# **SECTION EXE**

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# SERVICE DATA AND SPECIFICATIONS

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< BASIC INSPECTION >

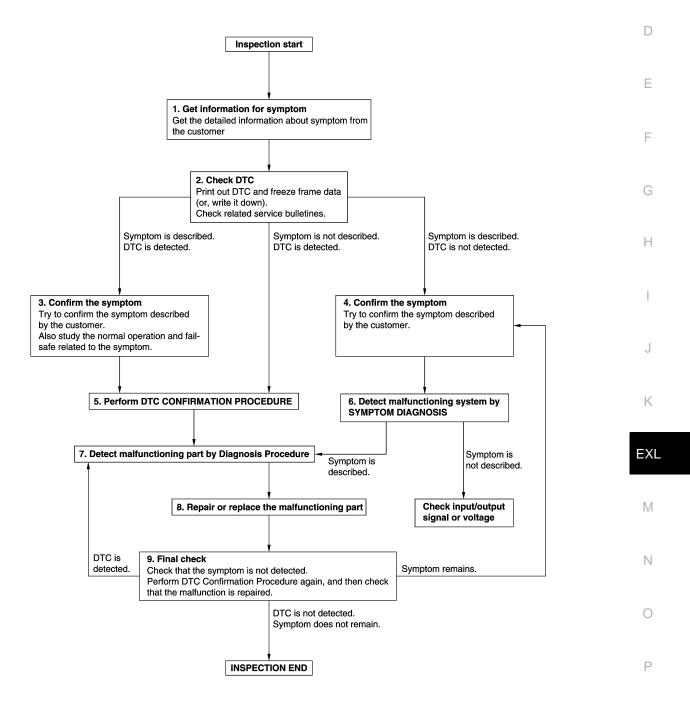
# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

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**OVERALL SEQUENCE** 



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DETAILED FLOW

< BASIC INSPECTION >

# **1.**GET INFORMATION FOR SYMPTOM

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

#### >> GO TO 2.

# 2.CHECK DTC

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

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

Symptom is described, DTC is detected>>GO TO 3. Symptom is described, DTC is not detected>>GO TO 4. Symptom is not described, DTC is detected>>GO TO 5.

#### **3.**CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Also study the normal operation and fail-safe related to the symptom. Verify relation between the symptom and the condition when the symptom is detected.

#### >> GO TO 5.

#### **4.**CONFIRM THE SYMPTOM

Try to confirm the symptom described by the customer. Verify relation between the symptom and the condition when the symptom is detected.

#### >> GO TO 6.

#### **5.**PERFORM DTC CONFIRMATION PROCEDURE

Perform DTC CONFIRMATION PROCEDURE for the detected DTC, and then check that DTC is detected again. At this time, always connect CONSULT to the vehicle, and check self diagnostic results in real time. If two or more DTCs are detected, refer to DTC INSPECTION PRIORITY CHART, and determine trouble diagnosis order.

#### NOTE:

- Freeze frame data is useful if the DTC is not detected.
- Perform Component Function Check if DTC CONFIRMATION PROCEDURE is not included on Service Manual. This simplified check procedure is an effective alternative though DTC cannot be detected during this check.

If the result of Component Function Check is NG, it is the same as the detection of DTC by DTC CONFIR-MATION PROCEDURE.

#### Is DTC detected?

YES >> GO TO 7.

NO >> Check according to <u>GI-41, "Intermittent Incident"</u>.

6. Detect malfunctioning system by symptom diagnosis

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

#### Is the symptom described?

- YES >> GO TO 7.
- NO >> Monitor input data from related sensors or check voltage of related module terminals using CON-SULT.
- 7. DETECT MALFUNCTIONING PART BY DIAGNOSIS PROCEDURE

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >	
Inspect according to Diagnosis Procedure of the system.	
Is malfunctioning part detected?	А
YES >> GO TO 8.	
NO >> Check according to <u>GI-41, "Intermittent Incident"</u> .	В
8.REPAIR OR REPLACE THE MALFUNCTIONING PART	D
<ol> <li>Repair or replace the malfunctioning part.</li> <li>Reconnect parts or connectors disconnected during Diagnosis Procedure again after repair and replacement.</li> </ol>	С
3. Check DTC. If DTC is detected, erase it.	
>> GO TO 9.	D
9.FINAL CHECK	
When DTC is detected in step 2, perform DTC CONFIRMATION PROCEDURE again, and then check that the malfunction is repaired securely.	Е
When symptom is described by the customer, refer to confirmed symptom in step 3 or 4, and check that the	
symptom is not detected.	F
<u>Is DTC detected and does symptom remain?</u> YES-1 >> DTC is detected: GO TO 7.	
YES-1 >> Symptom remains: GO TO 4.	G
NO >> Before returning the vehicle to the customer, always erase DTC.	G
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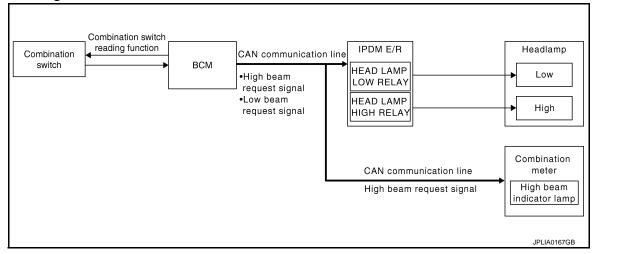
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## < SYSTEM DESCRIPTION >

# SYSTEM DESCRIPTION HEADLAMP SYSTEM

#### System Diagram



#### System Description

INFOID:000000007772525

INFOID:000000007772524

#### 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 (With auto light system)
- IPDM E/R turns the integrated headlamp low relay ON, and turns the headlamp ON according to the low beam request signal.

#### NOTE:

Daytime running light model goes through the daytime running light relay-2 in headlamp low (RH) circuit. For details, refer to <u>EXL-10, "System Description"</u>.

