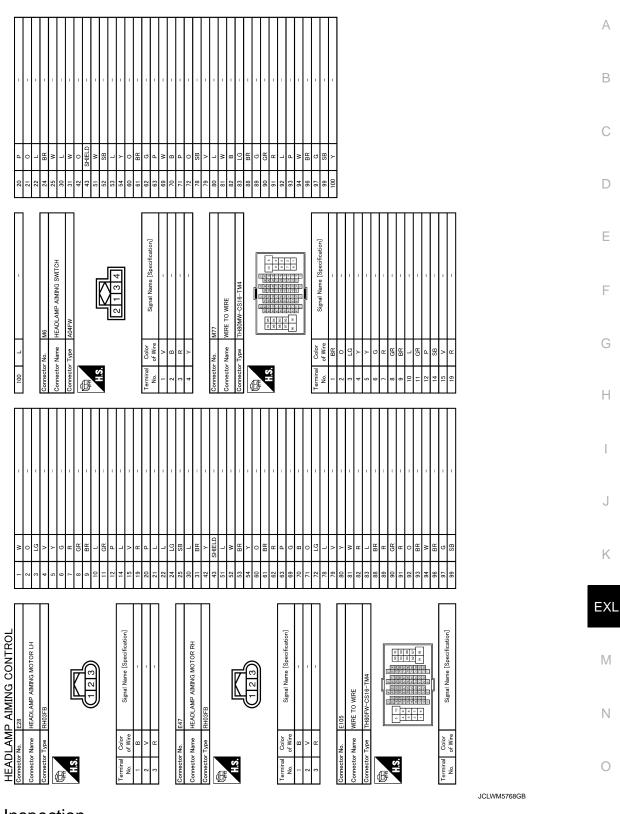
Wiring Diagram - HEADLAMP AIMING CONTROL SYSTEM (MANUAL) - INFOLD: 000000006201112



# HEADLAMP AIMING CONTROL SYSTEM (MANUAL)

## < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]



## **Component Inspection**

INFOID:000000006201113

1. CHECK HEADLAMP AIMING SWITCH

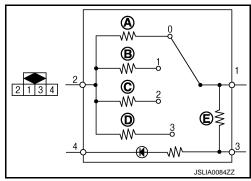
1. Remove the headlamp aiming switch.

# **HEADLAMP AIMING CONTROL SYSTEM (MANUAL)**

## < DTC/CIRCUIT DIAGNOSIS >

2. Check the resistance among each headlamp aiming switch terminal.

Headlamp a	Headlamp aiming switch		Resistance	
Terr	ninal	Switch position	(Approx.)	
	2	0	Α: 160 Ω	
		1	Β: 249 Ω	
1		2	C: 464 Ω	
		3	D: 887 Ω	
	3	—	Ε: 412 Ω	



[XENON TYPE]

Is the measurement value normal?

YES >> Headlamp aiming switch is normal.

NO >> Replace the headlamp aiming switch.

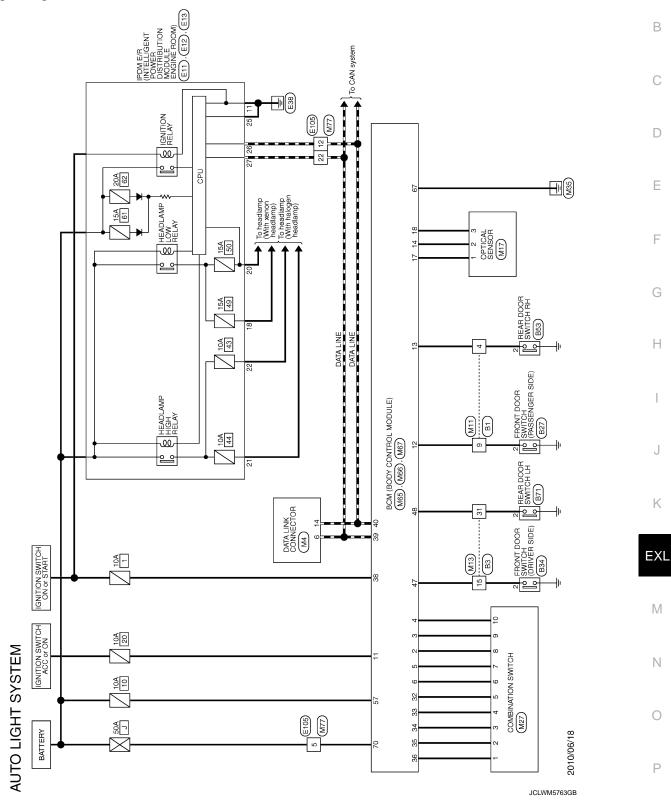
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# < DTC/CIRCUIT DIAGNOSIS >

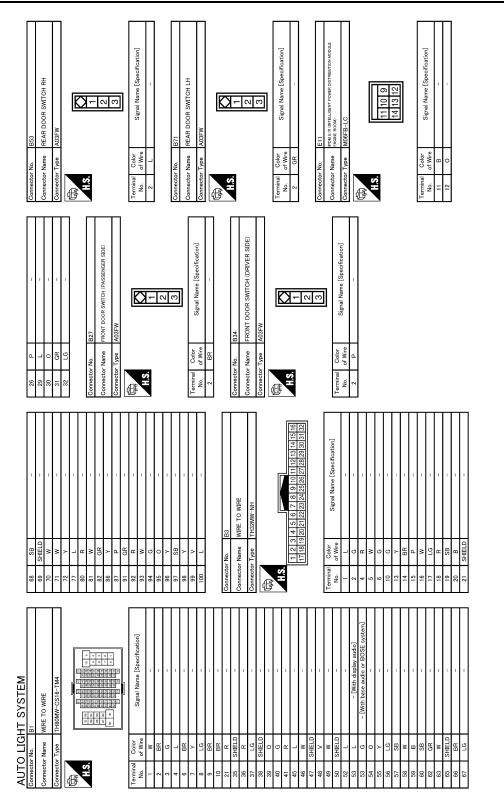
# AUTO LIGHT SYSTEM

Wiring Diagram - AUTO LIGHT SYSTEM -



## < DTC/CIRCUIT DIAGNOSIS >

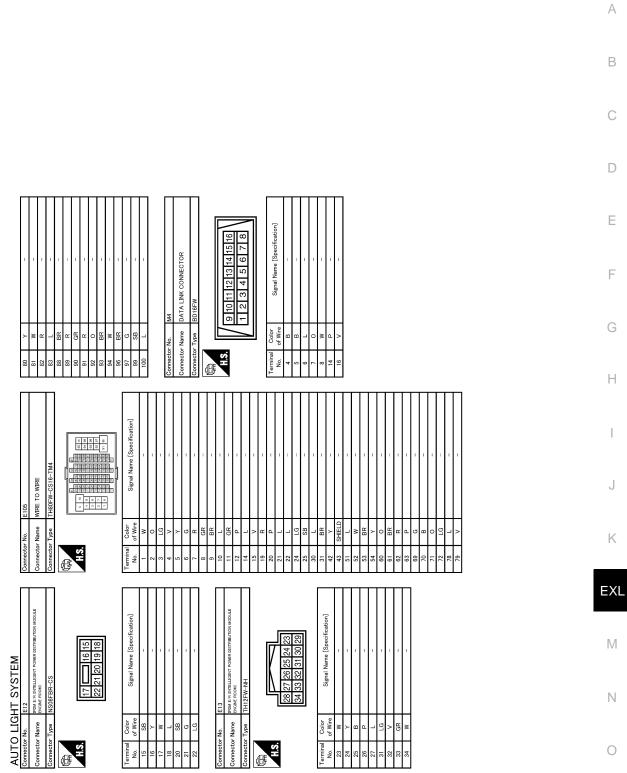
[XENON TYPE]



JCLWM5764GB

## < DTC/CIRCUIT DIAGNOSIS >

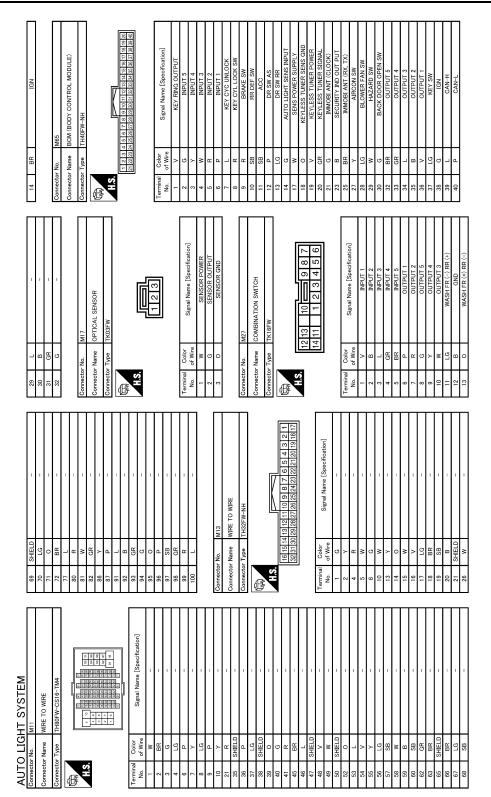
## [XENON TYPE]



JCLWM5765GB

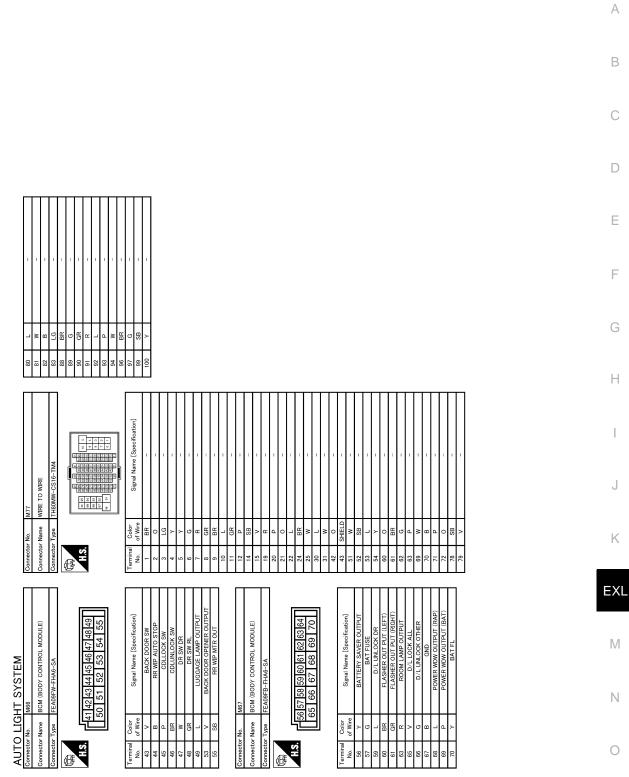
## < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]



JCLWM5766GB

## < DTC/CIRCUIT DIAGNOSIS >



JCLWM5767GB

# FRONT FOG LAMP SYSTEM

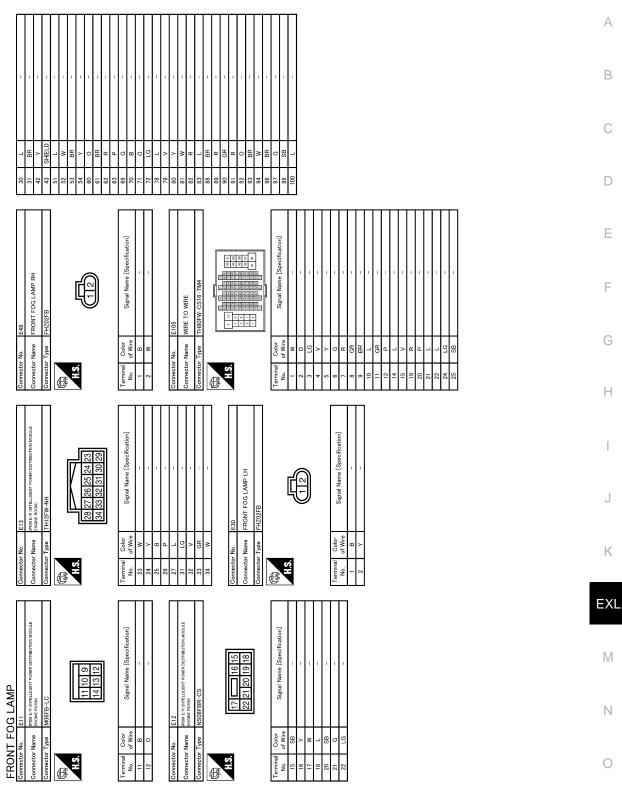
Wiring Diagram - FRONT FOG LAMP -

To CAN system IPDM E/R (INTELLIGENT POWER MODULE ENGINE ROOM) (E11) (E12) (E13) ♠ DATA LINK CONNECTOR M4 4 FRONT FOG LAMP RH E48 0 FRONT FOG LAMP LH E30 DATA LINE FRONT FOG LAMP RELAY 15A 65 DATA Þ <u>\_</u> ത 20A ñ 26 E105 15A 61 СРU 22 25 33 4 ത IGNITION SWITCH ON or START 40 F BCM (BODY CONTROL MODULE) (M65) , (M67) IGNITION SWITCH ACC or ON 10A 6 თ 4 5 6 7 8 COMBINATION SWITCH 10A FRONT FOG LAMP E105 BATTERY 2 2008/07/15 JCLWM2524GB

## < DTC/CIRCUIT DIAGNOSIS >

# FRONT FOG LAMP SYSTEM

[XENON TYPE]

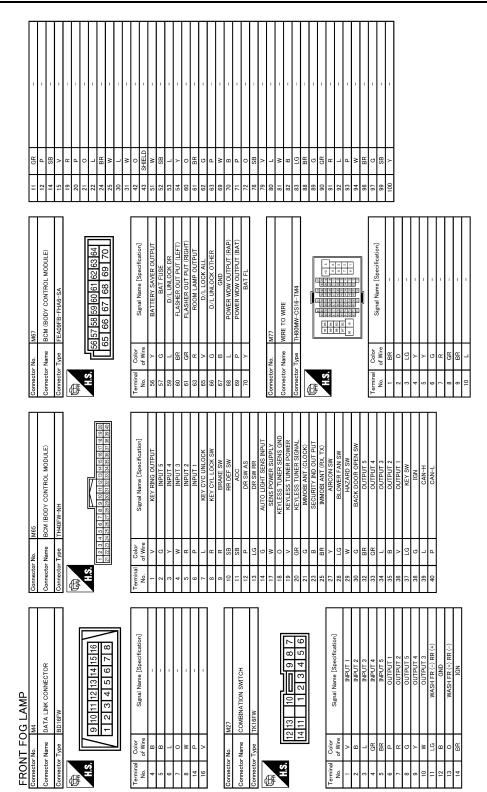


JCLWM5769GB

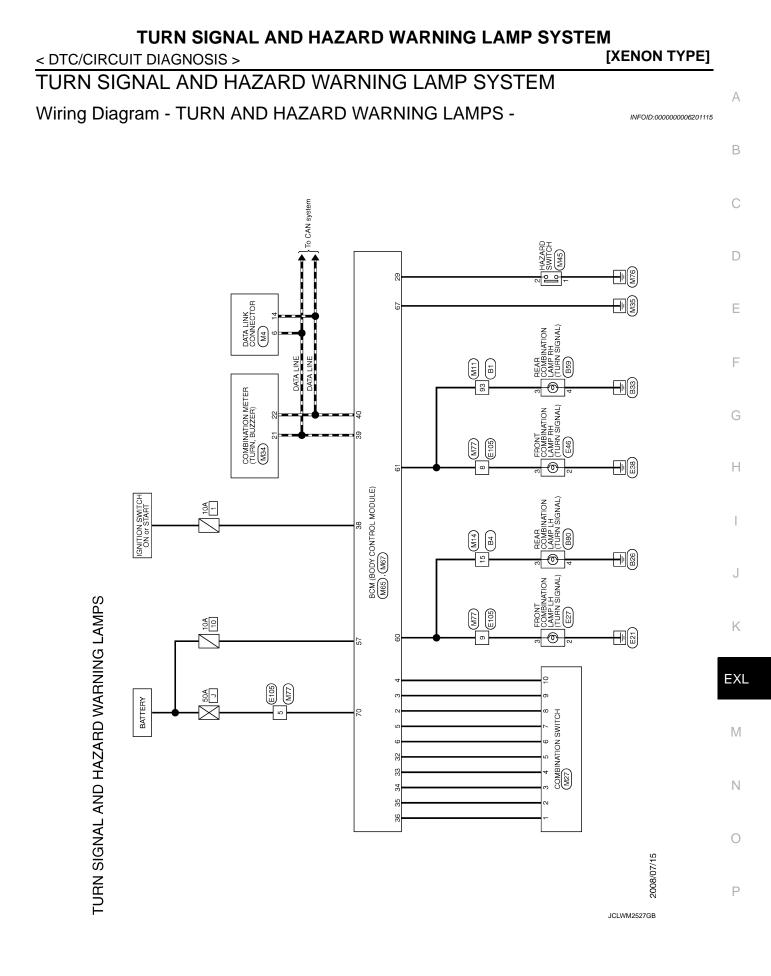
# FRONT FOG LAMP SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]

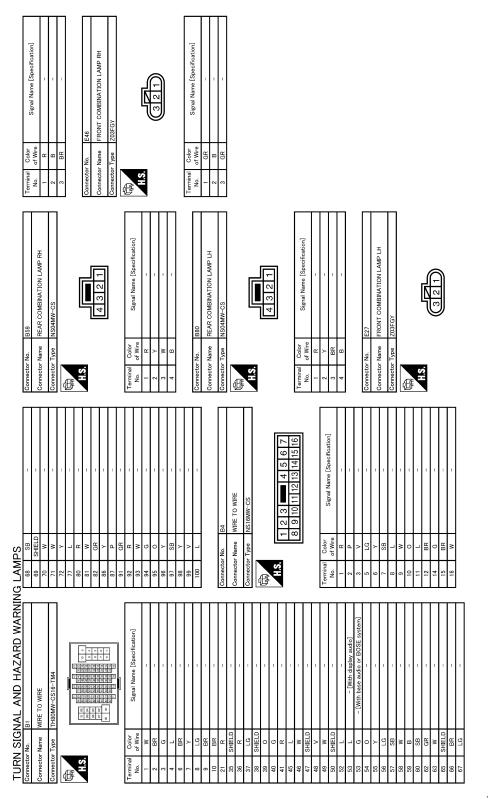


JCLWM5770GB



## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

## < DTC/CIRCUIT DIAGNOSIS >



JCLWM5771GB

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

## < DTC/CIRCUIT DIAGNOSIS >

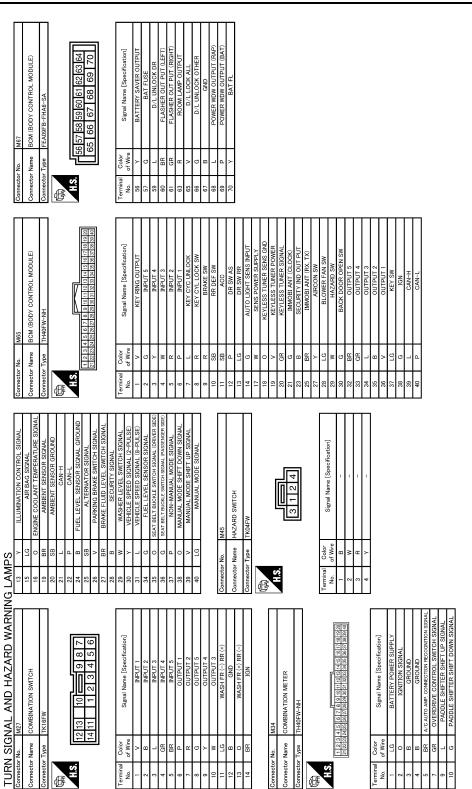
[XENON TYPE]

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WIRE       CS       <	В
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93         6R           94         0           96         0           96         0           98         88           98         88           98         7           98         7           98         6           1         0           1         1	D
ficial field for the second	Е
Signal Name Signal Name Signa	F
	G
Terminal         No.           No.         No.           No. </td <td></td>	
Min     Min       DATA LINK CONNECTOR     Min       Min     DATA LINK CONNECTOR       Min     Min       Min     Min       Min     Min       Min     Min       Min     Min       Min     Min	H I J
Connector No.         Connector No.	К
	EXL
TIDIN SIGNAL AND HAZARD MARTIN         Indector Name       Elio         Dometicor Name       Wire To Wire         Dometicor Name       Mer To Wire         Dometicor Name       Stant Name (Specification)         Name       Specification         Distributicor Name <td>M</td>	M
Connector Name         MISH           Statistic Name         MISH           Statistic Name         MISH           Statistic Name         MISH           Statistic Name         MISH	
Connector Na         Connector Na	

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## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >



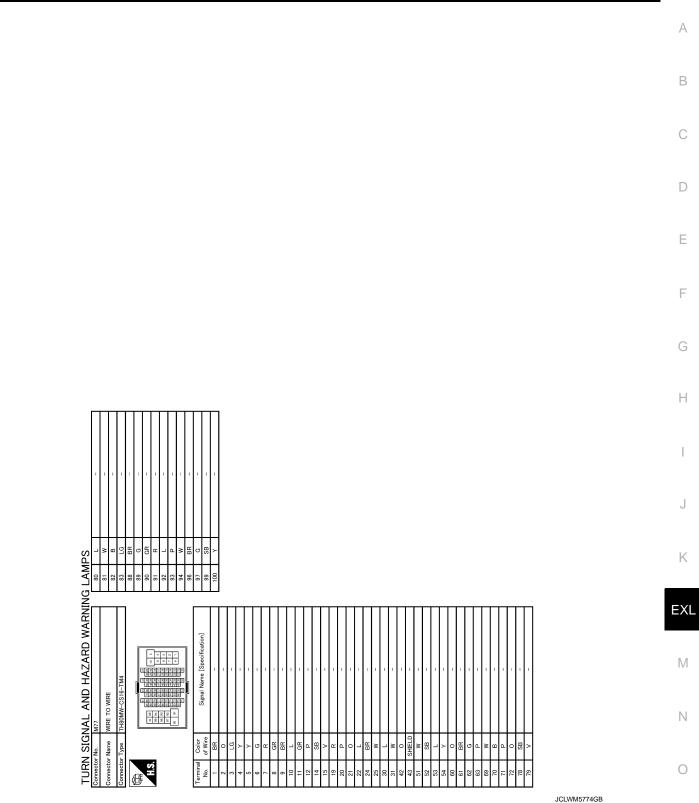
JCLWM5773GB

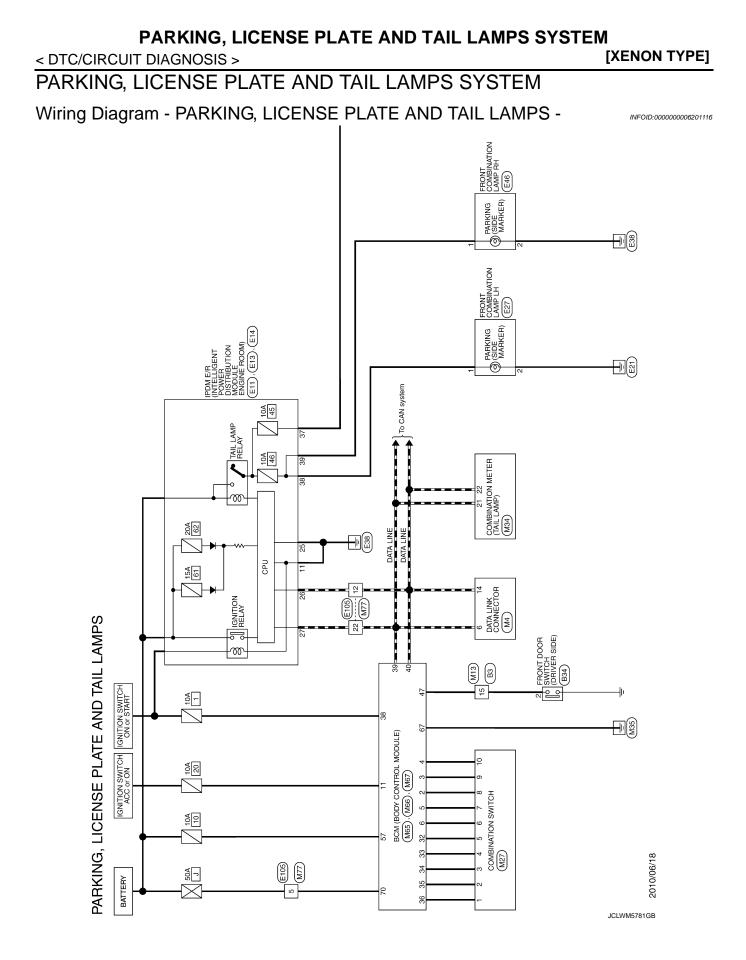
[XENON TYPE]

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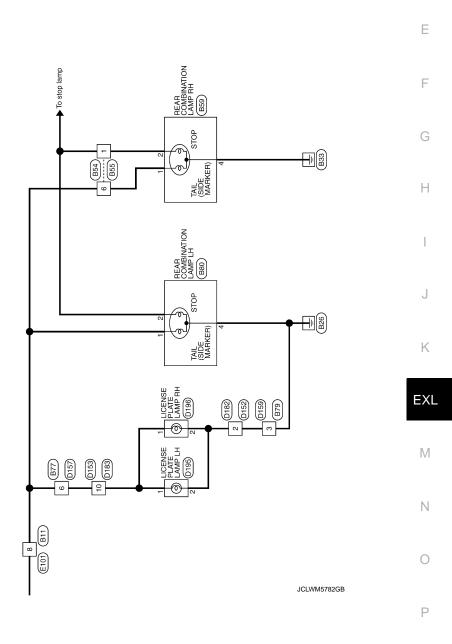
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# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM < DTC/CIRCUIT DIAGNOSIS > [XENON TYPE]





## Revision: 2010 July



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# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

LAMPS

PARKING, LICENSE PLATE AND TAIL

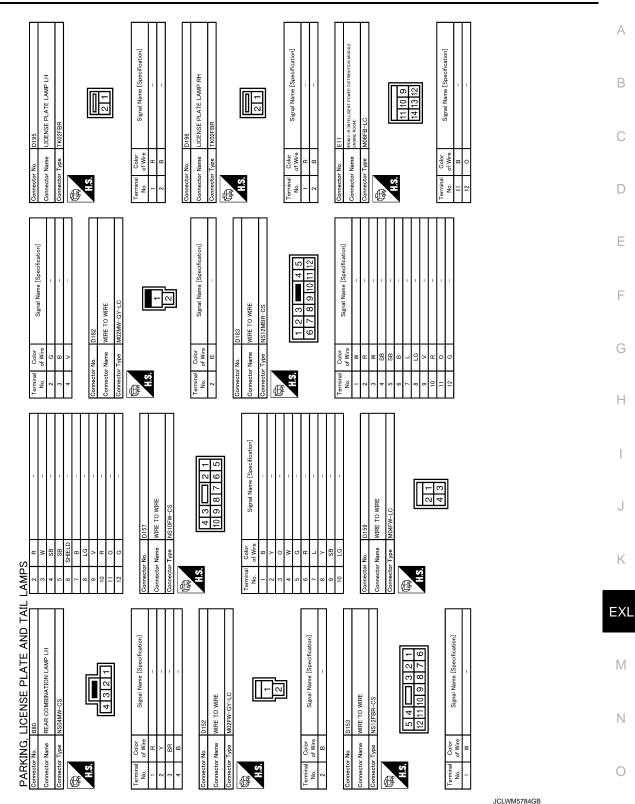
Signal Name [Specification] Signal Name [Specification] 1 2 3 4 ω WIRE TO WIRE WIRE TO WIRE 121 56 B79 Color of Wire Color of Wire C SB Connector Name onnector Name inector No. mector No ALS. H.S. erminal No. ermina No. ⊊ ß E ŏ Signal Name [Specification] Signal Name [Specification] REAR COMBINATION LAMP RH 5 4 - 3 2 <sup>-</sup> 12 11 10 9 8 7 ( 미 4 3 2 WIRE TO WIRE B59 Color of Wire Color of Wire BR LG ≪ ype BR -|> Connector Name ype ᄪ - 22 Connector Name 5 8 Connector No. H.S. Terminal No. H.S. erminal No. G 崏 FRONT DOOR SWITCH (DRIVER SIDE) Signal Name [Specification] Signal Name [Specification] 5 12 4 5 9 10 **⊘**−~∞ WIRE TO WIRE 23 78 - 9 Color of Wire Color of Wire SHELL SHELL nector Name nnector Name ype ctor Type nnector No. H.S. H.S. erminal No. erminal No. ß E ā õ Signal Name [Specification] Signal Name [Specification] 0 0 0 0 0 WIRE TO WIRE WIRE TO WIRE 11 96 98 94 97 92 91 92 3 4 5 19 20 21 Ē Color of Wire L GR O Color of Wire 1 2 3 17 18 1 ype Connector Name mector Name : 0 inector No. H.S. erminal No. Terminal No. H.S. Ø E

JCLWM5783GB

# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]

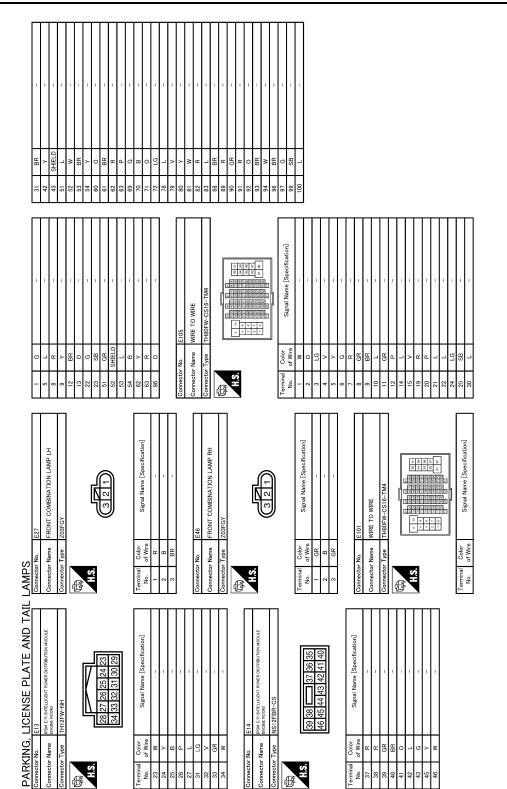


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# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

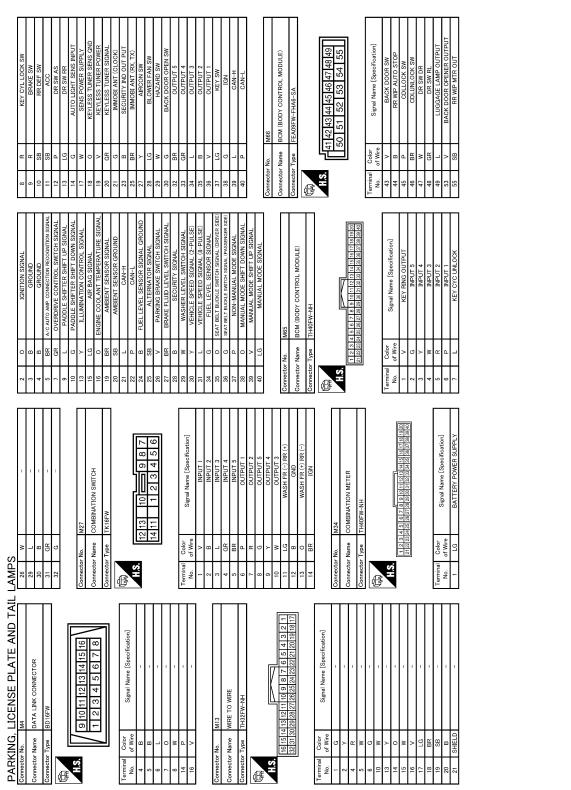
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JCLWM5785GB

# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM [XENON TYPE]

#### < DTC/CIRCUIT DIAGNOSIS >



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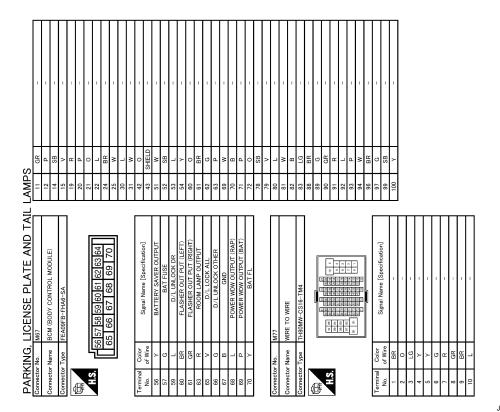
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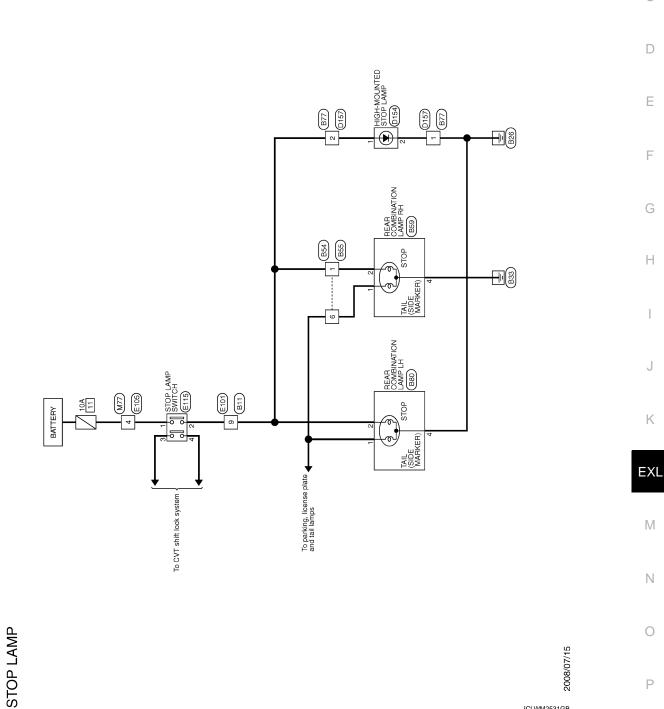
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JCLWM5787GB

# STOP LAMP

Wiring Diagram - STOP LAMP -



JCLWM2531GB

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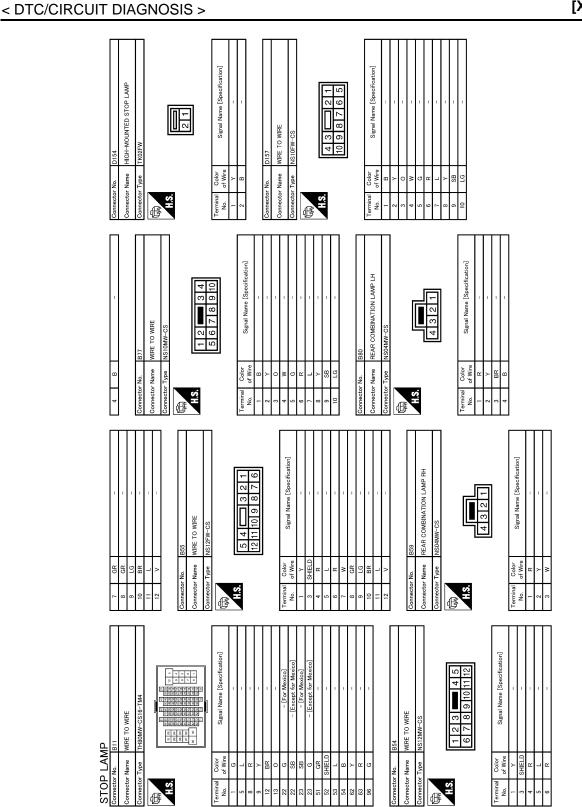
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JCLWM5775GB

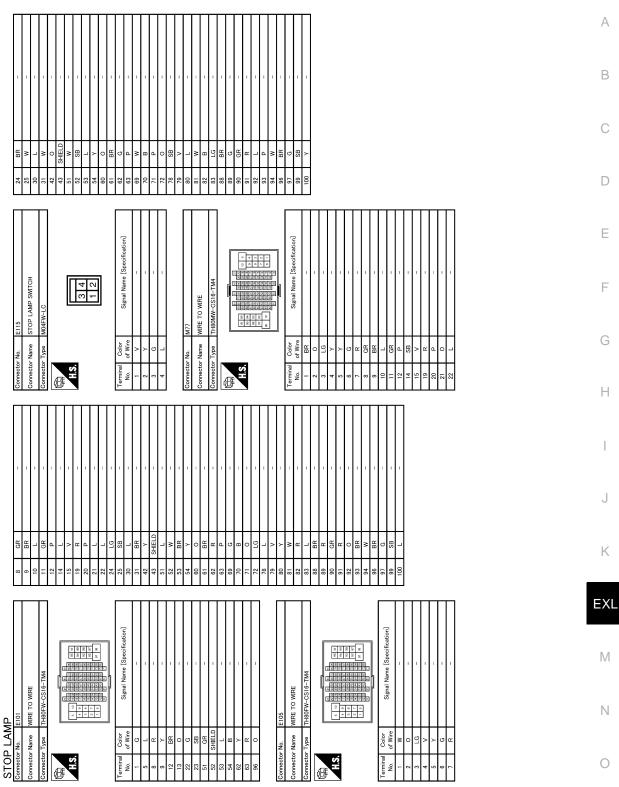
# STOP LAMP

# Revision: 2010 July

## STOP LAMP

#### < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]

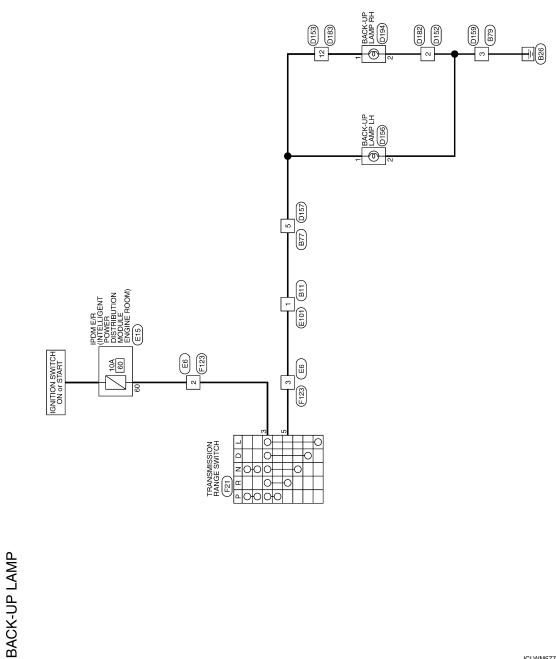


JCLWM5776GB

# BACK-UP LAMP

Wiring Diagram - BUCK-UP LAMP -

INFOID:000000006201118



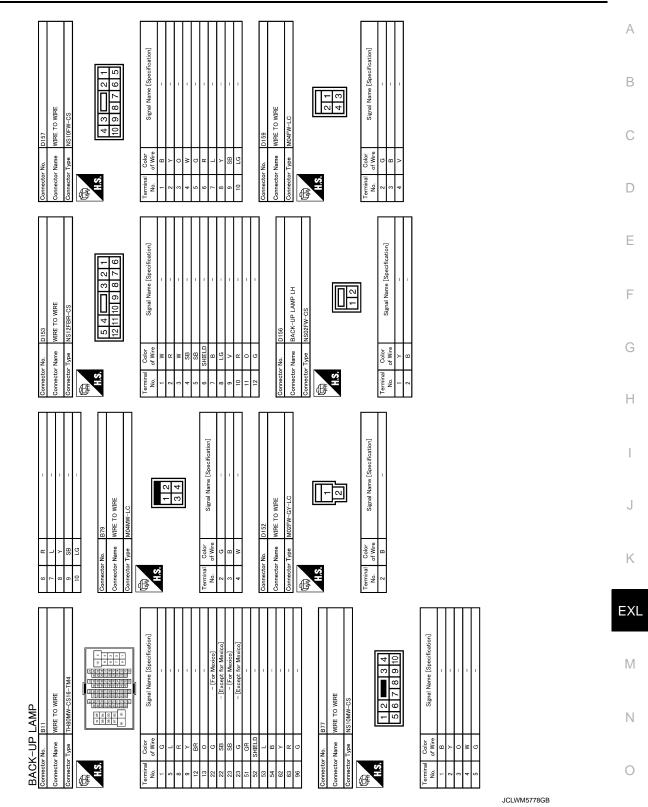
JCLWM5777GB

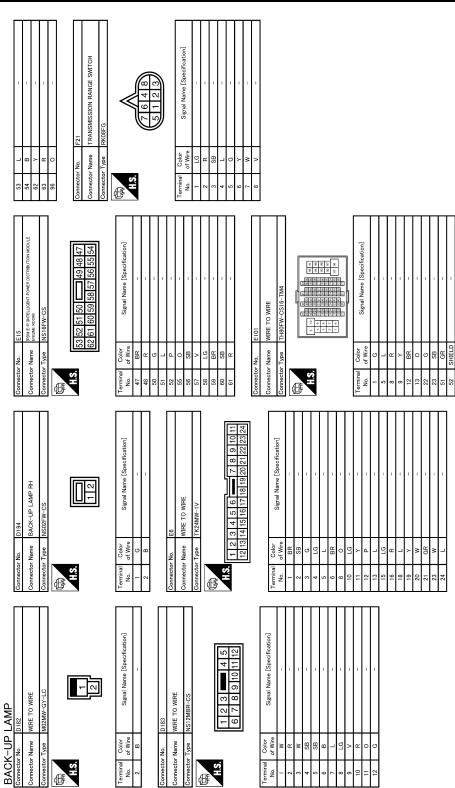
2010/06/18

# BACK-UP LAMP

#### < DTC/CIRCUIT DIAGNOSIS >

[XENON TYPE]





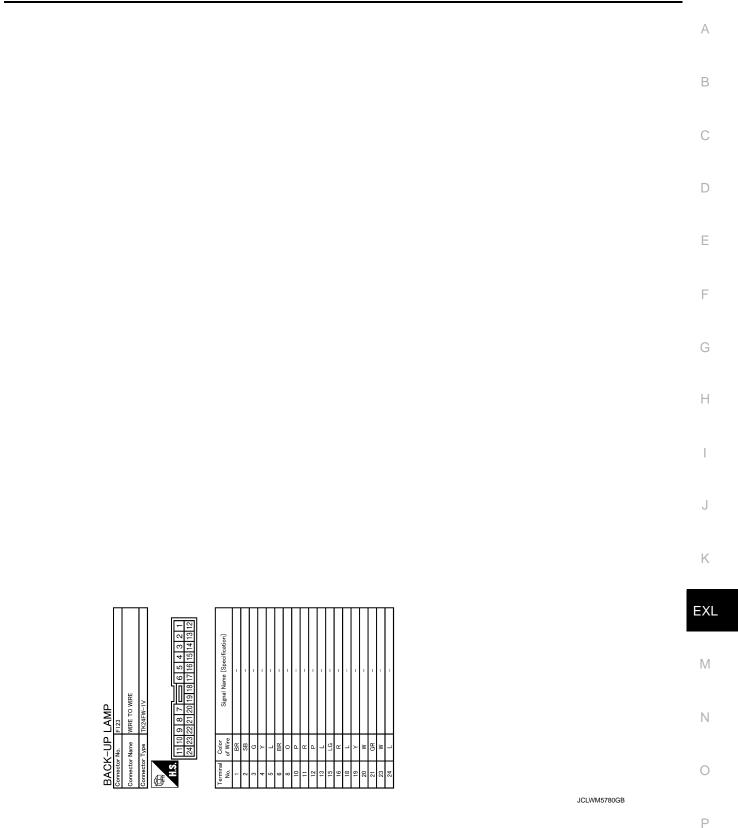
JCLWM5779GB

# BACK-UP LAMP

#### < DTC/CIRCUIT DIAGNOSIS >

#### **BACK-UP LAMP**

#### < DTC/CIRCUIT DIAGNOSIS >



Revision: 2010 July

# **Reference Value**

#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
IGN ON SW	Ignition switch OFF or ACC	Off
IGIN ON SW	Ignition switch ON	On
	Mechanical key is removed from key cylinder	Off
KEY ON SW	Mechanical key is inserted to key cylinder	On
	Door lock/unlock switch does not operate	Off
CDL LOCK SW	Press door lock/unlock switch to the lock side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
CDL UNLOCK SW	Press door lock/unlock switch to the unlock side	On
	Driver's door closed	Off
DOOR SW-DR	Driver's door opened	On
	Passenger door closed	Off
DOOR SW-AS	Passenger door opened	On
	Rear RH door closed	Off
DOOR SW-RR	Rear RH door opened	On
	Rear LH door closed	Off
DOOR SW-RL	Rear LH door opened	On
	Back door closed	Off
BACK DOOR SW	Back door opened	On
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	Off
KEY CYLLK-SW	Driver door key cylinder LOCK position	On
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	Off
KET CTL UN-SW	Driver door key cylinder UNLOCK position	On
	"LOCK" button of key fob is not pressed	Off
KEYLESS LOCK	"LOCK" button of key fob is pressed	On
KEYLESS UNLOCK	"UNLOCK" button of key fob is not pressed	Off
RETLESS UNLOCK	"UNLOCK" button of key fob is pressed	On
I-KEY LOCK	"LOCK" button of Intelligent Key or door request switch are not pressed	Off
	"LOCK" button of Intelligent Key or door request switch are pressed	On
I-KEY UNLOCK	"UNLOCK" button of Intelligent Key or door request switch are not pressed	Off
	"UNLOCK" button of Intelligent Key or door request switch are pressed	On
ACC ON SW	Ignition switch OFF	Off
	Ignition switch ACC or ON	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
LIGHT SW 1ST	Lighting switch OFF	Off
	Lighting switch 1ST	On