#### HEADLAMP (HI) OPERATION

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

#### Headlamp (HI) ON condition

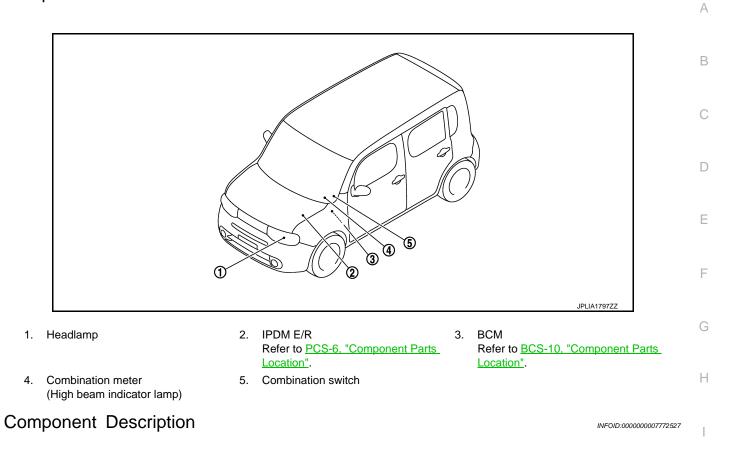
- Lighting switch HI with the lighting switch 2ND or AUTO (auto light function ON judgment)
- Lighting switch PASS
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.
- IPDM E/R turns the integrated headlamp high relay ON, and turns the headlamp ON according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

# **HEADLAMP SYSTEM**

#### < SYSTEM DESCRIPTION >

# **Component Parts Location**

INFOID:000000007772526



Part	Description
BCM	<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-11, "System Diagram".
Combination meter (High beam indicator lamp)	Turns the high beam indicator lamp ON according to the request from BCM (with CAN communication).

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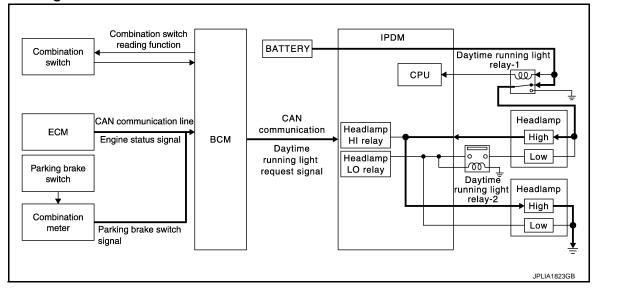
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# DAYTIME RUNNING LIGHT SYSTEM

#### < SYSTEM DESCRIPTION >

# DAYTIME RUNNING LIGHT SYSTEM

#### System Diagram



#### System Description

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INFOID:000000007772528

#### 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 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 switch OFF
- IPDM E/R controls the daytime running light relay-1 (ground-side) to turn ON according to the daytime running light request signal.
- Power is supplied from the daytime running light relay-1 through headlamp high (RH) and IPDM E/R to headlamp high (LH). And high beam headlamps are illuminated (approximately half illumination) as the day-time running light.

#### NOTE:

- Daytime running light relay-2 is turned ON when headlamp is low.
- Daytime running light relay-2 is OFF to cut voltage of headlamp low circuit when daytime running light is ON.

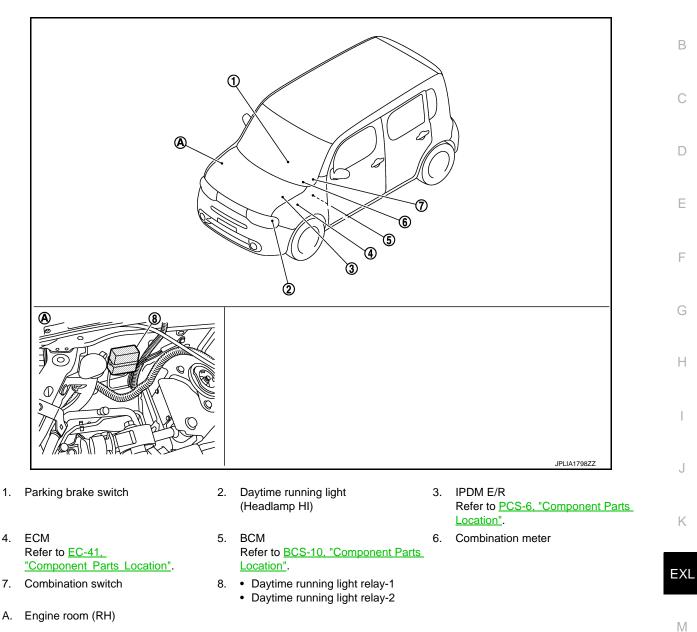
# DAYTIME RUNNING LIGHT SYSTEM

#### < SYSTEM DESCRIPTION >

# **Component Parts Location**

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# **Component Description**

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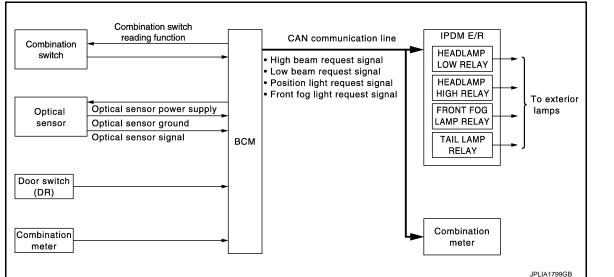
Part	Description	
BCM	<ul> <li>Detects each switch condition with the combination switch reading function.</li> <li>Judges each lamps ON/OFF condition according to the vehicle condition.</li> <li>Requests the each relay ON to IPDM E/R (with CAN communication).</li> </ul>	
IPDM E/R	Controls the relay and supplies voltage to the load according to the request from BCM (with CAN communication).	
Daytime running light relay-1	Switches headlamp (HI) circuit to illuminate the daytime running light.	
Daytime running light relay-2	Cuts voltage of headlamp low circuit when daytime running light is ON.	
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-11, "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).	

# AUTO LIGHT SYSTEM

# < SYSTEM DESCRIPTION >

# AUTO LIGHT SYSTEM

#### System Diagram



# System Description

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INFOID:000000007772532

#### OUTLINE

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

#### Control by BCM

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

#### Control by IPDM E/R

- Relay control function
- Auto light system has the auto light function (with twilight lighting function<sup>\*1</sup>), wiper linked auto lighting function and delay timer function.

\*1:For USA only

- Auto light function automatically turns ON/OFF the exterior lamps<sup>\*2</sup> and each illumination automatically, depending on the outside brightness.
- Wiper linked auto lighting function automatically turns ON/OFF the exterior lamps\* and each illumination when the light switch is in the AUTO position, according to a front wiper operation.
- When auto light system turns the exterior lamps ON with the ignition switch OFF, delay timer function turns the exterior lamps OFF, depending on the vehicle condition with the auto light function after a certain period of time.

\*2: Headlamp (LO/HI), parking lamp (illuminated as front side marker lamps too), tail lamp, rear side marker lamp and front fog lamp (Headlamp HI and front fog lamp depend on the combination switch condition.) **NOTE:** 

The settings of the twilight lighting function and the wiper linked auto lighting function can be changed with CONSULT. Refer to <u>EXL-24</u>, "<u>HEADLAMP</u> : <u>CONSULT Function</u> (<u>BCM - HEAD LAMP</u>)".

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

#### Description

- BCM detects the combination switch condition with the combination switch reading function.
- BCM supplies voltage to the optical sensor when the ignition switch is turned ON or ACC.
- Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.
- BCM detects outside brightness from the optical sensor signal and judges ON/OFF condition of the exterior lamp and each illumination, depending on the outside brightness condition (standard or twilight).

# **AUTO LIGHT SYSTEM**

#### < SYSTEM DESCRIPTION >

• BCM transmits each request signal to IPDM E/R via CAN communication, according to ON/OFF condition by the auto light function.

#### NOTE:

As to ON/OFF timing, the sensitivity depends on settings. The settings can be changed with CONSULT. Refer to EXL-24, "HEADLAMP : CONSULT Function (BCM - HEAD LAMP)".

#### Auto Lighting Timing Table

When the light switch is in AUTO position and the ignition switch is ON, the exterior lamps turns ON/OFF in the following condition.

Exterior lamps	Standard Light ON (Sudden increase/decrease in brightness)	Twilight Light ON (Gradual increase/decrease in brightness)	
ON	Outside brightness is 1250 lx or less for 3 seconds or more.	Filtered brightness is 3000 lx or less	L
OFF	Outside brightness is 2500 lx or more for 5 seconds or more.	Filtered brightness is 5000 lx or more	E

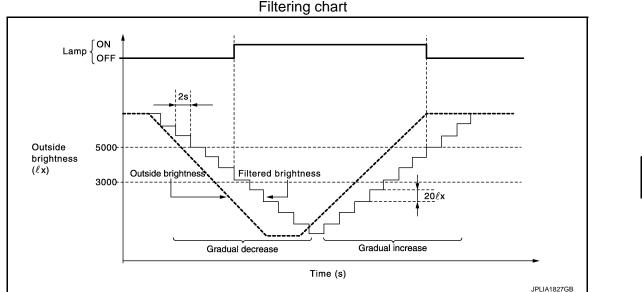
#### Standard Light ON

BCM turns exterior lamps ON when outside brightness obtained from the optical sensor signal is 1250 lx or less for 3 seconds or more. And BCM turns exterior lamp OFF when outside brightness from the optical sensor signal is 2500 lx or more for 5 seconds or more.

#### Twilight Light ON (Twilight Lighting Function)

BCM detects twilight by filtered brightness.

- BCM filters outside brightness to block the impact of the rapid change in brightness, based on the optical sensor signal, and judges outside brightness.
- BCM detects changes in outside brightness, based on outside brightness obtained from the optical sensor H signal and filtered brightness and judges ON/OFF of the exterior lamps.



- BCM starts filtering 0.3 seconds after the ignition switch is turned ON and the light switch is turned to AUTO.
- BCM filters signals from the optical sensor at intervals of 2 seconds. When the filtered brightness is higher than outside brightness (signal from the optical sensor), BCM decreases the filtered brightness by 20 lx<sup>\*</sup>. When the filtered brightness is lower than outside brightness, BCM increases the filtered brightness by 20 lx<sup>\*</sup>.
- BCM turns ON the exterior lamps when filtered brightness reaches 3000 lx and turns OFF when reaching 5000 lx.
- \*:When vehicle speed is 5 km/h or less, BCM decreases/increases the filtered brightness by 5 lx.

#### WIPER LINKED AUTO LIGHTING FUNCTION

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

#### NOTE:

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

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#### < SYSTEM DESCRIPTION >

#### **DELAY TIMER FUNCTION**

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

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

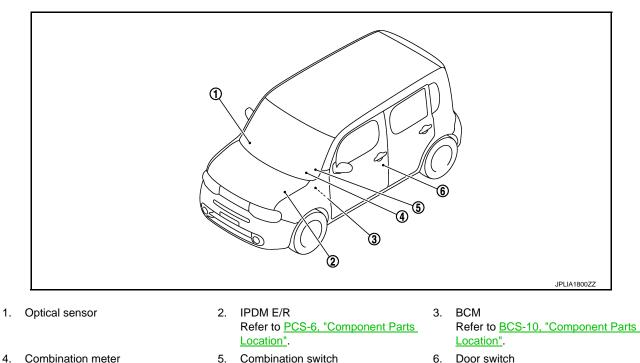
\*: The preset time is 45 seconds. The timer operating time can be set by CONSULT. Refer to EXL-24, "HEAD-LAMP : CONSULT Function (BCM - HEAD LAMP)".

#### NOTE:

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

#### **Component Parts Location**

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# Component Description

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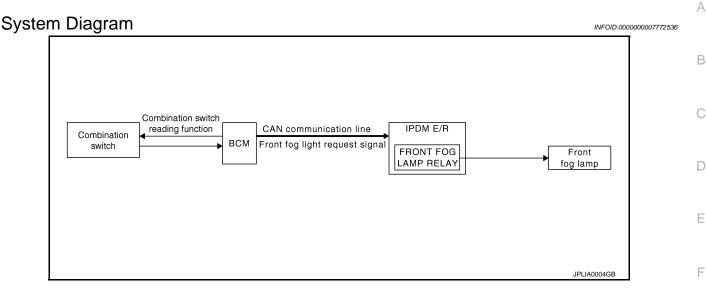
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Part	Description		
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the outside brightness from the optical sensor signal.</li> <li>Judges the OFF timing according to the vehicle condition.</li> <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-11, "System Diagram".		
Optical sensor	Refer to EXL-63, "Description".		

## FRONT FOG LAMP SYSTEM

#### < SYSTEM DESCRIPTION >

# FRONT FOG LAMP SYSTEM



#### System Description

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#### 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.