INFOID:000000006484171

Revision: 2010 July

#### < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
	The seat belt (driver side) is unfastened. [Seat belt switch (driver side) OFF]	Off
BUCKLE SW	The seat belt (driver side) is fastened. [Seat belt switch (driver side) ON]	On
	PANIC button of key fob is not pressed	Off
LESS PANIC	PANIC button of key fob is pressed	On
KEYLESS TRUNK	NOTE: The item is indicated, but not monitored.	Off
TRNK OPN MNTR	NOTE: The item is indicated, but not monitored.	Off
	LOCK/UNLOCK button of key fob is not pressed and held simulta- neously	Off
KE LUK-UNLUK	LOCK/UNLOCK button of key fob is pressed and held simulta- neously	On
JCKLE SW JCKLE SW JCKLE SW JCKLE SW JCKLE SPANIC EYLESS PANIC EYLESS TRUNK EYLESS TRUNK I EYLESS TRUNK I EXTOPN MNTR I I RANK OPN MNTR I I I RANK OPN MNTR I I I I I I I I I I I I I I I I I I I	UNLOCK button of key fob is not pressed	Off
KE KEEP UNLK	UNLOCK button of key fob is pressed and held	On
	Lighting switch OFF	Off
HI BEAM SW	Lighting switch HI	On
	Lighting switch OFF	Off
HEAD LAMP SW 1	Lighting switch 2ND	On
	Lighting switch OFF	Off
HEAD LAMP SW 2	Lighting switch 2ND	On
AUTO LIGHT SW	Other than lighting switch AUTO	Off
UTO LIGHT SW	Lighting switch AUTO	On
	Other than lighting switch PASS	Off
ASSING SW	Lighting switch PASS	On
SSING SW	Front fog lamp switch OFF	Off
R FOG SW	Front fog lamp switch ON	On
RR FOG SW	NOTE: The item is indicated, but not monitored.	Off
	Turn signal switch OFF	Off
URN SIGNAL R	Turn signal switch RH	On
JCKLE SW The side on No Stress PANIC PAN	Turn signal switch OFF	Off
URN SIGNAL L	Turn signal switch LH	On
	Engine stopped	Off
INGINE RUN	Engine running	On
	Parking brake switch is OFF	Off
KB SW	Parking brake switch is ON	On
CARGO LAMP SW	NOTE: The item is indicated, but not monitored.	Off
	Bright outside of the vehicle	Close to 5 V
DPTICAL SENSOR	Dark outside of the vehicle	Close to 0 V
	Ignition switch OFF or ACC	Off
JN SW CAN	Ignition switch ON	On
	Front wiper switch OFF	Off
R WIPER HI	Front wiper switch HI	On

#### < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
FR WIPER LOW	Front wiper switch OFF	Off
	Front wiper switch LO	On
FR WIPER INT	Front wiper switch OFF	Off
	Front wiper switch INT	On
	Front washer switch OFF	Off
FR WASHER SW	Front washer switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
	Any position other than front wiper stop position	Off
FR WIPER STOP	Front wiper stop position	On
VEHICLE SPEED	While driving	Equivalent to speedometer reading
	Rear wiper switch OFF	Off
RR WIPER ON	Rear wiper switch ON	On
	Rear wiper switch OFF	Off
RR WIPER INT	Rear wiper switch INT	On
	Rear washer switch OFF	Off
RR WASHER SW	Rear washer switch ON	On
	Rear wiper stop position	Off
RR WIPER STOP	Other than rear wiper stop position	On
RR WIPER STP2	NOTE: The item is indicated, but not monitored.	Off
H/L WASH SW	NOTE: The item is indicated, but not monitored.	Off
	Hazard switch OFF	Off
HAZARD SW	Hazard switch ON	On
	Brake pedal is not depressed	Off
BRAKE SW	Brake pedal is depressed	On
	Blower fan motor switch OFF	Off
FAN ON SIG	Blower fan motor switch ON (other than OFF)	On
	<ul> <li>A/C conditioner OFF (A/C switch indicator OFF) (Automatic air conditioner)</li> <li>A/C switch OFF (Manual air conditioner)</li> </ul>	Off
AIR COND SW	<ul> <li>A/C conditioner ON (A/C switch indicator ON) (Automatic air conditioner)</li> <li>A/C switch ON (Manual air conditioner)</li> </ul>	On
I-KEY TRUNK	NOTE: The item is indicated, but not monitored.	Off
	UNLOCK button of Intelligent Key is not pressed	Off
I-KEY PW DWN	UNLOCK button of Intelligent Key is pressed and held	On
	PANIC button of Intelligent Key is not pressed	Off
I-KEY PANIC	PANIC button of Intelligent Key is pressed	On
	Return to ignition switch to "LOCK" position	Off
PUSH SW	Press ignition switch	On
	When back door opener switch is not pressed	Off
TRNK OPNR SW	When back door opener switch is pressed	On
TRUNK CYL SW	NOTE: The item is indicated, but not monitored.	Off

#### < ECU DIAGNOSIS INFORMATION >

#### [XENON TYPE]

Monitor Item	Condition	Value/Status
HOOD SW	Close the hood <b>NOTE:</b> Vehicles of except for Mexico are OFF-fixed	Off
	Open the hood	On
OIL PRESS SW	Ignition switch OFF or ACC     Engine running	Off
	Ignition switch ON	On
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front LH tire
AIR PRESS FR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front RH tire
AIR PRESS RR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear RH tire
AIR PRESS RL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear LH tire
ID REGST FL1	ID of front LH tire transmitter is registered	Done
ID REGOT PLT	ID of front LH tire transmitter is not registered	Yet
ID REGST FR1	ID of front RH tire transmitter is registered	Done
ID REGGI FRI	ID of front RH tire transmitter is not registered	Yet
ID REGST RR1	ID of rear RH tire transmitter is registered	Done
ID REGST RRT	ID of rear RH tire transmitter is not registered	Yet
ID REGST RL1	ID of rear LH tire transmitter is registered	Done
	ID of rear LH tire transmitter is not registered	Yet
WARNING LAMP	Tire pressure indicator OFF	Off
	Tire pressure indicator ON	On
BUZZER	Tire pressure warning alarm is not sounding	Off
DUZZEN	Tire pressure warning alarm is sounding	On

Κ

EXL

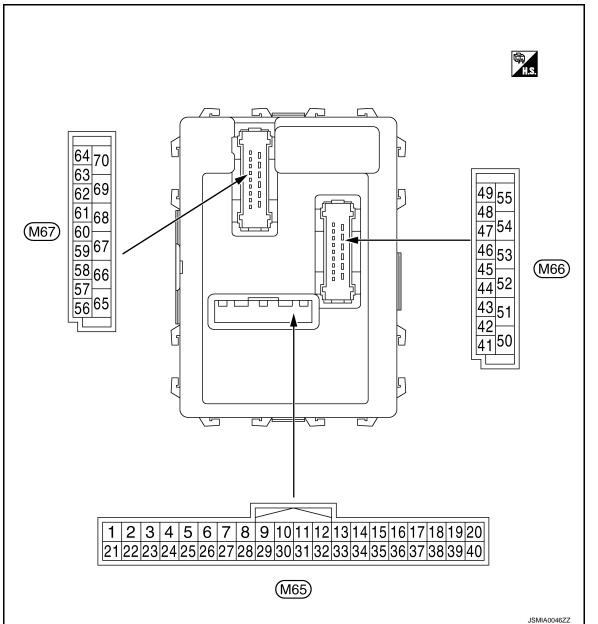
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#### < ECU DIAGNOSIS INFORMATION >

TERMINAL LAYOUT



#### PHYSICAL VALUES

#### **CAUTION:**

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF is not to be fluctuated by being overloaded.
- Turn wiper intermittent dial position to 4 except when checking waveform or voltage of wiper intermittent dial position. Wiper intermittent dial position can be confirmed on CONSULT-III. Refer to <u>BCS-27, "COMB SW : CONSULT-III Function (BCM - COMB SW)"</u>.
- BCM reads the status of the combination switch at 10 ms internal normally. Refer to <u>BCS-9, "System</u> <u>Diagram"</u>.

	nal No.	Description				Value
(Wire	(Wire color)	Signal name	Input/	Condition		(Approx.)
+	-	_	Output	utput		
1	Ground	Ignition key hole illu-	Output	Output Ignition key hole illumination	OFF	Battery voltage
(V)	Ciouna	mination control	Calput		ON	0 V

#### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value	
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)	
					All switch OFF	0 V	
					Turn signal switch RH		
				Lighting switch HI	(V) 15 10 5 0		
	Combination switch INPUT 5	Input	Combination switch (Wiper intermit-	Lighting switch 1ST	++10ms →+10ms PKIB4959J 1.0 V		
(G)		INPUT 5		tent dial 4)		(V) 15	
				Lighting switch 2ND	15 10 5 0 • + 10ms		
					PKIB4953J 2.0 V	_	
		INPUT 4		Combination switch (Wiper intermit-	All switch OFF	0 V	_
					Turn signal switch LH	40	
					Lighting switch PASS	(V) 15	
3 (Y)	Ground		Input		Lighting switch 2ND	10 5 0 ++10ms PKIB4959J 1.0 V	
	(Y) Ground INPUT 4		tent dial 4)	Front fog lamp switch ON	(V) 15 10 5 0 + 10ms + 10ms	-	
						рків4955ј 0.8 V	_
					All switch OFF	0 V	-
					Lighting switch AUTO	40	
				Combination	Front wiper switch LO	(V) 15	
4	Ground	Combination switch	Input	switch	Front wiper switch MIST	10	
	INPUT 3	(Wiper intermit- tent dial 4)	Front wiper switch INT	0 +++10ms			
						PKIB4959J	

#### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value		
(Wire +	color) –	Signal name	Input/ Output		Condition	(Approx.)		
					All switch OFF (Wiper intermittent dial 4)	0 V		
	5 (R) Ground				Front washer switch (Wiper intermittent dial 4) Rear washer ON (Wiper intermittent dial 4) Any of the condition below	(V) 15 10 5 0		
5 (R)		Combination switch INPUT 2	Input	Combination switch	<ul> <li>with all switch OFF</li> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 5</li> <li>Wiper intermittent dial 6</li> </ul>	на н		
					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 5 0 • • • 10ms • • • 10ms • • • 10ms • • • • 10ms • • • • 10ms • • • • 10ms • • • • • • • • • • • • • • • • • • •		
				Input Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V		
					Front wiper switch HI (Wiper intermittent dial 4)	(V) 15		
					Rear wiper switch INT (Wiper intermittent dial 4)			
								Wiper intermittent dial 3 (All switch OFF)
6 (P)	Ground	Combination switch INPUT 1			Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	(V) 15 0 ++10ms PKIB4952J 1.7 V		
					Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	(V) 15 10 5 0 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓		

# < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value	
(Wire +	e color) _	Signal name	Input/ Output		Condition	Value (Approx.)	A
7 (L)	Ground	Door key cylinder switch UNLOCK sig- nal	Input	Door key cylin- der switch	NEUTRAL position	(V) 15 10 5 0 + 10ms JPMIA0587GB	B
					UNLOCK position	8.0 - 8.5 V 0 V	D
8 (R)	Ground	Door key cylinder switch LOCK signal	Input	Door key cylin- der switch	NEUTRAL position	(V) 15 10 5 0 •••10ms JPMIA0587GB	F
						8.0 - 8.5 V	G
					LOCK position	0 V	
9 (R)	Ground	Stop lamp switch	Input	Stop lamp switch	OFF (Brake pedal is not depressed)	0 V	Н
(K)				Switch	ON (Brake pedal is de- pressed)	Battery voltage	I
10 (SB)	Ground	Rear window defog- ger switch	Input	Rear window defogger switch	Not pressed Pressed	Battery voltage 0 V	
11	Ground	Ignitian quitch ACC	lanut	Ignition switch O	FF	0 V	J
(SB)	Ground	Ignition switch ACC	Input	Ignition switch A	CC or ON	Battery voltage	
12 (P)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	(V) <sub>15</sub> 10 5 0 + 10ms JPMIA0586GB 7.5 - 8.0 V	K EXL M
					ON (When passenger door opened)	0 V	Ν
13 (LG)	Ground	Rear door switch RH	Input	Rear door switch RH	OFF (When rear door RH closed)	(V) 15 10 5 0 + 10ms JPMIA0587GB 8.0 - 8.5 V	O
					ON (When rear door RH opened)	0 V	

#### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
14	Ground	Optical sensor	Input	Ignition switch	When bright outside of the vehicle	Close to 5 V
(G)	Ground		mput	ON	When dark outside of the vehicle	Close to 0 V
17	Ground	Optical sensor pow-	Output	Ignition switch	OFF, ACC	0 V
(W)		er supply		-	ON	5 V
18 <sup>*</sup> (O)	Ground	Remote keyless en- try receiver ground	Input	Ignition switch O	N	0 V
				Without Intelli- gent Key sys- tem	At any condition	5 V
19 <sup>*</sup> (V)	Ground	Remote keyless en- try receiver power supply	Input	With Intelligent	<ul> <li>Ignition switch OFF</li> <li>For 3 seconds after ignition switch OFF to ON</li> </ul>	0 V
				Key system	3 seconds or later after ig- nition switch OFF to ON	5 V
				Without Intelli- gent Key sys- tem	At any condition	(V) <sub>15</sub> 10 5 0 + 2ms J J J J J J J J J J J J J
20 <sup>*</sup> (GR)	Ground	ound Remote keyless en- try receiver signal	Input		<ul> <li>Ignition switch OFF</li> <li>For 3 seconds after ignition switch OFF to ON</li> </ul>	0 V
				With Intelligent Key system	3 seconds or later after ig- nition switch OFF to ON	(V) <sub>15</sub> 10 5 0 <i>•</i> • 2ms JPMIA0589GB MOTE: The wave form changes accord- ing to signal-receiving condition.
21 (G)	Ground	NATS antenna amp.	Input/ Output	Just after insertin	g ignition key in key cylinder	Pointer of tester should move
					ON	0 V
23 (B)	Ground	Security indicator signal	Input	Security indica- tor	Blinking (Ignition switch OFF)	(V) <sub>15</sub> 10 5 0 •••15 JPMIA0590GB 12.0 V
					OFF	Battery voltage
						Dattory Voltage

#### < ECU DIAGNOSIS INFORMATION >

#### [XENON TYPE]

	inal No.	Description				Value	Δ						
(VVIre +	e color)	Signal name	Input/ Output		Condition	(Approx.)	A						
25 (BR)	Ground	NATS antenna amp.	Input/ Output	Just after insertin	ng ignition key in key cylinder	Pointer of tester should move	В						
				Ignition switch O	FF								
27 (Y)	Ground	A/C switch	Input	Ignition switch	A/C switch OFF		С						
(')				ŎN		<u>+</u> +10ms JPMIA0591GB 1.6 V	D						
				A/C switch ON	0 V								
				Ignition switch O	FF								
28	Ground	nd Blower fan switch I	Input	Ignition switch	Blower fan switch OFF		F						
(LG)	(LG) Ground Blower fair switch			ON									G
				Blower fan switch ON	7.0 - 7.5 V 0 V	Н							
29		Ind Hazard switch					OFF	Battery voltage					
(W)	Ground	Hazard switch	Input	Hazard switch	ON	0 V							
30	Cround	Back door opener		Back door	Not pressed	Battery voltage							
(G)	Ground	switch	input	opener switch	Pressed	0 V							
					All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 ••• 10ms	J K EXL						
32 (BR)	Ground	Combination switch OUTPUT 5	Output	Combination switch	Front fog lamp switch ON (Wiper intermittent dial 4)	7.2 V	M						
					Rear wiper switch ON (Wiper intermittent dial 4) Any of the condition below	(V) 15 10 5 0	Ν						
				<ul> <li>with all switch OFF</li> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 2</li> <li>Wiper intermittent dial 6</li> <li>Wiper intermittent dial 7</li> </ul>	++10ms →+10ms PKIB4956J 1.0 V	0							

#### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value	
(Wire	e color) _	Signal name	Input/ Output		Condition	(Approx.)	
					All switch OFF (Wiper intermittent dial 4)	(V) 10 50 •••• 10ms PKIB4960J 7.2 V	
33 (GR)	Ground	Combination switch OUTPUT 4	Output	Combination switch	Lighting switch 1ST (Wiper intermittent dial 4)		
					Lighting switch AUTO (Wiper intermittent dial 4)	(V) 15 10	
					Rear wiper switch INT (Wiper intermittent dial 4)	50	
					<ul> <li>Any of the condition below with all switch OFF</li> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 5</li> <li>Wiper intermittent dial 6</li> </ul>	рків4958J 1.2 V	
					All switch OFF (Wiper intermittent dial 4)	(V) 10 50 •••• 10ms PKIB4960J 7.2 V	
34 (L)	Ground	Combination switch OUTPUT 3	Output	Combination switch	Lighting switch 2ND (Wiper intermittent dial 4)		
					Lighting switch HI (Wiper intermittent dial 4)	(V) 15 10	
					Rear washer switch ON (Wiper intermittent dial 4)	5 0	
					<ul> <li>Any of the condition below with all switch OFF</li> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 2</li> <li>Wiper intermittent dial 3</li> </ul>	+++10ms РКIВ4958J 1.2 V	

#### < ECU DIAGNOSIS INFORMATION >

#### [XENON TYPE]

	nal No.	Description				Value		
(Wire +	e color) –	Signal name	Input/ Output		Condition	(Approx.)	А	
35		Combination switch		Combination	All switch OFF	(V) 15 10 5 0 • • 10ms PKIB4960J 7.2 V	C	
(B)	Ground	OUTPUT 2	Output	(Wiper intermit-	Lighting switch 2ND			
				tent dial 4)	Lighting switch PASS	(V) 15		
					Front wiper switch INT	10 • • • • • • • • • • • •	E	
				Front wiper switch HI		F		
						1.2 V		
					All switch OFF	(V) 15 0 • • 10ms FKIB4960J	F	
36		Combination switch		Combination switch (Wiper intermit-			7.2 V	
(V)	Ground	OUTPUT 1	Output		Turn signal switch RH			
				tent dial 4)	Turn signal switch LH	(V) 15	,	
					Front wiper switch LO			
					(Front wiper switch MIST) Front washer switch ON	0 kankankankankankankankankankankankan →→+10ms	ŀ	
						PKIB4958J 1.2 V	ΕX	
37	Ground	Koy owitch	Input	Insert mechanica der	al key into ignition key cylin-	Battery voltage		
(LG)	Ground	Key switch	Input	Remove mechar cylinder	ical key from ignition key	0 V	ľ	
38	Ground	Ignition switch ON	Input	Ignition switch O	FF or ACC	0 V	-	
(G)	Giound	Ignition Switch ON	input	Ignition switch O	N or START	Battery voltage	ľ	
39 (L)	Ground	CAN-H	Input/ Output		_			
40 (P)	Ground	CAN-L	Input/ Output		_	_	(	

#### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description				Value	
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)	
43 (V)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
					ON (When back door opened)	0 V	
				1	Rear wiper stop position	0 V	
44 (B)	Ground	Rear wiper auto stop	Input	Ignition switch ON	Any position other than rear wiper stop position	Battery voltage	
45 (P)	Ground	Door lock and unlock switch LOCK signal	Input	Door lock and unlock switch	NEUTRAL position	(V) <sub>15</sub> 10 50 ↓ ↓ 10ms ↓ ↓ 10ms ↓ JPMIA0591GB 1.6 V	
					LOCK position	0 V	
46 (BR)	Ground	Door lock and unlock switch UNLOCK sig- nal	Input	Door lock and unlock switch	NEUTRAL position	(V) <sub>15</sub> 10 50 •••••••••••••••••••••••••••••••••	
					UNLOCK position	0 V	
47 (W)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	(V) <sub>15</sub> 10 0 ••• 10ms JPMIA0587GB 8.0 - 8.5 V	
				ON (When driver door opened)	0 V		

#### < ECU DIAGNOSIS INFORMATION >

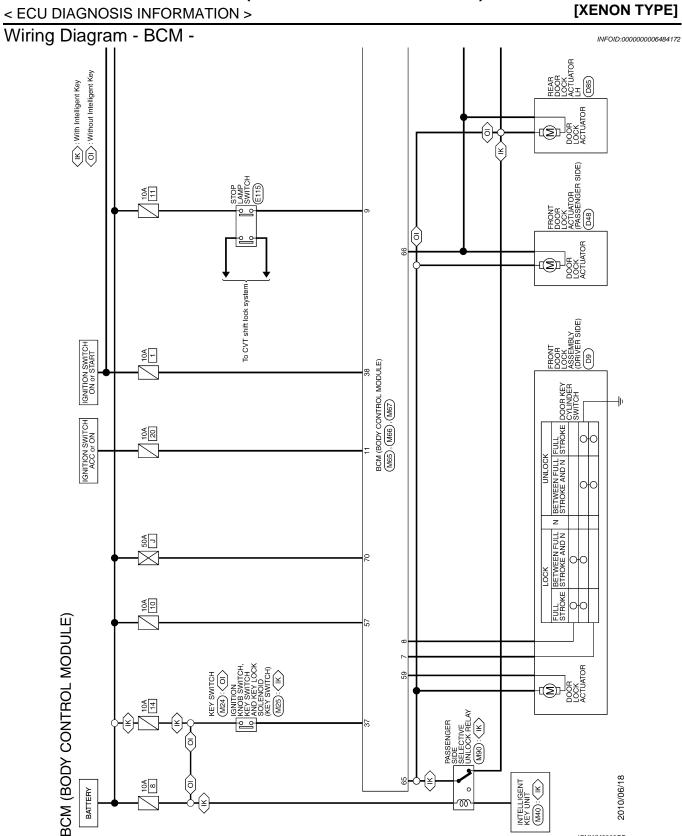
	nal No.	Description				Value	Δ
(Wire +	e color) –	Signal name	Input/ Output		Condition	Value (Approx.)	A
48 (GR)	Ground	Rear door switch LH	Input	Rear door switch LH	OFF (When rear door LH closed)	(V) <sub>15</sub> 10 5 0 • • 10ms JPMIA0594GB 8.5 - 9.0 V	B C D
					ON (When rear door LH opened)	0 V	Е
49	49 Cround Luggage room lamp		Output	Luggage room	Back door is closed (Luggage room lamp turns OFF)	Battery voltage	F
(L)	Ground	control	Output	lamp switch DOOR position	Back door is opened (Luggage room lamp turns ON)	0 V	G
53	Ground	nd Back door open	Output	tput Back door tiv opener switch Pr (B	Not pressed (Back door actuator is ac- tivated)	0 V	
(V)	Ground				Pressed (Back door actuator is ac- tivated)	Battery voltage	Н
55	Ground	Rear wiper motor	Output	Ignition switch	Rear wiper switch OFF	0 V	
(SB)				ON	Rear wiper switch ON	Battery voltage	
56	Ground	Interior room lamp	Output	After passing the interior room lamp battery saver operation time Any other time after passing the interior room lamp battery saver operation time		0 V	J
(Y)		power supply				Battery voltage	17
57 (G)	Ground	Battery power sup- ply	Input	Ignition switch OFF		Battery voltage	K
59	Ground	Ground Driver door UN- LOCK	Output	ut Driver door	UNLOCK (Actuator is activated)	Battery voltage	EXL
(L)	Giouna				Other then UNLOCK (Ac- tuator is not activated)	0 V	
					Turn signal switch OFF	0 V	Μ
60 (BR)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch LH	(V) 15 10 5 0 15 10 10 10 10 10 10 10 10 10 10	N
						6.0 V	Р

#### < ECU DIAGNOSIS INFORMATION >

#### [XENON TYPE]

Terminal No.		Description				Value	
(Wire +	(Wire color) + – Signal name		Input/ Output	Condition		(Approx.)	
					Turn signal switch OFF	0 V	
61 (GR)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch RH	(V) 15 10 5 0 	
63	Ground	Interior room lamp	Output	Interior room	OFF	Battery voltage	
(R)	Ground	timer control	Output	lamp	ON	0 V	
65	Ground	All doors LOCK	Output	All doors	LOCK (Actuator is activat- ed)	Battery voltage	
(V)				All doors	Other then LOCK (Actua- tor is not activated)	0 V	
66	Ground	Passenger door and	Output	put Passenger door and rear door	UNLOCK (Actuator is activated)	Battery voltage	
(G)		rear door UNLOCK			Other then UNLOCK (Ac- tuator is not activated)	0 V	
67 (B)	Ground	Ground	Output	Ignition switch ON		0 V	
68 (L)	Ground	P/W power supply (RAP)	Output	Ignition switch ON		Battery voltage	
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch OFF		Battery voltage	
70 (Y)	Ground	Battery power sup- ply	Input	Ignition switch OFF		Battery voltage	

\*: Except for Mexico with Intelligent Key



JCMWM9302GB

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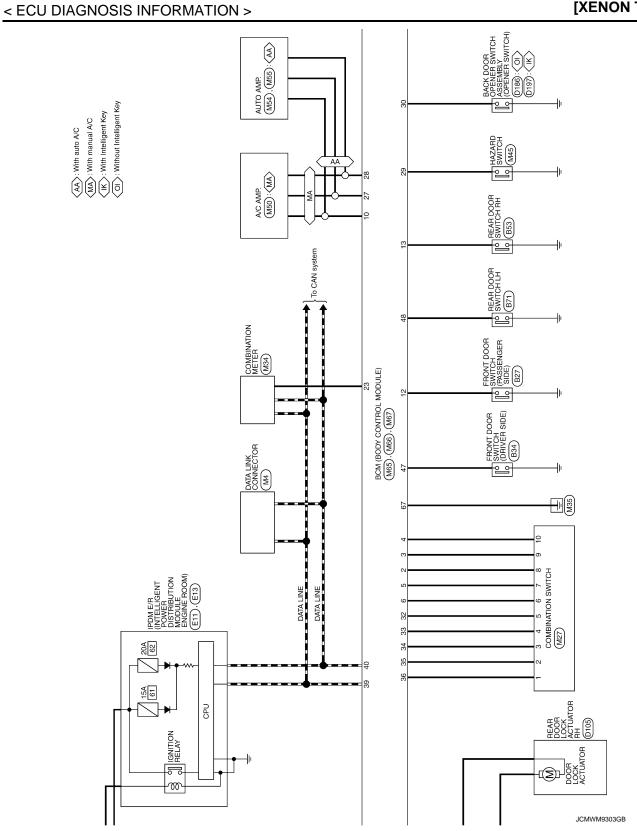
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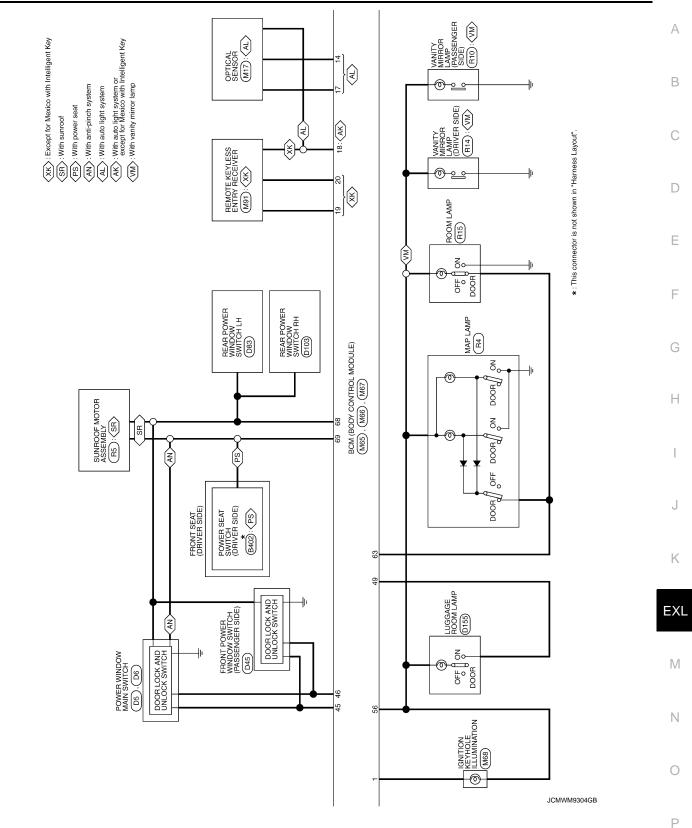
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#### < ECU DIAGNOSIS INFORMATION >

#### [XENON TYPE]

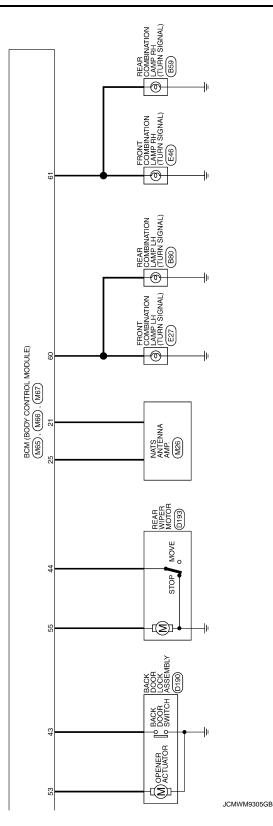


Revision: 2010 July

#### [XENON TYPE]

# **BCM (BODY CONTROL MODULE)**

< ECU DIAGNOSIS INFORMATION >



А

Signal Name [Specification]

Color f Wire

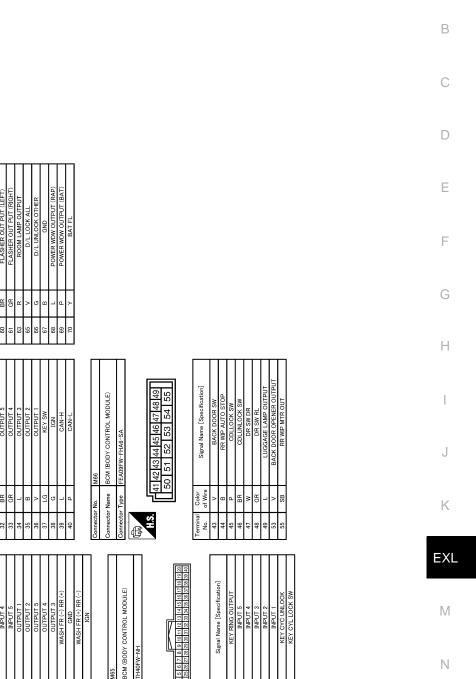
Signal Name [Specification]

Color f Wire

BCM (BODY CONTROL MODULE)

Name

H.S.H



Signal Name [Speci

Color f Wire

#### Fail-safe

Ρ INFOID:000000006484173

JCMWM9306GB

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#### REAR WIPER MOTOR PROTECTION

BCM (BODY CONTROL MODULE)

OMBINATION SWITCH

Name

BCM detects the rear wiper stopping position according to the rear wiper stop position signal. When the rear wiper stop position signal does not change more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

inector Name

SH

Condition of cancellation

#### < ECU DIAGNOSIS INFORMATION >

- 2. Turn the rear wiper switch OFF.
- 3. Operate the rear wiper switch or rear washer switch.

#### DTC Inspection Priority Chart

INFOID:000000006484174

INFOID:00000006484175

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	U1000: CAN COMM CIRCUIT
2	C1735: IGN CIRCUIT OPEN
3	<ul> <li>C1704: LOW PRESSURE FL</li> <li>C1705: LOW PRESSURE FR</li> <li>C1706: LOW PRESSURE RR</li> <li>C1707: LOW PRESSURE RL</li> <li>C1708: [NO DATA] FL</li> <li>C1709: [NO DATA] FR</li> <li>C1770: [NO DATA] RR</li> <li>C1711: [NO DATA] RL</li> <li>C1716: [PRESS DATA ERR] FL</li> <li>C1717: [PRESS DATA ERR] FR</li> <li>C1718: [PRESS DATA ERR] RR</li> <li>C1719: [PRESS DATA ERR] RL</li> <li>C1729: VHCL SPEED SIG ERR</li> </ul>

## DTC Index

#### NOTE:

Details of time display

- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- 1 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1
   → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter
   remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch
   OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	Tire pressure monitor warning lamp ON	Reference
U1000: CAN COMM CIRCUIT	-	<u>BCS-34</u>
C1704: LOW PRESSURE FL	×	
C1705: LOW PRESSURE FR	×	W/T 40
C1706: LOW PRESSURE RR	×	<u>WT-13</u>
C1707: LOW PRESSURE RL	×	
C1708: [NO DATA] FL	×	
C1709: [NO DATA] FR	×	
C1710: [NO DATA] RR	×	<u>WT-15</u>
C1711: [NO DATA] RL	×	
C1716: [PRESS DATA ERR] FL	×	
C1717: [PRESS DATA ERR] FR	×	W/T 19
C1718: [PRESS DATA ERR] RR	×	<u>WT-18</u>
C1719: [PRESS DATA ERR] RL	×	
C1729: VHCL SPEED SIG ERR	×	<u>WT-20</u>
C1735: IGN CIRCUIT OPEN	-	BCS-35

## IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) < ECU DIAGNOSIS INFORMATION > [XENON TYPE]

# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

# **Reference Value**

INFOID:000000006484176

А

В

## VALUES ON THE DIAGNOSIS TOOL

Monitor Item		Value/Status	
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air condition- er operation status, vehicle speed, etc.	1 - 4
		A/C switch OFF	Off
C COMP REQ	Engine running	A/C switch ON (Compressor is operating)	On
	Lighting switch OFF	Off	
AIL&CLR REQ	Lighting switch 1ST or 2N	On	
	Lighting switch OFF		Off
IL LO REQ	Lighting switch 2ND		On
	Lighting switch OFF		Off
IL HI REQ	Lighting switch HI (Light is	s illuminated)	On
FR FOG REQ		Front fog lamp switch OFF	Off
OTE: his item is monitored only on the vehicle ith front fog lamp.	Lighting switch 2ND	Front fog lamp switch ON	On
		Front wiper switch OFF	Stop
R WIP REQ	Ignition switch ON	Front wiper switch INT	1LOW
R WIP REQ		Front wiper switch LO	Low
		Front wiper switch HI	Hi
		Front wiper stop position	STOP P
/IP AUTO STOP	Ignition switch ON	Any position other than front wiper stop position	ACT P
		Front wiper operates normally	Off
IP PROT	Ignition switch ON	Front wiper stops at fail-safe oper- ation	BLOCK
T RLY REQ <b>OTE</b> :	When Intelligent Key is ou is pushed	Off	
/ehicle without Intelligent Key system indi- ates only "ON", and it does not change.	When Intelligent Key is ins pushed	On	
GN RLY	Ignition switch OFF or AC	Off	
	Ignition switch ON		On
		Rear window defogger switch OFF	Off
RR DEF REQ	Ignition switch ON	Rear window defogger switch ON (Rear window defogger is operat- ing)	On
	Ignition switch OFF, ACC	Open	
DIL P SW	Ignition switch ON	Close	
DTRL REQ NOTE:	Daytime running light syst	em is not operated.	Off
This item is monitored only on the vehicle vite the temperature running light system.	Daytime running light syst	On	

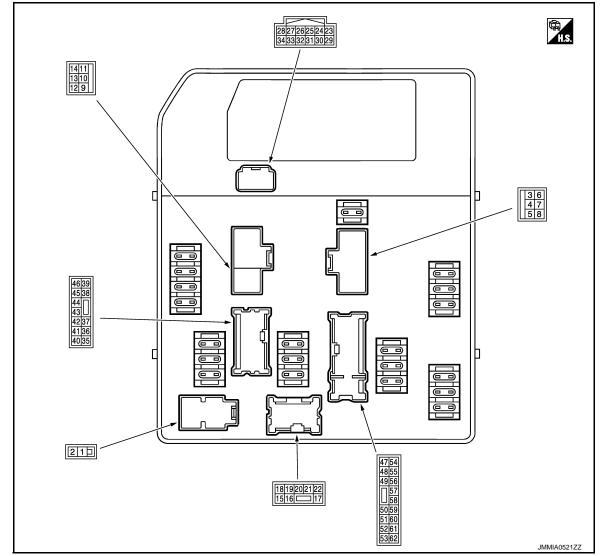
# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[XENON TYPE]

Monitor Item	Condition	Value/Status
HOOD SW	Close the hood	Off
<b>NOTE:</b> This item is monitored only the vehicle for Mexico.	Open the hood	On
	Not operation	Off
THFT HRN REQ	Horn is activated with vehicle security system or panic alarm system.	On
HORN CHIRP	Not operation	Off
	Horn is activated with key fob LOCK operation.	On

#### **TERMINAL LAYOUT**



#### PHYSICAL VALUES

	nal No.	Description			Value	
(Wire color)		Signal name	Input/	Condition	(Approx.)	
+	-		Output			
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	
2 (G)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	

	nal No.	Description				Value
(vvire +	e color) –	Signal name	Input/ Output	Condition		(Approx.)
3			<b>.</b>	When engine is clanking		Battery voltage
(O)	Ground	Starter relay power supply	Output	When engine is not clanking		0 V
4		Cooling fan relay-1 power	• • •	Cooling fan opera- OFF		0 V
(W)	Ground	supply	Output	tion	MID or HI	Battery voltage
5				Ignition switch OFF,	ACC or ON	0 V
(R)	Ground	Ignition switch START	Input	Ignition switch STAF	T	Battery voltage
6 (BR)	Ground	Battery power supply (Cooling fan relay)	Input	Ignition switch OFF		Battery voltage
7	Ground	Cooling fan motor-2 (HI)		Cooling fan opera-	OFF	Battery voltage
(P)	Ground	ground	_	tion	HI	0 V
8	Cround	Cooling fan relay-2 power	Output	Cooling fan opera-	OFF	0 V
(G)	Ground	supply	Output	tion	Н	Battery voltage
11 (B)	Ground	Ground		Ignition switch ON		0 V
12	Ground	Rear window defogger re-	Output	Ignition switch ON	Rear window defogger switch OFF	0 V
(O)	Glound	lay power supply	Output		Rear window defogger switch ON	Battery voltage
15 <sup>*1</sup>	Ground	Daytime running light relay	Output	Daytime running	Not operated	Battery voltage
(SB)	Giouna	control	Output	light system	Operated	0 V
16 <sup>*2</sup>	Ground	Front fog lamp (LH)	Output	Lighting switch	Front fog lamp switch OFF	0 V
(Y)	Ground	From log lamp (LH)	Output	2ND	Front fog lamp switch ON	Battery voltage
17 <sup>*2</sup>	Ground	Front fog lamp (RH)	Output	Lighting switch	Front fog lamp switch OFF	0 V
(W)	Gibunu	Tiont log lamp (RTI)	Output	2ND	Front fog lamp switch ON	Battery voltage
18	Ground	Headlamp LO (LH)	Output	Lighting switch OFF		0 V
(L)	Cround		Output	Lighting switch 2ND		Battery voltage
20	Ground	Headlamp LO (RH)	Output	Lighting switch OFF		0 V
(SB)	Ground		Output	Lighting switch 2ND		Battery voltage
				Lighting switch OFF		0 V
21 (G)	Ground	Headlamp HI (LH)	Output	<ul><li>Lighting switch 2N</li><li>Lighting switch PA</li></ul>		Battery voltage
				Daytime running ligh	nt system Operated <sup>*1</sup>	7.0 V
				Lighting switch OFF		0 V
22 (LG)	Ground	Headlamp HI (RH)	Output	<ul><li>Lighting switch 2N</li><li>Lighting switch PA</li></ul>		Battery voltage
				Daytime running ligh	nt system Operated <sup>*1</sup>	7.0 V
23	Orecurst		Incret	Institute of the	Engine stopped	0 V
(W)	Ground	Oil pressure switch	Input	Ignition switch ON	Engine running	Battery voltage
24					Front wiper stop position	0 V
24 (Y)	Ground	Front wiper auto stop	Input	Ignition switch ON	Any position other than front wiper stop position	Battery voltage
25 (B)	Ground	Ground	_	Ignition switch ON		0 V
26 (P)		CAN-L	Input/ Output		_	_

	nal No. e color)	Description		Condition		Value
+	-	Signal name	Input/ Output		Condition	(Approx.)
27 (L)		CAN-H	Input/ Output	_		_
31 (LG)	Ground	Cooling fan relay-4 control	Output	Cooling fan opera- tion	OFF LO	Battery voltage 0 - 1.0 V
					kimately 2 seconds or more tion switch from ON to OFF	Battery voltage
32 (V)	Ground	Throttle control motor re- lay control	Input	<ul> <li>Ignition switch ON</li> <li>For approximately tion switch from C</li> </ul>	2 seconds after turning igni-	0 - 1.0 V
				Ignition switch OFF		0 V
33 (GR)	Ground	Fuel pump relay control	Input	Ignition owitch ON	Engine stopped	Battery voltage
(011)				Ignition switch ON	Engine running	0.8 V
34 <sup>*3</sup>	Ground		الم مع ما	Close the hood		Battery voltage
(W)	Ground	Hood switch	Input	Open the hood		0 V
37		Tail, license plate lamps	0.1.1	Lighting switch OFF		0 V
(R)	Ground	and illuminations	Output	Lighting switch 1ST		Battery voltage
38	Onessed	Derline large (LLI)	Outrast	Lighting switch OFF		0 V
(R)	Ground	Parking lamp (LH)	Output	Lighting switch 1ST		Battery voltage
39			<b>0</b> / /	Lighting switch OFF		0 V
(GR)	Ground	Parking lamp (RH)	Output	Lighting switch 1ST		Battery voltage
40			• • •	Ignition switch OFF or ACC		0 V
(BR)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage
41				Ignition switch OFF or ACC		0 V
(O)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage
42					Front wiper switch OFF	0 V
(L)	Ground	Front wiper HI	Output	Ignition switch ON Front wiper switch HI		Battery voltage
43					Front wiper switch OFF	0 V
(G)	Ground	Front wiper LO	Output	Ignition switch ON Front wiper switch LO		Battery voltage
				Selector lever "P" or "N"		Battery voltage
45 (Y)	Ground	Starter relay power supply	Input	Ignition switch ON Selector lever in any posi- tion other than "P" or "N"		0 V
46	Ground	Fuel pump relay power	0	<ul> <li>Ignition switch OFF or ACC</li> <li>After passing approximately 1 second or more after turning the ignition switch ON</li> </ul>		0 V
(W)	Ground	supply	Output	<ul> <li>For approximately 1 second after turning the ignition switch ON</li> <li>Engine running</li> </ul>		Battery voltage
47				After passing approximately 4 seconds or more after turning the ignition switch from ON to OFF		0 V
(BR)	Ground	ECM relay power supply	Output	<ul> <li>Ignition switch ON</li> <li>For approximately 4 seconds after turning ignition switch from ON to OFF</li> </ul>		Battery voltage
10					kimately 4 seconds or more tion switch from ON to OFF	0 V
48 (R)	Ground	ECM relay power supply	Output	<ul> <li>Ignition switch ON</li> <li>For approximately tion switch from C</li> </ul>	4 seconds after turning igni-	Battery voltage

	inal No.	Description				Value
(vvire +	e color) –	Signal name	Input/ Output	(	Condition	
50	Oneveral	Oppling for solar Engenteel	Outrast	Cooling fan opera-	OFF	Battery voltage
(G)	Ground	Cooling fan relay-5 control	Output	tion	MID or HI	0 - 1.0 V
51					ximately 4 seconds or more tion switch from ON to OFF	Battery voltage
(L)	Ground	ECM relay control	Output	<ul> <li>Ignition switch ON</li> <li>For approximately tion switch from C</li> </ul>	4 seconds after turning igni-	0 - 1.0 V
50					ximately 2 seconds or more tion switch from ON to OFF	0 V
52 (P)	Ground	Throttle control motor re- lay power supply	Output	<ul> <li>For approximately</li> </ul>	<ul> <li>Ignition switch ON</li> <li>For approximately 2 seconds after turning ignition switch from ON to OFF</li> </ul>	
				Engine stopped		0 V
55			_	Engine running	A/C switch OFF	0 V
(O)	Ground	A/C relay power supply	Output		A/C switch ON (A/C compressor is oper- ating)	Battery voltage
56	Cround	Ignition quitch ON	lanut	Ignition switch OFF	or ACC	0 V
(SB)	Ground	Ignition switch ON	Input	Ignition switch ON		Battery voltage
57	Cround	Horn roley control	Quitout	The horn is not activ	vated	Battery voltage
(V)	Ground	Horn relay control	Output	The horn is activate	d	0 V
58	Ground	Ignition relay power supply	Output	Ignition switch OFF	or ACC	0 V
(LG)	Ground	ignition relay power suppry	Supul	Ignition switch ON		Battery voltage
59	Ground	Ignition relay power supply	Output	Ignition switch OFF or ACC		0 V
(BR)	Ground	ignition relay power suppry	Supur	Ignition switch ON		Battery voltage
60	Ground	Ignition relay power supply	Output	Ignition switch OFF	or ACC	0 V
(SB)	Croand	ignition roley power supply	Calput	Ignition switch ON		Battery voltage
61 (R)	Ground	ECM power supply	Output	Ignition switch OFF		Battery voltage