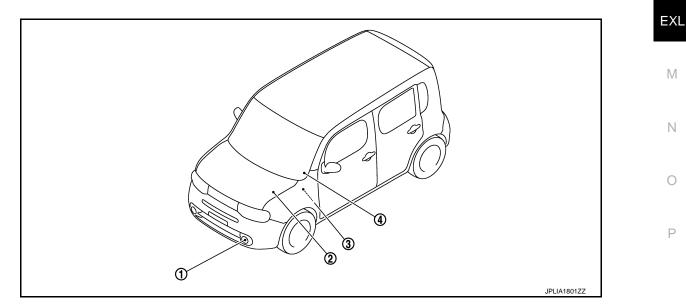
#### FRONT FOG LAMP OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM transmits the front fog lights 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 lights request signal.

#### **Component Parts Location**



Revision: 2011 November

#### < SYSTEM DESCRIPTION >

1. Front fog lamp

2. IPDM E/R Refer to <u>PCS-6, "Component Parts</u> Location". 3. BCM Refer to <u>BCS-10, "Component Parts</u> <u>Location"</u>.

4. Combination switch

#### **Component Description**

INFOID:000000007772539

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-11, "System Diagram".		

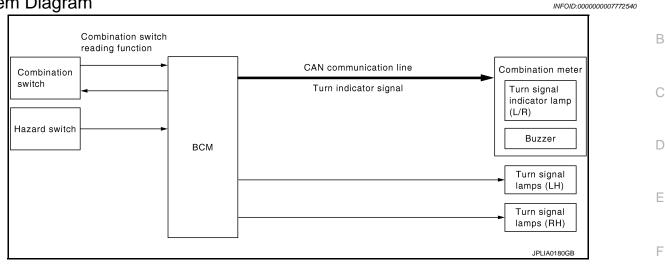
# FRONT FOG LAMP SYSTEM

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### < SYSTEM DESCRIPTION >

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### System Diagram



#### System Description

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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 OPERATION

- BCM transmits the turn signal indicator lamp 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 signal indicator lamp signal.

#### HIGH FLASHER OPERATION

- BCM detects the turn signal lamp circuit status from the terminal voltage.
- 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:

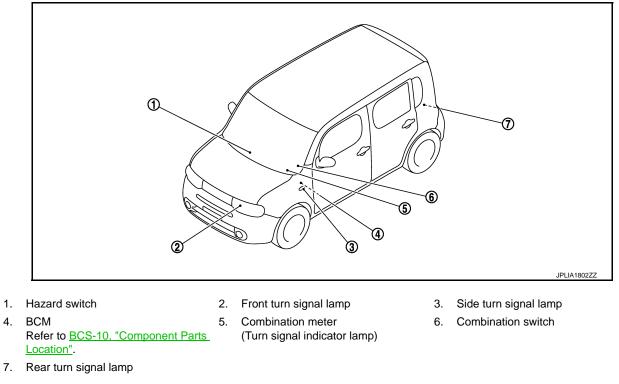
The blinking speed is normal while operating the hazard warning lamp.

Ρ

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### < SYSTEM DESCRIPTION >

# Component Parts Location



# **Component Description**

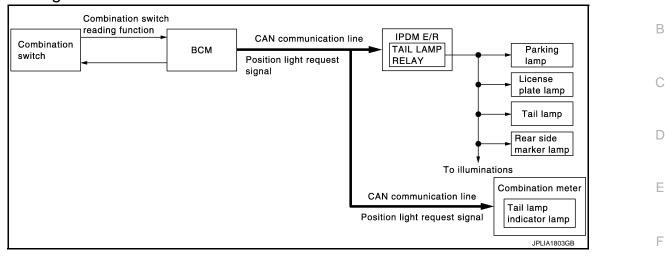
INFOID:000000007772543

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 <u>BCS-11, "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).		

# PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS SYSTEM < SYSTEM DESCRIPTION >

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

#### System Diagram



#### System Description

INFOID:000000007772545

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EXL

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INFOID:000000007772544

#### OUTLINE

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

#### PARKING, LICENSE PLATE, TAIL AND REAR SIDE MARKER 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, tail and rear side marker lamps.

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

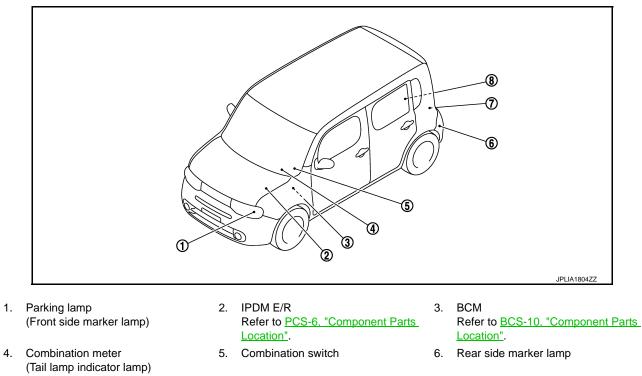
- Lighting switch 1ST
- Lighting switch 2ND
- Lighting switch AUTO, and the auto light function ON judgment (with auto light system)
- IPDM E/R turns the integrated tail lamp relay ON and turns the parking lamp, the license plate, tail and rear side marker lamps ON according to the position light request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

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

< SYSTEM DESCRIPTION >

# **Component Parts Location**

INFOID:000000007772546



7. Tail lamp

# **Component Description**

INFOID:000000007772547

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, tail and rear side marker 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-11, "System Diagram".		
Combination meter (Tail lamp indicator lamp)	Turns the tail lamp indicator lamp ON according to the request from BCM (with CAN communication).		

8. License plate lamp

## EXTERIOR LAMP BATTERY SAVER SYSTEM

#### < SYSTEM DESCRIPTION >

# EXTERIOR LAMP BATTERY SAVER SYSTEM

#### System Diagram

INFOID:000000007772548

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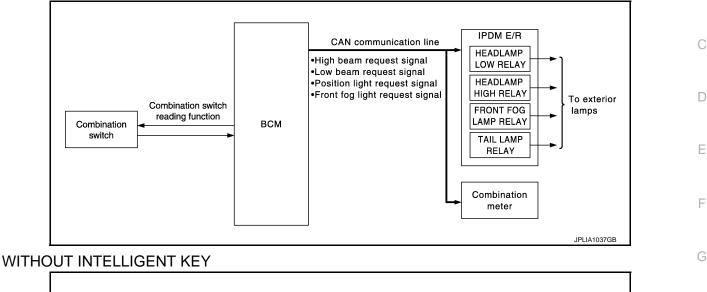
Н

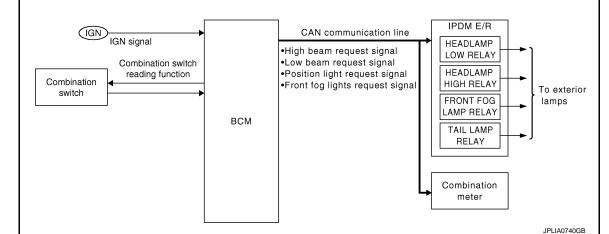
Κ

EXL

INFOID:000000007772549

#### WITH INTELLIGENT KEY





### System Description

 OUTLINE
 M

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

 Control by BCM
 - Combination switch reading function
 N

 - Headlamp control function
 N
 N

 - Exterior lamp battery saver function
 N
 N

 - Exterior lamp battery saver function
 N
 N

 Control by IPDM E/R
 O
 N

 - Relay control function
 N
 O

 • 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.
 P

 \*: Headlamp (LO/HI), parking (front side marker) lamp, tail lamp, license plate lamp, rear side marker lamp and front fog lamp
 P

#### 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:

#### **EXL-21**

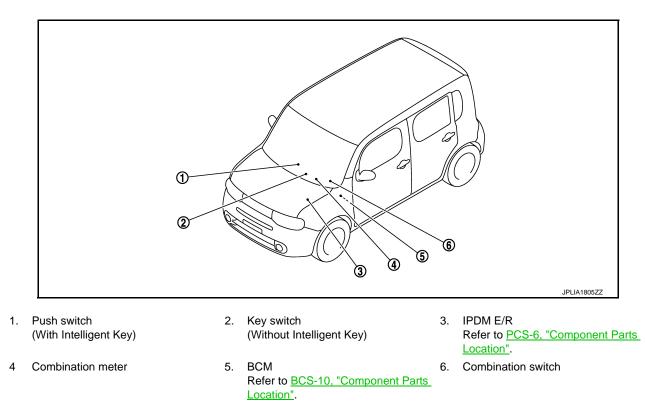
## EXTERIOR LAMP BATTERY SAVER SYSTEM

#### < SYSTEM DESCRIPTION >

- 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.

#### **Component Parts Location**

INFOID:000000007772550



# **Component Description**

INFOID:000000007772551

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 BCS-11, "System Diagram".		

< SYSTEM DESCRIPTION >

# DIAGNOSIS SYSTEM (BCM) (WITH INTELLIGENT KEY SYSTEM) COMMON ITEM

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

INFOID:000000007946341

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В

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1.1

#### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

#### 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.

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

\*: For models with automatic air conditioner, this model is not used.

#### FREEZE FRAME DATA (FFD)

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

#### < SYSTEM DESCRIPTION >

CONSULT screen item	Indication/Unit		Description	
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected		
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected		
	SLEEP>LOCK		While turning BCM status from low power consumption mode to	
			normal mode (Power supply position is "LOCK" <sup>*</sup> )	
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power supply position is "OFF".)	
	LOCK>ACC		While turning power supply position from "LOCK" <sup>*</sup> to "ACC"	
	ACC>ON		While turning power supply position from "ACC" to "IGN"	
	RUN>ACC		While turning power supply position from "RUN" to "ACC" (Vehicle is stopping and selector lever is except P position.)	
	CRANK>RUN		While turning power supply position from "CRANKING" to "RUN" (From cranking up the engine to run it)	
	RUN>URGENT		While turning power supply position from "RUN" to "ACC" (Emer- gency stop operation)	
	ACC>OFF		While turning power supply position from "ACC" to "OFF"	
	OFF>LOCK	Power position status of the moment a particular DTC is detected	While turning power supply position from "OFF" to "LOCK"*	
Vehicle Condition	OFF>ACC		While turning power supply position from "OFF" to "ACC"	
	ON>CRANK		While turning power supply position from "IGN" to "CRANKING"	
	OFF>SLEEP		While turning BCM status from normal mode (Power supply posi- tion is "OFF".) to low power consumption mode	
	LOCK>SLEEP		While turning BCM status from normal mode (Power supply position is "LOCK" <sup>*</sup> .) to low power consumption mode	
	LOCK		Power supply position is "LOCK"*	
	OFF		Power supply position is "OFF" (Ignition switch OFF)	
	ACC		Power supply position is "ACC" (Ignition switch ACC)	
	ON		Power supply position is "IGN" (Ignition switch ON with engine stopped)	
	ENGINE RUN		Power supply position is "RUN" (Ignition switch ON with engine running)	
	CRANKING		Power supply position is "CRANKING" (At engine cranking)	
IGN Counter	0 - 39	<ul> <li>The number of times that ignition switch is turned ON after DTC is detected</li> <li>The number is 0 when a malfunction is detected now.</li> <li>The number increases like 1 → 2 → 338 → 39 after returning to the normal condition whenever ignition switch OFF → ON.</li> <li>The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.</li> </ul>		

#### NOTE:

\*: Power position shifts to "LOCK" from "OFF", when ignition switch is in the OFF position, selector lever is in the P position (CVT models), and any of the following conditions are met.

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

The power position shifts to "ACC" when the push-button ignition switch (push switch) is pushed at "LOCK". HEADLAMP

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

INFOID:000000007772553

#### WORK SUPPORT

For USA

#### < SYSTEM DESCRIPTION >

Service item	Setting item	Setting		
	MODE 1 <sup>*</sup>	With twilight ON custom & with wiper INT, LO and HI		
	MODE 2	With twilight ON custom & with wiper LO and HI		
AUTO LIGHT LOGIC SET	MODE 3	With twilight ON custom & without		
	MODE 4	Without twilight ON custon	n & with wiper INT, LO and HI	
	MODE 5	Without twilight ON custon	n & with wiper LO and HI	
	MODE 6	Without twilight ON custon	n & without	
	MODE 1 <sup>*</sup>	Normal		
	MODE 2	More sensitive setting than	n normal setting (Turns ON earlier than normal operation.	
CUSTOM A/LIGHT SETTING	MODE 3	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2.)		
	MODE 4	Without twilight ON custom & 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		
DATTERT SAVER SET	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.	
	MODE 5	90 sec.	(All doors closed)	
	MODE 6	120 sec.		
	MODE 7	150 sec.		
	MODE 8	180 sec.		