\*1: With daytime running light system

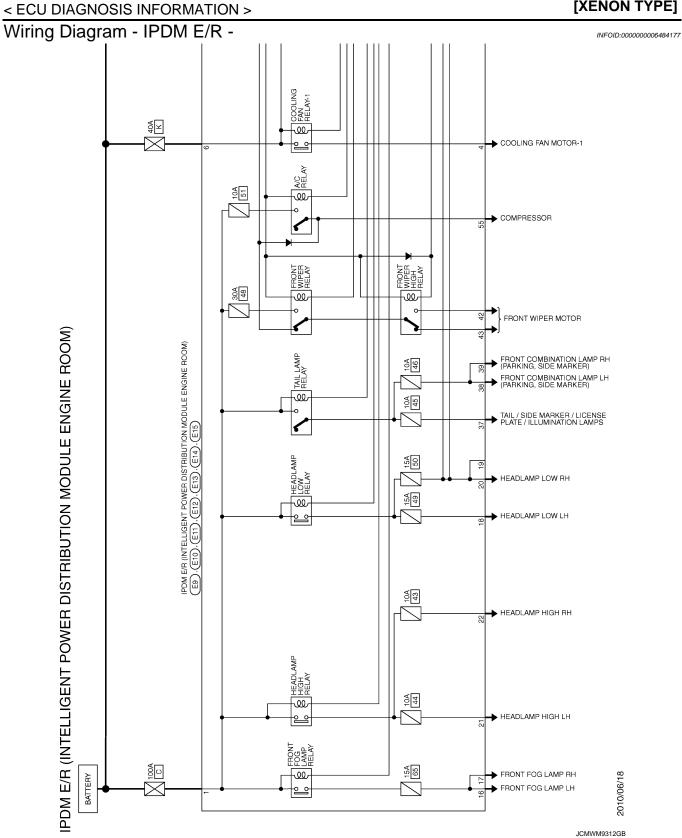
\*2: With front fog lamp system

\*3: For Mexico

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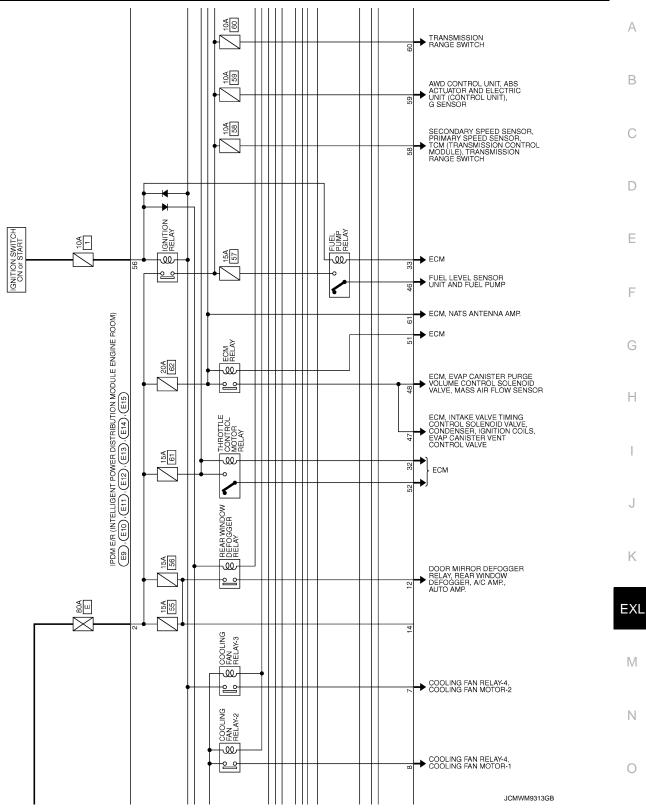
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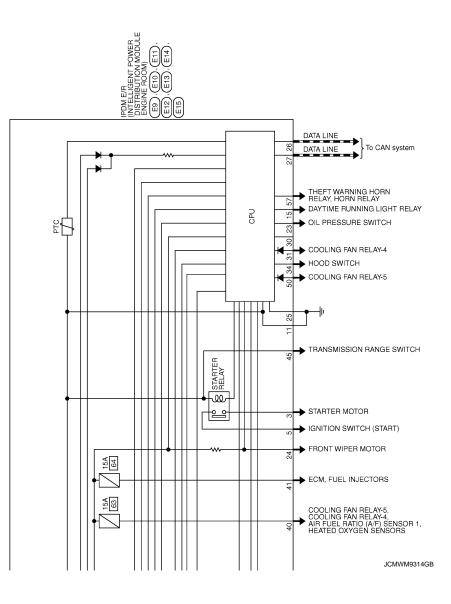
# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

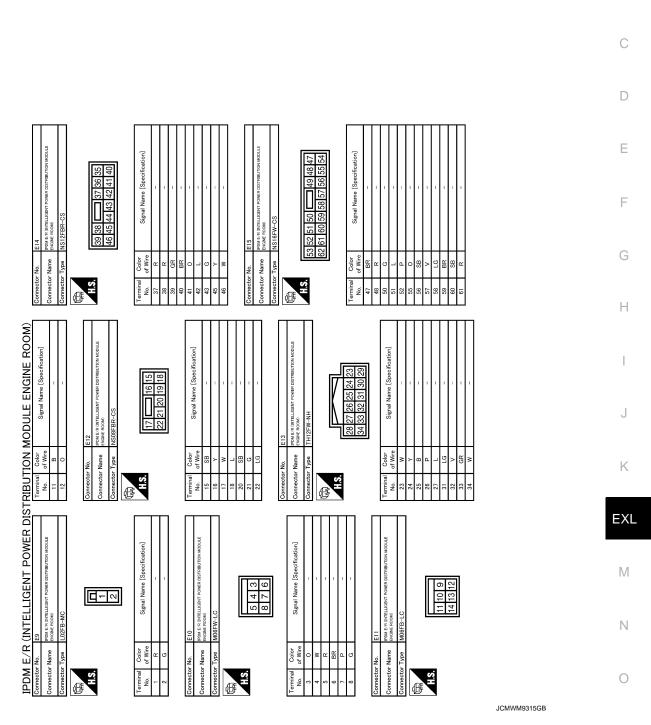
#### < ECU DIAGNOSIS INFORMATION >

[XENON TYPE]



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INFOID:000000006484178

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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 ECM

Fail-safe

## IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

#### < ECU DIAGNOSIS INFORMATION >

[XENON TYPE]

Control part	Fail-safe in operation
Cooling fan	<ul> <li>The cooling fan relay-1, the cooling fan relay-2, the cooling fan relay-3 and the cooling fan relay-5 turn ON when the ignition switch is turned ON</li> <li>The cooling fan relay-1, the cooling fan relay-2, the cooling fan relay-3 and the cooling fan relay-5 turn OFF when the ignition switch is turned OFF</li> <li>Cooling fan relay-4 OFF</li> </ul>
A/C compressor	A/C relay OFF

#### If no CAN communication is available with BCM

Control part	Fail-safe in operation
Headlamp	<ul> <li>The headlamp low relay turns ON when the ignition switch is turned ON</li> <li>The headlamp low relay turns OFF when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> </ul>
<ul> <li>Parking lamps</li> <li>License plate lamps</li> <li>Tail lamps</li> <li>Illuminations</li> </ul>	<ul> <li>The tail lamp relay and the daytime running light relay* turn ON when the ignition switch is turned ON</li> <li>The tail lamp relay and the daytime running light relay* turn OFF when the ignition switch is turned OFF</li> </ul>
Front wiper	<ul> <li>The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.</li> <li>The front wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.</li> </ul>
Front fog lamps	Front fog lamp relay OFF
Starter motor	Starter relay OFF
Rear window defogger	Rear window defogger relay OFF
Horn	Horn relay OFF

#### NOTE:

\*: With daytime running light system

#### IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors status of ignition relay by the voltage at ignition relay contact circuit inside it.
- IPDM E/R judges that the ignition relay is error, if status of the ignition relay and ignition switch ON signal (CAN).
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay and daytime running light relay\* for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

Dete	ection	- IPDM E/R judgment	Operation	
Ignition switch ON signal	nition switch ON signal Ignition relay		Operation	
ON	ON	Ignition relay normal	_	
OFF	OFF	Ignition relay normal	_	
OFF	ON	Ignition relay ON stuck	Turn on the tail lamp relay and daytime run- ning light relay* for 10 minutes	
ON	OFF	Ignition relay OFF stuck	Detect DTC "B2099: IGN RELAY OFF"	

#### NOTE:

\*: With daytime running light system

#### FRONT WIPER CONTROL

IPDM E/R detects the front wiper stop position with the front wiper stop position signal.

When the front wiper stop position signal is in the conditions listed below, IPDM E/R repeats a front wiper 10 seconds operation and 20 seconds stop five times.

#### **IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)** [XENON TYPE] < ECU DIAGNOSIS INFORMATION >

Ignition switch Front wiper switch Front wiper stop position signal А The front wiper stop position signal (stop OFF position) cannot be input for 10 seconds. ON В The front wiper stop position signal does ON not change for 10 seconds.

#### NOTE:

This operation status can be confirmed on the IPDM E/R "Data Monitor" that displays "BLOCK" for the item С "WIP PROT" while the wiper is stopped.

#### DTC Index

INFOID:00000006484179

CONSULT display	Fail-safe	Timir	Ig <sup>NOTE</sup>	Reference page	-
No DTC is detected. further testing may be required.	_	_	_	_	
U1000: CAN COMM CIRCUIT	×	CRNT	PAST	PCS-13	
B2099: IGN RELAY OFF	_	CRNT	PAST	PCS-14	-

NOTE:

The details of time display are as follows.

• CRNT: The malfunctions that are detected now.

• PAST: The number is indicated when it is normal at present and a malfunction was detected in the past.

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## **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

# SYMPTOM DIAGNOSIS EXTERIOR LIGHTING SYSTEM SYMPTOMS

## Symptom Table

INFOID:000000006201128

#### **CAUTION:**

Perform the self-diagnosis with CONSULT-III 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 the headlamp high</li> <li>IPDM E/R</li> </ul>	Headlamp (HI) circuit Refer to <u>EXL-32</u> .			
	Both sides	Symptom diagnosis				
Headlamp (HI) is not	When ignition switch is turned ON.	"BOTH SIDE HEADLAMPS (HI) A Refer to <u>EXL-121</u> .	RE NOT TURNED ON"			
turned OFF.	When ignition switch is turned OFF.	IPDM E/R	_			
High beam indicator lamp [The headlamp (HI) is turi		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 the headlamp low</li> <li>IPDM E/R</li> </ul>	Headlamp (LO) circuit Refer to <u>EXL-34</u> .			
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-122.				
Headlamp (LO) is not	When ignition switch is turned ON.					
turned OFF.	When ignition switch is turned OFF.	IPDM E/R	_			
Headlamp is not turned C	N/OFF with the lighting	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-65</u>			
switch AUTO.		<ul> <li>Optical sensor</li> <li>Harness between the optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <u>EXL-49</u>			
Front fog lamp is not turned ON.	One side	<ul> <li>Front fog lamp bulb</li> <li>Harness between IPDM E/R and the front fog lamp</li> <li>Front fog lamp</li> <li>IPDM E/R</li> </ul>	Front fog lamp circuit Refer to <u>EXL-38</u> .			
	Both sides	Symptom diagnosis				
Front fog lamp is not turne	ed ON.	"BOTH SIDE FRONT FOG LAMPS Refer to <u>EXL-124</u> .	SARE NOT TURNED ON"			
Parking lamp is not turned	Э ON.	<ul> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and the front combination lamp</li> <li>Front combination lamp</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to <u>EXL-40</u> .			

## **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

#### < SYMPTOM DIAGNOSIS >

#### [XENON TYPE]

Symp	tom	Possible cause	Inspection item
Tail lamp is not turned ON.		<ul> <li>Tail lamp bulb</li> <li>Harness between IPDM E/R and the rear combination lamp</li> <li>Rear combination lamp</li> </ul>	Tail lamp circuit Refer to <u>EXL-46</u> .
License plate lamp is not tu	urned ON.	<ul> <li>License plate lamp bulb</li> <li>Harness between IPDM E/R and the license plate lamp</li> <li>License plate lamp</li> </ul>	License plate lamp circuit Refer to <u>EXL-48</u> .
Tail lamp and the license p ON.	late lamp are not turned	<ul> <li>Fuse</li> <li>Harness between IPDM E/R and the rear combination lamp</li> <li>IPDM E/R</li> </ul>	License plate lamp circuit Refer to <u>EXL-48</u> .
<ul> <li>Parking lamp, the tail lan lamp are not turned ON.</li> <li>Parking lamp, the tail lan lamp are not turned OFF (Each illumination is turned)</li> </ul>	np and the license plate	<b>Symptom diagnosis</b> "PARKING, LICENSE PLATE AND ON" Refer to <u>EXL-123</u> .	TAIL LAMPS ARE NOT TURNED
Tail lamp indicator is not tu (Parking, tail lamps are turi		Combination meter Combination meter BCM (HEAD LAMP) Active test "TAIL LAMP"	
Turn signal lamp does not	Indicator lamp is nor- mal. (Applicable side per- forms the high flasher activation.)	<ul> <li>Harness between BCM and each turn signal lamp</li> <li>Turn signal lamp bulb</li> </ul>	Turn signal circuit Refer to <u>EXL-42</u> .
blink.	Indicator lamp is includ- ed.	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-41</u> .
	One side	Combination meter	_
Turn signal indicator lamp	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 indicator lamp is normal.)	Both sides (Only when activating hazard warning lamp with the ignition switch OFF)	<ul> <li>Combination meter power supply and the ground circuit</li> <li>Combination meter</li> </ul>	Combination meter Power supply and the ground circuit Refer to <u>MWI-63</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 the hazard switch and BCM</li> <li>BCM</li> </ul>	Hazard switch Refer to <u>EXL-44</u> .

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## NORMAL OPERATING CONDITION

## Description

[XENON TYPE]

INFOID:000000006201129

#### 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.

#### BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON [XENON TYPE] < SYMPTOM DIAGNOSIS > BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON А Description INFOID:000000006201130 Both side headlamps (HI) are not turned ON when setting to the lighting switch HI or PASS. В **Diagnosis** Procedure INFOID:000000006201131 1.COMBINATION SWITCH INSPECTION С Check the combination switch. Refer to BCS-65, "Symptom Table". Is the combination switch normal? D YES >> GO TO 2. NO >> Repair or replace the malfunctioning part. 2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT Ε CONSULT-III DATA MONITOR Select "HL HI REQ" of IPDM E/R data monitor item. 1. 2. With operating the lighting switch, check the monitor status. F Monitor item Condition Monitor status HI or PASS On Lighting switch HL HI REQ (2ND) Off LO Is the item status normal? Н YES >> GO TO 3. NO >> Replace BCM. Refer to <u>BCS-66, "Exploded View"</u>. ${f 3.}$ HEADLAMP (HI) CIRCUIT INSPECTION Check the headlamp (HI) circuit. Refer to EXL-32, "Component Function Check". Is the headlamp (HI) circuit normal?

YES >> Replace IPDM E/R.

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 the combination switch. Refer to <u>BCS-65, "Symptom Table"</u>.

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (LO) REQUEST SIGNAL INPUT

#### ©CONSULT-III 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	Con	dition	Monitor status
HL LO REQ	Lighting switch	2ND	On
		OFF	Off

Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-66, "Exploded View"</u>.

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

Check the headlamp (LO) circuit. Refer to EXL-34, "Component Function Check".

Is the headlamp (LO) circuit normal?

YES >> Replace IPDM E/R.

NO >> Repair or replace the malfunctioning part.

Revision: 2010 July

INFOID:000000006201132

#### PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON [XENON TYPE] < SYMPTOM DIAGNOSIS >

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

## Description

The parking, lice	ense plate, tail	amps and	each illu	mination ar	re not turned ON in any conc	dition.	В
Diagnosis P	rocedure					INFOID:000000006201135	
1.CHECK FUS	ε						С
Check that the	ollowing fuse is	s fusing.					
	· · · ·				-		D
Unit	Lo	cation	Fuse No.	Capacity	-		
Parking lamp  • Tail lamp	IPD	M E/R	#46	10 A	-		F
<ul> <li>License plate la</li> </ul>	mp	-	#45	10 A			E
NO >> GO 2.COMBINATI	Dair the application TO 2.	ISPECTIO	N				F
Check the com			<u>CS-65, "</u>	Symptom T	Table".		0
Is the combinat YES >> GO NO >> Rep <b>3.</b> CHECK TAIL	TO 3. pair or replace t	he malfunc					Н
CONSULT-III			_				
	L & CLR REQ" ting the lighting						
·	0 0 0	·			_		J
Monitor item	Con	dition	M	onitor status	-		
TAIL & CLR	Lighting switch	1ST		On	_		К
REQ		OFF		Off	-		
Is the item statu YES >> GO NO >> Rep <b>4.</b> TAIL LAMP (	TO 4. place BCM. Ref		<u>66. "Exp</u>	loded View	<u>′″</u> .		EXL
Check the tail la			6 "Com	nonent Eur	nction Check"		M
Is the tail lamp	•			ponenti u	icitori oneck.		
YES >> Rep	blace IPDM E/F bair or replace t		tioning p	oart.			Ν
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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 FUSE

Check that the following fuse is fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#65	15 A

#### Is the fuse fusing?

YES >> Repair the applicable circuit. And then replace the fuse.

NO >> GO TO 2.

2.combination switch inspection

Check the combination switch. Refer to <u>BCS-65, "Symptom Table"</u>.

Is the combination switch normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning part.

3.CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

#### CONSULT-III 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	REQ Front fog lamp switch (With lighting switch 1ST)	ON	On
FK FOG KEQ		OFF	Off

Is the item status normal?

YES >> GO TO 4.

NO >> Replace BCM. Refer to <u>BCS-66, "Exploded View"</u>.

**4.**FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to EXL-38. "Component Function Check".

Is the front fog lamp circuit normal?

YES >> Replace IPDM E/R.

NO >> Repair or replace the malfunctioning part.

[XENON TYPE]

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INFOID:000000006201139

# < PRECAUTION > PRECAUTION PRECAUTIONS FOR USA AND CANADA

FOR USA AND CANADA : 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:

- 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:

- 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.

#### FOR USA AND CANADA : Precautions For Xenon Headlamp Service

#### 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.).

#### FOR MEXICO

FOR MEXICO : Precaution for Supplemental Restraint System (SRS) "AIR BAG" and

## EXL-125

## PRECAUTIONS

#### < PRECAUTION >

## "SEAT BELT PRE-TENSIONER"

INFOID:000000006201140

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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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:

- 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.

FOR MEXICO : Precautions For Xenon Headlamp Service

INFOID:000000006201141

#### 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.).

INFOID:000000006201142

## < 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 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.

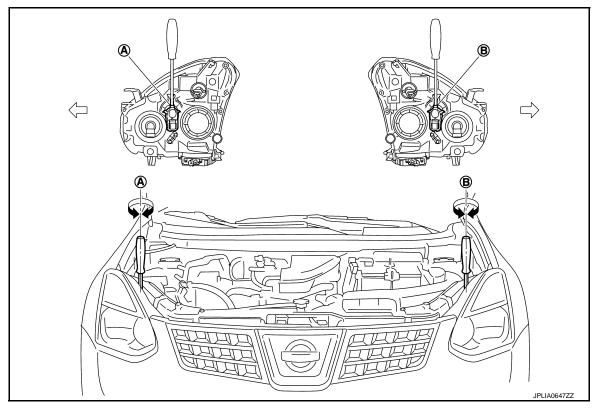
• Wipe out dirt on the headlamp.

## **CAUTION:**

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

- Ride alone on the driver seat.
- Headlamp aiming switch sets to "0".

#### AIMING ADJUSTMENT SCREW



Headlamp RH (UP/DOWN) adjust-A. ment screw

Headlamp LH (UP/DOWN) adjust-B. ment screw

C: Vehicle center

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## HEADLAMP AIMING ADJUSTMENT

#### < PERIODIC MAINTENANCE >

[XENON TYPE]

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

## Aiming Adjustment Procedure

INFOID:000000006201143

- 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:

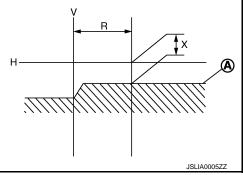
Shut off the headlamp light with the board to prevent from illuminating the adjustment screen. **CAUTION:** 

#### 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 measure-	: 350 ± 175 mm (13.78 ± 6.89
ment range (R)	in)

Low beam distribution on the screen

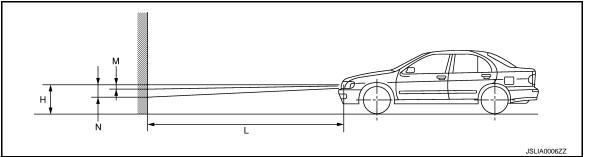


 Adjust the cutoff line height (X) with the aiming adjustment screw so as to enter in the adjustment range (M–N) according to the horizontal center line of headlamp (H).

unit:	mm	(in)
un nu.		()

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)





< PERIODIC MAINTENANCE >		[XENON TYPE]	
Distance between the headlamp center and the screen (L)	: 10 m (32.8 ft)		A
			В
			С

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< PERIODIC MAINTENANCE >

## FRONT FOG LAMP AIMING ADJUSTMENT

## Description

## PREPARATION BEFORE ADJUSTING

#### NOTE:

For details, refer to the regulations in your own country.

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.

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

• Ride alone on the driver seat.

#### AIMING ADJUSTMENT SCREW

• Turn the aiming adjusting screw for adjustment.

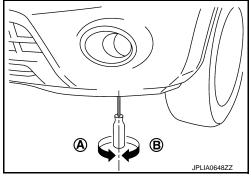
A: UP

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.



INFOID:000000006201145

## Aiming Adjustment Procedure

1. Place the screen.

#### NOTE:

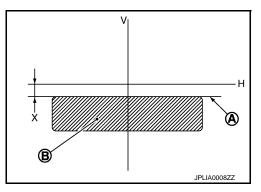
- Stop the vehicle facing the wall.
- Place the board on a plain road vertically.
- 2. Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the front fog lamp center and the screen.
- 3. Start the engine. Illuminate the front fog lamp.

#### 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.

4. Adjust the cutoff line height (A) with the aiming adjustment screw so that the distance (X) between the horizontal center line of front fog lamp (H) and (A) becomes 150 mm (5.91 in).

Front fog lamp light distribution on the screen



## FRONT FOG LAMP AIMING ADJUSTMENT

<	PERIODIC	MAINTENANCE >
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[XENON TYPE]

А	: Cutoff line	А
в	: High illuminance area	
н	: Horizontal center line of front fog lamp	
V	: Vertical center line of front fog lamp	В
Х	: Cutoff line height	
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## < REMOVAL AND INSTALLATION >

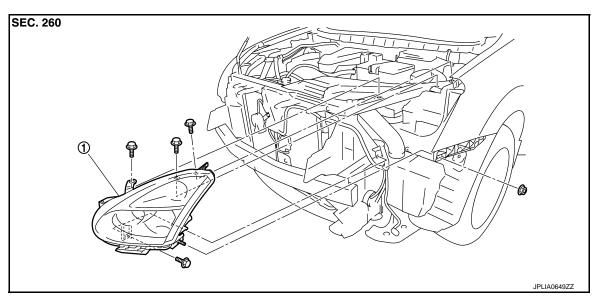
REMOVAL AND INSTALLATION FRONT COMBINATION LAMP

**Exploded View** 

#### REMOVAL

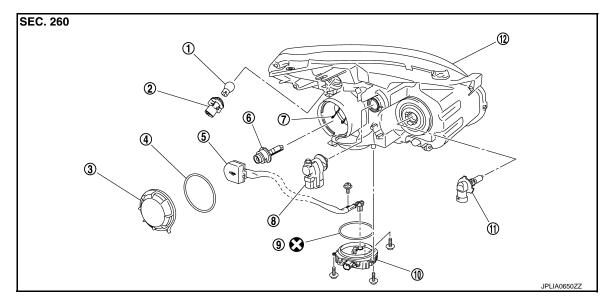
INFOID:000000006201146

[XENON TYPE]



1. Front combination lamp

#### DISASSEMBLY



- 1. Front turn signal/parking (side marker) 2. lamp bulb
- 4. Seal packing
- 7. Retaining spring
- 10. HID control unit (Inverter)

Front turn signal/parking (side marker) 3. lamp bulb socket

- 5. Xenon bulb socket (Starter)
- 8. Headlamp aiming motor
- 11. Halogen bulb (HI)

- . Resin cap
- 6. Xenon bulb (LO)
- 9. Seal packing
- 12. Headlamp housing assembly

Refer to GI-4, "Components" for symbols in the figure.

Revision: 2010 July

## FRONT COMBINATION LAMP

FRONT COMBINATION LAMP	
REMOVAL AND INSTALLATION >	[XENON TYPE]
emoval and Installation	INFOID:000000006201147
EMOVAL	
AUTION:	
isconnect the battery negative terminal or the fuse.	
. Remove front bumper fascia. Refer to EXT-13, "Exploded View".	
. Remove the headlamp mounting bolts and nuts.	
. Remove the mounting stud of the headlamp outside from front fender.	
Pull out the headlamp assembly forward the vehicle.	
Disconnect the connector before removing the headlamp assembly.	
ISTALLATION Istall in the reverse order of removal.	
OTE:	
fter installation, perform aiming adjustment. Refer to <u>EXL-127, "Description"</u> .	
eplacement	INFOID:00000006201148
AUTION:	
Disconnect the battery negative terminal or the fuse. After installing the bulb, install the resin cap and the bulb socket securely for w	atertightness.
EADLAMP BULB (LO)	
. Remove the air duct*. Keep a service area. *When replace a left.	
. Rotate the resin cap counterclockwise and unlock it.	
. Rotate the bulb socket counterclockwise and unlock it.	
. Unlock the retaining spring. And remove the bulb from the head- lamp housing assembly.	
CAUTION:	
Never break the xenon bulb ceramic tube when replacing the bulb.	
	JPLIA0651ZZ
EADLAMP BULB (HI)	
. Rotate the bulb socket counterclockwise and unlock it.	
. Disconnect the connector. And remove the bulb.	
RONT TURN SIGNAL/PARKING (SIDE MARKER) LAMP BULB	
. Rotate the bulb socket counterclockwise and unlock it.	
. Remove the bulb from the bulb socket.	
visassembly and Assembly	INFOID:000000006201149
ISASSEMBLY	
. Rotate the resin cap counterclockwise and unlock it.	
. Rotate the xenon bulb socket counterclockwise and unlock it.	
. Unlock the retaining spring. And remove the xenon bulb (LO).	
. Unlock the retaining spring. And remove the xenon bulb (LO).	
<ul> <li>Unlock the retaining spring. And remove the xenon bulb (LO).</li> <li>Remove the HID control unit installation screw.</li> </ul>	

## FRONT COMBINATION LAMP

#### < REMOVAL AND INSTALLATION >

- 8. Remove the halogen bulb from headlamp housing assembly.
- 9. Rotate the front turn signal/parking (side marker) lamp bulb socket counterclockwise and unlock it.
- 10. Remove the bulb from the front turn signal/parking (side marker) lamp bulb socket.

#### ASSEMBLY

Assemble in the reverse order of disassembly.

CAUTION:

- Install HID control unit securely.
- After installing the bulb, install the resin cap and the bulb socket securely for watertightness.

## FRONT FOG LAMP

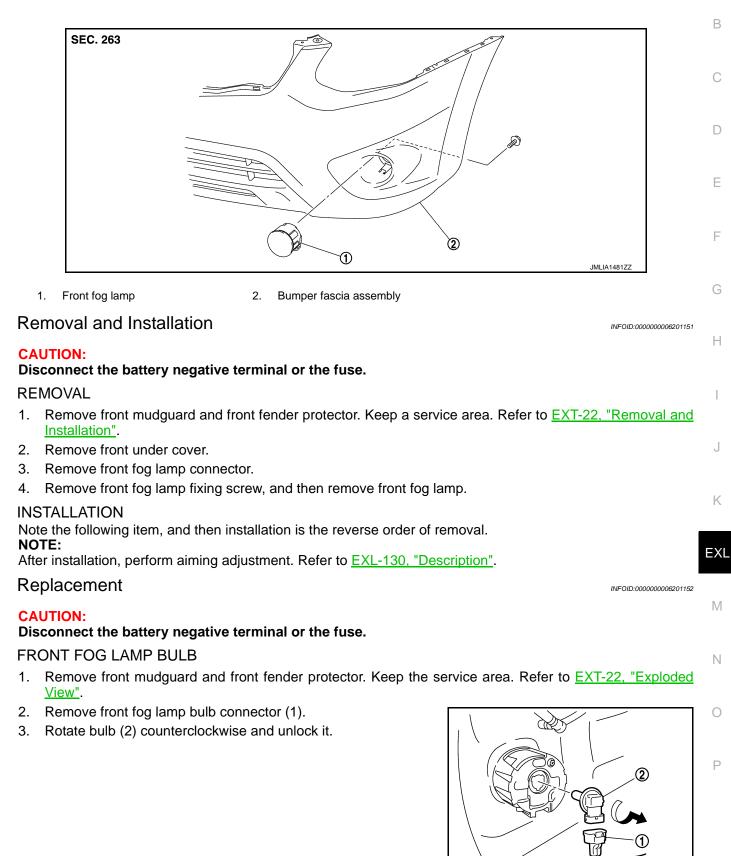
## < REMOVAL AND INSTALLATION >

# FRONT FOG LAMP

## **Exploded View**

INFOID:000000006201150

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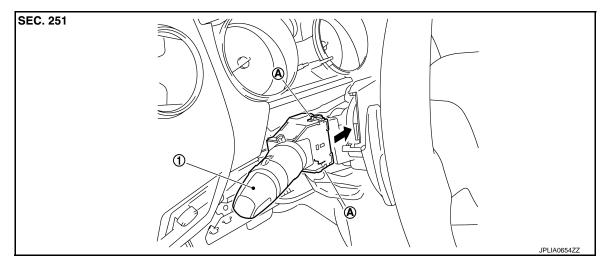
## LIGHTING & TURN SIGNAL SWITCH

## < REMOVAL AND INSTALLATION >

## LIGHTING & TURN SIGNAL SWITCH

## Exploded View

INFOID:000000006201153



- 1. Lighting & turn signal switch
- A. Pawl

## Removal and Installation

#### REMOVAL

- 1. Remove steering column cover. Refer to IP-13, "Exploded View".
- 2. While pressing pawls, pull the lighting & turn signal switch. And disconnect from the switch base.

#### INSTALLATION

Installation is the reverse order of removal.

## **HAZARD SWITCH**

## < REMOVAL AND INSTALLATION >

# HAZARD SWITCH

## Exploded View

INFOID:000000006201155

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SEC. 251		В
SEC. 251		С
		D
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	JPLIA0655ZZ	F
1. Hazard switch A. Pawls	JELAVOJSE	G
Removal and Installation	INFOID:000000006201156	Н
REMOVAL		

Remove the cluster lid C. Refer to IP-13, "Exploded View". 1.

2. Push the pawl. And remove the hazard switch.

#### **INSTALLATION**

Install in the reverse order of removal.

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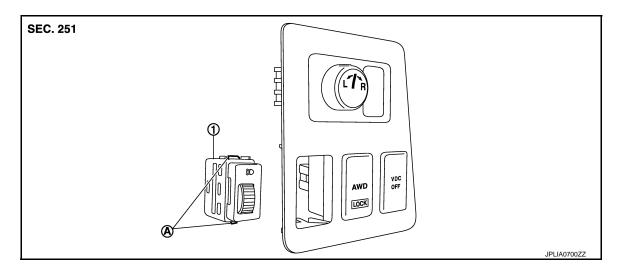
## **HEADLAMP AIMING SWITCH**

## < REMOVAL AND INSTALLATION >

## HEADLAMP AIMING SWITCH

## Exploded View

INFOID:000000006201157



- 1. Headlamp aiming switch
- A. Pawls

## Removal and Installation

#### REMOVAL

- 1. Remove the switch panel. Refer to IP-13, "Exploded View".
- 2. Widen the pawl. And remove the headlamp aiming switch.

#### INSTALLATION

Install in the reverse order of removal.

## **REAR COMBINATION LAMP**

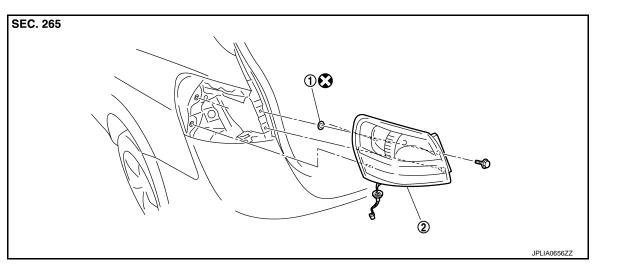
## < REMOVAL AND INSTALLATION >

## **REAR COMBINATION LAMP**

## **Exploded View**

## REMOVAL

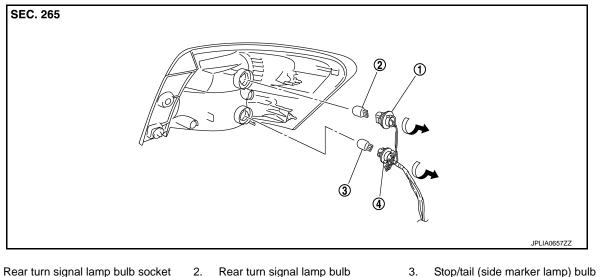
INFOID:000000006201159



1. Seal packing 2. Rear combination lamp

Refer to GI-4, "Components" for symbols in the figure.

#### DISASSEMBLY



- Rear turn signal lamp bulb socket 1.
- Rear turn signal lamp bulb 2.
- 4. Stop/tail (side marker lamp) bulb socket

## **Removal and Installation**

#### **CAUTION:**

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

#### REMOVAL

- Remove the luggage side lower finisher. Refer to INT-32, "Exploded View". 1.
- 2. Disconnect rear combination lamp connector.

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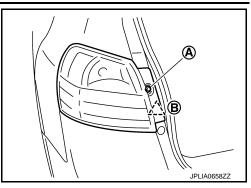
## **REAR COMBINATION LAMP**

#### < REMOVAL AND INSTALLATION >

#### [XENON TYPE]

INFOID:000000006201161

- 3. Remove rear combination lamp mounting bolts (A).
- Turn up the back door weather strip, insert an appropriate tool between rear combination lamp and vehicles and remove a clip (B).
- 5. Pull the rear combination lamp toward rear of the vehicle. Remove the rear combination lamp.



INSTALLATION Install in the reverse order of removal.

#### Replacement

**CAUTION:** 

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

#### STOP/TAIL (SIDE MARKER) LAMP BULB

- 1. Remove rear combination lamp. Refer to EXL-139, "Exploded View".
- 2. Rotate the stop/tail (side marker lamp) bulb socket counterclockwise, and unlock it.
- 3. Remove bulb from the bulb socket.

#### REAR TURN SIGNAL LAMP BULB

- 1. Remove rear combination lamp. Refer to EXL-139, "Exploded View".
- 2. Rotate the rear turn signal lamp bulb socket counterclockwise, and unlock it.
- 3. Remove bulb from the bulb socket.

## **HIGH-MOUNTED STOP LAMP**

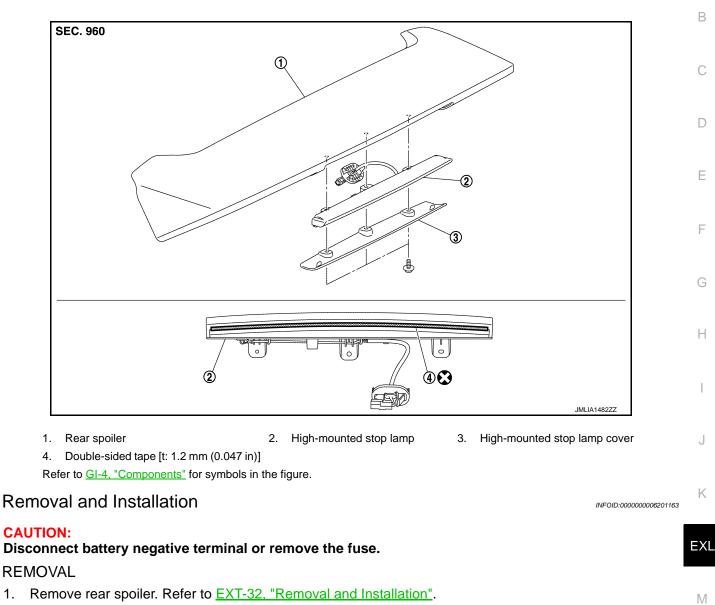
## < REMOVAL AND INSTALLATION >

## HIGH-MOUNTED STOP LAMP

## Exploded View

INFOID:000000006201162

[XENON TYPE]



- 2. Remove high-mounted stop lamp grommet from body panel.
- 3. Disconnect high-mounted stop lamp connector.
- 4. Remove high-mounted stop lamp.

#### INSTALLATION

Note the following item, and then installation is the reverse order of removal. CAUTION:

Seal packing cannot be reused.

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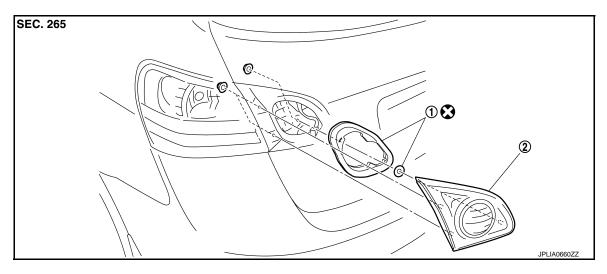
## < REMOVAL AND INSTALLATION >

# BACK-UP LAMP

Exploded View

INFOID:000000006201164

[XENON TYPE]



1. Seal packing2. Back-up lampRefer to GI-4. "Components" for symbols in the figure.

## Removal and Installation

#### **CAUTION:**

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

#### REMOVAL

- 1. Remove the back door mask. Refer to INT-35, "Exploded View".
- 2. Remove back-up lamp mounting nuts.
- 3. Disconnect back-up lamp connector. And remove the back-up lamp.

#### **INSTALLATION**

Install in the reverse order of removal.

#### CAUTION:

#### Seal packing cannot be reused.

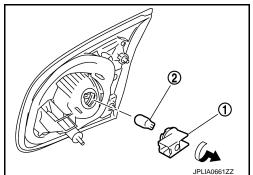
#### Replacement

#### **CAUTION:**

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

#### BACK-UP LAMP BULB

- 1. Remove the back-up lamp. Refer to EXL-142, "Exploded View".
- 2. Disconnect the connector, rotate the bulb socket (1) counterclockwise and unlock it.
- 3. Remove the bulb (2) from the socket.



INFOID:000000006201165

## < REMOVAL AND INSTALLATION >

## LICENSE PLATE LAMP

## **Exploded View**

INFOID:000000006201167

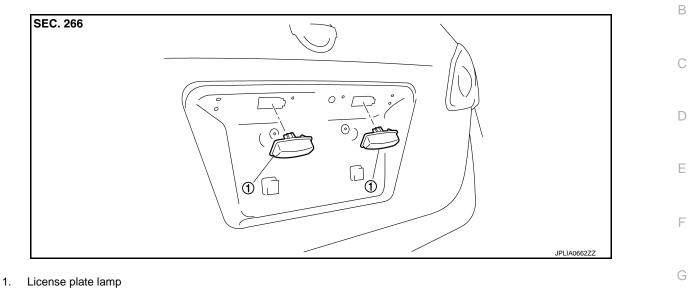
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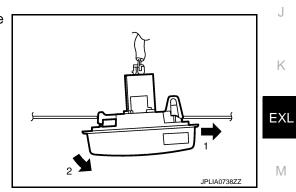
## Removal and Installation

#### **CAUTION:**

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

#### REMOVAL

- 1. Remove back door trim finisher lower. Refer to INT-35, "Exploded View".
- 2. Remove back door finisher.Refer to INT-35, "Exploded View".
- 3. Remove the license plate lamp in numerical order shown in the figure.
- 4. Disconnect the license plate lamp connector.



#### INSTALLATION

- 1. Connect the license plate lamp connector.
- 2. Fix the pawl-side behind the license plate lamp housing first, then push the resin clip-side.

#### Replacement

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

#### LICENSE PLATE LAMP BULB

1. Remove back door trim finisher lower. Refer to INT-35. "Exploded View".

## LICENSE PLATE LAMP

#### < REMOVAL AND INSTALLATION >

#### 2. Turn the bulb socket (1) counterclockwise and unlock it.

3. Remove the bulb (2) from the socket.

# 

## [XENON TYPE]

# SERVICE DATA AND SPECIFICATIONS (SDS)

## < SERVICE DATA AND SPECIFICATIONS (SDS)

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

## **Bulb Specifications**

INFOID:000000006201170

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	Item	Туре	Wattage (W)
Front combination lamp	Headlamp (HI)	HB3	60
	Headlamp (LO)	D2S (XENON)	35
	Front turn signal/parking (side marker) lamp	S25 (Amber)	27/8
Front fog lamp		H8	35
Rear combination lamp	Stop/tail (side marker) lamp	W21/5W	21/5
	Rear turn signal lamp	W21W	21
	Back-up lamp	W16W	16
License plate lamp		W5W	5
High-mounted stop lamp		LED	_

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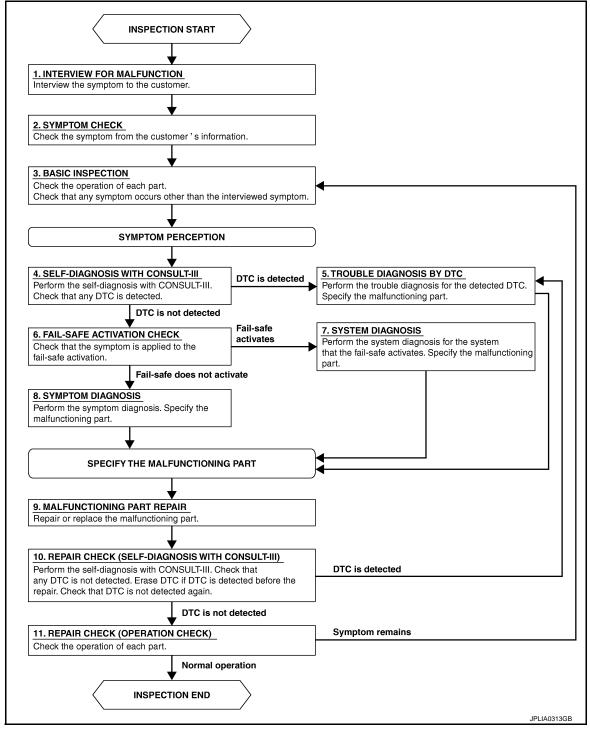
[XENON TYPE]

# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

## Work Flow

INFOID:000000006201171





## DETAILED FLOW **1.**INTERVIEW FOR MALFUNCTION

Interview the symptom to the customer.

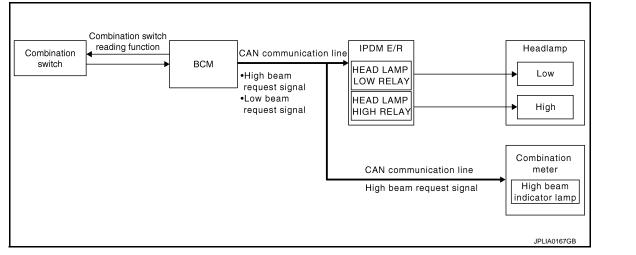
## DIAGNOSIS AND REPAIR WORKFLOW

DIAGNOSIS AND REPAIR WORKFLOW	
< BASIC INSPECTION > [HALOGEN T'	YPE]
>> GO TO 2.	
2.SYMPTOM CHECK	
Check the symptom from the customer's information.	
>> GO TO 3.	
Check the operation of each part. Check that any symptom occurs other than the interviewed symptom.	
>> GO TO 4.	
4.SELF-DIAGNOSIS WITH CONSULT-III	
Perform the self-diagnosis with CONSULT-III. Check that any DTC is detected.	
Is any DTC detected?	
YES >> GO TO 5. NO >> GO TO 6.	
NO >> GO TO 6. 5.TROUBLE DIAGNOSIS BY DTC	
Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part.	
>> GO TO 9.	
6.FAIL-SAFE ACTIVATION CHECK	
Check that the symptom is applied to the fail-safe activation.	
Does the fail-safe activate?	
YES >> GO TO 7.	
NO >> GO TO 8.	
7.SYSTEM DIAGNOSIS	
Perform the system diagnosis for the system that the fail-safe activates. Specify the malfunctioning part.	
>> GO TO 9.	
8.SYMPTOM DIAGNOSIS	
Perform the symptom diagnosis. Specify the malfunctioning part.	
>> GO TO 9.	
9.MALFUNCTION PART REPAIR	
Repair or replace the malfunctioning part.	
>> GO TO 10.	
10. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III)	
Perform the self-diagnosis with CONSULT-III. Check that any DTC is not detected. Erase DTC if D	TC is
detected before the repair. Check that DTC is not detected again.	
Is any DTC detected?	
YES >> GO TO 5. NO >> GO TO 11.	
11. REPAIR CHECK (OPERATION CHECK)	
Check the operation of each part.	
Does it operate normally?	
YES >> INSPECTION END	
NO >> GO TO 3.	

INFOID:000000006201172

# <u>< SYSTEM DESCRIPTION ></u> SYSTEM DESCRIPTION HEADLAMP SYSTEM

## System Diagram



## System Description

INFOID:000000006201173

#### 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, and the auto light function ON judgment
- 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
- Lighting switch PASS
- Lighting switch AUTO, and the auto light function ON judgment
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.
- IPDM E/R turns the integrated headlamp high relay ON, and turns the headlamp ON according to the high beam request signal.

## **HEADLAMP SYSTEM**

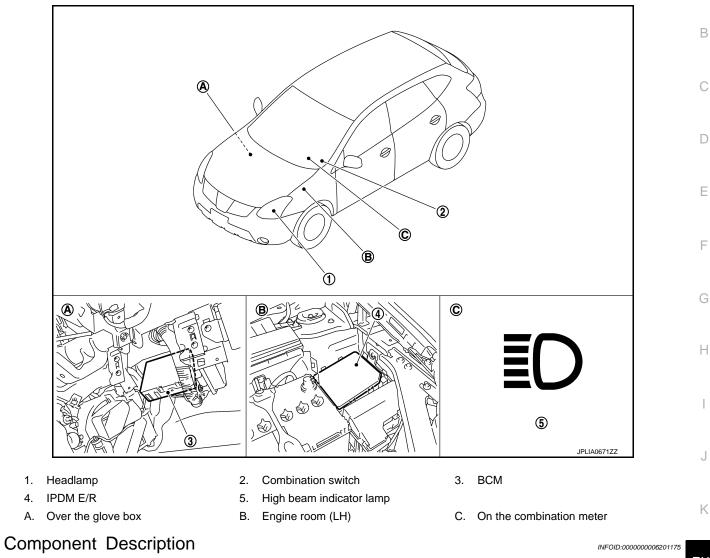
## < SYSTEM DESCRIPTION >

## **Component Parts Location**

## [HALOGEN TYPE]

INFOID:000000006201174

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Part	Description
ВСМ	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges that the headlamp is turned ON according to the vehicle condition.</li> <li>Requests the headlamp relay (HI/LO) ON to IPDM E/R (with CAN communication).</li> <li>Requests the high beam indicator lamp ON to the combination meter (with CAN communication).</li> </ul>
IPDM E/R	Controls the integrated relay, and supplies voltage to the load according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signal switch)	Refer to BCS-9, "System Diagram".
Combination meter (High beam indicator lamp)	Turns the high beam indicator lamp ON according to the request from BCM (with CAN communication).

4.

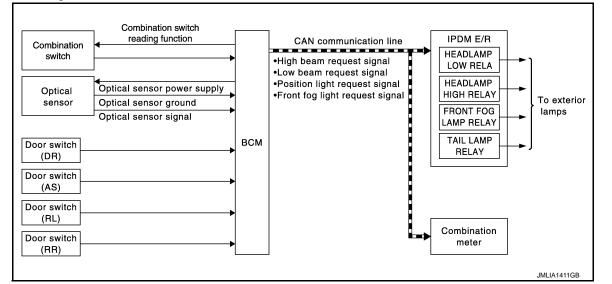
## AUTO LIGHT SYSTEM

# < SYSTEM DESCRIPTION >

# AUTO LIGHT SYSTEM

INFOID:00000006485402

## System Diagram



## System Description

INFOID:000000006485403

#### 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

#### Control by IPDM E/R

- Relay control function
- Auto light system has the auto light function and the delay timer function.
- Auto light function turns the exterior lamps\* and each illumination ON/OFF automatically according to 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, license plate 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 with 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-III. Refer to EXL-164, "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)".

#### 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).

## **EXL-150**

## **AUTO LIGHT SYSTEM**

#### < SYSTEM DESCRIPTION >

#### [HALOGEN TYPE]

INFOID:00000006485404

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• 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-III. Refer to EXL-164, А "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)".

#### NOTE:

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

## **Component Parts Location**

С D ന ۵ Ε Ø F Ø 5 4 Н B B 60 Κ \$7 \$i 2 BIN JMLIA1412GB EXL Optical sensor 2. BCM 3. IPDM E/R Combination switch Door switch 5.

4. Α. Over the glove box

1.

Β.

Engine room (LH)

## Component Description

INFOID:000000006485405	
INF01D.000000000465405	

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Part	Description	
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the outside brightness from the optical sensor signal.</li> <li>Judges the OFF timing according to the vehicle condition.</li> <li>Judges the ON/OFF status of the exterior lamp and each illumination according to the outside brightness and the vehicle condition.</li> <li>Requests ON/OFF of each relay to IPDM E/R (with CAN communication).</li> </ul>	
IPDM E/R	Controls the integrated relay, and supplies voltage to the load according to the request from BCM (with CAN communication).	
Combination switch (Lighting & turn signal switch)	Refer to BCS-9, "System Diagram".	
Optical sensor	Refer to EXL-194, "Description".	

Revision: 2010 July

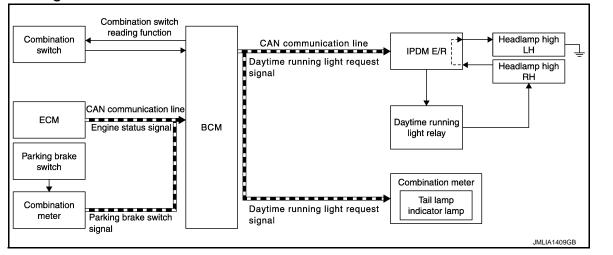
## < SYSTEM DESCRIPTION >

## [HALOGEN TYPE]

INFOID:000000006201176

# DAYTIME RUNNING LIGHT SYSTEM

## System Diagram



## System Description

INFOID:000000006201177

#### 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 by the engine status signal received from ECM with CAN communication.
- BCM detects the parking brake condition by the parking brake switch signal received from combination meter with CAN communication.
- BCM transmits the daytime running light request signal to IPDM E/R and combination meter with CAN communication according to the daytime running light ON condition.

Daytime running light ON condition

- Éngine running
- Lighting switch OFF or 1ST
- Parking brake OFF
- Ignition switch ON
- 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.
- Combination meter turns the tail lamp indicator ON according to the daytime running light is operation.

## **DAYTIME RUNNING LIGHT SYSTEM**

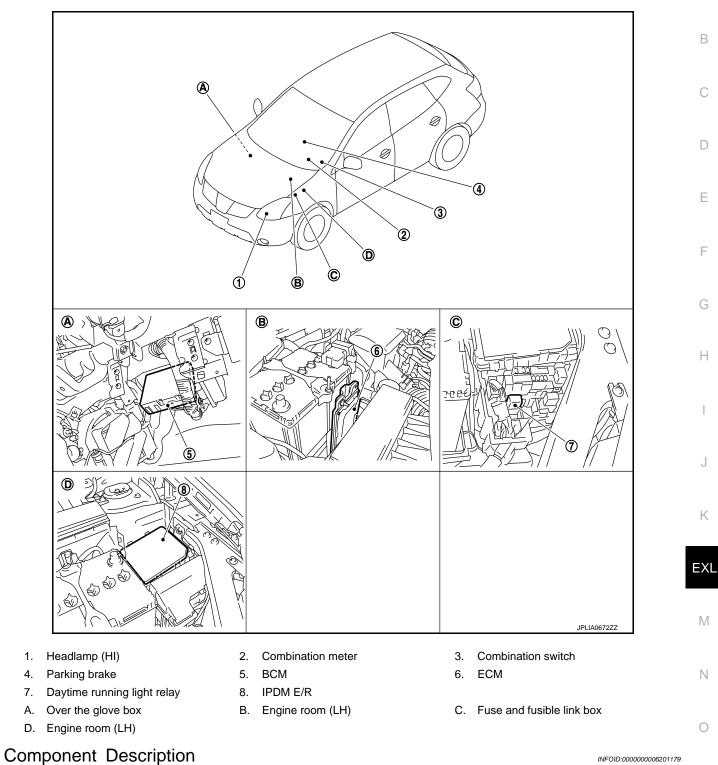
## < SYSTEM DESCRIPTION >

## **Component Parts Location**

## [HALOGEN TYPE]

INFOID:000000006201178

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Part Description	
BCM	<ul> <li>Detects each switch condition with the combination switch reading function.</li> <li>Judges each lamps ON/OFF condition according to the vehicle condition. Requests the each relay ON to IPDM E/R (with CAN communication).</li> </ul>
IPDM E/R	Controls the relay and supplies voltage to the load according to the request from BCM (with CAN communication).

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## DAYTIME RUNNING LIGHT SYSTEM

#### < SYSTEM DESCRIPTION >

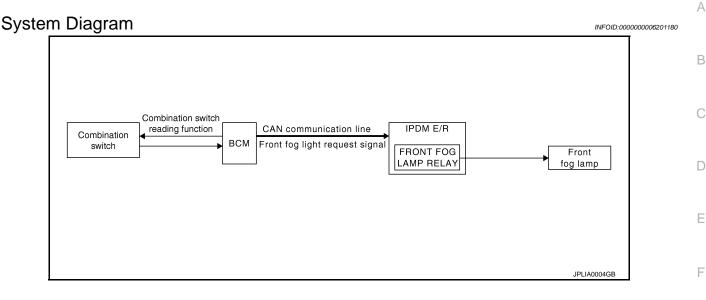
## [HALOGEN TYPE]

Part	Description
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-9, "System Diagram"</u> .
ECM	Transmits the engine status signal to BCM with CAN communication.
Combination meter	Transmits the parking brake switch signal to BCM with CAN communication.

## FRONT FOG LAMP SYSTEM

## < SYSTEM DESCRIPTION >

# FRONT FOG LAMP SYSTEM



## System Description

INFOID:000000006201181

#### OUTLINE

Front fog lamp is controlled by combination switch reading function and 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 with CAN communication according to the front fog lamp ON condition.

#### Front fog lamp ON condition

- Front fog lamp switch ON with headlamp ON (except for the high beam ON)
- 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.

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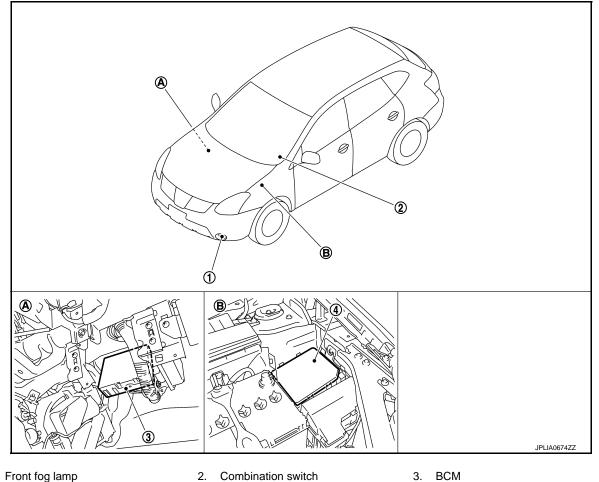
## **FRONT FOG LAMP SYSTEM**

## < SYSTEM DESCRIPTION >

## **Component Parts Location**

INFOID:000000006201182

[HALOGEN TYPE]



1. Front fog lamp

2. Combination switch

- 4. IPDM E/R
- A. Over the glove box
- B. Engine room (LH)

## **Component Description**

INFOID:000000006201183

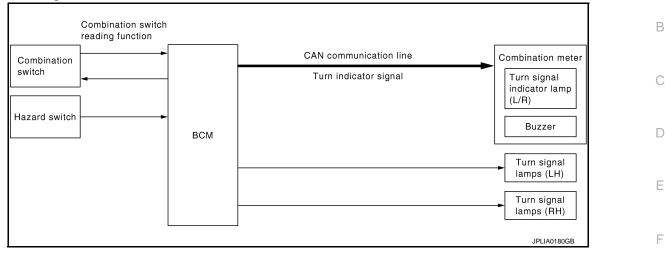
Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the front fog lamp ON/OFF status according to the vehicle condition.</li> <li>Requests the front fog lamp relay ON to IPDM E/R (with CAN communication).</li> </ul>
IPDM E/R	Controls the integrated relay and supplies voltage to the load according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signal switch)	Refer to BCS-9, "System Diagram".

## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

## < SYSTEM DESCRIPTION >

## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

## System Diagram



## System Description

INFOID:000000006201185

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[HALOGEN TYPE]

INFOID:000000006201184

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#### OUTLINE

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

#### TURN SIGNAL LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM supplies voltage to the right (left) turn signal lamp circuit when the 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 with CAN communication while the turn signal lamp and the hazard warning lamp are operating.
- Combination meter outputs the turn signal sound with the integrated buzzer while blinking the turn signal indicator lamp according to the turn indicator signal.

#### HIGH FLASHER OPERATION (FAIL-SAFE)

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

#### NOTE:

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

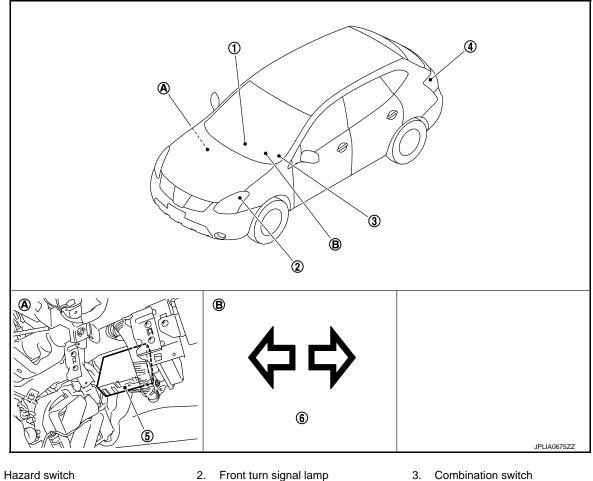
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## TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM [HALOGEN TYPE]

#### < SYSTEM DESCRIPTION >

## **Component Parts Location**

INFOID:000000006201186



- 1. Hazard switch
- 4. Rear turn signal lamp
- A. Over the glove box

**Component Description** 

- 2. Front turn signal lamp
- 5. BCM
- Β. On the combination meter
- 6. Turn signal indicator lamp

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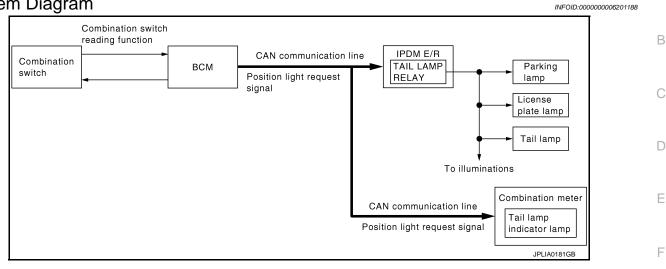
Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the blinks of the turn signal lamp and the hazard warning lamp from each switch status. The applicable turn signal lamp blinks.</li> <li>Requests the turn signal indicator lamp blink to the combination meter (with CAN communication).</li> </ul>
Combination switch (Lighting & turn signal switch)	Refer to BCS-9, "System Diagram".
Hazard switch	Inputs the hazard switch ON/OFF signal to BCM.
Combination meter (Turn signal indicator lamp & buzzer)	Blinks the turn signal indicator lamp and outputs the turn signal operating sound with integrated buzzer according to the request from BCM (with CAN communication).

#### PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

#### < SYSTEM DESCRIPTION >

## PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

#### System Diagram



## System Description

INFOID:000000006201189

[HALOGEN TYPE]

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#### OUTLINE

Parking<sup>\*</sup>, license plate and tail<sup>\*</sup> lamps are controlled by combination switch reading function and headlamp control function of BCM, and relay control function of IPDM E/R. \*: Illuminated as side maker lamps too.

#### PARKING, LICENSE PLATE 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 with CAN communication according to the ON/OFF condition of the parking, license plate and tail lamps.

Parking, license plate and tail lamps ON condition

- Lighting switch 1ST
- Lighting switch 2ND
- IPDM E/R turns the integrated tail lamp relay ON and turns the parking lamp, the license plate and tail lamps
   K ON according to the position light request signal.
- Combination meter turns the tail lamp indicator lamp ON according to the position light request signal.

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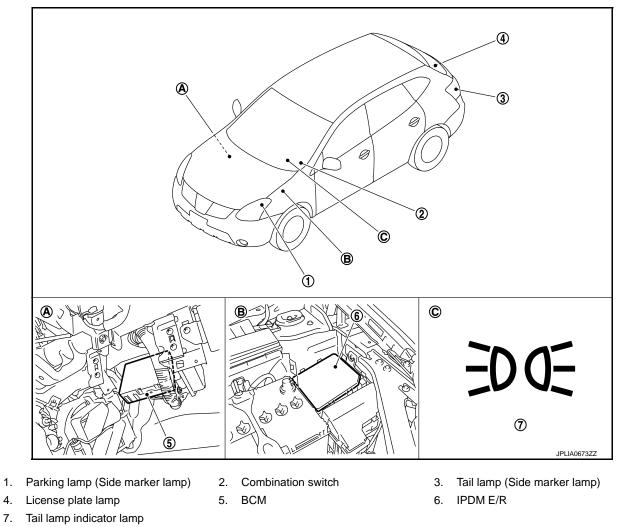
## PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

## < SYSTEM DESCRIPTION >

## **Component Parts Location**

INFOID:000000006201190

[HALOGEN TYPE]



- A. Over the glove box
- Component Description

C. On the combination meter

INFOID:000000006201191

Part	Description	
ВСМ	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the ON/OFF status of the parking, license plate and tail lamps according to the vehicle condition.</li> <li>Requests the tail lamp relay ON to IPDM E/R (with CAN communication).</li> <li>Requests the tail lamp indicator lamp ON to the combination meter (with CAN communication).</li> </ul>	
IPDM E/R	Controls the integrated relay and supplies voltage to the load according to the request from BCM (with CAN communication).	
Combination switch (Lighting & turn signal switch)	Refer to BCS-9, "System Diagram".	
Combination meter (Tail lamp indicator lamp)	Turns the tail lamp indicator lamp ON according to the request from BCM (with CAN communication).	

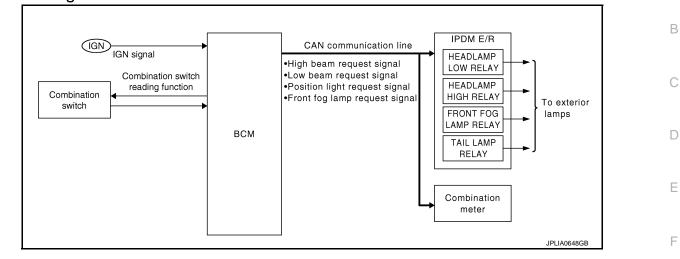
B. Engine room (LH)

## EXTERIOR LAMP BATTERY SAVER SYSTEM

#### < SYSTEM DESCRIPTION >

## EXTERIOR LAMP BATTERY SAVER SYSTEM

System Diagram



## System Description

INFOID:000000006201193

[HALOGEN TYPE]

INFOID:000000006201192

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#### 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 lamp\* OFF after a period of time to prevent the battery from over-discharge when the ignition switch is turned OFF with the exterior lamp ON.
- \*: Headlamp (LO/HI), parking lamp, tail lamp, license plate lamp and front fog lamp

#### EXTERIOR LAMP BATTERY SAVER ACTIVATION

BCM activates the timer and turns the exterior lamp OFF 5 minutes after the 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 the engine started (both before and after the exterior lamp battery saver is turned OFF).
- The timer starts at the time that the lighting switch is turned from OFF → 1ST or 2ND with the exterior lamp OFF.
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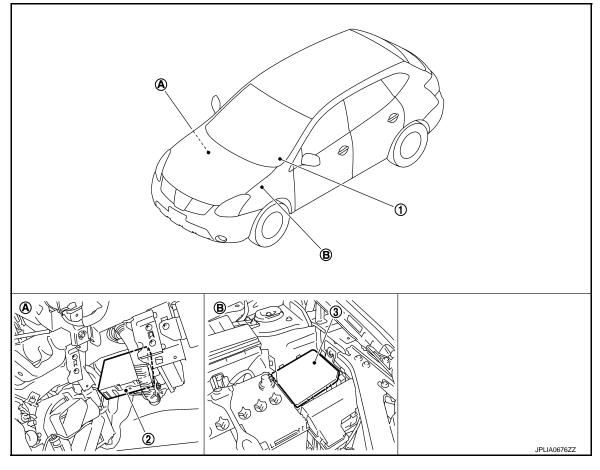
## EXTERIOR LAMP BATTERY SAVER SYSTEM

#### < SYSTEM DESCRIPTION >

## **Component Parts Location**

INFOID:000000006201194

[HALOGEN TYPE]



- 1. Combination switch
- A. Over the glove box

**Component Description** 

- 2. BCM
- B. Engine room (LH)
- 3. IPDM E/R

#### INFOID:000000006201195

Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Activates the battery saver to turn the exterior lamps OFF according to the vehicle condition.</li> <li>Requests each relay OFF to IPDM E/R (with CAN communication).</li> </ul>
IPDM E/R	Controls the integrated relay according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-9, "System Diagram"</u> .

## **DIAGNOSIS SYSTEM (BCM)**

## < SYSTEM DESCRIPTION > **DIAGNOSIS SYSTEM (BCM) COMMON ITEM**

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

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## **APPLICATION ITEM**

CONSULT-III can display each diagnostic item using the diagnostic test modes shown following.

Diagnosis mode	Function description	
ECU Identification	BCM part number is displayed.	
Self-Diagnostic Result	Displays the diagnosis results judged by BCM. Refer to BCS-62, "DTC Index".	D
Data Monitor	BCM input/output signals are displayed.	
Active Test	The signals used to activate each device are forcibly supplied from BCM.	E
Work Support	Changes the setting for each system function.	
Configuration	<ul><li>Read and save the vehicle specification.</li><li>Write the vehicle specification when replacing BCM.</li></ul>	F
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM.	

#### 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.

Sustam	CONSULT-III	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	INT LAMP	×	×	×	
Remote keyless entry system	MULTI REMOTE ENT	×	×	×	
Exterior lamp	HEAD LAMP	×	×	×	
Wiper and washer	WIPER	×	×	×	
Turn signal and hazard warning lamps	FLASHER		×	×	
<ul><li>Auto air conditioning system</li><li>Manual air conditioning system</li></ul>	AIR CONDITONER		×		
Intelligent Key system	INTELLIGENT KEY		×		
Combination switch	COMB SW		×		
Body control system	BCM	×			
Immobilizer	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		×	×	
_	FUEL LID*				
TPMS	TPMS (AIR PRESSURE MONITOR)	×	×	×	
Panic alarm system	PANIC ALARM			×	

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

INFOID:00000006484180

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

INFOID:000000006201197

#### WORK SUPPORT

Service item	Setting item	Setting				
CUSTOM A/LIGHT SETTING	MODE 1 <sup>*</sup>	Normal				
	MODE 2	More sensitive operation.)	More sensitive setting than normal setting (Turns ON earlier than normal operation.)			
	MODE 3	More sensitive setting than MODE 2 (Turns ON earlier than MODE2.)				
	MODE 4	Less sensitive setting than normal setting (Turns ON later than normal operation.)				
BATTERY SAVER SET	On <sup>*</sup>	With the exterior lamp battery saver function				
	Off	Without the exterior lamp battery saver function				
	MODE 1 <sup>*</sup>	45 sec.				
	MODE 2	Without the function				
	MODE 3	30 sec				
ILL DELAY SET	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				

\*: Factory setting

#### DATA MONITOR

Monitor item [Unit]	Description
IGN ON SW [On/Off]	Ignition switch (ON) status judged from IGN signal (ignition power supply)
HI BEAM SW [On/Off]	
HEAD LAMP SW1 [On/Off]	
HEAD LAMP SW2 [On/Off]	
LIGHT SW 1ST [On/Off]	Each switch status that BCM judges from the combination switch reading function
PASSING SW [On/Off]	
FR FOG SW [On/Off]	
AUTO LIGHT SW [On/Off]	
RR FOG SW [On/Off]	NOTE: The item is indicated, but not monitored
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)

[HALOGEN TYPE]

## **DIAGNOSIS SYSTEM (BCM)**

#### < SYSTEM DESCRIPTION >

## [HALOGEN TYPE]

Monitor item [Unit]	Description	
DOOR SW-RR [On/Off]	The switch status input from rear door switch RH	
DOOR SW- RL [On/Off]	The switch status input from rear door switch LH	
BACK DOOR SW [On/Off]	The switch status input from back door switch	
TURN SIGNAL R [On/Off]	Each switch status that BCM judges from the combination switch reading function	
TURN SIGNAL L [On/Off]		
ENGINE RUNNING [On/Off]	The engine status received from ECM with CAN communication	
PKB SW [On/Off]	The parking brake switch status received from combination meter with CAN commu- nication	
CARGO LAMP SW [On/Off]	NOTE: The item is indicated, but not monitored	
OPTICAL SENSOR [V]	The value of exterior brightness voltage input from the optical sensor	

#### ACTIVE TEST

Test item	Operation	Description
TAIL LAMP	On	Transmits the position light request signal to IPDM E/R with CAN com- munication to turn the tail lamp ON.
	Off	Stops the tail lamp request signal transmission.
	Hi	Transmits the high beam request signal with CAN communication to turn the headlamp (HI).
HEAD LAMP	Lo	Transmits the low beam request signal with CAN communication to turn the headlamp (LO).
	Off	Stops the high & low beam request signal transmission.
FR FOG LAMP	On	Transmits the front fog lights request signal to IPDM E/R with CAN com- munication to turn the front fog lamp ON.
	Off	Stops the front fog lights request signal transmission.
DAYTIME RUNNING LIGHT	On	Transmits the daytime running light request signal to IPDM E/R with CAN communication to turn the daytime running lights ON.
	Off	Stops the daytime running light request signal transmission.

## FLASHER

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

#### INFOID:000000006201198

## DATA MONITOR

		0
Monitor item [Unit]	Description	
IGN ON SW [On/Off]	Ignition switch (ON) status judged from IGN signal (ignition power supply)	Р
HAZARD SW [On/Off]	The switch status input from the hazard switch	

# DIAGNOSIS SYSTEM (BCM)

#### < SYSTEM DESCRIPTION >

## [HALOGEN TYPE]

Monitor item [Unit]	Description
TURN SIGNAL R [On/Off]	<ul> <li>Each switch condition that BCM judges from the combination switch reading fu</li> </ul>
TURN SIGNAL L [On/Off]	Each switch condition that BCM judges from the combination switch reading function
BRAKE SW [On/Off]	The switch status input from the stop lamp switch

## ACTIVE TEST

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

#### < SYSTEM DESCRIPTION > DIAGNOSIS SYSTEM (IPDM E/R) А **Diagnosis Description** INFOID:00000006484195 Auto active test В Description In auto active test mode, the IPDM E/R sends a drive signal to the following systems to check their operation. Oil pressure warning lamp Rear window defogger Front wiper (LO, HI) Parking lamp D License plate lamp Tail lamp Side marker lamp Е Front fog lamp Headlamp (LO, HI) A/C compressor (magnet clutch) • Cooling fan (LO, MID, HI) F Operation procedure 1. 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. Н 2. Turn the ignition switch OFF. 3. Turn the ignition switch ON, and within 20 seconds, press the driver door switch 10 times. Then turn the ignition switch OFF. CAUTION: Close passenger door. 4. Turn the ignition switch ON within 10 seconds. Then the horn sounds once and the auto active test starts. NOTE: Only a vehicle with the vehicle security system, the horn sounds. 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. Κ NOTE: When auto active test mode has to be cancelled halfway through test, turn the ignition switch OFF. CAUTION: EXL If auto active test mode cannot be actuated, check door switch system. Never start the engine. Inspection in auto active test mode Μ When auto active test mode is actuated, the following 6 steps are repeated 3 times.

Operation sequence	Inspection location	Operation	Ν
A	Oil pressure warning lamp	Blinks continuously during operation of auto active test.	
1	Rear window defogger	10 seconds	0
2	Front wiper motor	LO for 5 seconds $\rightarrow$ HI for 5 seconds	0
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> <li>Headlamps HI (daytime running light operation)*</li> </ul>	10 seconds	Р
4	Headlamp	LO 10 seconds $\rightarrow \Leftrightarrow$ OFF 5 times	
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	•

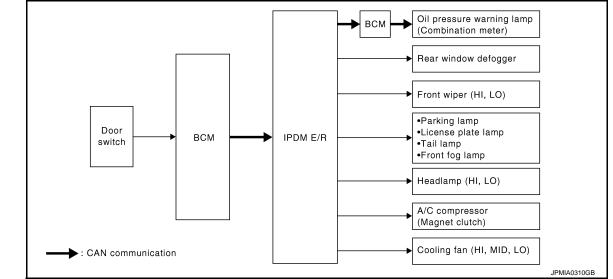


#### < SYSTEM DESCRIPTION >

#### NOTE:

\*: With daytime running light system





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

Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause	
		YES	BCM signal input circuit	
Rear window defogger does not operate	Perform auto active test. Does the rear window defog- ger operate?	NO	<ul> <li>Rear window defogger</li> <li>Rear window defogger ground circuit</li> <li>Harness or connector between IPDM E/R and rear window defogger</li> <li>IPDM E/R</li> </ul>	
Any of the following components do not operate		YES	BCM signal input circuit	
<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Tail lamp</li> <li>Side marker lamp</li> <li>Front fog lamp</li> <li>Headlamp (HI, LO)</li> <li>Front wiper motor (HI, LO)</li> </ul>	Perform auto active test. Does the applicable system operate?	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>	
Headlamps HI (daytime running light operation) do not operate	Perform auto active test. Do headlamps HI (daytime	YES	<ul> <li>CAN communication signal between ECM and BCM</li> <li>CAN communication signal between combination meter and BCM</li> <li>BCM signal input circuit</li> </ul>	
	running light operation) oper- ate?	NO	<ul> <li>Daytime running light relay power supply circuit</li> <li>Harness or connector between IPDM E/R and daytime running light relay</li> <li>Daytime running light relay</li> </ul>	

## DIAGNOSIS SYSTEM (IPDM E/R)

#### < SYSTEM DESCRIPTION >

#### [HALOGEN TYPE]

Symptom	Symptom Inspection contents		Possible cause
A/C compressor does not operate	Perform auto active test. Does the magnet clutch oper-	YES	<ul> <li>BCM signal input circuit</li> <li>CAN communication signal between BCM and ECM</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>
	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>
Oil pressure warning lamp does not operate	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>
	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>
Cooling fan does not operate		YES	<ul> <li>ECM signal input circuit</li> <li>CAN communication signal between ECM and IPDM E/R</li> </ul>
	Perform auto active test. Does the cooling fan operate?	NO	<ul> <li>Cooling fan motor-2 power supply circuit</li> <li>Cooling fan motor-1 ground circuit</li> <li>Cooling fan relay-4 or cooling fan relay-5 power supply circuit</li> <li>Cooling fan relay-5 ground circuit</li> <li>Harness or connector between IPDM E/R and cooling fan motor</li> <li>Harness or connector between IPDM E/R, and cooling fan relay-4 or cooling fan relay-5</li> <li>Harness or connector between cooling fan motor-2, and cooling fan relay-4 or cooling fan relay-5</li> <li>Cooling fan relay-4 or cooling fan relay-5</li> <li>Cooling fan relay-4 or cooling fan relay-5</li> <li>Cooling fan motor</li> <li>IPDM E/R</li> </ul>

## CONSULT-III Function (IPDM E/R)

INFOID:000000006484196

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## APPLICATION ITEM

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

Diagnosis mode	Description	N
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.	C
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.	-

#### SELF DIAGNOSTIC Refer to <u>PCS-26, "DTC Index"</u>.

DATA MONITOR Monitor item

# DIAGNOSIS SYSTEM (IPDM E/R)

#### < SYSTEM DESCRIPTION >

## [HALOGEN TYPE]

Monitor Item [Unit]	MAIN SIGNALS	Description
MOTOR FAN REQ [1 - 4]	×	Displays the value of the cooling fan speed signal received from ECM via CAN commu- nication.
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 com- munication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN commu- nication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN com- munication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN com- munication. <b>NOTE:</b> This item is monitored only the vehicle with front fog lamp system.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN com- munication.
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.
ST RLY REQ [Off/On]		Displays the status of the starter request signal.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
RR DEF REQ [Off/On]	×	Displays the status of the rear defogger request signal received from BCM via CAN com- munication.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.
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 the vehicle with daytime running light system.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R. <b>NOTE:</b> This item is monitored only the vehicle for Mexico.
THFT HRN REQ [Off/On]		Displays the status of the horn request signal by vehicle security system or panic alarm system received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn request signal by key fob LOCK operation received from BCM via CAN communication.

#### ACTIVE TEST Test item

Test item	Operation	Description
REAR DEFOGGER	Off	OFF
REAR DEFOGGER	On	Operates the rear window defogger relay.
	Off	OFF
FRONT WIPER	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.

## DIAGNOSIS SYSTEM (IPDM E/R)

#### < SYSTEM DESCRIPTION >

## [HALOGEN TYPE]

Test item	Operation	Description
	1	OFF
MOTOR FAN	2	Operates the cooling fan relay (LO operation).
MOTOR FAIN	3	Operates the cooling fan relay (MID operation).
	4	Operates the cooling fan relay (HI operation).
	Off	OFF
	TAIL	Operates the tail lamp relay and the daytime running light relay. <b>NOTE:</b> Daytime running light relay is with daytime running light system only.
EXTERNAL LAMPS	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 4 seconds intervals.
	Fog	Operates the front fog lamp relay. <b>NOTE:</b> This item can test only the vehicle with front fog lamp system.
HORN	On	Operates horn relay for 20 ms.

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Revision: 2010 July

## POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

[HALOGEN TYPE]

# DTC/CIRCUIT DIAGNOSIS

## POWER SUPPLY AND GROUND CIRCUIT

BCM (BODY CONTROL MODULE)

## BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:000000006485562

## **1.**CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not fusing.

Signal name	Fuses and fusible link No.
Battery power supply	10
Ballery power suppry	J
ACC power supply	20
Ignition power supply	1

#### Is the fuse fusing?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.

NO >> GO TO 2.

# 2. CHECK POWER SUPPLY CIRCUIT

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

	Terminals		Ignition switch position		
(·	+)				
BC	BCM		OFF	ACC	ON
Connector	Terminal		OFF	700	ON
M67	70		Battery	Battery	Battery
WO7	57		voltage	voltage	voltage
M65	11	Ground	Approx. 0 V	Battery voltage	Battery voltage
WIOS	38		Approx. 0 V	Approx. 0 V	Battery voltage

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair the harness or connector.

 ${
m 3.}$ CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and the ground.

B	CM		Continuity
Connector	Terminal	Ground	Continuity
M67	67	† 	Existed

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector.

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) : Di-

## **EXL-172**

# POWER SUPPLY AND GROUND CIRCUIT

gnosis Proc	edure			INFOID:000000006
.CHECK FUSI	BLE LINK			
heck that the fo	llowing IPDM	E/R fusible lin	k is not blown.	
	Signal name			Fusible link No.
				C
Ba	ittery power suppl	ly		E
				К
NO >> GO ]	TO 2. /ER SUPPLY (	CIRCUIT	·	
Turn the ignit Disconnect I Check voltag	tion switch OF PDM E/R con ge between IP Terminals	F. nectors.	ess connectors and t	he ground.
Turn the igni	tion switch OF PDM E/R con ge between IP Terminals	F. nectors.	Voltage (Approx.)	he ground.
Turn the ignit Disconnect I Check voltag	tion switch OF PDM E/R con ge between IP Terminals	F. nectors. DM E/R harne	Voltage	he ground.
Turn the ignit Disconnect I Check voltag (+) IPDM I Connector	tion switch OF PDM E/R con ge between IP Terminals E/R	F. nectors. DM E/R harne (-)	Voltage	he ground.
Turn the ignit Disconnect I Check voltag (+)	tion switch OF PDM E/R con ge between IP Terminals E/R Terminal	F. nectors. DM E/R harne	Voltage	he ground.
Turn the ignit Disconnect I Check voltag (+) IPDM I Connector	tion switch OF PDM E/R con ge between IP Terminals E/R Terminal 1	F. nectors. DM E/R harne (-)	Voltage (Approx.)	he ground.
Turn the ignit Disconnect I Check voltag (+) IPDM I Connector E9 E10	tion switch OF PDM E/R con ge between IP Terminals E/R Terminal 1 2 6	F. nectors. DM E/R harne (-) Ground	Voltage (Approx.)	he ground.
Turn the ignit Disconnect I Check voltag (+) IPDM I Connector E9 E10 the measurem YES >> GO T	tion switch OF PDM E/R con ge between IP Terminals E/R Terminal 1 2 6 ent value norr TO 3. air the harness	FF. nectors. DM E/R harne (-) Ground <u>mal?</u> s or connector	Voltage (Approx.) Battery voltage	he ground.

IPDI	M E/R		Continuity
Connector	Terminal	Ground	Continuity
E11	11	Giodila	Exist
E13	25	-	EXIST

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector. Ν

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## < DTC/CIRCUIT DIAGNOSIS >

# EXTERIOR LAMP FUSE

## Description

INFOID:000000006201203

[HALOGEN TYPE]

Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	#44	10 A
Headlamp HI (RH)	IPDM E/R	#43	10 A
Headlamp LO (LH)	IPDM E/R	#49	15 A
Headlamp LO (RH)	IPDM E/R	#50	15 A
Daytime running light	FUSE AND FUSIBLE LINK BLOCK	#33	10 A
Front fog lamp	IPDM E/R	#65	15 A
Parking lamp	IPDM E/R	#46	10 A
<ul><li>Tail lamp</li><li>License plate lamp</li><li>Each illumination</li></ul>	IPDM E/R	#45	10 A
Stop lamp	FUSE BLOCK (J/B)	#11	10 A
Back-up lamp	IPDM E/R	#60	10 A

## **Diagnosis Procedure**

# 1.CHECK FUSE

Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	#44	10 A
Headlamp HI (RH)	IPDM E/R	#43	10 A
Headlamp LO (LH)	IPDM E/R	#49	15 A
Headlamp LO (RH)	IPDM E/R	#50	15 A
Daytime running light	FUSE AND FUSIBLE LINK BLOCK	#33	10 A
Front fog lamp	IPDM E/R	#65	15 A
Parking lamp	IPDM E/R	#46	10 A
<ul><li>Tail lamp</li><li>License plate lamp</li><li>Each illumination</li></ul>	IPDM E/R	#45	10 A
Stop lamp	FUSE BLOCK (J/B)	#11	10 A
Back-up lamp	IPDM E/R	#60	10 A

#### Is the fuse fusing?

YES >> Repair the applicable circuit. And then replace the fuse.

NO >> The fuse is normal.

INFOID:000000006201204

## **HEADLAMP (HI) CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

[HALOGEN TYPE]

HEA	DLAM	P (HI) C	IRCUIT	-		
Com	onent	Function	Check			INFOID:00000006201205
1.сн	ECK HEA	DLAMP (H	II) OPERA	ΓΙΟΝ		
1. Ac 2. Ch CON 1. Se	tivate IPE neck that NSULT-III elect "EXT	the headlar ACTIVE T ERNAL LA	o active te mp switche EST AMPS" of IF	es to the high PDM E/R act	beam. ive test item.	is turned ON.
	Hi	: Headlar	mp (HI) ON	4		
	Off		np (HI) OF			
	<b>DTE:</b> V/OFF is I	repeated 1	second ea	ich.		
		(HI) turned				
YES		dlamp (HI)				
NO				osis Proced	<u>ure"</u> .	
Diagr	nosis Pr	ocedure				INFOID:00000006201206
1.сн	ECK HEA	DLAMP (H	II) OUTPU <sup>-</sup>	T VOLTAGE		
		ACTIVE T				
		ition switch the headla		nnector.		
3. Tu	irn the ign	nition switch	n ÓN.			
				PDM E/R act	ive test item.	
J. VV		tina the te	st items. c	heck the vo		n the IPDM E/R harness connector and the
	ound.	ting the te	st items, c	heck the vo		n the IPDM E/R harness connector and the
	ound.		st items, c	heck the vo		n the IPDM E/R harness connector and the
	ound. T	erminals		heck the vo	ltage betwee	n the IPDM E/R harness connector and the
	ound. т (+)	erminals	st items, c	Test item		n the IPDM E/R harness connector and the
gr	ound. T	erminals			Itage betwee	
	Dund. T (+) IPDM E	erminals /R Terminal		Test item EXTERNAL LAMPS	Itage betwee	n the IPDM E/R harness connector and the
gr	Dund. T (+) IPDM E	erminals /R	(–)	Test item EXTERNAL	Voltage (Approx.) Battery voltage	
Gro Co RH LH	T (+) IPDM E nnector E12	erminals /R Terminal 22 21	(–) Ground	Test item EXTERNAL LAMPS	Itage betwee Voltage (Approx.) Battery	
Co RH LH Is the I	T (+) IPDM E nnector E12 measuren	rerminals /R Terminal 22 21 nent value	(–) Ground	Test item EXTERNAL LAMPS Hi	Voltage (Approx.) Battery voltage	Ē
Gruen Co RH LH Is the I YES	T (+) IPDM E nnector E12 measuren >> GO	rerminals /R Terminal 22 21 nent value TO 2.	(–) Ground	Test item EXTERNAL LAMPS Hi	Voltage (Approx.) Battery voltage	Ē
Co RH LH YES NO	T (+) IPDM E nnector E12 measuren >> GO >> GO	rerminals /R Terminal 22 21 nent value TO 2. TO 3.	(-) Ground	Test item EXTERNAL LAMPS Hi Off	Voltage (Approx.) Battery voltage	Ē
gru Co RH LH <u>Is the I</u> YES NO <b>2.</b> CH	T (+) IPDM E nnector E12 measuren >> GO >> GO ECK HEA	rerminals /R Terminal 22 21 nent value TO 2. TO 2. TO 3.	(-) Ground normal?	Test item EXTERNAL LAMPS Hi Off	Voltage (Approx.) Battery voltage	Ē
Gruen Coord RH LH Is the I YES NO 2.CHI 1. Tu 2. Di	T (+) IPDM E nnector E12 measuren >> GO >> GO ECK HEA rrn the ign sconnect	rerminals /R Terminal 22 21 nent value TO 2. TO 2. TO 3. NDLAMP (H ition switch IPDM E/R	(-) Ground normal? II) OPEN C	Test item EXTERNAL LAMPS Hi Off	Voltage (Approx.) Battery voltage 0 V	E
Gruen Coord RH LH Is the I YES NO 2.CHI 1. Tu 2. Di	T (+) IPDM E nnector E12 measuren >> GO >> GO ECK HEA rrn the ign sconnect	rerminals /R Terminal 22 21 nent value TO 2. TO 2. TO 3. NDLAMP (H ition switch IPDM E/R	(-) Ground normal? II) OPEN C	Test item EXTERNAL LAMPS Hi Off	Voltage (Approx.) Battery voltage 0 V	Ē
Gruen Coord RH LH Is the I YES NO 2.CHI 1. Tu 2. Di	T (+) IPDM E nnector E12 measuren >> GO >> GO ECK HEA rn the ign sconnect heck conti	erminals /R Terminal 22 21 TO 2. TO 2. TO 3. DLAMP (H ition switch IPDM E/R inuity betwee	(-) Ground normal? II) OPEN C n OFF. connector. een the IPI	Test item EXTERNAL LAMPS Hi Off CIRCUIT	Voltage (Approx.) Battery voltage 0 V	E
gru Co RH LH YES NO <b>2.</b> CH 1. Tu 2. Di 3. Ch	T (+) IPDM E nnector E12 measuren >> GO >> GO ECK HEA rrn the ign sconnect neck conti	rerminals /R Terminal 22 21 nent value TO 2. TO 3. DLAMP (H nition switch IPDM E/R inuity betwo	(-) Ground normal?	Test item EXTERNAL LAMPS Hi Off CIRCUIT	Voltage (Approx.) Battery voltage 0 V	E
gru Co RH LH Is the I YES NO 2.CHI 1. Tu 2. Di 3. Ch	T (+) IPDM E nnector E12 measuren >> GO >> GO ECK HEA rn the ign sconnect heck conti	erminals /R Terminal 22 21 nent value TO 2. TO 2. TO 3. NDLAMP (H ition switch IPDM E/R inuity betwo	(-) Ground normal? II) OPEN C n OFF. connector. een the IPI Headl Connector	Test item EXTERNAL LAMPS Hi Off CIRCUIT OM E/R harm amp high r Terminal	Itage betwee Voltage (Approx.) Battery voltage 0 V	E
gru Co RH LH YES NO 2.CH 1. Tu 2. Di 3. Ch 3. Ch Co RH	T (+) IPDM E nnector E12 measuren >> GO >> GO ECK HEA rrn the ign sconnect neck conti	rerminals /R Terminal 22 21 nent value TO 2. TO 3. DLAMP (H intion switch IPDM E/R inuity betwee /R Terminal 22	(-) Ground normal? II) OPEN C n OFF. connector. een the IPE Head Connector E43	Test item EXTERNAL LAMPS Hi Off CIRCUIT OM E/R harn lamp high r Terminal 1	Itage betwee Voltage (Approx.) Battery voltage 0 V	E
gru Co RH LH YES NO 2.CH 1. Tu 2. Di 3. Cr Co RH LH	T (+) IPDM E IPDM E Innector E12 Measurem >> GO ECK HEA Irn the ign sconnect Neck conti IPDM E Innector E12	erminals /R Terminal 22 21 nent value TO 2. TO 2. TO 2. TO 3. DLAMP (H ition switch IPDM E/R inuity betwo /R Terminal 22 21	(-) Ground normal? II) OPEN C n OFF. connector. een the IPI Headl Connector	Test item EXTERNAL LAMPS Hi Off CIRCUIT OM E/R harm amp high r Terminal	Itage betwee Voltage (Approx.) Battery voltage 0 V ess connecto	E
gru Co RH LH Is the I YES NO 2.CH 1. Tu 2. Di 3. Ch Co RH LH LH Does C	T (+) IPDM E nnector E12 measuren >> GO ECK HEA rn the ign sconnect neck conti IPDM E nnector E12 continuity	rerminals /R Terminal 22 21 nent value TO 2. TO 2. TO 3. DLAMP (H ition switch IPDM E/R nuity between /R Terminal 22 21 exist?	(-) Ground normal? II) OPEN C n OFF. connector. een the IPE Headl Connectol E43 E24	Test item EXTERNAL LAMPS Hi Off CIRCUIT OM E/R harn lamp high r Terminal 1	Itage betwee Voltage (Approx.) Battery voltage 0 V ess connecto Continuity Existed	E

## **HEADLAMP (HI) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

YES (With daytime running light system)>>GO TO 6.