# \*: Factory setting

#### For CANADA

Service item	Setting item	Setting		
	MODE 1			
	MODE 2			
AUTO LIGHT LOGIC SET	MODE 3	NOTE:		
AUTO LIGHT LOGIC SET	MODE 4	The item is indicated, but not operated.		
	MODE 5			
	MODE 6			
CUSTOM A/LIGHT SETTING	MODE 1 <sup>*</sup>	Normal		
	MODE 2	More sensitive setting than normal setting (Turns ON earlier than normal operation.)		
	MODE 3	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2.)		
	MODE 4	Less sensitive setting than normal setting (Turns ON later than normal operation.)		
BATTERY SAVER SET	On <sup>*</sup>	With the exterior lamp battery saver function		
	Off	Without the exterior lamp battery saver function		

#### < SYSTEM DESCRIPTION >

Service item	Setting item	Setting		
	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.	
	MODE 5	90 sec.	(All doors closed)	
	MODE 6	120 sec.		
	MODE 7	150 sec.		
	MODE 8	180 sec.		

\*: Factory setting

#### DATA MONITOR

Monitor item [Unit]	Description		
PUSH SW [On/Off]	The switch status input from push-button ignition switch		
ENGINE STATE [Stop/Stall/Crank/Run]	The engine status received from ECM with CAN communication		
VEH SPEED 1 [km/h]	The value of the vehicle speed received from combination meter with CAN commu- nication		
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]			
DOOR SW-DR [On/Off]	The switch status input from front door switch (driver side)		
DOOR SW-AS [On/Off]	The switch status input from front door switch (passenger side)		
DOOR SW-RR [On/Off]	The switch status input from rear door switch RH		
DOOR SW- RL [On/Off]	The switch status input from rear door switch LH		
BACK DOOR SW [On/Off]	The switch status input from back door switch		
TURN SIGNAL R [On/Off]			
TURN SIGNAL L [On/Off]	Each switch status that BCM judges from the combination switch reading function		
TAIL LAMP SW [On/Off]			

#### < SYSTEM DESCRIPTION >

Monitor item [Unit]	Description	A
OPTICAL SENSOR [On/Off]	The sensor status input from optical sensor	
OPTI SEN (DTCT) [V]	The value of outside brightness voltage input from the optical sensor	
OPTI SEN (FILT) [V]	The value of outside brightness voltage filtered by BCM	С

#### 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.
HEAD LAMP	Hi	Transmits the high beam request signal with CAN communication to turn the headlamp (HI).
	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.
ILL DIM SIGNAL	On	NOTE:
	Off	The item is indicated, but cannot be tested.

# FLASHER

# FLASHER : CONSULT Function (BCM - FLASHER)

#### WORK SUPPORT

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

\*: Factory setting

#### DATA MONITOR

Monitor item [Unit]	Description		
REQ SW-DR [On/Off]	The switch status input from the request switch (driver side)		
REQ SW-AS [On/Off]	The switch status input from the request switch (passenger side)		
PUSH SW [On/Off]	The switch status input from the push-button ignition switch		
TURN SIGNAL R [On/Off]	Each quitch status that DCM datasts from the combination quitch reading function		
TURN SIGNAL L [On/Off]	Each switch status that BCM detects from the combination switch reading function		

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#### < SYSTEM DESCRIPTION >

Monitor item [Unit]	Description	
HAZARD SW [On/Off]	The switch status input from the hazard switch	
RKE-LOCK [On/Off]	Lock signal status received from the remote keyless entry receiver	
RKE-UNLOCK [On/Off]	Unlock signal status received from the remote keyless entry receiver	
RKE-PANIC [On/Off]	Panic alarm signal status received from the remote keyless entry receiver	

#### ACTIVE TEST

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

< SYSTEM DESCRIPTION >

# DIAGNOSIS SYSTEM (BCM) (WITHOUT INTELLIGENT KEY SYSTEM) COMMON ITEM

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

INFOID:000000007946342

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#### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

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

#### 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.

System	Sub aveter colection item	Diagnosis mode			
	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		×	×	
Manual air conditioner	AIR CONDITONER		×	×	
Combination switch	COMB SW		×		-
Body control system	BCM	×			-
NVIS - NATS	IMMU	×	×	×	-
Interior room lamp battery saver	BATTERY SAVER	×	×	×	-
Back door	TRUNK		×		-
Vehicle security system	THEFT ALM	×	×	×	-
RAP system	RETAINED PWR		×	×	-
Signal buffer system	SIGNAL BUFFER		×	×	-
TPMS	TPMS (AIR PRESSURE MONITOR)	×	×	×	-
Panic alarm system	PANIC ALARM			×	-

#### HEADLAMP

# HEADLAMP : CONSULT Function (BCM - HEAD LAMP)

WORK SUPPORT

INFOID:000000007772556

< SYSTEM DESCRIPTION >

For USA

Service item	Setting item	Setting			
	MODE 1 <sup>*</sup>	With twilight ON custom & with wiper INT, LO and HI			
	MODE 2	With twilight ON custom & with wiper LO and HI			
AUTO LIGHT LOGIC SET	MODE 3	With twilight ON custom & without			
	MODE 4	Without twilight ON custom	Without twilight ON custom & with wiper INT, LO and HI		
	MODE 5	Without twilight ON custom	& with wiper LO and HI		
	MODE 6	Without twilight ON custom	Without twilight ON custom & without		
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.		
	MODE 5	90 sec.	(All doors closed)		
	MODE 6	120 sec.			
	MODE 7	150 sec.			
	MODE 8	180 sec.			

# \*: Factory setting

#### For CANADA

Service item	Setting item	Setting		
	MODE 1			
	MODE 2			
AUTO LIGHT LOGIC SET	MODE 3	<b>NOTE:</b> The item is indicated, but not operated.		
AUTO LIGHT LOGIC SET	MODE 4			
	MODE 5			
	MODE 6			
BATTERY SAVER SET	On <sup>*</sup>	With the exterior lamp battery saver function		
DATERT GAVER GET	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.	
	MODE 5	90 sec.	(All doors closed)	
	MODE 6	120 sec.		
	MODE 7	150 sec.		
	MODE 8	180 sec.		