NO >> Repair the harnesses or connectors.

# **3.**CHECK HEADLAMP (HI) FUSE

1. Turn the ignition switch OFF.

2. Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	#44	10 A
Headlamp HI (RH)	IPDM E/R	#43	10 A

Is the fuse fusing?

YES >> GO TO 4.

NO >> Replace IPDM E/R.

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

1. Disconnect IPDM E/R connector.

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

IPDM E/R			Continuity	
Conr	nector	Terminal	Ground	Continuity
RH	E12	22	Cround	Not existed
LH		21		NUL EXISTED

Does continuity exist?

YES >> Repair the harnesses or connectors. And then replace the fuse.

NO >> Replace the fuse. (Replace IPDM E/R if the fuse is fusing again.)

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

1. Turn the ignition switch OFF.

2. Disconnect the headlamp high connector.

3. Check continuity between the headlamp high harness connector and ground.

Headlamp high				Continuity	
Conr	nector	Terminal	Ground	Continuity	
RH	E43	2	Gibuna	Existed	
LH	E24	2	*	Existed	

Does continuity exist?

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

NO >> Repair the harnesses or connectors.

#### $\mathbf{6}$ .CHECK HEADLAMP (HI) GROUND OPEN CIRCUIT (LH SIDE)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the headlamp high connector.
- 3. Check continuity between the headlamp high harness connector and ground.

	Headlamp	high		Continuity
Conr	nector	Terminal	Ground	Existed
LH	E24	2	Ť	LAISted

Does continuity exist?

YES >> GO TO 7.

NO >> Repair the harnesses or connectors.

**I**.CHECK CONTINUITY BETWEEN HEADLAMP HIGH (RH) AND DAYTIME RUNNING LIGHT RELAY

1. Remove daytime running light relay.

## EXL-176

## **HEADLAMP (HI) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

2. Check continuity between headlamp high RH harness connector and daytime running light relay harness connector.

	Headlamp	high	Daytime runni	ng light relay	Continuity
Con	nector	Terminal	Connector	Terminal	Existed
RH	E43	2	E65	3	LVISIGO
Does co	ontinuity	exist?			
YES	>> GO			ootor	
	•		ness or conn		
			RUNNING L		
Check	continuity	/ between	daytime runn	ing light re	lay harness
Da	vtime runni	ng light relay			Continuity
	onnector	Termin		ound	Continuity
	E65	4			Existed
Does c	ontinuity	exist?			
YES	>> GO				
NO			ness or conn		
<b>9.</b> CHE	CK THE	DAYTIME	RUNNING L	IGHT REL	AY
Check	daytime r	running ligh	nt relay. Refe	r to <u>EXL-18</u>	<u>33, "Compo</u>
<u>Is the d</u>			<u>t relay norma</u>		
YES			eadlamp (HI)		
NO	>> Kep	hace the u	aytime runnin	g light rela	ly.

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[HALOGEN TYPE]

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< DTC/CIRCUIT DIAGNOSIS >

## HEADLAMP (LO) CIRCUIT

Component Function Check

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

**®IPDM E/R AUTO ACTIVE TEST** 

1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".

2. Check that the headlamp is turned ON.

(E)CONSULT-III 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 headlamp (LO) turned ON?

YES >> Headlamp (LO) is normal. NO >> Refer to <u>EXL-178</u>, "Diagnosis Procedure".

## Diagnosis Procedure

INFOID:000000006201208

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

CONSULT-III ACTIVE TEST

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

		Terminals	Test item		
(+)		()		Voltage (Approx.)	
IPDM E/R			EXTERNAL		
Conr	nector	Terminal		LAMPS	
RH	E12	20	Ground	LO	Battery volt- age
LH		18	_	OFF	0 V

Is the measurement value normal?

YES >> GO TO 2.

NO >> GO TO 3.

2. CHECK HEADLAMP (LO) OPEN CIRCUIT

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

IPDM E/R		Headla	Continuity		
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E12	20	E45	1	Existed
LH		18	E26	1	EXISIEU

Does continuity exist?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

## EXL-178

INFOID:000000006201207

## **HEADLAMP (LO) CIRCUIT**

## < DTC/CIRCUIT DIAGNOSIS >

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

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

Unit	Lotion	Fuse No.	Capacity
Headlamp LO (LH)	IPDM E/R	#49	15 A
Headlamp LO (RH)	IPDM E/R	#50	15 A

#### Is the fuse fusing?

YES >> GO TO 4.

NO >> Replace IPDM E/R.

## **4.**CHECK HEADLAMP (LO) SHORT CIRCUIT

1. Disconnect IPDM E/R connector.

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

Connector     Terminal       RH     20       Not existed	1	IPDM E/R			Continuity	
RH 20	Conr	Connector Terminal		Ground	Continuity	
	RH	E12			Not ovisted	
LH 18	LH	EIZ	18	_	Not existed	

Does continuity exist?

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

# 5. CHECK HEADLAMP (LO) GROUND OPEN CIRCUIT

- 1. Turn the ignition switch OFF.
- 2. Disconnect the headlamp low connector.
- 3. Check continuity between the headlamp low harness connector and ground.

	Headla	amp low		Continuity
Con	nector	Terminal	Ground	Continuity
RH	E45	2	Giodila	Existed
LH	E26	2		Existed

Does continuity exist?

YES >> Replace the headlamp (LO) bulb. (Bulb socket is abnormally.)

NO >> Repair the harnesses or connectors.

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< DTC/CIRCUIT DIAGNOSIS >

## FRONT FOG LAMP CIRCUIT

Component Function Check

**1.**CHECK FRONT FOG LAMP OPERATION

**®IPDM E/R AUTO ACTIVE TEST** 

1. Activate IPDM E/R auto active test. Refer to PCS-8, "Diagnosis Description".

2. Check that the front fog lamp is turned ON.

CONSULT-III ACTIVE TEST

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

Fog : Front fog lamp ON

#### Off : Front fog lamp OFF

Is the front fog lamp turned ON?

YES >> Front fog lamp circuit is normal.

NO >> Refer to <u>EXL-180, "Diagnosis Procedure"</u>.

## Diagnosis Procedure

## **1.**CHECK FRONT FOG LAMP FUSE

1. Turn the ignition switch OFF.

2. Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#65	15 A

Is the fuse fusing?

YES >> GO TO 2.

NO >> GO TO 3.

## 2.CHECK FRONT FOG LAMP SHORT CIRCUIT

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

IPDM E/R				Continuity
Con	nector	Terminal	Ground	Continuity
RH	E12	17	Giouna	Not existed
LH		16		NUL EXISTED

#### Does continuity exist?

YES >> Repair the harnesses or connectors. And then replace the fuse.

NO >> Replace the fuse. (Replace IPDM E/R if the fuse is fusing again.)

## 3.CHECK FRONT FOG LAMP BULB

Check the applicable lamp bulb.

#### Is the bulb normal?

YES >> GO TO 4.

NO >> Replace the bulb.

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

#### CONSULT-III ACTIVE TEST

- T. Disconnect the front fog lamp connector.
- 2. Turn the ignition switch ON.
- 3. Select "EXTERNAL LAMPS" of IPDM E/R active test item.

## EXL-180

INFOID:000000006201209

INFOID:000000006201210

## FRONT FOG LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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

	Т	erminals		Test item	
	(+)		(-)	rest item	Voltage
	IPDM E/R			EXTERNAL	(Approx.)
Con	Connector Terminal			LAMPS	
RH	E12	17	Ground	Fog	Battery voltage
LH		16		Off	0 V
YES NO <b>5.</b> CHE 1. Tur 2. Dis	>> GO >> Rep CK FRO in the ign	NT FOG L NT FOG L ition switc IPDM E/R	1 E/R. .AMP OPEN		ess connec
	IPDM E/R Front fog lam			og lamp	
Con			Connector	Terminal	Terminal Continuity
RH	E12	17	E48	2	- Existed
LH		16	E30	2	- Existed
YES NO <b>6.</b> СНЕ	CK FRO	TO 6. bair the hai NT FOG L	rnesses or co _AMP GROL the front fog	IND CIRCU	
	Front fo	ng lamp			
	onnector	Term	inal		Continuity
C.			(	Ground	
Co	E48	1			Eviated
	E48 E30				Existed
RH LH		1			Existed
RH LH	E30 ontinuity >> Rep	1 exist? lace the fr			Existed

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[HALOGEN TYPE]

### < DTC/CIRCUIT DIAGNOSIS >

## DAYTIME RUNNING LIGHT RELAY CIRCUIT

### **Component Function Check**

**1.**CHECK DAYTIME RUNNING LIGHT OPERATION

#### CONSULT-III ACTIVE TEST

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

2. With operating the test item, check that daytime running light operation.

#### TAIL : Daytime running light ON

#### Off : Daytime running light OFF

Is the daytime running light turned ON?

YES >> Daytime running light relay circuit is normal.

NO >> Refer to <u>EXL-182</u>, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:000000006201212

## 1.CHECK DAYTIME RUNNING LIGHT RELAY FUSE

Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Daytime running light relay	Fuse and fusible link block	#33	10A

#### Is the fuse fusing?

YES >> Replace the fuse after repairing the applicable circuit.

NO >> GO TO 2.

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

1. Remove daytime running light relay.

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

(	+)	(-)	Voltage (Ap- prox.)	
Daytime runr	ning light relay	Ground	prox.)	
Connector	Terminal			
FCF	1		Detter (veltere	
E65	5		Battery voltage	

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair harnesses or connectors.

**3.**CHECK DAYTIME RUNNING LIGHT RELAY

Check daytime running light relay. Refer to EXL-183. "Component Inspection".

Is the daytime running light relay normal?

YES >> GO TO 4.

NO >> Replace daytime running light relay.

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

#### CONSULT-III ACTIVE TEST

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

### EXL-182

INFOID:000000006201211

### DAYTIME RUNNING LIGHT RELAY CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

	Terminals		Test item	
(+	+)	(-)	iest item	Voltage (Ap-
IPDN	/IE/R		DAYTIME	prox.)
Connector	Terminal		RUNNING LIGHT	
		Ground	On	0 V
E12	15		Off	Battery volt- age
Is the measu	urement valu	ie normal?		
			ight relay cir	cuit. Refer to

Fixed at 0 V >> GO TO 5.

Fixed at battery voltage >>Replace IPDM E/R.

5.check daytime running light relay control signal open circuit

- 1. Remove daytime running light relay.
- 2. Disconnect IPDM E/R harness connector.
- 3. Check continuity between IPDM E/R harness connector and daytime running light relay harness connector.

IPDN	II E/R	Daytime runr	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
E12	15	E65	2	Existed

Does continuity exist?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

O.CHECK DAYTIME RUNNING LIGHT RELAY CONTROL SIGNAL SHORT CIRCUIT

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

IPDN	M E/R		Continuity
Connector	Terminal	Ground	Continuity
E12	15	-	Not existed
Does continuity	<u>v exist?</u>		
VES >> Re	nair the harnes	ses or connecto	ore

Repair the narnesses or connectors. NO >> Replace IPDM E/R.

#### **Component Inspection**

## 1. CHECK DAYTIME RUNNING LIGHT RELAY

- 1. Turn the ignition switch OFF.
- Remove daytime running light relay. 2.

Apply battery voltage to daytime running light relay between terminals 1 and 2. 3.

4. Check continuity of daytime running light relay.

Daytime runr	ning light relay	Condition	Continuity
Terr	minal	Voltage	Continuity
5		Apply	Existed
5	3	Not Apply	Not existed
4	5	Apply	Not existed
4		Not Apply	Existed

Does continuity exist?

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INFOID:000000006201213

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### DAYTIME RUNNING LIGHT RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

- >> Daytime running light relay is normal.>> Replace daytime running light relay. YES
- NO

### PARKING LAMP CIRCUIT

PARKING LAMF	<sup>o</sup> CIRCUIT					^
Component Funct	on Check				INFOID:000000006201214	A
1.CHECK PARKING L	AMP OPERATIO	ON				В
<ol> <li>Check that the parl</li> <li>CONSULT-III ACTIV</li> <li>Select "EXTERNAL</li> </ol>	auto active test. king lamp is turne E TEST - LAMPS" of IPD	ed ON. IM E/R act	ive test iten			С
	ting lamp ON	t inat ine p	arking lam	o is turned ON.		D
	ing lamp OFF					E
Is the parking lamp turn YES >> Parking lan	<u>ed ON?</u> np circuit is norm					
	(L-185, "Diagnos		<u>ure"</u> .			F
Diagnosis Procedu	ure				INFOID:000000006201215	
1.CHECK PARKING L	AMP FUSE					G
<ol> <li>Turn the ignition sw</li> <li>Check that the following the following</li></ol>		not fusing.				Η
Unit	Location	Fuse No.	Capacity			
Parking lamp	IPDM E/R	#46	10 A			
Is the fuse fusing? YES >> GO TO 2. NO >> GO TO 3. 2.CHECK PARKING L	AMP SHORT CI	RCUIT				J
<ol> <li>Disconnect IPDM E</li> <li>Check continuity be</li> </ol>						Κ
IPDM E/R			Continuity			EXL
	minal Gro	und –	Continuity		I	
E14	39 38		Not existed			M
Does continuity exist?						
	harnesses or co e fuse. (Replace					Ν
3. CHECK PARKING L	· ·		0	<b>G</b> ,		
Check the applicable la	mp bulb.					0
<u>Is the bulb normal?</u> YES >> GO TO 4.						
NO >> Replace th						Ρ
4.CHECK PARKING L		ULIAGE				
<ol> <li>Disconnect the par</li> <li>Turn the ignition sw</li> <li>Select "EXTERNAL</li> </ol>	king lamp conne /itch ON.		ive test iten	٦.		

< DTC/CIRCUIT DIAGNOSIS >

## PARKING LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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

	Т	erminals	Test item		
	(+)				Voltage (Approx.)
	IPDM E/R			EXTERNAL	
Cor	Connector			LAMPS	
RH	E14	39	Ground	TAIL	Battery voltage
LH		38		Off	0 V

Is the measurement value normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

5. CHECK PARKING LAMP OPEN CIRCUIT

1. Turn the ignition switch OFF.

2. Disconnect IPDM E/R connector.

3. Check continuity between the IPDM E/R harness connector and the parking lamp harness connector.

IPDM E/R			Parking	Continuity	
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E14	39	E46	1	Existed
LH	L14	38	E27	1	LAISIEU

Does continuity exist?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

#### **6.**CHECK PARKING LAMP GROUND OPEN CIRCUIT

Check continuity between the parking lamp harness connector and the ground.

	Parking la	mp		Continuity
Conr	nector	Terminal	Ground	Continuity
RH	E46	2	Giouna	Existed
LH	E27	2		LAISLEU

Does continuity exist?

YES >> Replace the front combination lamp.

NO >> Repair the harnesses or connectors.

[HALOGEN TYPE]

### **TURN SIGNAL LAMP CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >	[HALOGEN TYPE]
TURN SIGNAL LAMP CIRCUIT	
Description	INFOID:00000006201216
BCM performs the high flasher operation (fail-safe) if any bulb or harness of the tu open. NOTE:	rn signal lamp circuit is
The turn signal lamp blinks at normal speed when using the hazard warning lamp.	
Component Function Check	INFOID:00000006201217
1.CHECK TURN SIGNAL LAMP	
<ul> <li>CONSULT-III ACTIVE TEST</li> <li>Select "FLASHER" of BCM (FLASHER) active test item.</li> <li>With operating the test items, check that the turn signal lamp is turned ON.</li> </ul>	
LH: Turn signal lamps (LH) ONRH: Turn signal lamps (RH) ONOff: Turn signal lamps OFF	
Is the turn signal lamp turned ON? YES >> Turn signal lamp circuit is normal. NO >> Refer to <u>EXL-187, "Diagnosis Procedure"</u> .	
Diagnosis Procedure	INFOID:000000006201218
1.CHECK TURN SIGNAL LAMP BULB	
$\begin{array}{llllllllllllllllllllllllllllllllllll$	
<ol> <li>Turn the ignition switch OFF.</li> <li>Disconnect the front turn signal lamp connector or the rear combination lamp conrol.</li> <li>Turn the ignition switch ON.</li> <li>With operating the turn signal switch, check the voltage between the BCM harr ground.</li> </ol>	

	Te	rminals		Condition		
	(+)		(-)	Condition	Voltage (Approx)	
	BCM			Turn signal	Voltage (Approx.)	
Co	onnector	Terminal		switch		
RH		61				
LH	M67	60	Ground	LH or RH		
				OFF	0 V	

Is the measurement value normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-66</u>, "Exploded View".

#### < DTC/CIRCUIT DIAGNOSIS >

## 3. CHECK TURN SIGNAL LAMP OPEN CIRCUIT

- 1. Turn the ignition switch OFF.
- 2. Disconnect BCM connector.
- Check continuity between the BCM harness connector and the front turn signal lamp, or the rear combination lamp harness connector.

Front turn signal lamp

	BCM			Front turn signal lamp		
Co	nnector	Terminal	Connector	Terminal	Continuity	
RH	M67	61	E46	2	Existed	
LH	IVIO7	60	E27	5	Existed	

Rear turn signal lamp

BCM			Rear comb	Continuity	
Co	nnector	Terminal	Connector	Connector Terminal	
RH	M67	61	B59	2	Existed
LH	10107	60	B80	5	Existed

Does continuity exist?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

### **4.**CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between the BCM harness connector and the ground.

	BCM		Continuity	
Conr	nector	Terminal	Ground	Continuity
RH	M67	61	Ground	Not existed
LH	10107	60		NUL EXISTED

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> GO TO 5.

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

Check continuity between the front turn signal lamp, or the rear combination lamp and the ground.

Front turn signal lamp

	Front turn sigr	nal lamp		Continuity	
	Connector	Terminal	Ground	Continuity	
RH	E46	2	Ground	Existed	
LH	E27	2		LAISIEU	

Rear turn signal lamp

	Rear combinat	ion lamp		Continuity	
	Connector	Terminal	Ground	Continuity	
RH	B59	Λ	Giouna	Existed	
LH	B80	4		Existed	

Does continuity exist?

YES >> Replace the front combination lamp or the rear combination lamp.

NO >> Repair the harnesses or connectors.

## HAZARD SWITCH

## [HALOGEN TYPE]

-	D SWITC	///				
Compone	ent Functi	on Checł	K			INFOID:000000006201219
<b>1.</b> CHECK	HAZARD S\	WITCH SIG	NAL BY CON	SULT-III		
2. Select "	e ignition sw HAZARD S'	itch ON. W" of BCM		ata monitor item. nonitor status.		
Monitor iter	n	Condition	N	lonitor status		
HAZARD SW	Hazard s	witch	ON	On		
			OFF	Off		
Is the item s						
	Hazard swite Refer to EX		normai. <u>gnosis Procec</u>	ure".		
Diagnosis	s Procedu	ıre				INFOID:000000006201220
<b>1.</b> CHECK	HAZARD S\	WITCH SIG	NAL INPUT			
	-	ira switch, c	neck the volta	ge between the b		ector and the ground.
	Terminals	( )	Condition			
	(+) (–) BCM				(pprox.)	
Connector	Terminal		Hazard switch			
			ON	0 \	/	
		Ground		(V)		
M65	29		OFF	15 10 5 0 0 → ← 10ms		
	-	ue normal?	OFF		JPMIA0154GB	
Is the measure YES >>	urement val Replace BC		OFF <u>BCS-66, "Ex</u>	10 5 0 0 	JPMIA0154GB	
Is the measure YES >> NO >>	urement val Replace BC GO TO 2.	CM. Refer to	BCS-66, "Ex	10 10 10 10 10 10 10 10 10 10 10 10 10 1	JPMIA0154GB	
Is the measure YES >> NO >> 2.CHECK F	urement val Replace BC GO TO 2. HAZARD S\	CM. Refer to		10 10 10 10 10 10 10 10 10 10 10 10 10 1	JPMIA0154GB	
Is the measure YES >> NO >> 2.CHECK F 1. Turn the 2. Disconn	urement val Replace BC GO TO 2. HAZARD S\ ignition sw hect the haz	CM. Refer to WITCH SIG itch OFF. ard switch o	BCS-66, "Ex NAL OPEN CI	bloded View". RCUIT BCM connector.	JPMIA0154GB	rness connector.
Is the measure YES >> NO >> 2.CHECK H 1. Turn the 2. Disconn 3. Check c	urement val Replace BC GO TO 2. HAZARD SV e ignition sw ect the haz	CM. Refer to WITCH SIG itch OFF. ard switch c etween the h	BCS-66, "Ex NAL OPEN CI connector and hazard switch	bloded View". RCUIT BCM connector.		rness connector.
Is the measure YES >> NO >> 2.CHECK H 1. Turn the 2. Disconn 3. Check c	urement val Replace BC GO TO 2. HAZARD S\ ignition sw hect the haz	CM. Refer to WITCH SIG itch OFF. ard switch c etween the h	BCS-66, "Ex NAL OPEN CI	bloded View". RCUIT BCM connector.		rness connector.

Does continuity exist?

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

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

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

### **EXL-189**

## HAZARD SWITCH

### < DTC/CIRCUIT DIAGNOSIS >

Hazaro	d switch		Continuity
Connector	Terminal	Ground	Continuity
M45	2		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> GO TO 4.

4. CHECK HAZARD SWITCH GROUND OPEN CIRCUIT

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

Hazaro	d switch		Continuity	
Connector	Terminal	Ground	Continuity	
M45	1		Existed	

Does continuity exist?

YES >> Replace the hazard switch.

NO >> Repair the harnesses or connectors.

## **TAIL LAMP CIRCUIT**

ļ	T DIAGNC				[HALOGEN TYPE]
TAIL LAMP	CIRCL	ЛТ			
Component	Function	Check			INFOID:00000006201221
NOTE: Check the licens <u>193, "Componen</u> <b>1.</b> CHECK TAIL	nt Function	Check"		p and the lice	ense plate lamp are not turned ON. Refer to <u>EXL-</u>
<ol> <li>Check that the construction of th</li></ol>	OM E/R aut the tail lam ACTIVE T ERNAL LA	to active te p is turned EST AMPS" of	d ON. IPDM E/R a	<u>PCS-8, "Dia</u> ctive test iten tail lamp is t	
TAIL Off Is the tail lamp t YES >> Tail	: Tail Lar : Tail Iam urned ON? lamp circu	p OFF	al.		
			inosis Proce	<u>dure"</u> .	
Diagnosis Pr	ocedure	)			INFOID:00000006201222
1.CHECK TAIL	LAMP FU	SE			
<ol> <li>Turn the ign</li> <li>Check that</li> </ol>			re not fusing	J.	
Unit		Locatio	n Fuse No	o. Capacity	
Tail lamp		IPDM E	/R #45	10 A	
Is the fuse fusin YES >> Rep NO >> GO 2.CHECK TAIL	air the ma TO 2.			e replacing tl	ie fuse.
( CONSULT-III					
1. Disconnect	the rear co	mbinatior	n lamp conne	ector.	
	ERNAL LA	AMPS" of		ctive test iten voltage betwo	n. een the IPDM E/R harness connector and the
	erminals		To at it a se		
Te		()	Test item	Voltage	
Te (+)		(–)			
(+) IPDM E/R		(-)	EXTERNAL	(Approx.)	
(+) IPDM E/R	rminal		EXTERNAL LAMPS	(Approx.)	
(+) IPDM E/R		(-) Ground			

**3.**CHECK TAIL LAMP OPEN CIRCUIT

1. Turn the ignition switch OFF.

## TAIL LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### 2. Disconnect IPDM E/R connector.

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

IPDM E/R			Rear comb	Continuity	
С	connector	Terminal	Connector Terminal		Continuity
RH	E14	37	B59	1	Existed
LH	L14	57	B80	1	LAISIEU

Does continuity exist?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

4. CHECK TAIL LAMP GROUND OPEN CIRCUIT

Check continuity between the rear combination lamp harness connector and the ground.

	Rear combinat	ion lamp		Continuity
	Connector	Terminal	Ground	Continuity
RH	B59	4	Ground	Existed
LH	B80	4		LAISIEU

Does continuity exist?

YES >> Replace the rear combination lamp.

NO >> Repair the harnesses or connectors.

### LICENSE PLATE LAMP CIRCUIT

LICENSE PLATE LAMP CIRC			[HALOGEN TYPE]
	CUIT		
Component Function Check			INFOID:00000006201223
1.CHECK LICENSE PLATE LAMP OPEI	RATION		
<ul> <li>IPDM E/R AUTO ACTIVE TEST</li> <li>Activate IPDM E/R auto active test. R</li> <li>Check that the license plate lamp is to</li> <li>CONSULT-III ACTIVE TEST</li> <li>Select "EXTERNAL LAMPS" of IPDM</li> <li>With operating the lighting switch, che</li> </ul>	urned ON I E/R activ	ve test item.	
TAIL : License plate lamp O	N		
Off : License plate lamp O	FF		
Is the license plate lamp turned ON?			
YES >> License plate lamp circuit is n			
NO >> Refer to <u>EXL-193</u> , "Diagnosis	<u>Procedu</u>	<u>re"</u> .	
Diagnosis Procedure			INFOID:00000006201224
1. CHECK LICENSE PLATE LAMP BULE	3		
Check the applicable lamp bulb.			
Is the bulb normal?			
YES >> GO TO 2.			
NO >> Replace the bulb.			
2. CHECK LICENSE PLATE LAMP OPEI	N CIRCU	Т	
<ol> <li>Turn the ignition switch OFF.</li> <li>Disconnect IPDM E/R connector and</li> <li>Check continuity between the IPDM I tor.</li> </ol>			niata lamp harpaga gappag
			plate lamp namess connec-
	talama		plate lamp namess connec-
IPDM E/R License pla	-	Continuity	plate lamp namess connec-
IPDM E/R License plan Connector Terminal Connector	Terminal	Continuity	plate lamp namess connec-
IPDM E/R     License plan       Connector     Terminal     Connector       RH     E14     37	Terminal	Continuity Existed	plate lamp namess connec-
IPDM E/RLicense planConnectorTerminalConnectorRH LHE1437D196D195D195D195	Terminal		plate lamp namess connec-
IPDM E/RLicense planConnectorTerminalConnectorRHE1437D196LHD195D195	Terminal		plate lamp namess connec-
IPDM E/RLicense planConnectorTerminalConnectorRH LHE1437D196D195D195D195	Terminal 1 1		plate lamp namess connec-
IPDM E/RLicense planConnectorTerminalConnectorRH LHE1437D196Does continuity exist? YES>> GO TO 3.	Terminal 1 1 nectors.	Existed	plate lamp namess connec-
IPDM E/RLicense planConnectorTerminalConnectorRH LHE1437D196Does continuity exist?D195D195YES>> GO TO 3.NONO>> Repair the harnesses or connector3.CHECK LICENSE PLATE LAMP GRO	Terminal 1 1 nectors. UND OPE	Existed	
$\begin{tabular}{ c c c c c c c } \hline & IPDM E/R & License play \\ \hline Connector & Terminal & Connector \\ \hline Connector & Terminal & Connector \\ \hline \hline Connector & D196 & D196 & D195 & D195 & D195 & D0es continuity exist? \\ \hline \hline Does continuity exist? & YES & >> GO TO 3. \\ \hline NO & >> Repair the harnesses or connector & 3. CHECK LICENSE PLATE LAMP GRO & Check continuity between the license plat & D196 & D195 &$	Terminal 1 1 nectors. UND OPE	Existed	
$\begin{tabular}{ c c c c c c c } \hline & & & & & & & & & & & & & & & & & & $	Terminal 1 1 nectors. UND OPP te lamp ha	Existed	
$\begin{tabular}{ c c c c c c } \hline IPDM E/R & License play \\ \hline Connector & Terminal & Connector \\ \hline RH & E14 & 37 & D196 \\ \hline LH & E14 & 37 & D195 \\ \hline \hline Does \ continuity \ exist? \\ YES & >> GO TO 3. \\ NO & >> Repair the harnesses or connector \\ \hline S.CHECK LICENSE PLATE LAMP GRO \\ \hline Check \ continuity \ between the license plat \\ \hline \hline License \ plate \ lamp \\ \hline \hline Connector & Terminal \\ \hline Group \\ \hline \hline Group \\ \hline \hline \ \ Group \\ \hline \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	Terminal 1 1 nectors. UND OPE te lamp ha	Existed EN CIRCUIT arness connector and the grou	
$\begin{tabular}{ c c c c c } \hline IPDM E/R & License plant \\ \hline Connector & Terminal & Connector \\ \hline RH & E14 & 37 & D196 \\ \hline LH & E14 & 37 & D195 \\ \hline \hline Does \ continuity \ exist? \\ \hline YES & >> GO TO 3. \\ \hline NO & >> Repair the harnesses or connector \\ \hline S.CHECK LICENSE PLATE LAMP GRO \\ \hline Check \ continuity \ between the license plat \\ \hline \hline License \ plate \ lamp & Connector & Terminal \\ \hline RH & D196 & 2 \\ \hline \end{tabular}$	Terminal 1 1 nectors. UND OPE te lamp ha	Existed EN CIRCUIT arness connector and the grou	
$\begin{tabular}{ c c c c c } \hline IPDM E/R & License play \\ \hline Connector & Terminal & Connector \\ \hline RH & E14 & 37 & D196 \\ \hline LH & E14 & 37 & D196 \\ \hline \hline Does continuity exist? \\ \hline YES & >> GO TO 3. \\ NO & >> Repair the harnesses or connector \\ \hline S.CHECK LICENSE PLATE LAMP GRO \\ \hline Check continuity between the license plat \\ \hline \hline License plate lamp & Connector & Terminal \\ \hline RH & D196 & 2 & Group \\ \hline LH & D195 & 2 & Group \\ \hline \hline \ Connector & Terminal & Group \\ \hline \hline \ \ Connector & Terminal & Group \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	Terminal 1 1 nectors. UND OPE te lamp ha	Existed EN CIRCUIT arness connector and the grou	
$\begin{tabular}{ c c c c c } \hline IPDM E/R & License play \\ \hline Connector & Terminal & Connector \\ \hline RH & E14 & 37 & D196 \\ \hline LH & E14 & 37 & D195 \\ \hline \hline Does continuity exist? \\ \hline YES & >> GO TO 3. \\ \hline NO & >> Repair the harnesses or connector \\ \hline S.CHECK LICENSE PLATE LAMP GRO \\ \hline \hline Check continuity between the license plat \\ \hline \hline License plate lamp & Connector & Terminal \\ \hline RH & D196 & 2 & Group \\ \hline \hline \ Connector & Terminal \\ \hline \hline \hline \hline \hline Connector & Terminal \\ \hline \hline \hline Connector & Terminal \\ \hline \hline \hline \hline \hline Connector & Terminal \\ \hline $	Terminal 1 1 nectors. UND OPE te lamp ha	Existed EN CIRCUIT arness connector and the grou	

### **OPTICAL SENSOR**

### < DTC/CIRCUIT DIAGNOSIS >

## **OPTICAL SENSOR**

### Description

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

### **Component Function Check**

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

#### **(P)CONSULT-III DATA MONITOR**

- Ĩ. Turn the ignition switch ON.
- 2. Select "OPTICAL SENSOR" of BCM (HEADLAMP) data monitor item.
- Turn the lighting switch AUTO. 3.
- With the optical sensor illuminating, check the monitor status. 4.

Monitor item	Condition		Voltage (Approx.)
OPTICAL SENSOR	Optical sensor	When illuminating	3.1 V or more *
	00000 301301	When shutting off light	0.6 V or less

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

#### Is the item status normal?

YES >> Optical sensor is normal.

NO >> Refer to EXL-194, "Diagnosis Procedure".

### **Diagnosis** Procedure

### 1. CHECK OPTICAL SENSOR POWER SUPPLY INPUT

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

(	+)	(-)	Voltage
Optical sensor			(Approx.)
Connector Terminal		Ground	
M17 1			5 V

Is the measurement value normal?

YES >> GO TO 2.

NO >> GO TO 4.

### 2.CHECK OPTICAL SENSOR GROUND INPUT

Check the voltage between the optical sensor harness connector and the ground.

(	Voltage		
Optica	sensor		(Approx.)
Connector Terminal		Ground	
M17 3		1	0 V
Is the measure	ment value norr	mal?	

 ${\it 3.}$  check optical sensor signal output

INFOID:00000006485675

INFOID:000000006485676

INFOID:000000006485677

## **OPTICAL SENSOR**

#### < DTC/CIRCUIT DIAGNOSIS >

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

	Terminals		Condition	
(+	)	(-)	Condition	Voltage
Optical s	sensor		Optical sen-	(Approx.)
Connector	Terminal		sor	
M17	2	Ground	When bright outside of the vehicle	Close to 5 V
IVI I <i>1</i>	2		When dark outside of the vehicle	Close to 0 V

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

#### Is the measurement value normal?

NO >> Replace the optical sensor.

### 4. CHECK OPTICAL SENSOR OPEN CIRCUIT

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

Optical sensor		B	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M17	1	M65	17	Existed

Does continuity exist?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

### CHECK OPTICAL SENSOR SHORT CIRCUIT

Check the continuity between the optical sensor harness connector and the ground.

Optical sensor			Continuity
Connector	Terminal	Ground	Continuity
M17	1		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> Replace BCM.

#### 6.CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

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

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M17	3	M65	18	Existed

#### Does continuity exist?

YES >> Replace BCM.

NO >> Repair the harnesses or connectors.

7. CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

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## **OPTICAL SENSOR**

#### < DTC/CIRCUIT DIAGNOSIS >

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

Optical sensor		B	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M17	2	M65	14	Existed

Does continuity exist?

YES >> GO TO 8.

NO >> Repair the harnesses or connectors.

 $\mathbf{8}$ . Check optical sensor short circuit

Check the continuity between the optical sensor harness connector and the ground.

Optical sensor			Continuity
Connector	Terminal	Ground	Continuity
M17	2		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.

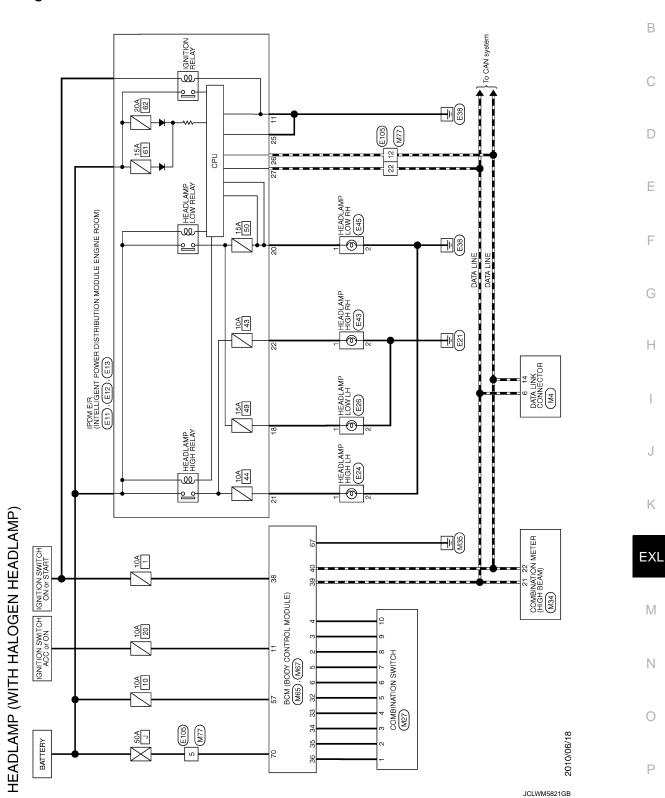
NO >> Replace BCM.

### < DTC/CIRCUIT DIAGNOSIS > HEADLAMP SYSTEM

Wiring Diagram - HEADLAMP -

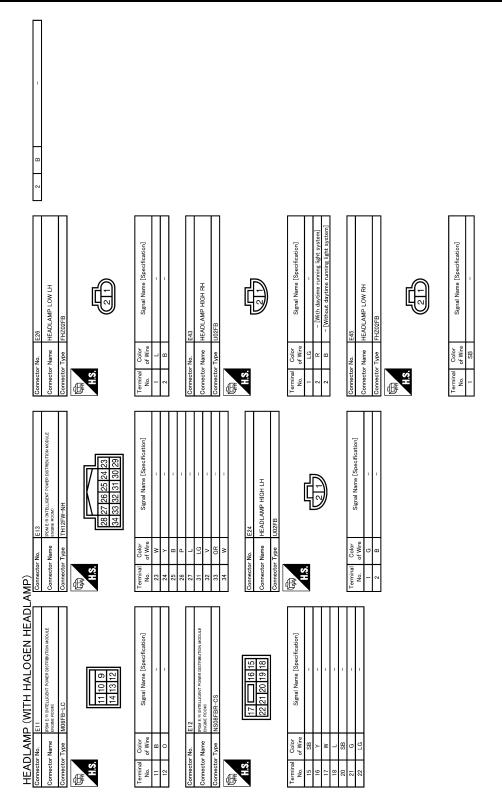
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## **HEADLAMP SYSTEM**

### < DTC/CIRCUIT DIAGNOSIS >

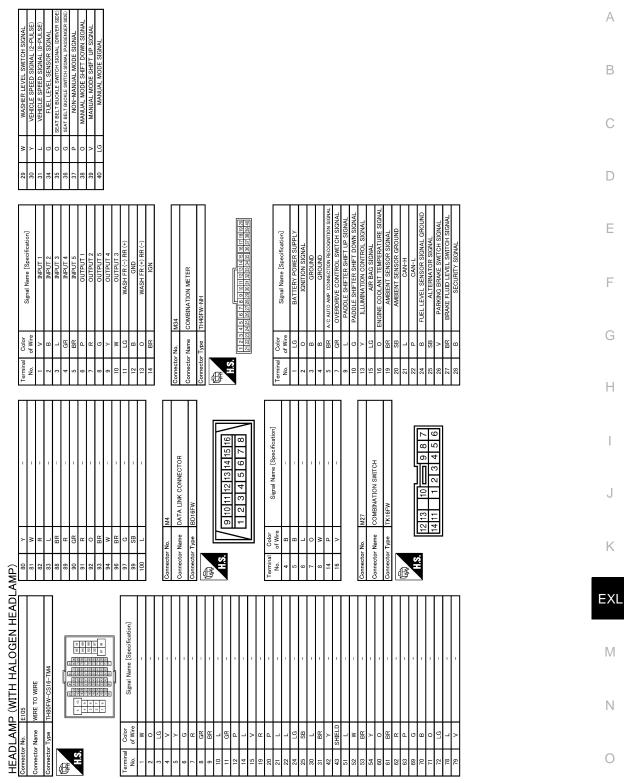


JCLWM5753GB

## HEADLAMP SYSTEM

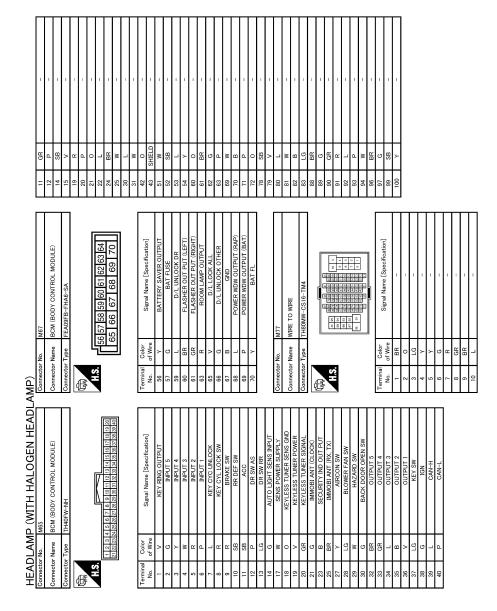
### < DTC/CIRCUIT DIAGNOSIS >

### [HALOGEN TYPE]

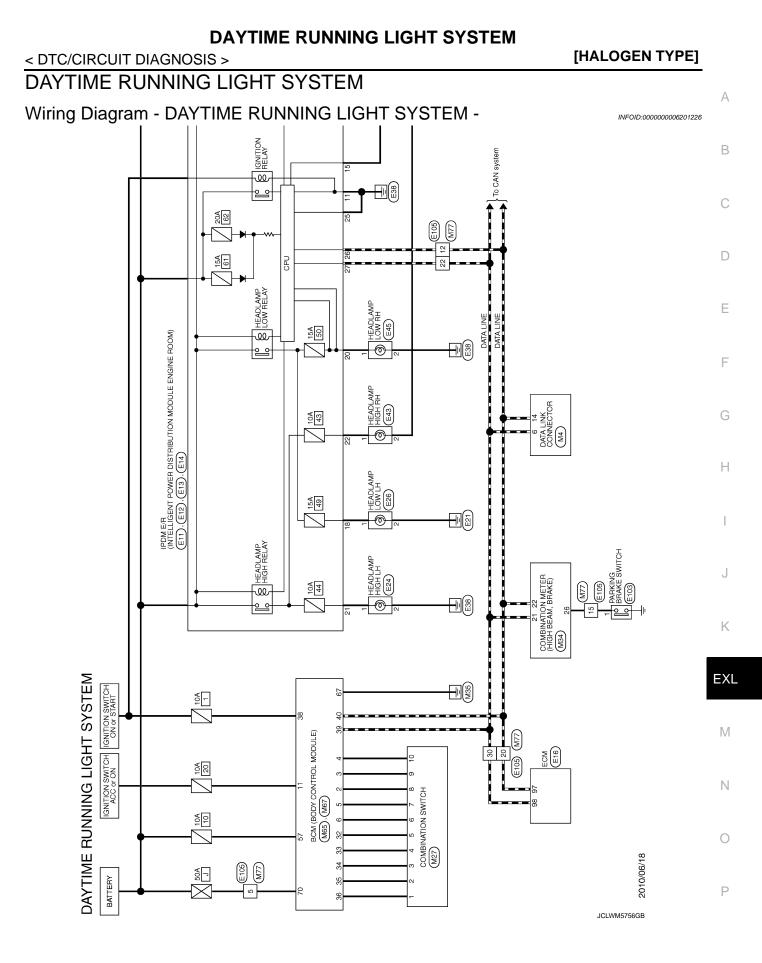


JCLWM5754GB

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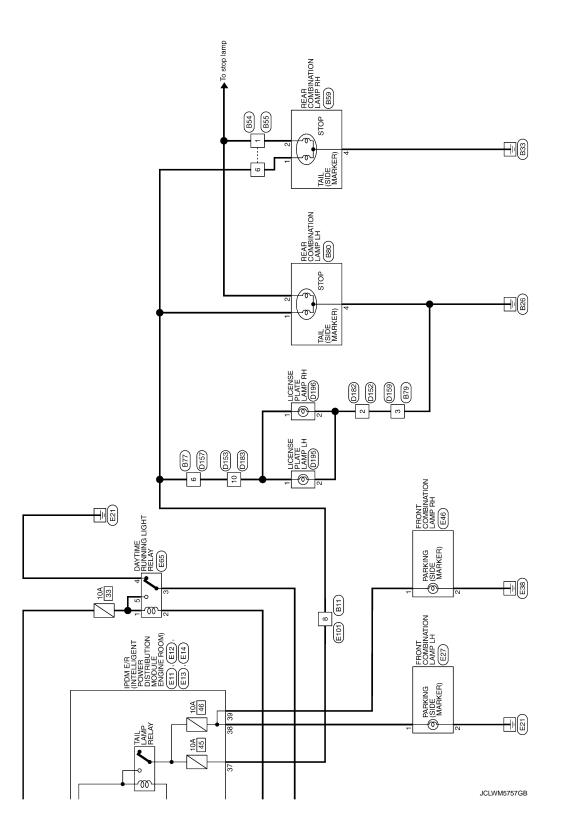


JCLWM5755GB



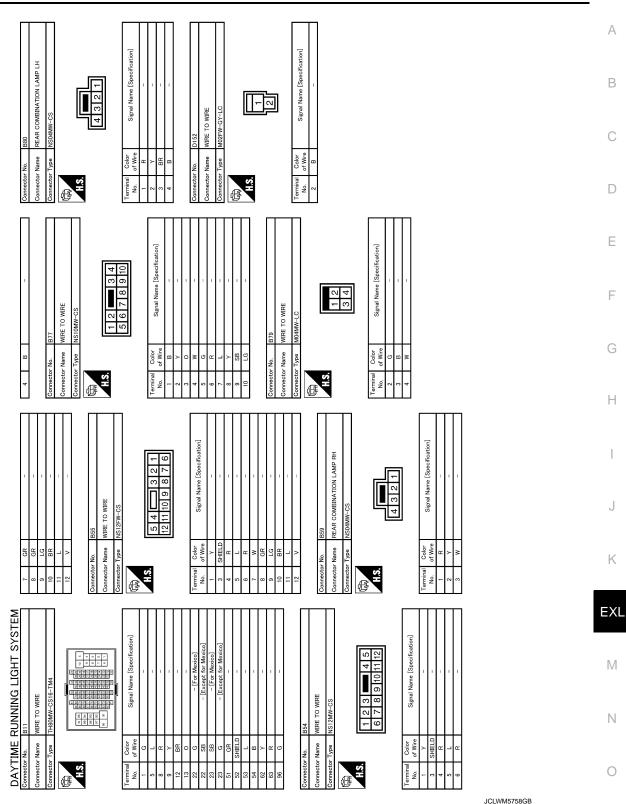
Revision: 2010 July

< DTC/CIRCUIT DIAGNOSIS >



#### < DTC/CIRCUIT DIAGNOSIS >

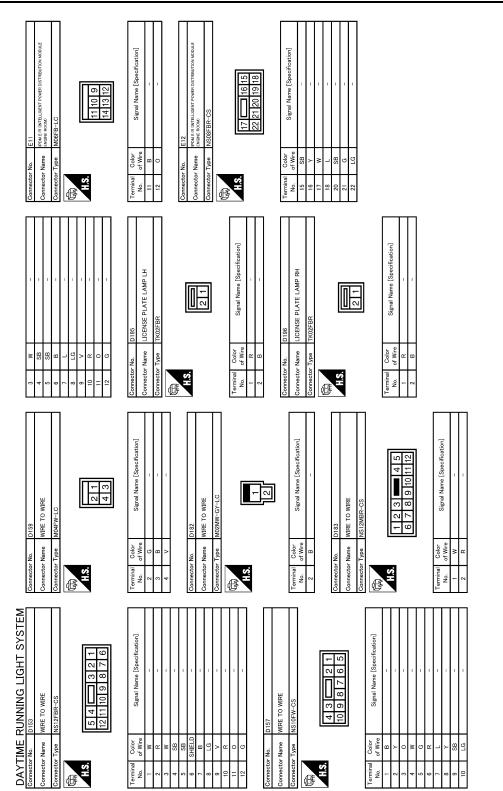
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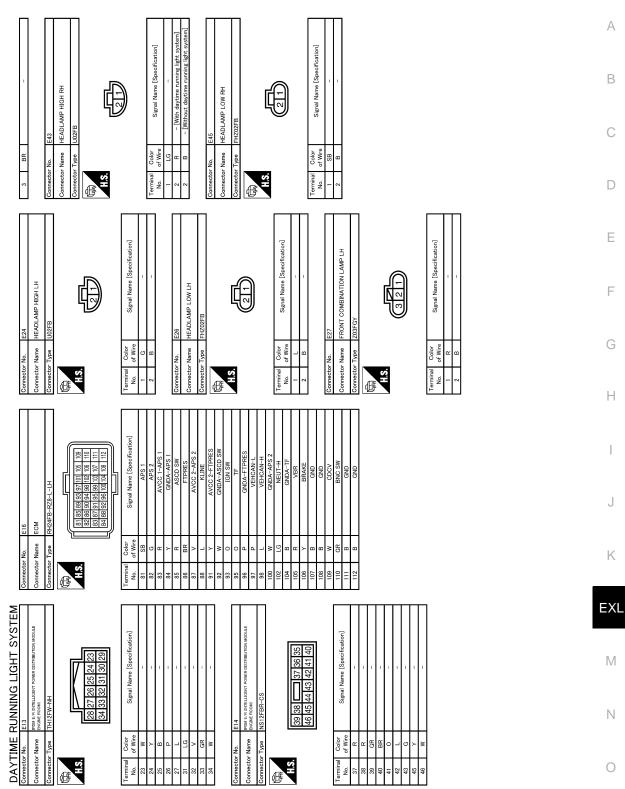
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[HALOGEN TYPE]



JCLWM5759GB

#### < DTC/CIRCUIT DIAGNOSIS >



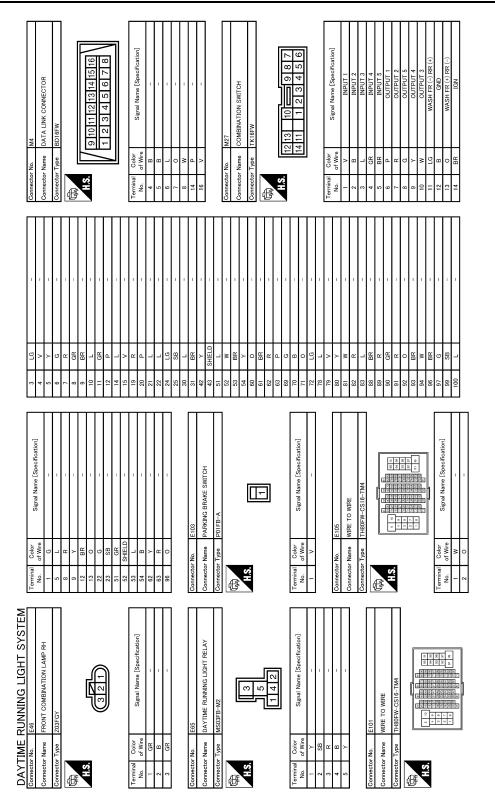
JCLWM5760GB

[HALOGEN TYPE]

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#### < DTC/CIRCUIT DIAGNOSIS >

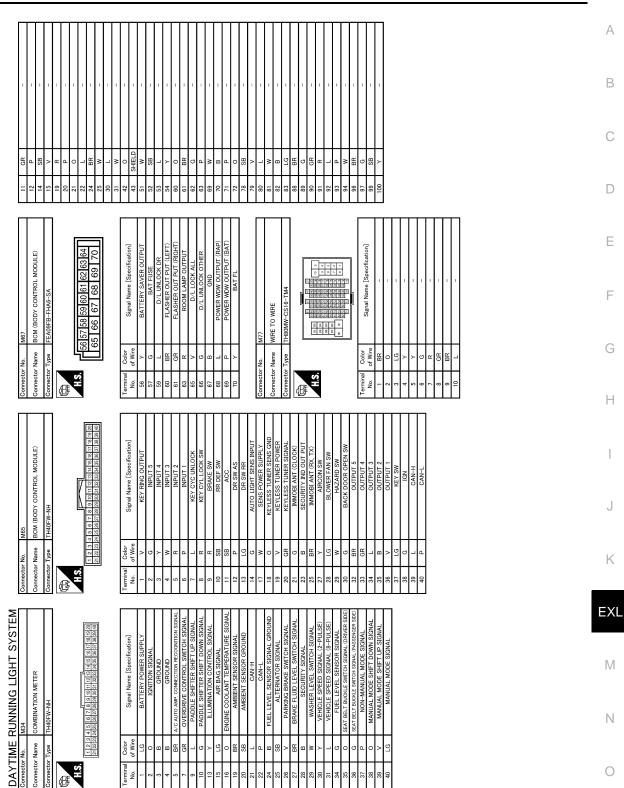
[HALOGEN TYPE]



JCLWM5761GB

#### < DTC/CIRCUIT DIAGNOSIS >

[HALOGEN TYPE]



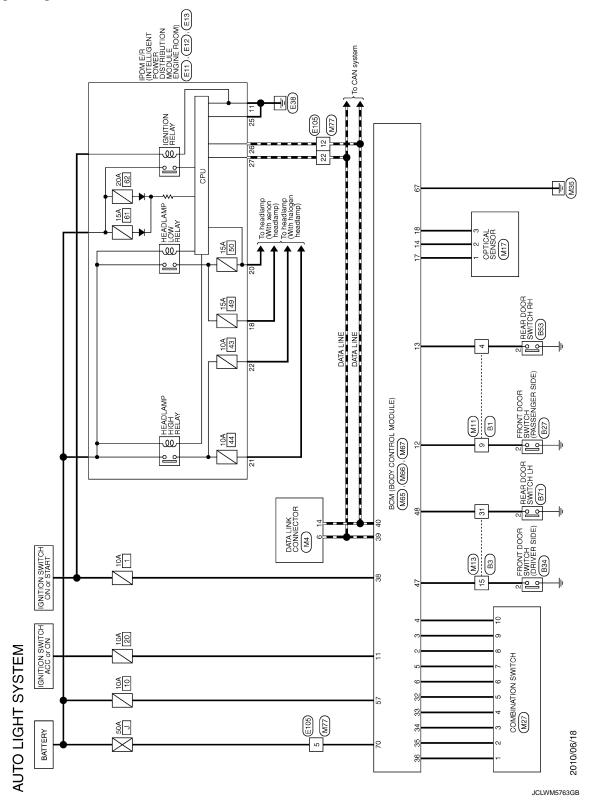
JCLWM5762GB

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## AUTO LIGHT SYSTEM

Wiring Diagram - AUTO LIGHT SYSTEM -

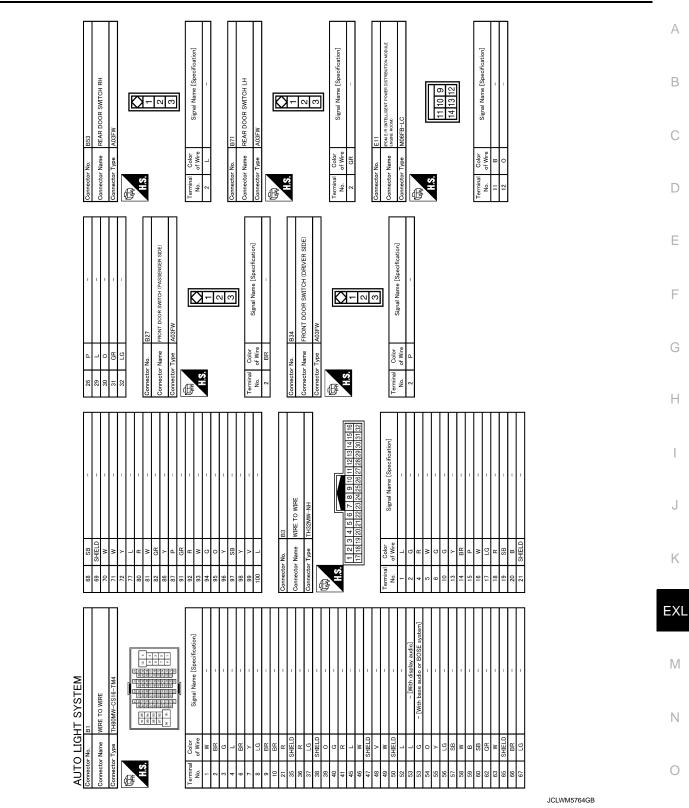
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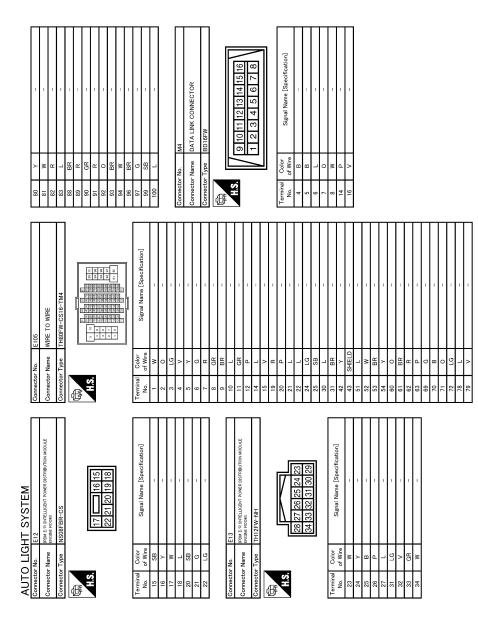
## AUTO LIGHT SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

#### [HALOGEN TYPE]



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JCLWM5765GB

## **AUTO LIGHT SYSTEM**

#### < DTC/CIRCUIT DIAGNOSIS >

### [HALOGEN TYPE]

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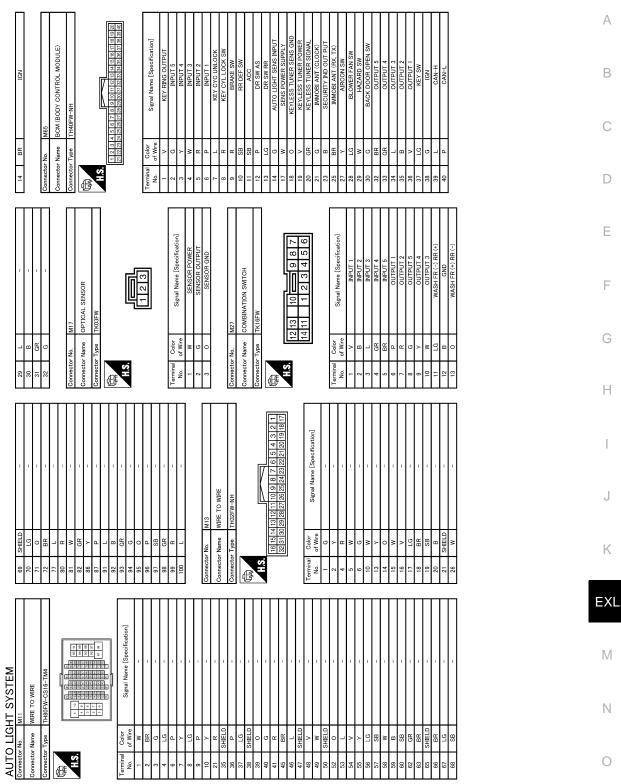
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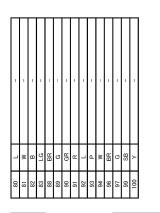
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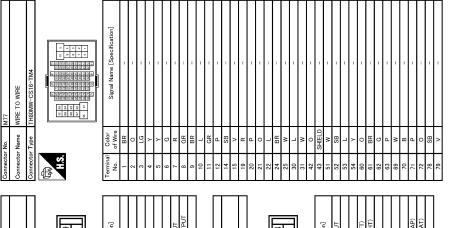
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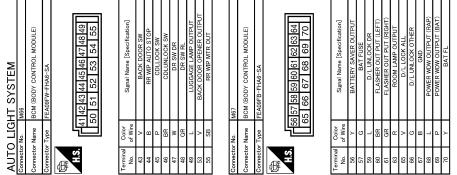


JCLWM5766GB

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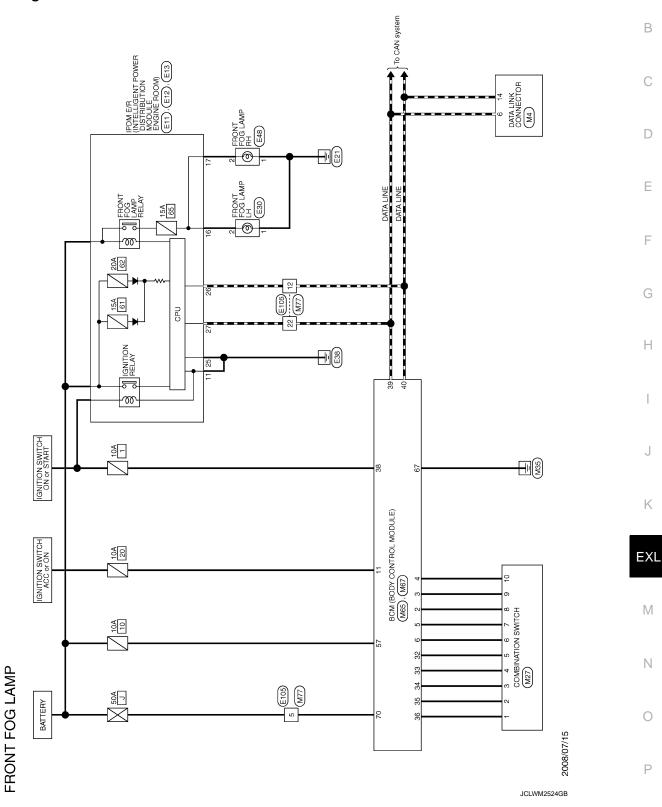
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## FRONT FOG LAMP SYSTEM

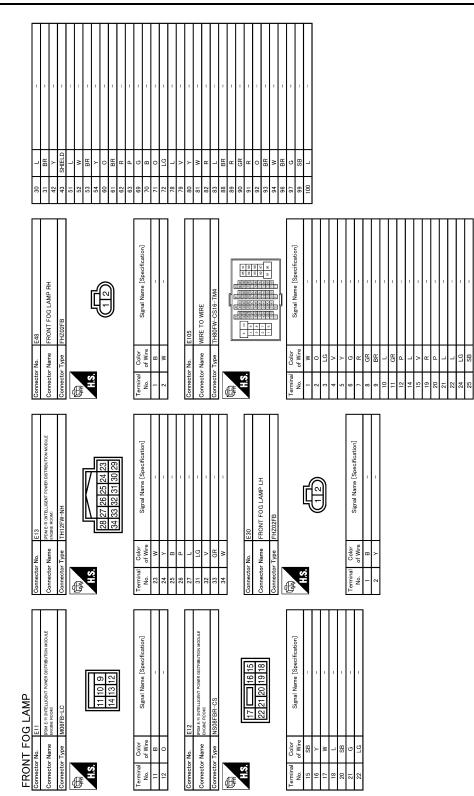
Wiring Diagram - FRONT FOG LAMP -



### < DTC/CIRCUIT DIAGNOSIS >

## FRONT FOG LAMP SYSTEM

### [HALOGEN TYPE]

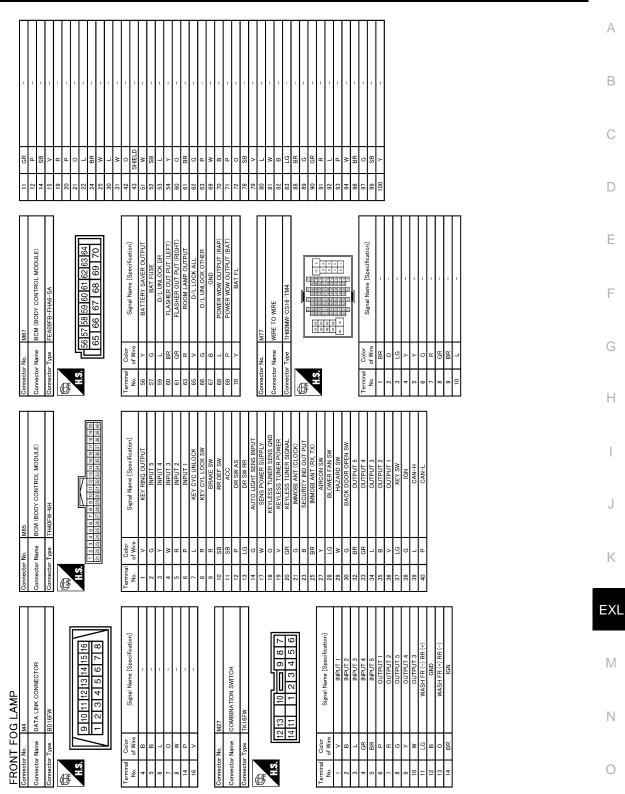


JCLWM5769GB

#### < DTC/CIRCUIT DIAGNOSIS >

## FRONT FOG LAMP SYSTEM

[HALOGEN TYPE]



JCLWM5770GB

#### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

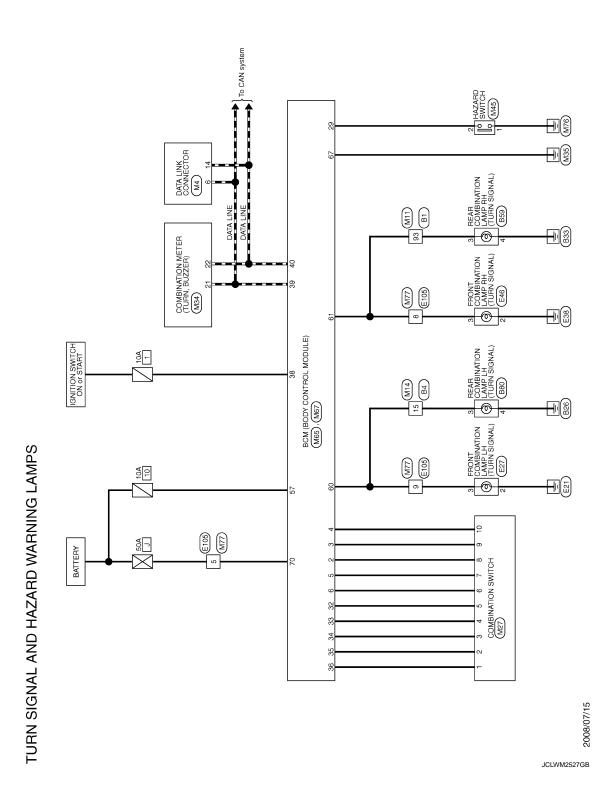
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[HALOGEN TYPE]

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

Wiring Diagram - TURN AND HAZARD WARNING LAMPS -

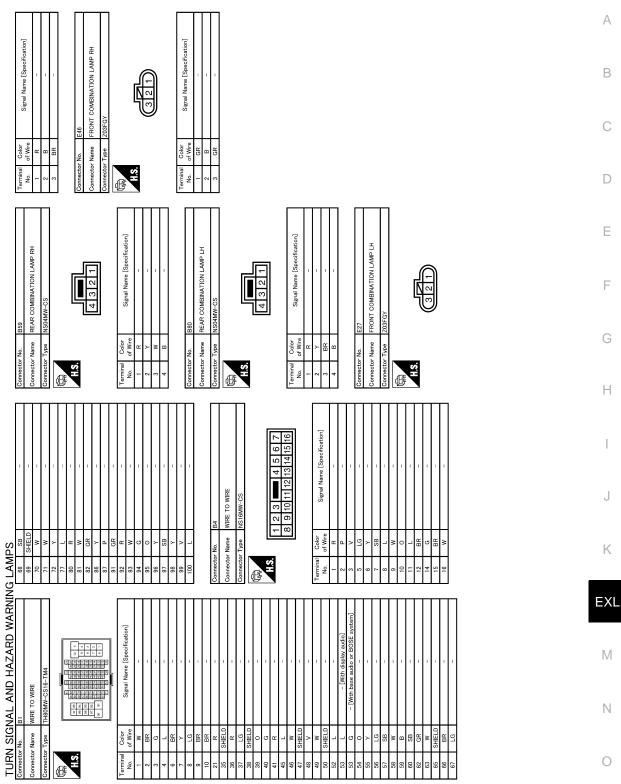
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# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

[HALOGEN TYPE]

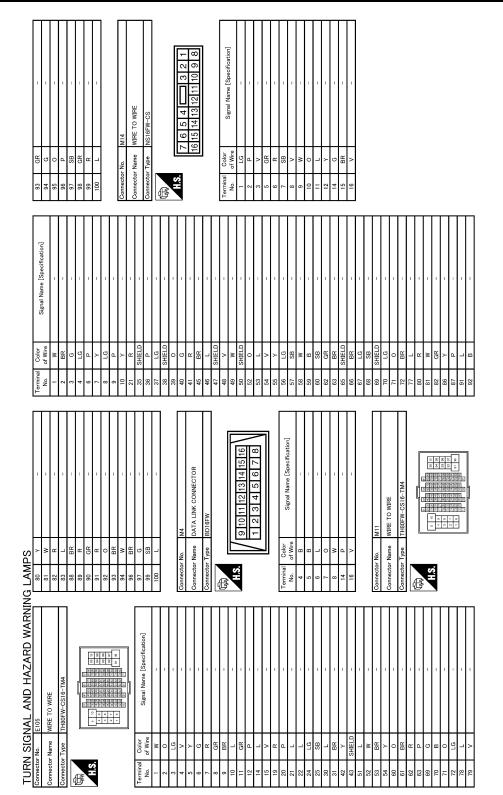


JCLWM5771GB

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

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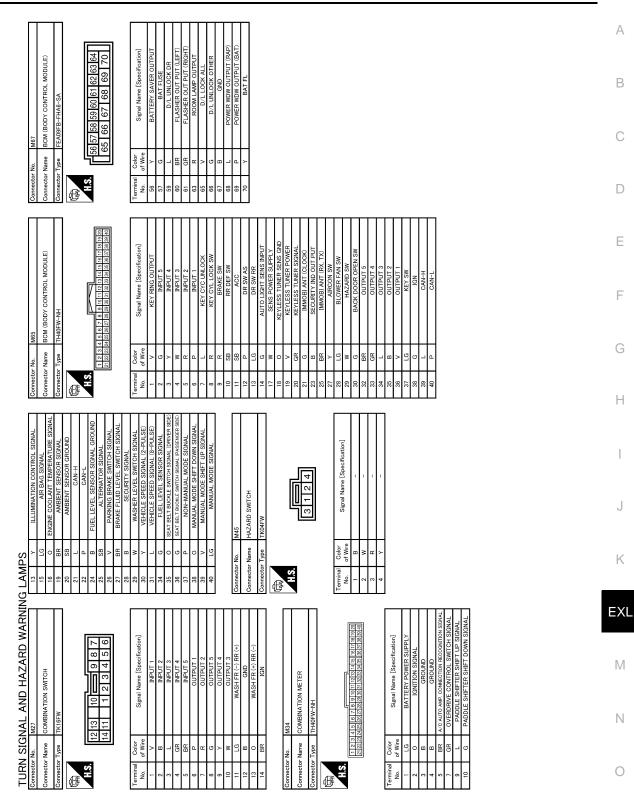


JCLWM5772GB

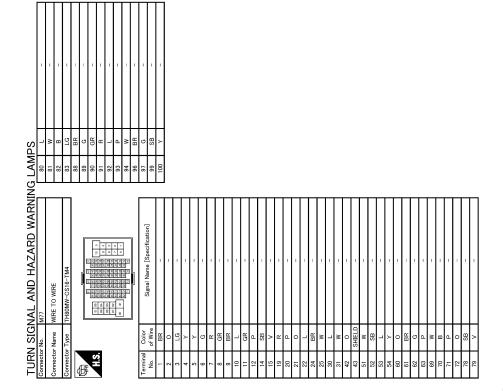
# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### < DTC/CIRCUIT DIAGNOSIS >

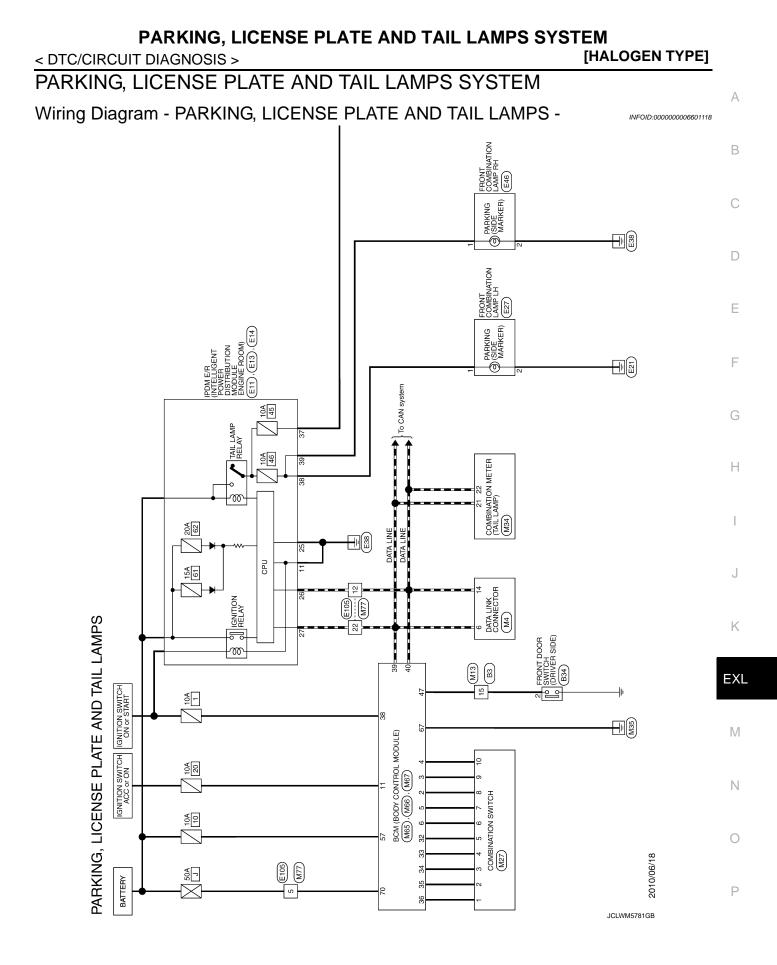
[HALOGEN TYPE]

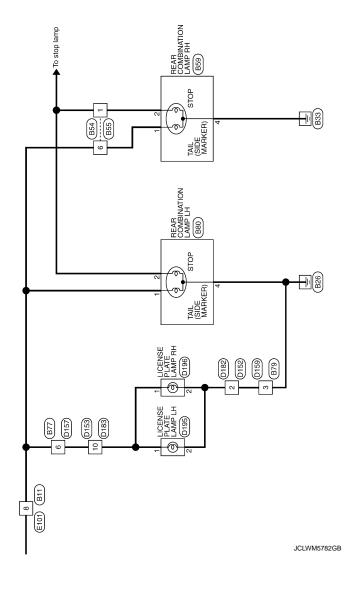


JCLWM5773GB



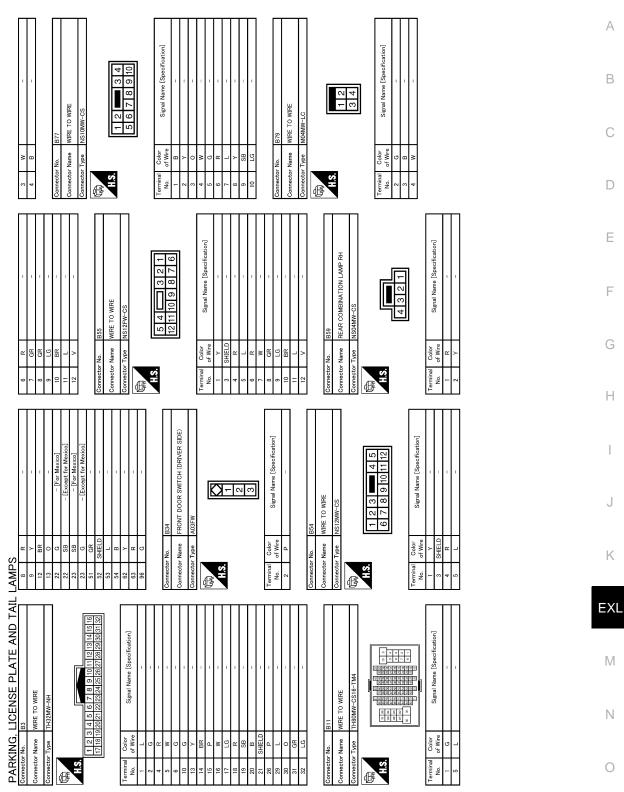
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#### < DTC/CIRCUIT DIAGNOSIS >

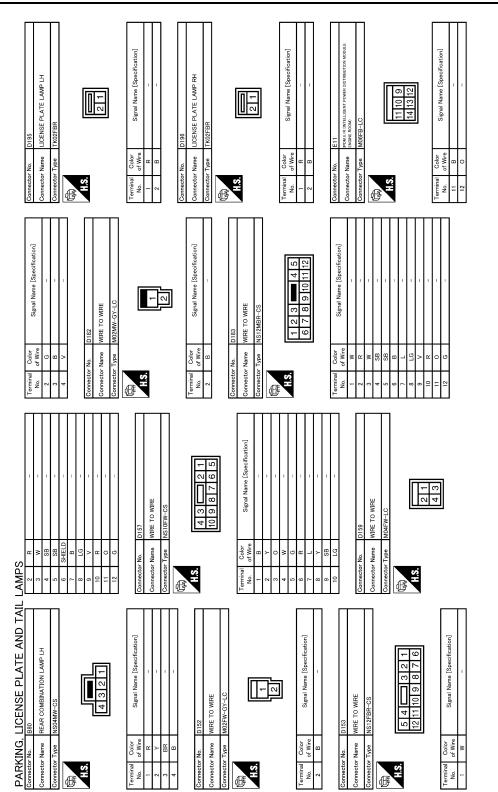
[HALOGEN TYPE]



JCLWM5783GB

#### < DTC/CIRCUIT DIAGNOSIS >

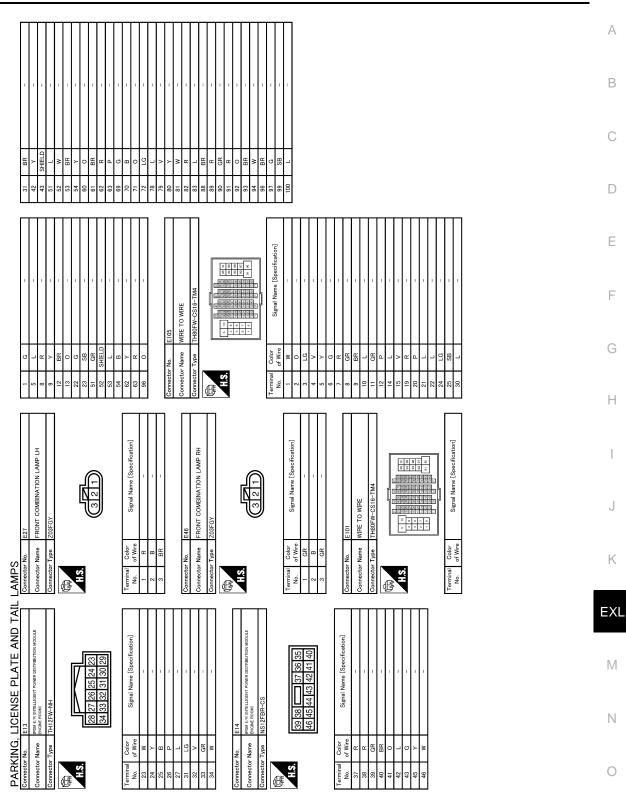
[HALOGEN TYPE]



JCLWM5784GB

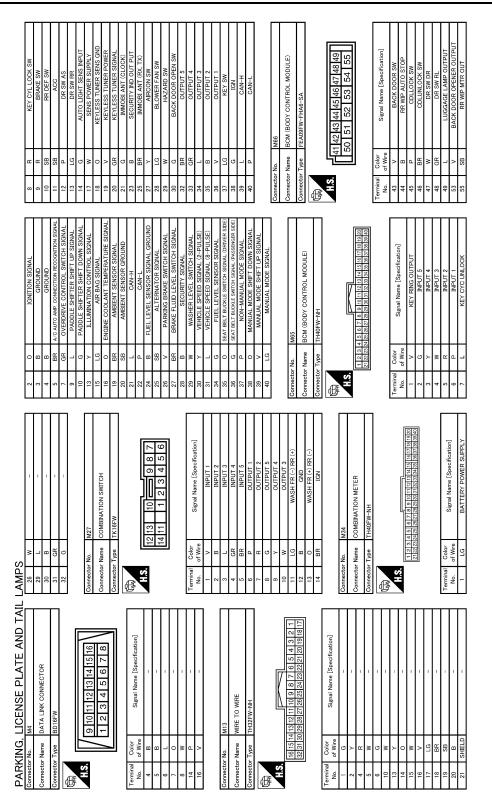
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[HALOGEN TYPE]



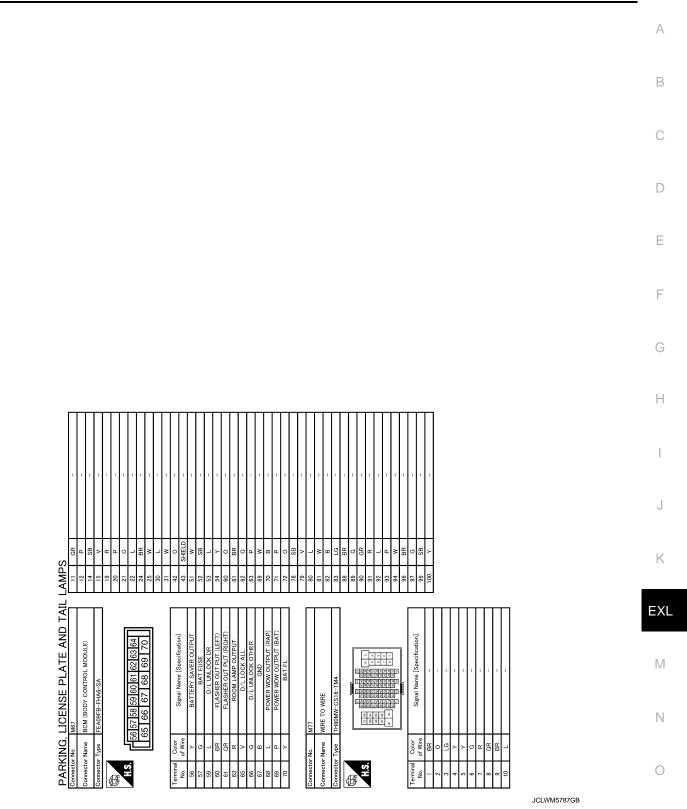
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#### < DTC/CIRCUIT DIAGNOSIS >



JCLWM5786GB

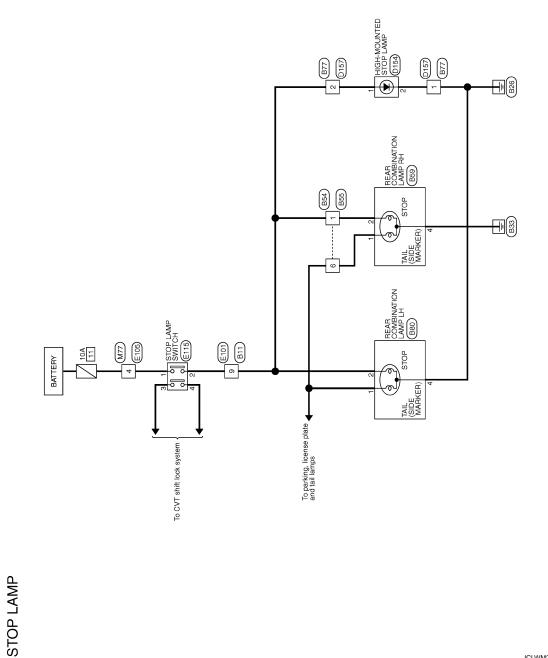
# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM < DTC/CIRCUIT DIAGNOSIS > [HALOGEN TYPE]



# STOP LAMP

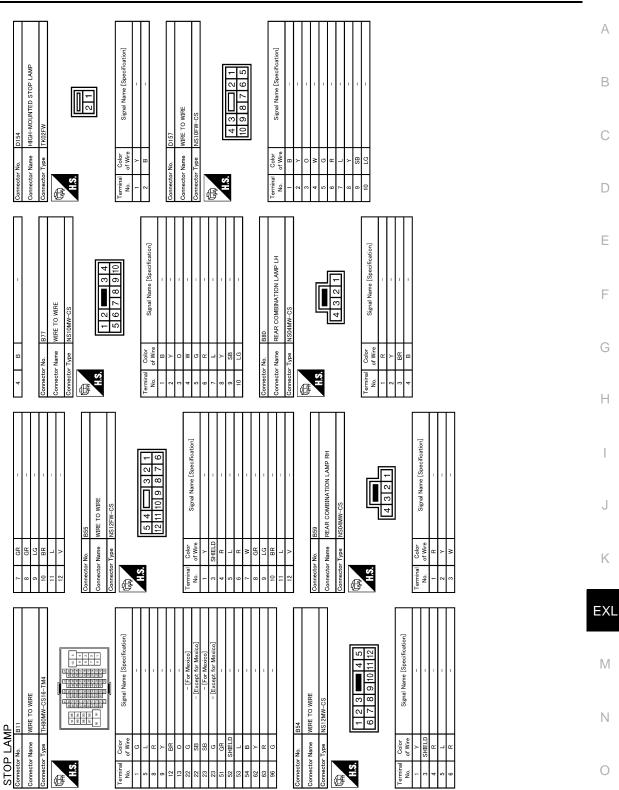
Wiring Diagram - STOP LAMP -





JCLWM2531GB

2008/07/15



#### < DTC/CIRCUIT DIAGNOSIS >

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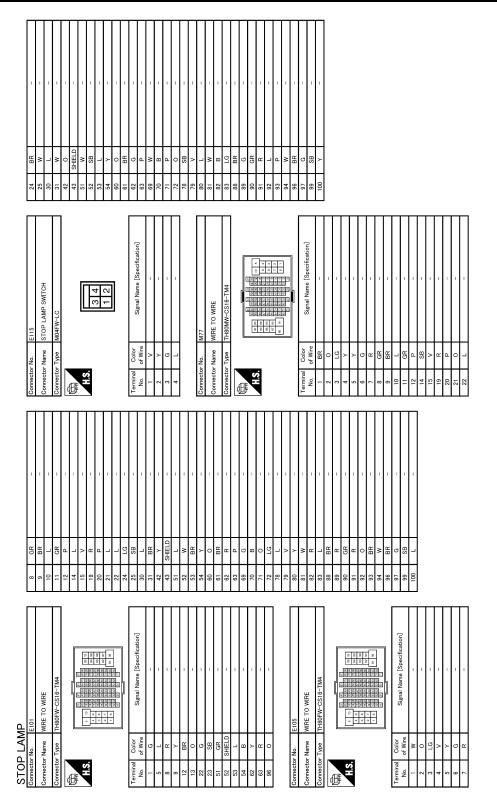
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Revision: 2010 July

JCLWM5775GB

# STOP LAMP

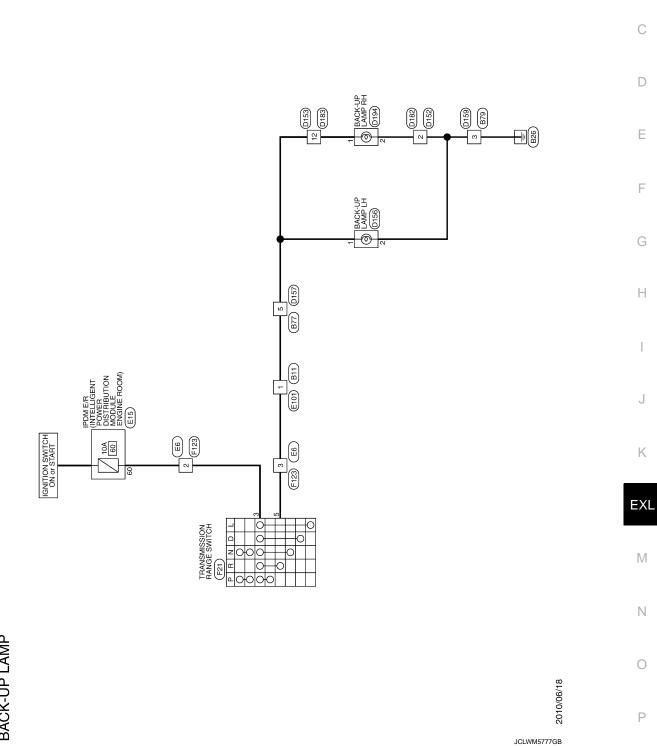
#### < DTC/CIRCUIT DIAGNOSIS >



JCLWM5776GB

# **BACK-UP LAMP**

Wiring Diagram - BUCK-UP LAMP -



BACK-UP LAMP

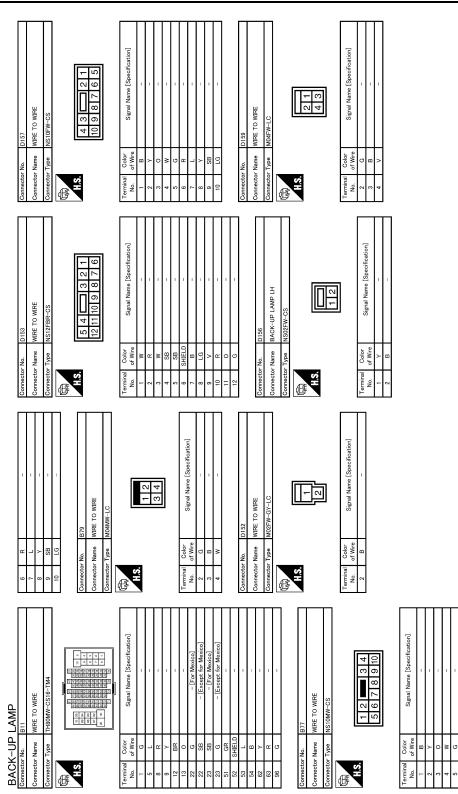
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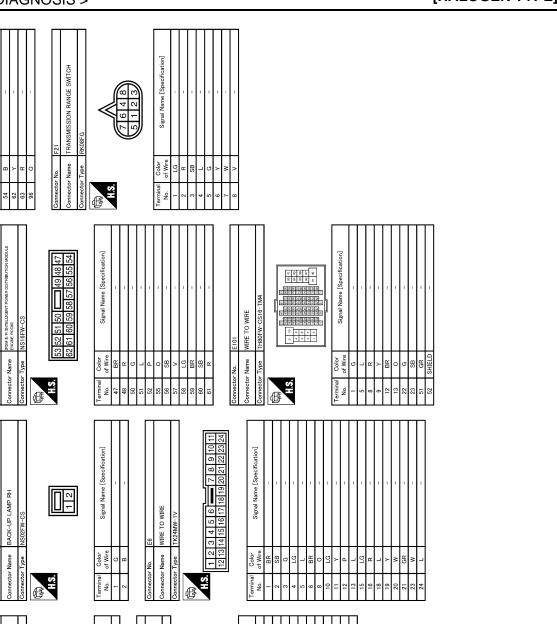
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# **BACK-UP LAMP**

#### < DTC/CIRCUIT DIAGNOSIS >



JCLWM5778GB



### < DTC/CIRCUIT DIAGNOSIS >

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WIRE TO WIRE

nector Name

BACK-UP LAMP

Signal Name [Specification]

Color of Wire

Terminal No.