\*: Factory setting

DATA MONITOR

#### < SYSTEM DESCRIPTION >

Monitor item [Unit]	Description		
IGN ON SW [On/Off]	Ignition switch (ON) status judged from IGN signal (ignition power supply)		
ACC SW [On/Off]	Ignition switch (ACC) status judged from ACC signal (ACC power supply)		
VEH SPEED [km/h]	The value of the vehicle speed received from combination meter with CAN commu- nication		
HI BEAM SW [On/Off]			
HEAD LAMP SW1 [On/Off]			
HEAD LAMP SW2 [On/Off]	Each quitch status that DCM indees from the combination quitch reading function		
PASSING SW [On/Off]	Each switch status that BCM judges from the combination switch reading function		
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)		
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]			
TURN SIGNAL L [On/Off]	Each switch status that BCM judges from the combination switch reading function		
TAIL LAMP SW [On/Off]			
KEY ON SW [On/Off]	The switch status input from key on switch		
KEYLESS LOCK [On/Off]	Lock signal status received from remote keyless entry receiver (integrated in the BCM)		
PKB SW [On/Off]	The parking brake switch status received from combination meter with CAN communication		
ENGINE RUN [On/Off]	The engine status received from ECM with CAN communication		
LIG SEN COND [On/Off]	The sensor condition received from light sensor		
OPTI SEN (DTCT) [V]	The value of outside brightness voltage input from the optical sensor		
OPTI SEN (FILT) [V]	The value of outside brightness voltage filtered by BCM		

ACTIVE TEST

#### < SYSTEM DESCRIPTION >

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.
ILL DIM SIGNAL	On	NOTE:
ILL DIW SIGNAL	Off	The item is indicated, but cannot be tested.

# FLASHER

# FLASHER : CONSULT Function (BCM - FLASHER)

INFOID:000000007772557

#### DATA MONITOR

Monitor item [Unit]	Description	
IGN ON SW [On/Off]	Ignition switch (ON) status judged from IGN signal (ignition power supply)	
TURN SIGNAL R [On/Off]	<ul> <li>Each switch status that BCM detects from the combination switch reading functio</li> </ul>	
TURN SIGNAL L [On/Off]		
HAZARD SW [On/Off]	The switch status input from the hazard switch	

#### ACTIVE TEST

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

#### < SYSTEM DESCRIPTION > DIAGNOSIS SYSTEM (IPDM E/R) (WITH INTELLIGENT KEY SYSTEM) А Diagnosis Description INFOID:000000007946343 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 lamps D Side marker lamp License plate lamps Tail lamps Е Front fog lamps Headlamps (LO, HI) A/C compressor (magnet clutch) Cooling fan 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. After that the horn sounds once and the auto active test starts. The oil pressure warning lamp starts blinking when the auto active test starts. 5. 6. After a series of the following operations is repeated 3 times, auto active test is completed. NOTE: Κ 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. Refer to DLK-55, EXL "Component Function Check".

• Do not start the engine.

Inspection in Auto Active Test Mode

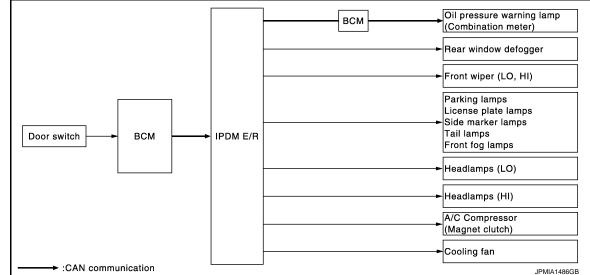
When auto active test mode is actuated, the following 6 steps are repeated 3 times.

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

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#### < SYSTEM DESCRIPTION >

Concept of auto active test



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

Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause
		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 be- tween 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 lamps</li> <li>Side marker lamps</li> <li>License plate lamps</li> <li>Tail lamps</li> <li>Front fog lamps</li> <li>Headlamps (HI, LO)</li> <li>Front wiper (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>
A/C compressor does not operate	Perform auto active test. Does the magnet clutch oper- ate?	YES	<ul> <li>A/C amp. signal input circuit</li> <li>CAN communication signal between A/C amp. and ECM</li> <li>CAN communication signal between ECM and IPDM E/ R</li> </ul>
		NO	<ul> <li>Magnet clutch</li> <li>Harness or connector be- tween IPDM E/R and mag- net clutch</li> <li>IPDM E/R</li> </ul>

#### < SYSTEM DESCRIPTION >

Symptom	Inspection contents		Possible cause
	Perform auto active test. Does the oil pressure warning lamp blink?	YES	<ul> <li>Harness or connector be- tween IPDM E/R and oil pressure switch</li> <li>Oil pressure switch</li> <li>IPDM E/R</li> </ul>
Oil pressure warning lamp does not operate		NO	<ul> <li>CAN communication signal between IPDM E/R and BCM</li> <li>CAN communication signal between BCM and combi- nation meter</li> <li>Combination meter</li> </ul>
	Perform auto active test. Does the cooling fan operate?	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		NO	<ul> <li>Cooling fan motor</li> <li>Harness or connector be- tween IPDM E/R and cool- ing fan motor</li> <li>IPDM E/R</li> </ul>

# CONSULT Function (IPDM E/R)

INFOID:000000007946344

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#### APPLICATION ITEM

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

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

#### SELF DIAGNOSTIC RESULT Refer to EXL-140, "WITH INTELLIGENT KEY : DTC Index".

# DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIG- NALS	Description
MOTOR FAN REQ [1/2/3/4]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication.
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.