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Signal Name [Specification]

Color of Wire

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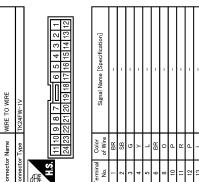
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BACK-UP LAMP

< DTC/CIRCUIT DIAGNOSIS >







Revision: 2010 July

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JCLWM5780GB

# ECU DIAGNOSIS INFORMATION BCM (BODY CONTROL MODULE)

# **Reference Value**

# VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status	
IGN ON SW	Ignition switch OFF or ACC	Off	
IGN ON SW	Ignition switch ON	On	D
KEY ON SW	Mechanical key is removed from key cylinder	Off	
KET ON SW	Mechanical key is inserted to key cylinder	On	
	Door lock/unlock switch does not operate	Off	E
CDL LOCK SW	Press door lock/unlock switch to the lock side	On	
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off	F
CDL UNLOCK SW	Press door lock/unlock switch to the unlock side	On	
	Driver's door closed	Off	
DOOR SW-DR	Driver's door opened	On	G
	Passenger door closed	Off	
DOOR SW-AS	Passenger door opened	On	H
	Rear RH door closed	Off	
DOOR SW-RR	Rear RH door opened	On	
	Rear LH door closed	Off	
DOOR SW-RL	Rear LH door opened	On	
	Back door closed	Off	
BACK DOOR SW	Back door opened	On	0
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	Off	
KET UTL LK-SW	Driver door key cylinder LOCK position	On	K
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	Off	
KET CTL UN-SW	Driver door key cylinder UNLOCK position	On	EX
KEYLESS LOCK	"LOCK" button of key fob is not pressed	Off	
RETLESS LOOK	"LOCK" button of key fob is pressed	On	
KEYLESS UNLOCK	"UNLOCK" button of key fob is not pressed	Off	N
RETLESS UNLOCK	"UNLOCK" button of key fob is pressed	On	
I-KEY LOCK	"LOCK" button of Intelligent Key or door request switch are not pressed	Off	N
	"LOCK" button of Intelligent Key or door request switch are pressed	On	
I-KEY UNLOCK	"UNLOCK" button of Intelligent Key or door request switch are not pressed	Off	0
I-RET UNLOCK	"UNLOCK" button of Intelligent Key or door request switch are pressed	On	
	Ignition switch OFF	Off	P
ACC ON SW	Ignition switch ACC or ON	On	
	Rear window defogger switch OFF	Off	
REAR DEF SW	Rear window defogger switch ON	On	
	Lighting switch OFF	Off	
LIGHT SW 1ST	Lighting switch 1ST	On	

Revision: 2010 July

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INFOID:000000006484197 B

# < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
BUCKLE SW	The seat belt (driver side) is unfastened. [Seat belt switch (driver side) OFF]	Off
BUCKLE SW	The seat belt (driver side) is fastened. [Seat belt switch (driver side) ON]	On
	PANIC button of key fob is not pressed	Off
KEYLESS PANIC	PANIC button of key fob is pressed	On
KEYLESS TRUNK	NOTE: The item is indicated, but not monitored.	Off
FRNK OPN MNTR	NOTE: The item is indicated, but not monitored.	Off
	LOCK/UNLOCK button of key fob is not pressed and held simulta- neously	Off
RKE LCK-UNLCK	LOCK/UNLOCK button of key fob is pressed and held simulta- neously	On
	UNLOCK button of key fob is not pressed	Off
RKE KEEP UNLK	UNLOCK button of key fob is pressed and held	On
	Lighting switch OFF	Off
HI BEAM SW	Lighting switch HI	On
	Lighting switch OFF	Off
HEAD LAMP SW 1	Lighting switch 2ND	On
	Lighting switch OFF	Off
IEAD LAMP SW 2	Lighting switch 2ND	On
	Other than lighting switch AUTO	Off
AUTO LIGHT SW	Lighting switch AUTO	On
	Other than lighting switch PASS	Off
PASSING SW	Lighting switch PASS	On
	Front fog lamp switch OFF	Off
R FOG SW	Front fog lamp switch ON	On
RR FOG SW	NOTE: The item is indicated, but not monitored.	Off
	Turn signal switch OFF	Off
URN SIGNAL R	Turn signal switch RH	On
	Turn signal switch OFF	Off
TURN SIGNAL L	Turn signal switch LH	On
	Engine stopped	Off
ENGINE RUN	Engine running	On
	Parking brake switch is OFF	Off
PKB SW	Parking brake switch is ON	On
CARGO LAMP SW	NOTE: The item is indicated, but not monitored.	Off
	Bright outside of the vehicle	Close to 5 V
OPTICAL SENSOR	Dark outside of the vehicle	Close to 0 V
	Ignition switch OFF or ACC	Off
GN SW CAN	Ignition switch ON	On
	Front wiper switch OFF	Off
FR WIPER HI	Front wiper switch HI	On

### < ECU DIAGNOSIS INFORMATION >

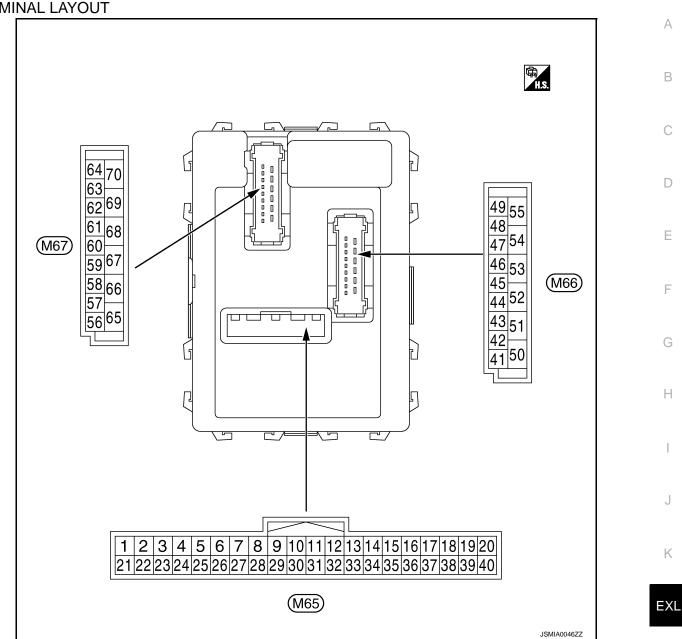
Monitor Item	Condition	Value/Status
R WIPER LOW	Front wiper switch OFF	Off
	Front wiper switch LO	On
	Front wiper switch OFF	Off
FR WIPER INT	Front wiper switch INT	On
	Front washer switch OFF	Off
FR WASHER SW	Front washer switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
	Any position other than front wiper stop position	Off
FR WIPER STOP	Front wiper stop position	On
/EHICLE SPEED	While driving	Equivalent to speedometer reading
	Rear wiper switch OFF	Off
RR WIPER ON	Rear wiper switch ON	On
	Rear wiper switch OFF	Off
RR WIPER INT	Rear wiper switch INT	On
	Rear washer switch OFF	Off
RR WASHER SW	Rear washer switch ON	On
	Rear wiper stop position	Off
RR WIPER STOP	Other than rear wiper stop position	On
RR WIPER STP2	NOTE: The item is indicated, but not monitored.	Off
H/L WASH SW	NOTE: The item is indicated, but not monitored.	Off
	Hazard switch OFF	Off
HAZARD SW	Hazard switch ON	On
	Brake pedal is not depressed	Off
BRAKE SW	Brake pedal is depressed	On
	Blower fan motor switch OFF	Off
FAN ON SIG	Blower fan motor switch ON (other than OFF)	On
	<ul> <li>A/C conditioner OFF (A/C switch indicator OFF) (Automatic air conditioner)</li> <li>A/C switch OFF (Manual air conditioner)</li> </ul>	Off
AIR COND SW	<ul> <li>A/C conditioner ON (A/C switch indicator ON) (Automatic air conditioner)</li> <li>A/C switch ON (Manual air conditioner)</li> </ul>	On
I-KEY TRUNK	NOTE: The item is indicated, but not monitored.	Off
	UNLOCK button of Intelligent Key is not pressed	Off
-KEY PW DWN	UNLOCK button of Intelligent Key is pressed and held	On
	PANIC button of Intelligent Key is not pressed	Off
-KEY PANIC	PANIC button of Intelligent Key is pressed	On
	Return to ignition switch to "LOCK" position	Off
PUSH SW	Press ignition switch	On
	When back door opener switch is not pressed	Off
TRNK OPNR SW	When back door opener switch is pressed	On
TRUNK CYL SW	NOTE:	Off
	The item is indicated, but not monitored.	01

### < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
HOOD SW	Close the hood <b>NOTE:</b> Vehicles of except for Mexico are OFF-fixed	Off
	Open the hood	On
OIL PRESS SW	Ignition switch OFF or ACC     Engine running	Off
	Ignition switch ON	On
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front LH tire
AIR PRESS FR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front RH tire
AIR PRESS RR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear RH tire
AIR PRESS RL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear LH tire
ID REGST FL1	ID of front LH tire transmitter is registered	Done
ID REGGI FLI	ID of front LH tire transmitter is not registered	Yet
ID REGST FR1	ID of front RH tire transmitter is registered	Done
	ID of front RH tire transmitter is not registered	Yet
ID REGST RR1	ID of rear RH tire transmitter is registered	Done
ID REGOT KKT	ID of rear RH tire transmitter is not registered	Yet
ID REGST RL1	ID of rear LH tire transmitter is registered	Done
ID REGGI KLI	ID of rear LH tire transmitter is not registered	Yet
WARNING LAMP	Tire pressure indicator OFF	Off
	Tire pressure indicator ON	On
BUZZER	Tire pressure warning alarm is not sounding	Off
DOZZEN	Tire pressure warning alarm is sounding	On

#### < ECU DIAGNOSIS INFORMATION >

#### **TERMINAL LAYOUT**



#### PHYSICAL VALUES

#### CAUTION:

- · Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF is not to be fluctuated by being overloaded.
- Ν • Turn wiper intermittent dial position to 4 except when checking waveform or voltage of wiper intermittent dial position. Wiper intermittent dial position can be confirmed on CONSULT-III. Refer to BCS-27. "COMB SW : CONSULT-III Function (BCM - COMB SW)".
- BCM reads the status of the combination switch at 10 ms internal normally. Refer to BCS-9, "System 0 Diagram".

	rminal No. Description				Value	Ρ	
(Wire	e color)	Signal name	Condition		(Approx.)		
+	-	Signal name	Output			(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
1	Ground	Ignition key hole illu-	Output	Ignition key hole	OFF	Battery voltage	
(V)	Giouna	mination control	Output	illumination	ON	0 V	

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### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				
(Wire +	color) –	Signal name	Input/ Output		Condition	Value (Approx.)
					All switch OFF	0 V
					Turn signal switch RH	
					Lighting switch HI	(V) 15
2 (G)	Ground	Combination switch	Input	Combination switch (Wiper intermit-	Lighting switch 1ST	10 0 ++10ms PKIB4959J 1.0 V
				tent dial 4)	Lighting switch 2ND	(V) 15 0 10 5 0 10 10 10 10 10 10 10 10 10
-					All switch OFF	0 V
					Turn signal switch LH	
		Ground Combination switch Input Switch (Wiper	ombination switch NPUT 4 Input (Wipe		Lighting switch PASS	(V) 15 10
3 (Y)	Ground			Combination switch (Wiper intermit- tent dial 4)	Lighting switch 2ND	10 0 ++10ms PKIB4959J 1.0 V
					Front fog lamp switch ON	(V) 15 10 5 0 ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓
					All switch OFF	0 V
					Lighting switch AUTO	
				Combination	Front wiper switch LO	(V) 15 10 5
4	Ground	Combination switch	Input	switch	Front wiper switch MIST	
(W)	Ground	INPUT 3	mput	(Wiper intermit- tent dial 4)	Front wiper switch INT	0 Harden
						1.0 V

### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value			
(Wire +	e color) –	Signal name	Input/ Output		Condition	(Approx.)	A		
					All switch OFF (Wiper intermittent dial 4)	0 V	В		
					Front washer switch (Wiper intermittent dial 4) Rear washer ON	(V) 15 10 5	С		
5 (R)	Ground	Combination switch INPUT 2	Input	Combination switch	<ul> <li>(Wiper intermittent dial 4)</li> <li>Any of the condition below with all switch OFF</li> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 5</li> <li>Wiper intermittent dial 6</li> </ul>	0 → ←10ms 1.0 V	D		
							Rear wiper switch ON (Wiper intermittent dial 4)	(V) 10 5 0 ••••10ms ••••10ms ••••10ms •••••10ms •••••10ms	F
					All switch OFF (Wiper intermittent dial 4)	0.8 V 0 V	Н		
					Front wiper switch HI (Wiper intermittent dial 4) Rear wiper switch INT (Wiper intermittent dial 4)	(V) 15 10 0 0	I		
					Wiper intermittent dial 3 (All switch OFF)	+ +10ms → +10ms PKIB4959J 1.0 V	J		
6 (P)	Ground	round Combination switch INPUT 1	Input	Combination switch	Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	(V) 15 0 + 10ms PKIB4952J 1.7 V	K EX M		
					Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	(V) 15 10 5 0 ++10ms	N		
						PKIB4955J 0.8 V	Ρ		

#### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value			
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)			
7 (L)	Ground	Door key cylinder switch UNLOCK sig- nal	Input	Door key cylin- der switch	NEUTRAL position	(V) <sub>15</sub> 10 5 0 + 10ms JPMIA0587GB 8.0 - 8.5 V			
					UNLOCK position	0 V			
8 (R)	Ground	Door key cylinder switch LOCK signal	Input	Door key cylin- der switch	NEUTRAL position	(V) <sub>15</sub> 10 5 0 + 10ms JPMIA0587GB 8.0 - 8.5 V			
					LOCK position	0 V			
9				Stop lamp	OFF (Brake pedal is not depressed)	0 V			
(R)	Ground	Stop lamp switch	Input	switch	ON (Brake pedal is de- pressed)	Battery voltage			
10	Ground	Rear window defog-	Input	Input	Innut	Input	Rear window	Not pressed	Battery voltage
(SB)	Cround	ger switch	mpar	defogger switch	Pressed	0 V			
11	Ground	Ignition switch ACC	Input	Ignition switch O		0 V			
(SB)		Ŭ	•	Ignition switch A	CC or ON	Battery voltage			
12 (P)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	(V) <sub>15</sub> 10 0 • • 10ms • • 10ms JPMIA0586GB 7.5 - 8.0 V			
					ON (When passenger door opened)	0 V			
13 (LG)	Ground	Rear door switch RH	Input	Rear door switch RH	OFF (When rear door RH closed) ON	(V) 10 5 0 + 10ms JPMIA0587GB 8.0 - 8.5 V			
					ON (When rear door RH opened)	0 V			

### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		-		Value		
(vvire +		Signal name	Input/ Output		Condition	(Approx.)		
14	Ground	Optical sensor	Input	Ignition switch	When bright outside of the vehicle	Close to 5 V		
(G)	Cround		input	ON	When dark outside of the vehicle	Close to 0 V		
17	Ground	Optical sensor pow-	Output	Ignition switch	OFF, ACC	0 V		
(W)		er supply		·g·····	ON	5 V		
18 <sup>*</sup> (O)	Ground	Remote keyless en- try receiver ground	Input	Ignition switch O	N	0 V		
				Without Intelli- gent Key sys- tem	At any condition	5 V		
19 <sup>*</sup> (V)	Ground	Remote keyless en- try receiver power supply	Input	With Intelligent Key system	<ul> <li>Ignition switch OFF</li> <li>For 3 seconds after ignition switch OFF to ON</li> </ul>	0 V		
				Ney Systelli	3 seconds or later after ig- nition switch OFF to ON	5 V		
				Without Intelli- gent Key sys- tem	At any condition	(V) 15 10 5 0 10 10 10 10 10 10 10 10 10		
20 <sup>*</sup> (GR)	Ground	Remote keyless en- try receiver signal	Input	Input	Input		<ul> <li>Ignition switch OFF</li> <li>For 3 seconds after ignition switch OFF to ON</li> </ul>	0 V
			With Intelligent Key system	3 seconds or later after ig- nition switch OFF to ON	(V) 15 10 5 0 10 10 10 10 10 10 10 10 10			
21 (G)	Ground	NATS antenna amp.	Input/ Output	Just after insertin	ng ignition key in key cylinder	Pointer of tester should move		
					ON	0 V		
23 (B)	Ground	Security indicator signal	Input	Security indica- tor	Blinking (Ignition switch OFF)	(V) 15 0 5 0 ••••15 JPMIA0590GB		
						12.0 V		
					OFF	Battery voltage		

### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value
(vvire +	color)	Signal name	Input/ Output		Condition	(Approx.)
25 (BR)	Ground	NATS antenna amp.	Input/ Output	Just after insertin	g ignition key in key cylinder	Pointer of tester should move
				Ignition switch O	FF	
27 (Y)	Ground	A/C switch	Input	Ignition switch ON	A/C switch OFF	(V) 15 10 5 0 + 10ms JPMIA0591GB 1.6 V
					A/C switch ON	0 V
				Ignition switch O	FF	
28 (LG)	Ground	Blower fan switch	Input	Ignition switch ON	Blower fan switch OFF	(V) 15 0 • • 10ms JPMIA0592GB
					Blower fan switch ON	7.0 - 7.5 V 0 V
29	Ground	Hazard switch	Input	Hazard switch	OFF	Battery voltage
(W)	Ground		mput	Hazaru Switch	ON	0 V
30	Ground	Back door opener	Input	Back door	Not pressed	Battery voltage
(G)	Cround	switch	mput	opener switch	Pressed	0 V
					All switch OFF (Wiper intermittent dial 4)	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
32 (BR)	32 (BR) Ground Combination switch OUTPUT 5	Output	Combination switch	Front fog lamp switch ON (Wiper intermittent dial 4)	(V)	
					Rear wiper switch ON (Wiper intermittent dial 4) Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7	15 0 • • • 10ms • • • 10ms • • • • • • • • • • • • • • • • • • •

### < ECU DIAGNOSIS INFORMATION >

### [HALOGEN TYPE]

	nal No.	Description				Value	А
(VVire +	e color) _	Signal name	Input/ Output		Condition	(Approx.)	A
					All switch OFF (Wiper intermittent dial 4)	(V) 15 0 • • 10ms PKIB4960J 7.2 V	B C D
33 (GR)	Ground	Combination switch OUTPUT 4	Output	Combination switch	Lighting switch 1ST (Wiper intermittent dial 4)		
~ ,					Lighting switch AUTO (Wiper intermittent dial 4)	(V) 15 10	E
					Rear wiper switch INT (Wiper intermittent dial 4)	50	F
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6		G
					All switch OFF (Wiper intermittent dial 4)	(V) 15 0 •••10ms PKIB4960J 7.2 V	H I J
34 (L)	Ground	Combination switch OUTPUT 3	Output	Combination switch	Lighting switch 2ND (Wiper intermittent dial 4)		V
					Lighting switch HI (Wiper intermittent dial 4)	(V) 15 10	K
					Rear washer switch ON (Wiper intermittent dial 4)	50	EXL
					<ul> <li>Any of the condition below with all switch OFF</li> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 2</li> <li>Wiper intermittent dial 3</li> </ul>	нарания нарадии наради наради нарадии нарадии нарадии нарадии нарадии нар	Μ

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### < ECU DIAGNOSIS INFORMATION >

	inal No.	Description				Value							
(Wire +	e color) _	Signal name	Input/ Output		Condition	(Approx.)							
35		Combination switch		Combination	All switch OFF	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0							
(B)	Ground	OUTPUT 2	Output	(Wiper intermit-	Lighting switch 2ND								
				tent dial 4)	Lighting switch PASS	(V) 15							
					Front wiper switch INT								
					Front wiper switch HI	0 → +10ms → +10ms РКIВ4958J 1.2 V							
36	Ground	Combination switch	Combination switch	All switch OFF	(V) 10 0 0 0 0 0 0 0 0 0 0 0 0 0								
(V)	Cround	OUTPUT 1	Output	(Wiper intermit-	Turn signal switch RH								
				tent dial 4)	Turn signal switch LH	(V) 15							
									I			Front wiper switch LO (Front wiper switch MIST)	
					Front washer switch ON	++10ms ► ► ► ► ► ► ► ► ► ► ► ► ►							
37	Ground	Koy owitch	Innut	Insert mechanical key into ignition key cylin- der		Battery voltage							
(LG)	Ground	Key switch	Input	Remove mechanical key from ignition key cylinder		0 V							
38	Orent	Ignition out to the ON		Ignition switch OFF or ACC		0 V							
(G)	Ground	Ignition switch ON	Input	Ignition switch ON or START		Battery voltage							
39 (L)	Ground	CAN-H	Input/ Output	_		—							
40 (P)	Ground	CAN-L	Input/ Output		—	_							

### < ECU DIAGNOSIS INFORMATION >

### [HALOGEN TYPE]

Terminal No. (Wire color)		Description				Value
(vvire +		Signal name	Input/ Output		Condition	(Approx.)
43 (V)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	(V) <sub>15</sub> 10 5 0 • • 10ms 
					ON (When back door opened)	0 V
					Rear wiper stop position	0 V
44 (B)	Ground	Rear wiper auto stop	Input	Ignition switch ON	Any position other than rear wiper stop position	Battery voltage
45 (P)	Ground	Door lock and unlock switch LOCK signal	Input	Door lock and unlock switch	NEUTRAL position	(V) <sub>15</sub> 10 5 0 • • 10ms • • • 10ms
			L		LOCK position	0 V
46 (BR)	Ground	Door lock and unlock switch UNLOCK sig- nal	Input	Door lock and unlock switch	NEUTRAL position	(V) <sub>15</sub> 10 5 0 ••10ms ••10ms JPMIA0591GB 1.6 V
					UNLOCK position	0 V
47 (W)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	(V) 10 5 0 • 10ms JPMIA0587GB 8.0 - 8.5 V
					ON (When driver door opened)	0 V

#### < ECU DIAGNOSIS INFORMATION >

Terminal No.		Description				Value	
(VVire +	color)	Signal name	Input/ Output	Condition		(Approx.)	
48 (GR)	Ground	Rear door switch LH	Input	Rear door switch LH	OFF (When rear door LH closed)	(V) <sub>15</sub> 10 5 0 ++10ms JPMIA0594GB 8.5 - 9.0 V	
					ON (When rear door LH opened)	0 V	
49	Ground	Luggage room lamp control	Output	Luggage room lamp switch DOOR position	Back door is closed (Luggage room lamp turns OFF)	Battery voltage	
(L)					Back door is opened (Luggage room lamp turns ON)	0 V	
53	Ground	Back door open	Output	Back door opener switch	Not pressed (Back door actuator is ac- tivated)	0 V	
(V)					Pressed (Back door actuator is ac- tivated)	Battery voltage	
55	Ground	Rear wiper motor	Output	Ignition switch	Rear wiper switch OFF	0 V	
(SB)				ON	Rear wiper switch ON	Battery voltage	
56	Ground	Interior room lamp power supply	Output	After passing the interior room lamp battery saver operation time		0 V	
(Y)				Any other time after passing the interior room lamp battery saver operation time		Battery voltage	
57 (G)	Ground	Battery power sup- ply	Input	Ignition switch OFF		Battery voltage	
59	Ground	Driver door UN- LOCK	Output	Driver door	UNLOCK (Actuator is activated)	Battery voltage	
(L)					Other then UNLOCK (Ac- tuator is not activated)	0 V	
					Turn signal switch OFF	0 V	
60 (BR)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch LH	(V) 15 10 5 0 18 18 18 18 18 18 18 18 18 18	

#### < ECU DIAGNOSIS INFORMATION >

[HALOGEN TYPE]

	inal No.	Description				Value	Δ
(Wire +	e color) _	Signal name	Input/ Output		Condition	(Approx.)	А
					Turn signal switch OFF	0 V	В
61 (GR)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch RH	(V) 15 10 5 0 15 15 15 15 15 15 15 15 15 15	C
63	<u> </u>	Interior room lamp		Interior room lamp	OFF	Battery voltage	E
(R)	Ground	timer control	Output		ON	0 V	
65	Ground	All doors LOCK	Output	All doors	LOCK (Actuator is activat- ed)	Battery voltage	F
(V)					Other then LOCK (Actua- tor is not activated)	0 V	
66	Ground	Passenger door and rear door UNLOCK	Output	Passenger door and rear door	UNLOCK (Actuator is activated)	Battery voltage	G
(G)					Other then UNLOCK (Ac- tuator is not activated)	0 V	Н
67 (B)	Ground	Ground	Output	Ignition switch ON		0 V	
68 (L)	Ground	P/W power supply (RAP)	Output	Ignition switch ON		Battery voltage	I
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch OFF		Battery voltage	I
70 (Y)	Ground	Battery power sup- ply	Input	Ignition switch OFF		Battery voltage	0

\*: Except for Mexico with Intelligent Key

EXL

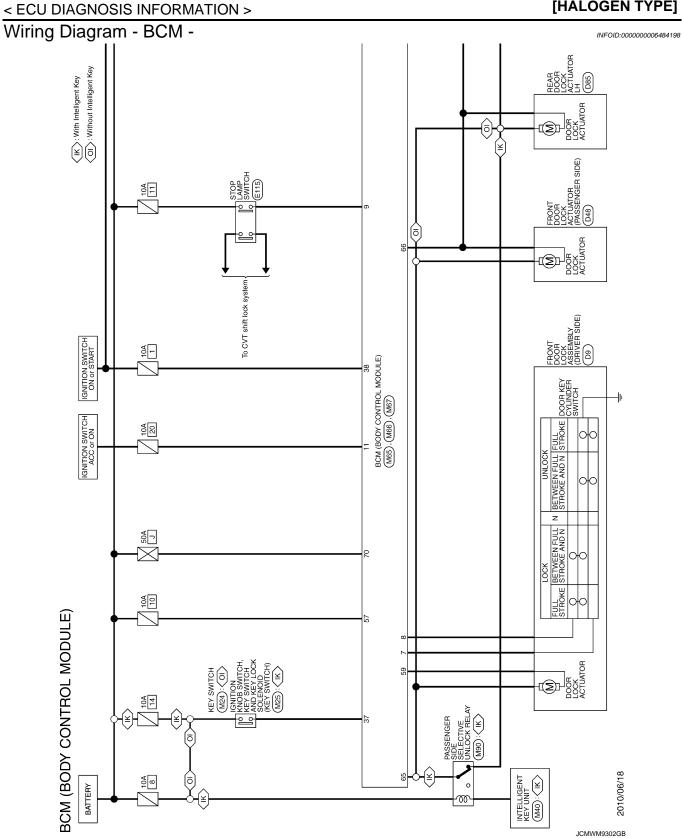
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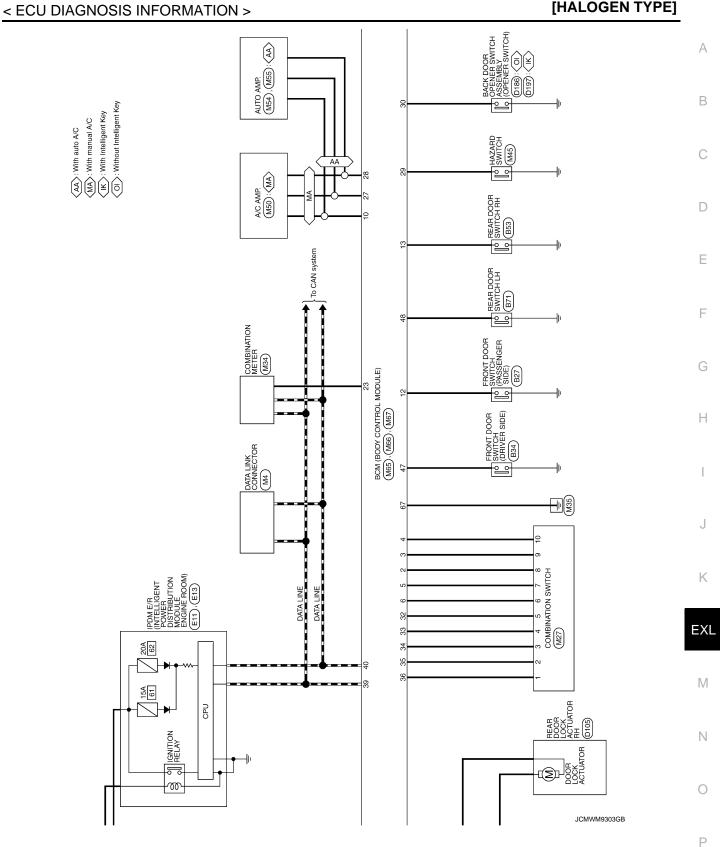
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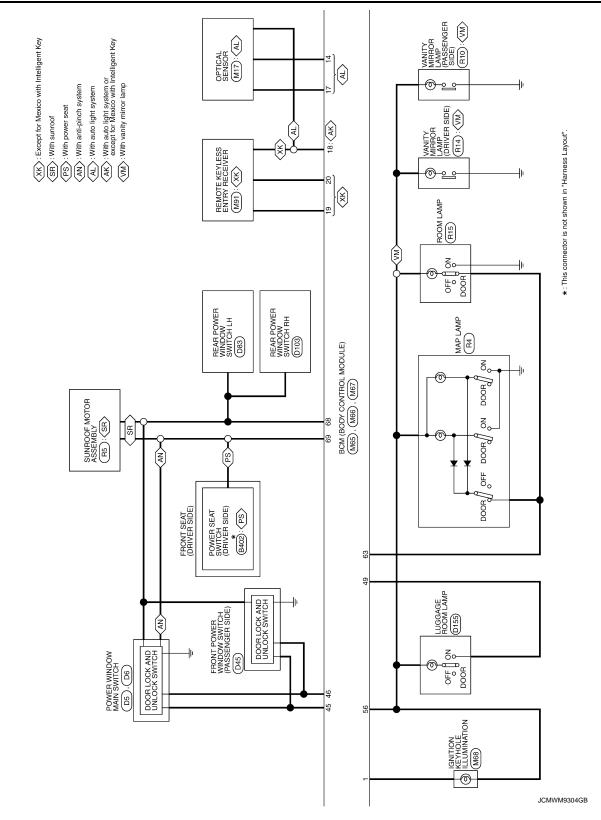


### [HALOGEN TYPE]



Revision: 2010 July

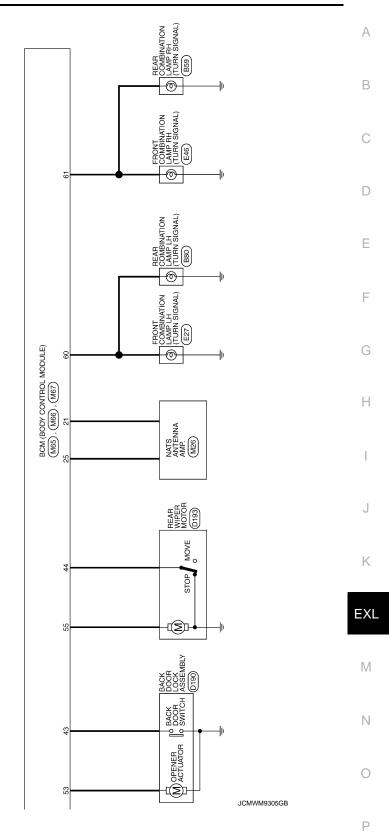
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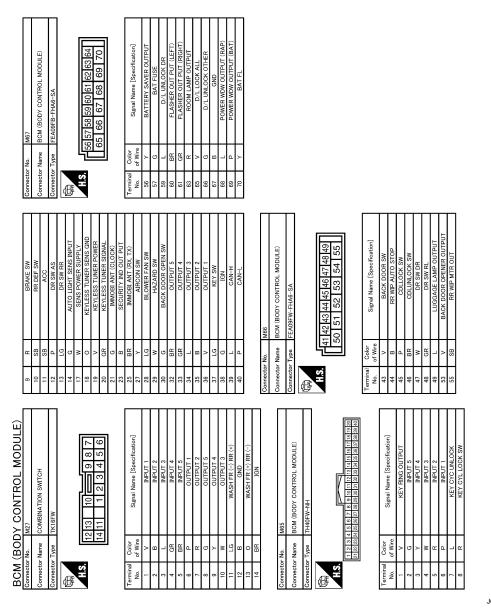
#### **BCM (BODY CONTROL MODULE)**

#### [HALOGEN TYPE]





Revision: 2010 July



JCMWM9306GB

INFOID:000000006484199

#### REAR WIPER MOTOR PROTECTION

BCM detects the rear wiper stopping position according to the rear wiper stop position signal. When the rear wiper stop position signal does not change more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

Condition of cancellation

Fail-safe

#### Revision: 2010 July

#### EXL-254

#### 2011 Rogue

#### **BCM (BODY CONTROL MODULE)**

#### < ECU DIAGNOSIS INFORMATION >

- 1. Pass more than 1 minute after the rear wiper stop.
- 2. Turn the rear wiper switch OFF.
- 3. Operate the rear wiper switch or rear washer switch.

#### DTC Inspection Priority Chart

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC	
1	U1000: CAN COMM CIRCUIT	
2	C1735: IGN CIRCUIT OPEN	
3	<ul> <li>C1704: LOW PRESSURE FL</li> <li>C1705: LOW PRESSURE FR</li> <li>C1706: LOW PRESSURE RR</li> <li>C1707: LOW PRESSURE RL</li> <li>C1708: [NO DATA] FL</li> <li>C1709: [NO DATA] FR</li> <li>C1710: [NO DATA] RR</li> <li>C1711: [NO DATA] RL</li> <li>C1716: [PRESS DATA ERR] FL</li> <li>C1717: [PRESS DATA ERR] FR</li> <li>C1718: [PRESS DATA ERR] RR</li> <li>C1719: [PRESS DATA ERR] RR</li> <li>C1719: [PRESS DATA ERR] RL</li> <li>C1729: VHCL SPEED SIG ERR</li> </ul>	

#### DTC Index

#### NOTE:

Details of time display

- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- 1 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1
   → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter
   remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch
   OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	Tire pressure monitor warning lamp ON	Reference	
U1000: CAN COMM CIRCUIT		<u>BCS-34</u>	E
C1704: LOW PRESSURE FL	×		
C1705: LOW PRESSURE FR	×	W/T 12	Ν
C1706: LOW PRESSURE RR	×	<u>WT-13</u>	Ν
C1707: LOW PRESSURE RL	×		
C1708: [NO DATA] FL	×		1
C1709: [NO DATA] FR	×		
C1710: [NO DATA] RR	×	<u>WT-15</u>	
C1711: [NO DATA] RL	×		(
C1716: [PRESS DATA ERR] FL	×		
C1717: [PRESS DATA ERR] FR	×	\\/T 10	
C1718: [PRESS DATA ERR] RR	×	<u>WT-18</u>	
C1719: [PRESS DATA ERR] RL	×		
C1729: VHCL SPEED SIG ERR	×	<u>WT-20</u>	
C1735: IGN CIRCUIT OPEN	_	BCS-35	

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INFOID-0000000648420

# IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

#### **Reference Value**

INFOID:000000006484202

#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item		Condition	Value/Status
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air condition- er operation status, vehicle speed, etc.	1 - 4
		A/C switch OFF	Off
AC COMP REQ	Engine running	A/C switch ON (Compressor is operating)	On
TAIL&CLR REQ	Lighting switch OFF		Off
TAIL&ULK REQ	Lighting switch 1ST or 2ND	On	
	Lighting switch OFF		Off
HL LO REQ	Lighting switch 2ND		On
	Lighting switch OFF		Off
HL HI REQ	Lighting switch HI (Light is i	lluminated)	On
FR FOG REQ		Front fog lamp switch OFF	Off
<b>NOTE:</b> This item is monitored only on the vehicle with front fog lamp.	Lighting switch 2ND	Front fog lamp switch ON	On
		Front wiper switch OFF	Stop
	Inviting quitab ON	Front wiper switch INT	1LOW
R WIP REQ	Ignition switch ON	Front wiper switch LO	Low
		Front wiper switch HI	Hi
		Front wiper stop position	STOP P
WIP AUTO STOP	Ignition switch ON	Any position other than front wiper stop position	ACT P
		Front wiper operates normally	Off
WIP PROT	Ignition switch ON	Front wiper stops at fail-safe oper- ation	BLOCK
ST RLY REQ NOTE:	When Intelligent Key is outs is pushed	side the vehicle, and the push switch	Off
Vehicle without Intelligent Key system indi- cates only "ON", and it does not change.	When Intelligent Key is inside pushed	de the vehicle, and the push switch is	On
IGN RLY	Ignition switch OFF or ACC		Off
	Ignition switch ON		On
		Rear window defogger switch OFF	Off
RR DEF REQ	Ignition switch ON	Rear window defogger switch ON (Rear window defogger is operat- ing)	On
	Ignition switch OFF, ACC or engine running		Open
OIL P SW	Ignition switch ON		Close
DTRL REQ	Daytime running light syste	m is not operated.	Off
<b>NOTE:</b> This item is monitored only on the vehicle with the daytime running light system.	Daytime running light syste	m is operated.	On

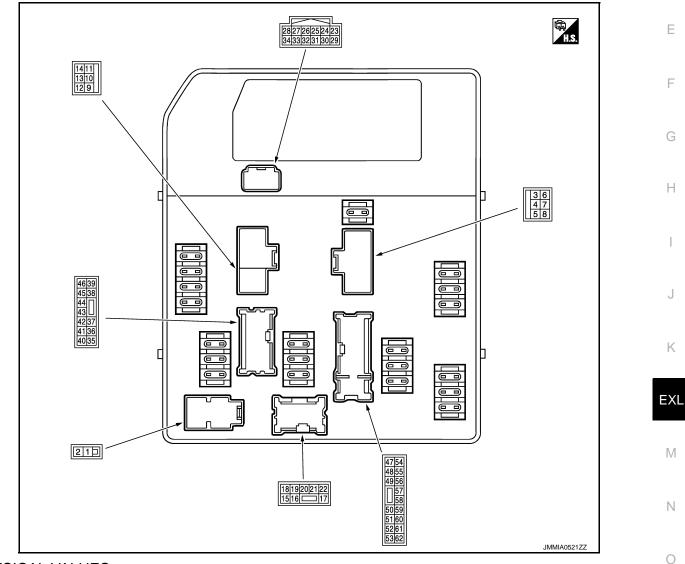
#### IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

[HALOGEN TYPE]

Monitor Item	Condition	Value/Status
HOOD SW	Close the hood	Off
<b>NOTE:</b> This item is monitored only the vehicle for Mexico.	Open the hood	On
	Not operation	Off
THFT HRN REQ	Horn is activated with vehicle security system or panic alarm system.	On
	Not operation	Off
HORN CHIRP	Horn is activated with key fob LOCK operation.	On

#### **TERMINAL LAYOUT**



#### PHYSICAL VALUES

	nal No.	Description			Value	F
(Wire	e color) –	Signal name	Input/ Output	Condition	(Approx.)	1
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	-
2 (G)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	-

	nal No.	Description				Value
(Wire +	color)	Signal name	Input/ Output	(	Condition	
3	<u> </u>		<b>Q</b> ( )	When engine is clan	king	Battery voltage
(O)	Ground	Starter relay power supply	Output	When engine is not	When engine is not clanking	
4	<u> </u>	Cooling fan relay-1 power	<b>Q</b> ( )	Cooling fan opera-	OFF	0 V
(W)	Ground	supply	Output	tion		
5			1	Ignition switch OFF,	ACC or ON	0 V
(R)	Ground	Ignition switch START	Input	Ignition switch STAF	RT	Battery voltage
6 (BR)	Ground	Battery power supply (Cooling fan relay)	Input	Ignition switch OFF		Battery voltage
7	Ground	Cooling fan motor-2 (HI)		Cooling fan opera-	OFF	Battery voltage
(P)	Gibunu	ground	_	tion	н	0 V
8	Ground	Cooling fan relay-2 power	Output	Cooling fan opera-	OFF	0 V
(G)	Gibunu	supply	Output	tion	Н	Battery voltage
11 (B)	Ground	Ground	_	Ignition switch ON		0 V
12	Cround	Rear window defogger re-	Output	Ignition switch ON	Rear window defogger switch OFF	0 V
(O)	Ground	lay power supply	Output		Rear window defogger switch ON	Battery voltage
15 <sup>*1</sup>	Oneveral	Daytime running light relay	Outrout	Daytime running	Not operated	Battery voltage
(SB)	Ground	control	Output	light system		
16 <sup>*2</sup>	Ground	Front fog lomp (I H)	Output	Lighting switch	Front fog lamp switch OFF	0 V
(Y)	Ground	Front fog lamp (LH)	Output	2ND	Front fog lamp switch ON	Battery voltage
17 <sup>*2</sup>	Cround	Front for Jomp (DH)	Output	Lighting switch	Front fog lamp switch OFF	0 V
(W)	Ground	Front fog lamp (RH)	Output	2ND	Front fog lamp switch ON	Battery voltage
18	Ground	Headlamp LO (LH)	Output	Lighting switch OFF		0 V
(L)	Ground		Output	Lighting switch 2ND		Battery voltage
20	Ground	Headlamp LO (RH)	Output	Lighting switch OFF		0 V
(SB)	Croana		Output	Lighting switch 2ND		Battery voltage
				Lighting switch OFF		0 V
21 (G)	Ground	Headlamp HI (LH)	Output	<ul><li>Lighting switch 2N</li><li>Lighting switch PA</li></ul>		Battery voltage
				Daytime running ligh	nt system Operated <sup>*1</sup>	7.0 V
				Lighting switch OFF		0 V
22 (LG)	Ground	Headlamp HI (RH)	Output	<ul> <li>Lighting switch 2ND and HI</li> <li>Lighting switch PASS</li> </ul>		Battery voltage
				Daytime running light system Operated <sup>*1</sup>		7.0 V
23	0		1		Engine stopped	0 V
(W)	Ground	Oil pressure switch	Input	Ignition switch ON	Engine running	Battery voltage
04					Front wiper stop position	0 V
24 (Y)	Ground	Front wiper auto stop	Input	Ignition switch ON	Any position other than front wiper stop position	Battery voltage
25 (B)	Ground	Ground	_	Ignition switch ON		0 V
26 (P)	_	CAN-L	Input/ Output		_	_

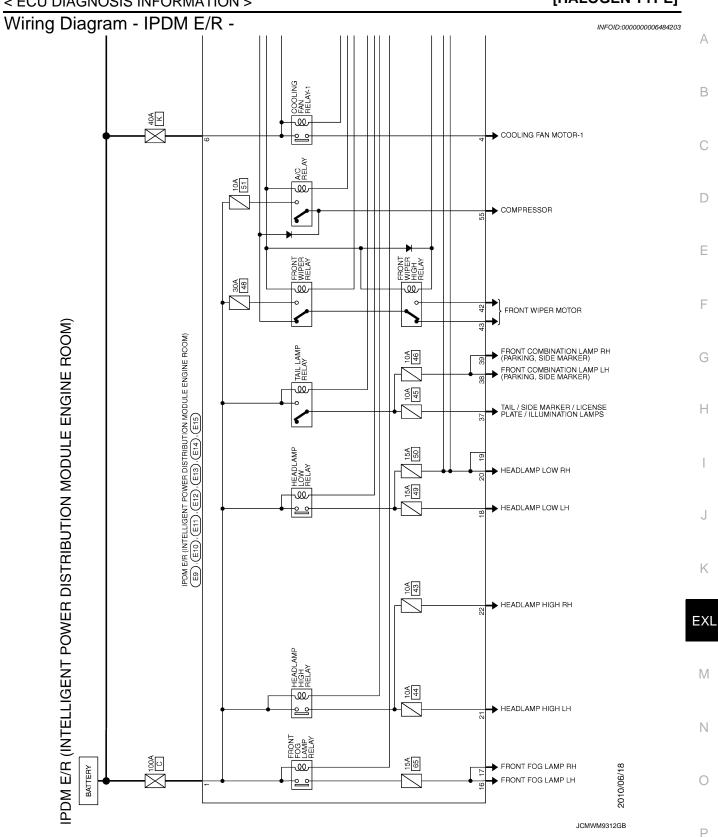
	nal No.	Description				Value	-	
(Wire +	e color) –	Signal name	Input/ Output	(	Condition	(Approx.)		
27 (L)		CAN-H	Input/ Output		_	_		
31				Cooling fan opera-	OFF	Battery voltage	_	
(LG)	Ground	Cooling fan relay-4 control	Output	tion	LO	0 - 1.0 V	_	
					ximately 2 seconds or more tion switch from ON to OFF	Battery voltage	_	
32 (V)	Ground	Throttle control motor re- lay control	Input	<ul> <li>Ignition switch ON</li> <li>For approximately tion switch from C</li> </ul>	2 seconds after turning igni-	0 - 1.0 V	_	
				Ignition switch OFF		0 V	_	
33 (GR)	Ground	Fuel pump relay control	Input		Engine stopped	Battery voltage	_	
				Ignition switch ON	Engine running	0.8 V		
34 <sup>*3</sup>				Close the hood	1	Battery voltage	_	
(W)	Ground	Hood switch	Input	Open the hood		0 V	_	
37		Tail, license plate lamps		Lighting switch OFF		0 V		
(R)	Ground	and illuminations	Output	Lighting switch 1ST		Battery voltage	_	
38	One		Outer	Lighting switch OFF		0 V		
(R)	Ground	Parking lamp (LH)	Output	Lighting switch 1ST		Battery voltage		
39			_	Lighting switch OFF	,	0 V	-	
(GR)	Ground	Parking lamp (RH)	Output –	Lighting sw		Lighting switch 1ST		
40				Ignition switch OFF or ACC		0 V	-	
(BR)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage	_	
41				Ignition switch OFF or ACC		0 V	_	
(O)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage	-	
42					Front wiper switch OFF	0 V	_	
(L)	Ground	Front wiper HI	Output	Ignition switch ON	Front wiper switch HI	Battery voltage	_	
43				Front wiper switch OFF		0 V	-	
(G)	Ground	Front wiper LO	Output	Ignition switch ON Front wiper switch LO		Battery voltage	_	
					Selector lever "P" or "N"	Battery voltage	-	
45 (Y)	Ground	Starter relay power supply	Input	Ignition switch ON	Selector lever in any posi- tion other than "P" or "N"	0 V	'	
46	Ground	Fuel pump relay power		<ul> <li>Ignition switch OF</li> <li>After passing apprairies after turning the ignitian sector turning tu</li></ul>	roximately 1 second or more	0 V		
(W)	Ground	supply	Output	<ul> <li>For approximately 1 second after turning the ignition switch ON</li> <li>Engine running</li> </ul>		Battery voltage		
47				After passing approximately 4 seconds or more after turning the ignition switch from ON to OFF		0 V		
(BR)	Ground	ECM relay power supply	Output	<ul> <li>Ignition switch ON</li> <li>For approximately tion switch from C</li> </ul>	4 seconds after turning igni-	Battery voltage	_	
49					ximately 4 seconds or more tion switch from ON to OFF	0 V	_	
48 (R)	Ground	ECM relay power supply	Output	<ul> <li>Ignition switch ON</li> <li>For approximately tion switch from C</li> </ul>	4 seconds after turning igni-	Battery voltage	_	

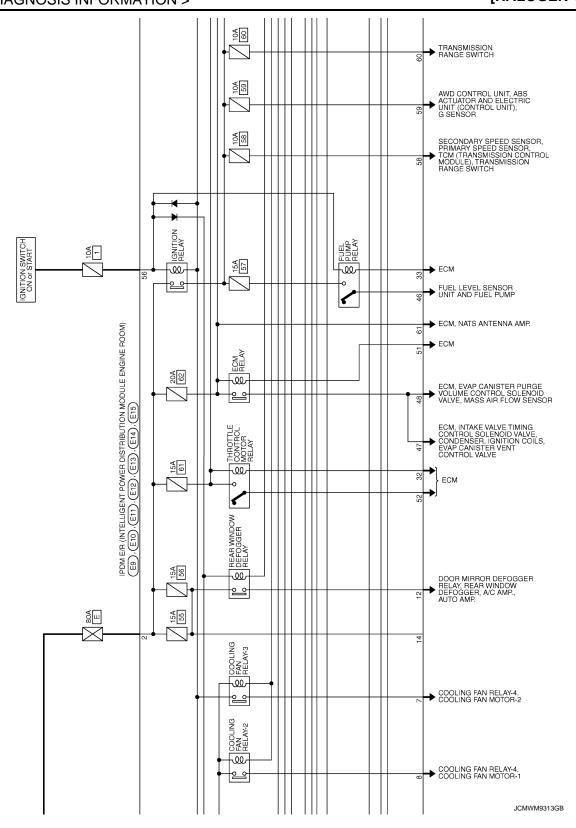
	nal No.	Description				Value		
(VVire +	e color) –	Signal name	Input/ Output	(	Condition	(Approx.)		
50	Orecord		Outrast	Cooling fan opera-	OFF	Battery voltage		
(G)	Ground	Cooling fan relay-5 control	Output	tion	MID or HI	0 - 1.0 V		
51					kimately 4 seconds or more tion switch from ON to OFF	Battery voltage		
(L)	Ground	ECM relay control	Output	<ul> <li>Ignition switch ON</li> <li>For approximately tion switch from C</li> </ul>	4 seconds after turning igni-	0 - 1.0 V		
52		Throttle control motor re-			kimately 2 seconds or more tion switch from ON to OFF	0 V		
52 (P)	Ground	lay power supply	Output	<ul> <li>Ignition switch ON</li> <li>For approximately 2 seconds after turning ignition switch from ON to OFF</li> </ul>		Battery voltage		
			_	Engine stopped		Engine stopped		0 V
55					A/C switch OFF	0 V		
(O)	Ground	A/C relay power supply	Output	Engine running	A/C switch ON (A/C compressor is oper- ating)	Battery voltage		
56	Ground	Ignition switch ON	Input	Ignition switch OFF	or ACC	0 V		
(SB)	Ground		input	Ignition switch ON		Battery voltage		
57	Ground	Horn relay control	Output	The horn is not activ	vated	Battery voltage		
(V)	Cibulia	nonn reidy control	Output	The horn is activated	d	0 V		
58	Ground	Ignition relay power supply	Output	Ignition switch OFF	or ACC	0 V		
(LG)	Croana	ignition roldy power suppry	Output	Ignition switch ON		Battery voltage		
59	Ground	Ignition relay power supply	Output	Ignition switch OFF or ACC		0 V		
(BR)	Croand	.gshroldy porter suppry	Sarpar	Ignition switch ON		Battery voltage		
60	Ground	Ignition relay power supply	Output	Ignition switch OFF	or ACC	0 V		
(SB)	0.04.14	.g	e aip ai	Ignition switch ON		Battery voltage		
61 (R)	Ground	ECM power supply	Output	Ignition switch OFF		Battery voltage		

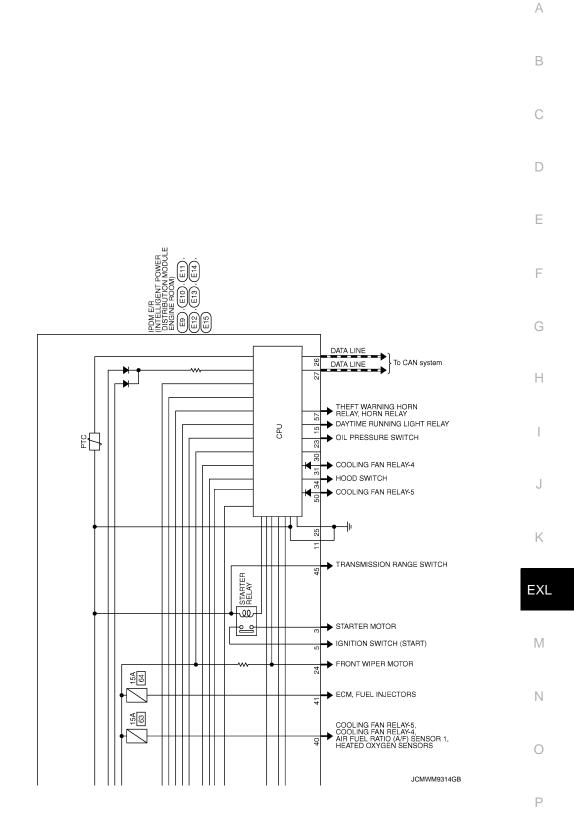
\*1: With daytime running light system

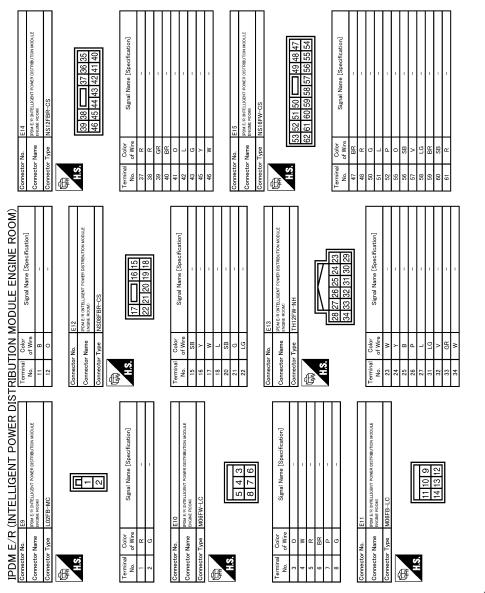
\*2: With front fog lamp system

\*3: For Mexico









JCMWM9315GB

INFOID:000000006484204

#### 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 ECM

Fail-safe

#### IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

#### < ECU DIAGNOSIS INFORMATION >

[HALOGEN TYPE]

Control part	Fail-safe in operation
Cooling fan	<ul> <li>The cooling fan relay-1, the cooling fan relay-2, the cooling fan relay-3 and the cooling fan relay-5 turn ON when the ignition switch is turned ON</li> <li>The cooling fan relay-1, the cooling fan relay-2, the cooling fan relay-3 and the cooling fan relay-5 turn OFF when the ignition switch is turned OFF</li> <li>Cooling fan relay-4 OFF</li> </ul>
A/C compressor	A/C relay OFF

#### If no CAN communication is available with BCM

Control part	Fail-safe in operation
Headlamp	<ul> <li>The headlamp low relay turns ON when the ignition switch is turned ON</li> <li>The headlamp low relay turns OFF when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> </ul>
<ul> <li>Parking lamps</li> <li>License plate lamps</li> <li>Tail lamps</li> <li>Illuminations</li> </ul>	<ul> <li>The tail lamp relay and the daytime running light relay* turn ON when the ignition switch is turned ON</li> <li>The tail lamp relay and the daytime running light relay* turn OFF when the ignition switch is turned OFF</li> </ul>
Front wiper	<ul> <li>The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.</li> <li>The front wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.</li> </ul>
Front fog lamps	Front fog lamp relay OFF
Starter motor	Starter relay OFF
Rear window defogger	Rear window defogger relay OFF
Horn	Horn relay OFF

#### NOTE:

\*: With daytime running light system

#### IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors status of ignition relay by the voltage at ignition relay contact circuit inside it.
- IPDM E/R judges that the ignition relay is error, if status of the ignition relay and ignition switch ON signal (CAN).
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay and daytime running light relay\* for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

Detection		IPDM E/R judgment	Operation	
Ignition switch ON signal	nition switch ON signal Ignition relay			
ON	ON	Ignition relay normal	_	•
OFF	OFF	Ignition relay normal	_	•
OFF	ON	Ignition relay ON stuck	Turn on the tail lamp relay and daytime run- ning light relay* for 10 minutes	-
ON	OFF	Ignition relay OFF stuck	Detect DTC "B2099: IGN RELAY OFF"	-

#### NOTE:

\*: With daytime running light system

#### FRONT WIPER CONTROL

IPDM E/R detects the front wiper stop position with the front wiper stop position signal.

When the front wiper stop position signal is in the conditions listed below, IPDM E/R repeats a front wiper 10 seconds operation and 20 seconds stop five times.

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 Ignition switch
 Front wiper switch
 Front wiper stop position signal

 ON
 OFF
 The front wiper stop position signal (stop position) cannot be input for 10 seconds.

 ON
 ON
 The front wiper stop position signal does not change for 10 seconds.

#### NOTE:

This operation status can be confirmed on the IPDM E/R "Data Monitor" that displays "BLOCK" for the item "WIP PROT" while the wiper is stopped.

#### DTC Index

INFOID:000000006484205

CONSULT display	Fail-safe	Timin	g <sup>NOTE</sup>	Reference page
No DTC is detected. further testing may be required.	_	_	_	_
U1000: CAN COMM CIRCUIT	×	CRNT	PAST	PCS-13
B2099: IGN RELAY OFF	—	CRNT	PAST	PCS-14

NOTE:

The details of time display are as follows.

• CRNT: The malfunctions that are detected now.

• PAST: The number is indicated when it is normal at present and a malfunction was detected in the past.

#### **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

# < SYMPTOM DIAGNOSIS > SYMPTOM DIAGNOSIS EXTERIOR LIGHTING SYSTEM SYMPTOMS

#### Symptom Table

#### INFOID:000000006201241

#### **CAUTION:**

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

Syn	nptom	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 the headlamp high</li> <li>Daytime running light relay (with daytime running light system)</li> <li>IPDM E/R</li> </ul>	Headlamp (HI) circuit Refer to <u>EXL-175</u> .	
	Both sides	Symptom diagnosis	I	
Headlamp (HI) is not	When ignition switch is turned ON.	"BOTH SIDE HEADLAMPS (HI) A Refer to <u>EXL-270</u> .	RE NOT TURNED ON"	
turned OFF. High beam indicator lamp	When ignition switch is turned OFF.	IPDM E/R	_	
High beam indicator lam [The headlamp (HI) is tui		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 the headlamp low</li> <li>IPDM E/R</li> </ul>	Headlamp (LO) circuit Refer to <u>EXL-178</u> .	
	Both sides	Symptom diagnosis	I	
Headlamp (LO) is not	When ignition switch is turned ON.	"BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <u>EXL-271</u> .		
turned OFF.	When ignition switch is turned OFF.	IPDM E/R —		
Headlamp is not turned (	ON/OFF with the lighting	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-65</u>	
switch AUTO.		<ul> <li>Optical sensor</li> <li>Harness between the optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <u>EXL-194</u>	
Daytime running light is r	not turned ON.	<ul> <li>Fuse</li> <li>Halogen bulb (HI)</li> <li>Harness between IPDM E/R and the daytime running light relay</li> <li>Daytime running light relay</li> <li>IPDM E/R</li> <li>BCM</li> <li>ECM</li> </ul>	<ul> <li>Daytime running light relay circuit Refer to <u>EXL-182</u>.</li> <li>BCM (HEAD LAMP) Data monitor "ENGINE RUN- NING" and "PKB SW"</li> <li>BCM (HEAD LAMP) Active test "DAYTIME RUNNING LIGHT"</li> </ul>	

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#### **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

#### < SYMPTOM DIAGNOSIS >

#### [HALOGEN TYPE]

Symp	otom	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 the front fog lamp</li> <li>Front fog lamp</li> <li>IPDM E/R</li> </ul>	Front fog lamp circuit Refer to <u>EXL-180</u> .
Front fog lamp is not turne	Both sides d ON.	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS Refer to <u>EXL-273</u> .	S ARE NOT TURNED ON"
Parking lamp is not turned	ON.	<ul> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and the front combination lamp</li> <li>Front combination lamp</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to <u>EXL-185</u> .
Tail lamp is not turned ON.		<ul> <li>Tail lamp bulb</li> <li>Harness between IPDM E/R and the rear combination lamp</li> <li>Rear combination lamp</li> </ul>	Tail lamp circuit Refer to <u>EXL-191</u> .
License plate lamp is not to	urned ON.	<ul> <li>License plate lamp bulb</li> <li>Harness between IPDM E/R and the license plate lamp</li> <li>License plate lamp</li> </ul>	License plate lamp circuit Refer to <u>EXL-193</u> .
Tail lamp and the license p ON.	<ul> <li>Tail lamp and the license plate lamp are not turned ON.</li> <li>Parking lamp, the tail lamp and the license plate lamp are not turned ON.</li> <li>Parking lamp, the tail lamp and the license plate lamp are not turned OFF.</li> <li>(Each illumination is turned ON/OFF.)</li> </ul>		License plate lamp circuit Refer to <u>EXL-193</u> .
<ul><li>lamp are not turned ON.</li><li>Parking lamp, the tail lar lamp are not turned OFF</li></ul>			Symptom diagnosis "PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to <u>EXL-272</u> .
Tail lamp indicator is not tu (Parking, tail lamps are tur		Combination meter	<ul> <li>Combination meter Data monitor "LIGHT IND"</li> <li>BCM (HEAD LAMP) Active test "TAIL LAMP"</li> </ul>
Turn signal lamp does not blink.	Indicator lamp is nor- mal. (Applicable side per- forms the high flasher activation.)	<ul> <li>Harness between BCM and each turn signal lamp</li> <li>Turn signal lamp bulb</li> </ul>	Turn signal circuit Refer to <u>EXL-187</u> .
Dink.	Indicator lamp is includ- ed.	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-41</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 indicator lamp is normal.)	Both sides (Only when activating hazard warning lamp with the ignition switch OFF)	<ul> <li>Combination meter power supply and the ground circuit</li> <li>Combination meter</li> </ul>	Combination meter Power supply and the ground circuit Refer to <u>MWI-63</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 the hazard switch and BCM</li> <li>BCM</li> </ul>	Hazard switch Refer to <u>EXL-189</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

#### Description

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

#### Diagnosis Procedure

**1.**COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to <u>BCS-65, "Symptom Table"</u>.

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

#### ©CONSULT-III 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	Con	Monitor status	
HL HI REQ	Lighting switch	HI or PASS	On
	(2ND)	LO	Off

Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-66, "Exploded View"</u>.

 $\mathbf{3}$ .HEADLAMP (HI) CIRCUIT INSPECTION

Check the headlamp (HI) circuit. Refer to EXL-175, "Component Function Check".

Is the headlamp (HI) circuit normal?

YES >> Replace IPDM E/R.

NO >> Repair or replace the malfunctioning part.

[HALOGEN TYPE]

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

< SYMPTOM [			AMIPS (LO) ARE NOT TURNED	[HALOGEN TYPE]				
BOTH SID	E HEADLA	MPS (LO)	ARE NOT TURNED ON		А			
Description								
Both side head	lamps (LO) are	not turned ON	in any condition.		В			
Diagnosis P	rocedure			INFOID:00000006201245				
1.снеск со	MBINATION SW	/ITCH			С			
Check the com	bination switch.	Refer to BCS-6	65, "Symptom Table".					
	tion switch norm 0 TO 2.	<u>al?</u>			D			
•	pair or replace t		• •					
	ADLAMP (LO) R	EQUEST SIGI	NAL INPUT		Е			
1. Select "HL	I DATA MONITO LO REQ" of IPE ting the lighting	DM E/R data m	onitor item. he monitor status.		F			
Monitor item	Conc	lition	Monitor status					
HL LO REQ	Lighting switch	2ND	On		G			
	10	OFF	Off					
<u>Is the item state</u> YES >> GC	us normal? D TO 3.				Н			
•	•		"Exploded View".					
3.HEADLAMP	(LO) CIRCUIT	INSPECTION						
	Check the headlamp (LO) circuit. Refer to EXL-178, "Component Function Check".							
YES >> Re	<u>p (LO) circuit no</u> place IPDM E/R pair or replace t		ing part.		J			

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

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

#### Description

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

#### **Diagnosis Procedure**

INFOID:000000006201247

INFOID:000000006201246

#### **1.**CHECK FUSE

Check that the following fuse is fusing.

Unit	Location	Fuse No.	Capacity
Parking lamp		#46	10 A
<ul><li>Tail lamp</li><li>License plate lamp</li></ul>	IPDM E/R	#45	10 A

#### Is the fuse fusing?

YES >> Repair the applicable circuit. And then replace the fuse.

NO >> GO TO 2.

#### **2.**COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to BCS-65. "Symptom Table".

Is the combination switch normal?

YES >> GO TO 3.

NO >> Repair or replace the malfunctioning part.

 ${\it 3.}$  CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

OCNSULT-III 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	Con	Monitor status	
TAIL & CLR REQ	Lighting switch	1ST	On
		OFF	Off

Is the item status normal?

YES >> GO TO 4.

NO >> Replace BCM. Refer to <u>BCS-66, "Exploded View"</u>.

4. TAIL LAMP CIRCUIT INSPECTION

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

Is the tail lamp circuit normal?

YES >> Replace IPDM E/R.

NO >> Repair or replace the malfunctioning part.

# BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON [HALOGEN TYPE] SYMPTOM DIAGNOSIS > [HALOGEN TYPE] BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON Implementation Description Implementation

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

#### Diagnosis Procedure

#### 1.CHECK FUSE

Check that the following fuse is fusing.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#65	15 A
Is the fuse fusing?			
YES >> Repair th	ne applicable circui	t. And then	replace the
2.COMBINATION S		ON	
Check the combination	on switch. Refer to	BCS-65, "S	Symptom T
Is the combination sw	vitch normal?		
YES >> GO TO 3 NO >> Repair o	3. r replace the malfu	nctioning n	ort
3.CHECK FRONT F	•	• ·	
		ST SIGNA	
CONSULT-III DATA Select "FR FOG	A MONITOR REQ" of IPDM E/F	? data moni	tor item
	ne front fog lamp sv		

Monitor item	Condition		Monitor status
	Front fog lamp switch	ON	On
FR FOG REQ	(With lighting switch 1ST)	OFF	Off
Is the item sta	tus normal?		
	O TO 4.		
	eplace BCM. Refer to <u>B</u> OG LAMP CIRCUIT INSF		
	nt fog lamp circuit. Refer		
	a lamp circuit normal?		
	eplace IPDM E/R.		
NO >> R	epair or replace the malf	unctioni	ng part.

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INFOID:000000006201249

# < PRECAUTION > PRECAUTION PRECAUTIONS FOR USA AND CANADA

FOR USA AND CANADA : 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:

- 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:

- 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.
   FOR MEXICO

## FOR MEXICO : 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. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which 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:

• 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

#### PRECAUTIONS

#### [HALOGEN TYPE]

hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing	DDECAUTION	T REGRO HONO	[HALOGEN TYPE]
rious injury. hen using air or electric power tools or hammers, always switch the ignition OFF, disconnect the	PRECAUTION > a hammer. Heavy vibration coι	uld activate the sensor(s) and deploy th	
	serious injury. When using air or electric pow	ver tools or hammers, always switch the	

INFOID:000000006201252

#### 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.

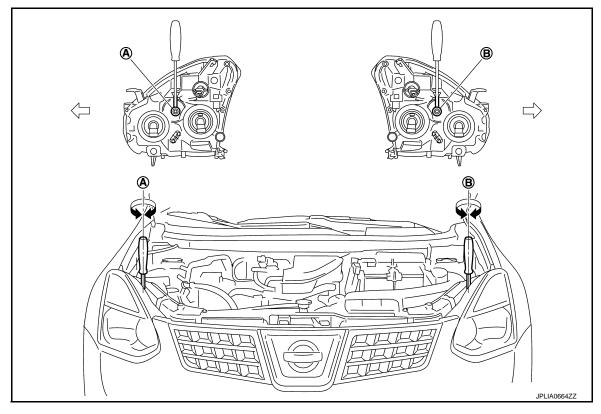
• Wipe out dirt on the headlamp.

#### CAUTION:

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

Ride alone on the driver seat.

AIMING ADJUSTMENT SCREW



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

C: Vehicle center

#### HEADLAMP AIMING ADJUSTMENT

#### < PERIODIC MAINTENANCE >

[HALOGEN TYPE]

INFOID:000000006201253

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-		Adjustment screw	Screw driver rotation	Facing direction	А
			Clockwise	DOWN	
A	A	Headlamp RH (UP/DOWN)	Counterclockwise	UP	_
В	Headlamp LH (UP/DOWN)		Clockwise	DOWN	В
		Counterclockwise	UP		

#### Aiming Adjustment Procedure

- 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 E screen.
- 3. Start the engine. Turn the headlamp (LO) ON.
- NOTE:

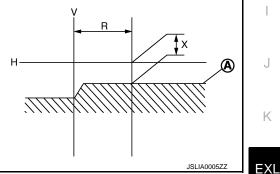
Shut off the headlamp light with the board to prevent from illuminating the adjustment screen. CAUTION:

#### 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).

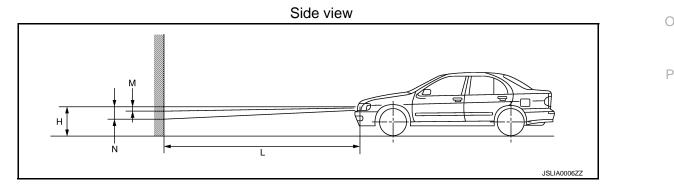
Light axis measure-	: 350 ± 175 mm (13.78 ± 6.89
ment range (R)	in)

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)	М
-	Horizontal center line of headlamp (H)	Highest cutoff line height (M)	Lowest cutoff line height (N)	1 V I
_	700 (27.56) or less	4 (0.16)	30 (1.18)	
_	701(27.60) – 800 (31.50)	4 (0.16)	30 (1.18)	Ν
_	801 (31.54) or more	17 (0.67)	44 (1.73)	



< PERIODIC MAINTENANCE >

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

#### FRONT FOG LAMP AIMING ADJUSTMENT

	А
Description	
PREPARATION BEFORE ADJUSTING <b>NOTE:</b> • For details, refer to the regulations in your own country.	В
<ul><li>Before performing aiming adjustment, check the following.</li><li>Adjust the tire pressure to the specification.</li></ul>	С
<ul> <li>Fill with fuel, engine coolant and each oil.</li> <li>Maintain the unloaded vehicle condition. (Remove luggage from the passenger compartment and the luggage room.)</li> <li>NOTE:</li> </ul>	D
Do not remove the temporary tire, jack and on-vehicle tool. • Wipe out dirt on the headlamp. CAUTION:	E
<ul> <li>Never use organic solvent (thinner, gasoline etc.)</li> <li>Ride alone on the driver seat.</li> </ul>	F
AIMING ADJUSTMENT SCREW  • Turn the aiming adjusting screw for adjustment.	G
A: UP B: DOWN	
<ul> <li>For the position and direction of the adjusting screw, refer to the figure.</li> <li>NOTE:</li> </ul>	Н
A screwdriver or hexagonal wrench [6 mm (0.24 in)] can be used for adjustment.	Ι

#### **Aiming Adjustment Procedure**

#### 1. Place the screen.

#### NOTE:

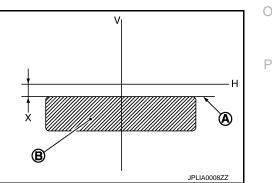
- Stop the vehicle facing the wall.
- Place the board on a plain road vertically.
- EXL 2. Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the front fog lamp center and the screen.
- 3. Start the engine. Illuminate the front fog lamp. **CAUTION:**

#### 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.

4. Adjust the cutoff line height (A) with the aiming adjustment screw so that the distance (X) between the horizontal center line of front fog lamp (H) and (A) becomes 150 mm (5.91 in).

Front fog lamp light distribution on the screen



[HALOGEN TYPE]

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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

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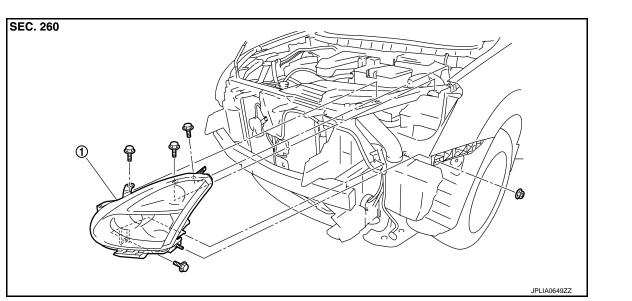
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Exploded View

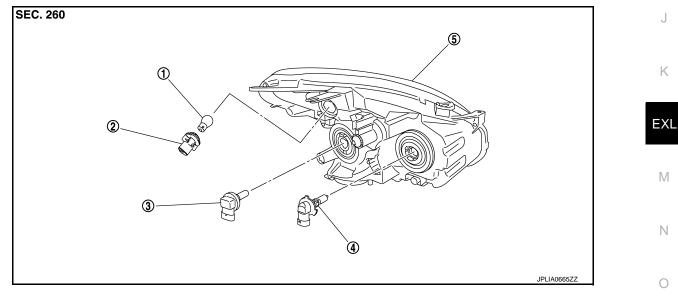
#### REMOVAL

INFOID:000000006201256



1. Front combination lamp

#### DISASSEMBLY



- 1. Front turn signal/parking (side marker) 2. lamp bulb
- Front turn signal/parking (side marker) 3. Halogen bulb (LO) lamp bulb socket

- 4. Halogen bulb (HI)
- Headlamp housing assembly

#### Removal and Installation

### REMOVAL CAUTION:

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

1. Remove front bumper fascia. Refer to EXT-13, "Exploded View".

INFOID:000000006201257

#### FRONT COMBINATION LAMP

#### < REMOVAL AND INSTALLATION >

INFOID-00000006201258

- 2. Remove the headlamp mounting bolts and nuts.
- 3. Remove the mounting stud of the headlamp outside from front fender.
- 4. Pull out the headlamp assembly forward the vehicle.
- 5. Disconnect the connector before removing the headlamp assembly.

#### INSTALLATION

Install in the reverse order of removal.

#### NOTE:

After installation, perform aiming adjustment. Refer to EXL-276. "Description".

#### 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.

#### HEADLAMP BULB (LO)

- Remove the air duct<sup>\*</sup>. Keep a service area.
   \*When replace a left.
- 2. Rotate the bulb counterclockwise and unlock it.
- 3. Disconnect the headlamp bulb connector.
- 4. Remove the bulb from the headlamp housing assembly.

#### HEADLAMP BULB (HI)

- 1. Remove the air duct<sup>\*</sup>. Keep a service area. \*When replace a left.
- 2. Rotate the bulb counterclockwise and unlock it.
- 3. Disconnect the headlamp bulb connector.
- 4. Remove the bulb from the headlamp housing assembly.

#### FRONT TURN SIGNAL/PARKING (SIDE MARKER) LAMP BULB

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

#### Disassembly and Assembly

INFOID:000000006201259

#### DISASSEMBLY

- 1. Rotate the headlamp bulb (LO) counterclockwise and unlock it
- 2. Disconnect the headlamp bulb (LO) connector. And remove the bulb from the headlamp housing assembly.
- 3. Rotate the headlamp bulb (HI) counterclockwise and unlock it
- 4. Disconnect the headlamp bulb (HI) connector. And remove the bulb from the headlamp housing assembly.
- 5. Rotate the front turn signal/parking (side marker) lamp bulb socket counterclockwise and unlock it.
- 6. Remove the bulb from the front turn signal/parking (side marker) lamp bulb socket.

#### ASSEMBLY

Assemble in the reverse order of disassembly.

#### **FRONT FOG LAMP**

#### < REMOVAL AND INSTALLATION >

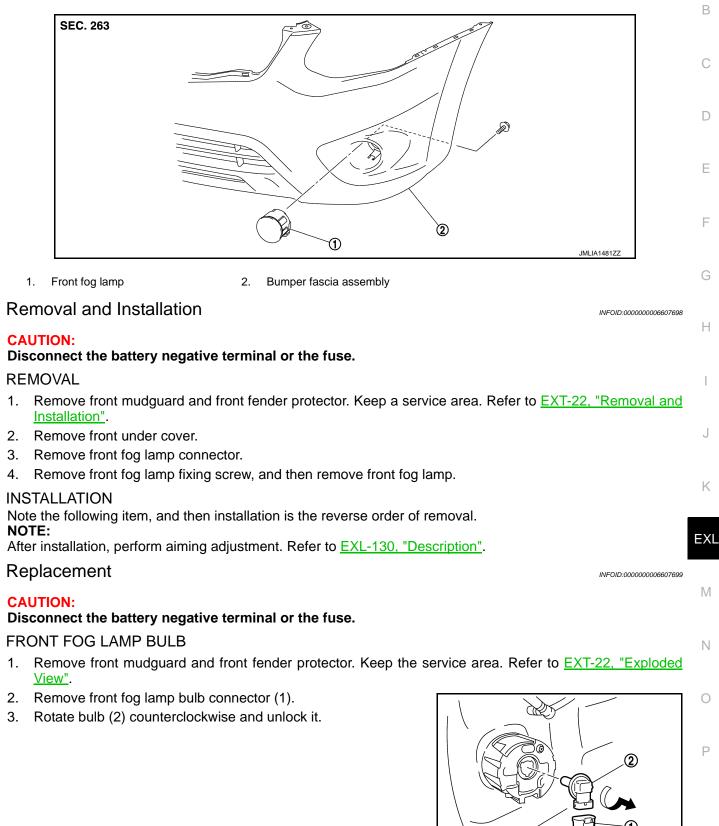
#### FRONT FOG LAMP

#### **Exploded View**

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[HALOGEN TYPE]



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#### LIGHTING & TURN SIGNAL SWITCH

#### < REMOVAL AND INSTALLATION >

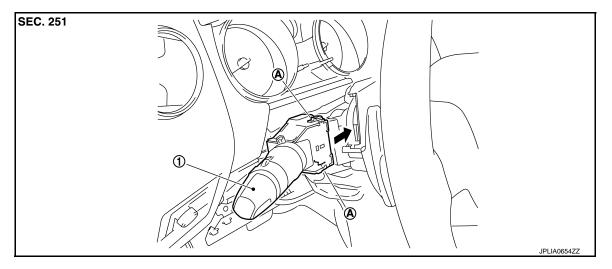
#### LIGHTING & TURN SIGNAL SWITCH

#### Exploded View

INFOID:000000006201263

INFOID:000000006201264

[HALOGEN TYPE]



- 1. Lighting & turn signal switch
- A. Pawl

#### Removal and Installation

#### REMOVAL

- 1. Remove steering column cover. Refer to IP-13, "Exploded View".
- 2. While pressing pawls, pull the lighting & turn signal switch. And disconnect from the switch base.

#### INSTALLATION

Installation is the reverse order of removal.

#### **HAZARD SWITCH**

## < REMOVAL AND INSTALLATION > HAZARD SWITCH

#### [HALOGEN TYPE]

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Exploded View

SEC. 251	JPLIA0655ZZ	
<ol> <li>Hazard switch</li> <li>A. Pawls</li> </ol>		
Removal and Installation	INFOID:0000	000006201266
REMOVAL I. Remove the cluster lid C. Refer to <u>IP-13, "Exploded View"</u> .		

2. Push the pawl. And remove the hazard switch.

#### INSTALLATION

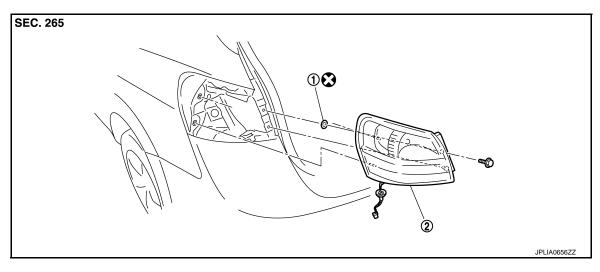
Install in the reverse order of removal.

#### REAR COMBINATION LAMP

#### Exploded View

REMOVAL

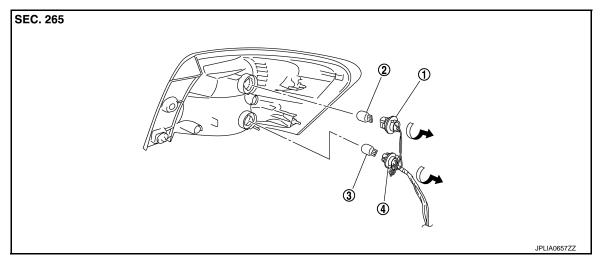
INFOID:000000006201267



1. Seal packing 2. Rear combination lamp

Refer to GI-4, "Components" for symbols in the figure.

#### DISASSEMBLY



- 1. Rear turn signal lamp bulb socket 2
- 2. Rear turn signal lamp bulb
- 3. Stop/tail (side marker lamp) bulb

4. Stop/tail (side marker lamp) bulb socket

#### Removal and Installation

#### CAUTION:

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

#### REMOVAL

- 1. Remove the luggage side lower finisher. Refer to INT-32. "Exploded View".
- 2. Disconnect rear combination lamp connector.

#### EXL-286

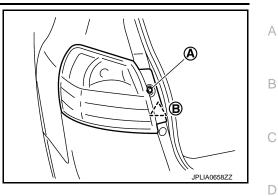
INFOID:000000006201268

#### **REAR COMBINATION LAMP**

#### < REMOVAL AND INSTALLATION >

#### [HALOGEN TYPE]

- 3. Remove rear combination lamp mounting bolts (A).
- Turn up the back door weather strip, insert an appropriate tool between rear combination lamp and vehicles and remove a clip (B).
- 5. Pull the rear combination lamp toward rear of the vehicle. Remove the rear combination lamp.



#### INSTALLATION

Install in the reverse order of removal.

Re	eplacement	INFOID:000000006201269	Ε
	UTION: sconnect the battery negative terminal or the fuse.		F
ST	OP/TAIL (SIDE MARKER) LAMP BULB		1
1.	Remove rear combination lamp. Refer to EXL-286, "Exploded View".		
2.	Rotate the stop/tail (side marker lamp) bulb socket counterclockwise, and unlock it.		G
3.	Remove bulb from the bulb socket.		
RE	AR TURN SIGNAL LAMP BULB		Н
1.	Remove rear combination lamp. Refer to EXL-286, "Exploded View".		
2.	Rotate the rear turn signal lamp bulb socket counterclockwise, and unlock it.		
3.	Remove bulb from the bulb socket.		
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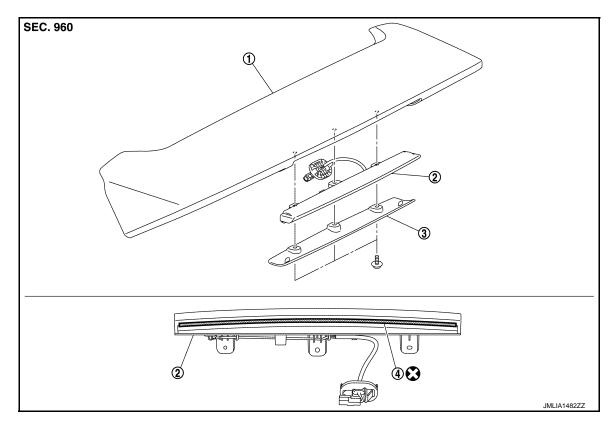
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#### HIGH-MOUNTED STOP LAMP

#### Exploded View

INFOID:000000006607700

[HALOGEN TYPE]



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

 4. Double-sided tape [t: 1.2 mm (0.047 in)]
 3. High-mounted stop lamp cover

Refer to <u>GI-4. "Components"</u> for symbols in the figure.

#### Removal and Installation

#### **CAUTION:**

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

#### REMOVAL

- 1. Remove rear spoiler. Refer to EXT-32, "Removal and Installation".
- 2. Remove high-mounted stop lamp grommet from body panel.
- 3. Disconnect high-mounted stop lamp connector.
- 4. Remove high-mounted stop lamp.

#### INSTALLATION

Note the following item, and then installation is the reverse order of removal. **CAUTION:** 

Seal packing cannot be reused.

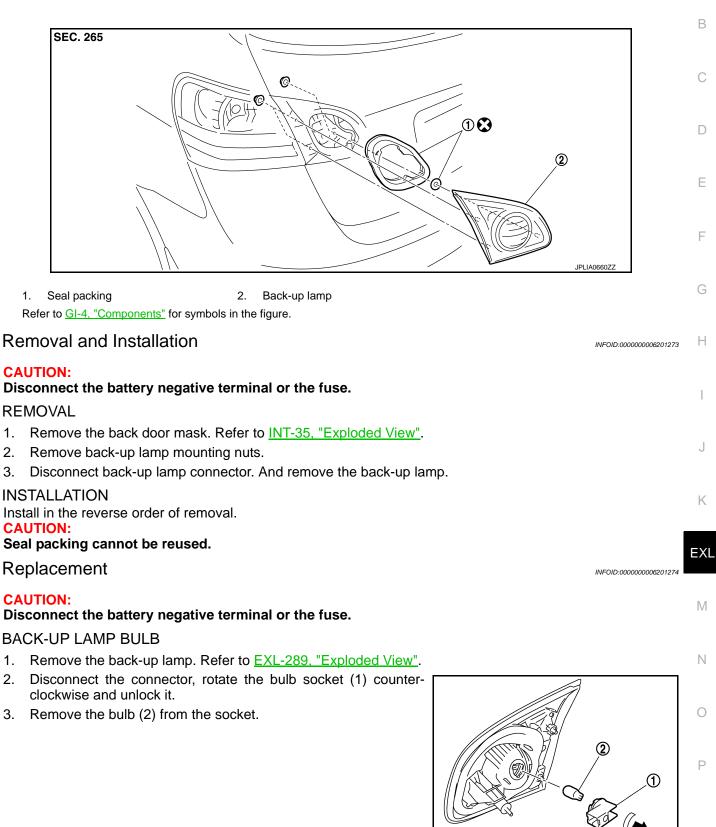
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#### BACK-UP LAMP

**Exploded View** 

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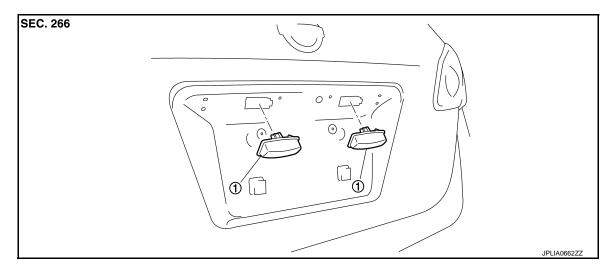
#### LICENSE PLATE LAMP

#### **Exploded View**

INFOID:000000006201275

INFOID-000000006201276

[HALOGEN TYPE]



1. License plate lamp

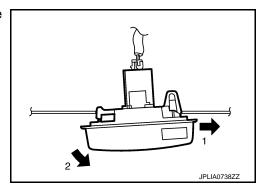
#### Removal and Installation

#### **CAUTION:**

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

#### REMOVAL

- 1. Remove back door trim finisher lower. Refer to INT-35, "Exploded View".
- 2. Remove back door finisher.Refer to INT-35, "Exploded View".
- 3. Remove the license plate lamp in numerical order shown in the figure.
- 4. Disconnect the license plate lamp connector.



#### INSTALLATION

- 1. Connect the license plate lamp connector.
- 2. Fix the pawl-side behind the license plate lamp housing first, then push the resin clip-side.

#### Replacement

#### **CAUTION:**

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

#### LICENSE PLATE LAMP BULB

1. Remove back door trim finisher lower. Refer to INT-35, "Exploded View".

#### EXL-290

INFOID:000000006201277

#### LICENSE PLATE LAMP

#### < REMOVAL AND INSTALLATION >

- 2. Turn the bulb socket (1) counterclockwise and unlock it.
- 3. Remove the bulb (2) from the socket.

# Image: Halogen type Image: Halogen ty

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

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

#### **Bulb Specifications**

INFOID:000000006201278

[HALOGEN TYPE]

	Item	Туре	Wattage (W)
	Headlamp (HI)	HB3	60
Front combination lamp	Headlamp (LO)	H11	55
	Front turn signal/parking (side marker) lamp	S25 (Amber)	27/8
Front fog lamp		H8	35
	Stop/tail (side marker) lamp	W21/5W	21/5
Rear combination lamp	Rear turn signal lamp	W21W	21
	Back-up lamp	W16W	16
License plate lamp		W5W	5
High-mounted stop lamp		LED	_