#### < SYSTEM DESCRIPTION >

Monitor Item [Unit]	MAIN SIG- NALS	Description
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
IGN RLY1 -REQ [Off/On]		Displays the status of the ignition switch ON signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
PUSH SW [Off/On]		Displays the status of the push-button ignition switch judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the clutch interlock switch (M/T models) or shift position (CVT models) judged by IPDM E/R.
ST RLY CONT [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
IHBT RLY -REQ [Off/On]		Displays the status of the starter control relay signal received from BCM via CAN communication.
ST/INHI RLY [Off/ ST ON/INHI ON/UNKWN]		Displays the status of the starter relay and starter control relay judged by IPDM E/R.
DETENT SW [Off/On]		Displays the status of the CVT shift selector (detention switch) judged by IPDM E/ R.
S/L RLY -REQ [Off/On]		NOTE: The item is indicated, but not monitored.
S/L STATE [LOCK/UNLOCK/UNKWN]		NOTE: The item is indicated, but not monitored.
DTRL REQ [Off/On]		Displays the status of the daytime running light request signal received from BCM via CAN communication. <b>NOTE:</b> This item is monitored only the vehicle with daytime running light system.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.
HOOD SW [Off/On]		NOTE: The item is indicated, but not monitored.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN com- munication.

#### ACTIVE TEST

Test item

Test item	Operation	Description	
HORN	On	Operates horn relay for 20 ms.	
	Off	OFF	
FRONT WIPER	Lo	Operates the front wiper relay.	
	Hi	Operates the front wiper relay and front wiper high relay.	
	1	OFF	
MOTOR FAN	2	Operates the cooling fan relay (LO operation).	
	3	Operates the cooling for roles (11) operation)	
	4	Operates the cooling fan relay (HI operation).	

## < SYSTEM DESCRIPTION >

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

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< SYSTEM DESCRIPTION >

# DIAGNOSIS SYSTEM (IPDM E/R) (WITHOUT INTELLIGENT KEY SYS-TEM)

Diagnosis Description

INFOID:000000007946345

## 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 lamps
- Side marker lamp
- License plate lamps
- Tail lamps
- Front fog lamps
- Headlamps (LO, HI)
- A/C compressor (magnet clutch)
- Cooling fan

### **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.
- 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. After that the horn sounds once and the auto active test starts.
- 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. Refer to <u>DLK-55,</u> <u>"Component Function Check"</u>.
- Do not start the engine.

#### Inspection in Auto Active Test Mode

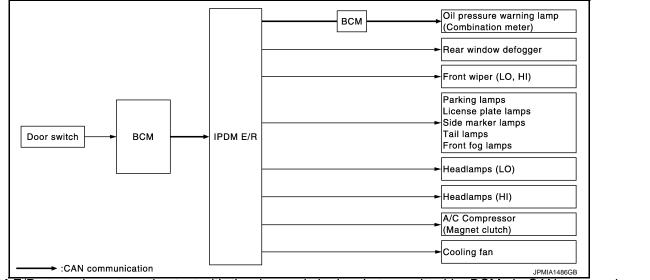
When auto active test mode is actuated, the following 6 steps are repeated 3 times.

Operation sequence	Inspection location	Operation
А	Oil pressure warning lamp	Blinks continuously during operation of auto active test
1	Rear window defogger	10 seconds
2	Front wiper	LO for 5 seconds $\rightarrow$ HI for 5 seconds
3	<ul> <li>Parking lamps</li> <li>Side marker lamps</li> <li>License plate lamps</li> <li>Tail lamps</li> <li>Front fog lamps</li> </ul>	10 seconds
4	Headlamps	LO for 10 seconds $\rightarrow$ HI ON $\Leftrightarrow$ OFF 5 times

#### < SYSTEM DESCRIPTION >

Operation sequence	Inspection location	Operation	А
5	A/C compressor (magnet clutch)	$ON \Leftrightarrow OFF 5 times$	
6	Cooling fan	LO for 5 seconds $\rightarrow$ HI for 5 seconds	R

#### Concept of auto active test



• IPDM E/R starts the auto active test with the door switch signals transmitted by BCM via CAN communication. Therefore, the CAN communication line between IPDM E/R and BCM is considered normal if the auto active test starts successfully.

• The auto active test facilitates troubleshooting if any systems controlled by IPDM E/R cannot be operated.

Diagnosis chart in auto active test mode

Symptom	Inspection contents		Possible cause	
		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 be- tween IPDM E/R and rear window defogger</li> <li>IPDM E/R</li> </ul>	ŀ
Any of the following components do not operate		YES	BCM signal input circuit	
<ul> <li>Parking lamps</li> <li>Side marker lamps</li> <li>License plate lamps</li> <li>Tail lamps</li> <li>Front fog lamps</li> <li>Headlamps (HI, LO)</li> <li>Front wiper (HI, LO)</li> </ul>	Perform auto active test. Does the applicable system operate?		<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>	1
A/C compressor does not operate	Perform auto active test. Does the magnet clutch oper- ate?	YES	<ul> <li>A/C amp. signal input circuit</li> <li>CAN communication signal between A/C amp. and ECM</li> <li>CAN communication signal between ECM and IPDM E/ R</li> </ul>	(
	ale :	NO	<ul> <li>Magnet clutch</li> <li>Harness or connector be- tween IPDM E/R and mag- net clutch</li> <li>IPDM E/R</li> </ul>	

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### < SYSTEM DESCRIPTION >

Symptom	Inspection contents		Possible cause
	Perform auto active test. Does the oil pressure warning lamp blink?	YES	<ul> <li>Harness or connector be- tween IPDM E/R and oil pressure switch</li> <li>Oil pressure switch</li> <li>IPDM E/R</li> </ul>
Oil pressure warning lamp does not operate		NO	<ul> <li>CAN communication signal between IPDM E/R and BCM</li> <li>CAN communication signal between BCM and combi- nation meter</li> <li>Combination meter</li> </ul>
	Perform auto active test.	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	Does the cooling fan operate?	NO	<ul> <li>Cooling fan motor</li> <li>Harness or connector be- tween IPDM E/R and cool- ing fan motor</li> <li>IPDM E/R</li> </ul>

# CONSULT Function (IPDM E/R)

INFOID:000000007946346

### APPLICATION ITEM

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

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

### SELF DIAGNOSTIC RESULT Refer to <u>EXL-151, "WITHOUT INTELLIGENT KEY : DTC Index"</u>.

## DATA MONITOR

Monitor item

Monitor Item [Unit]	MAIN SIG- NALS	Description	
MOTOR FAN REQ [1/2/3/4]	×	Displays the value of the cooling fan speed request signal received from ECM via CAN communication.	
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.	
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.	
HL LO REQ [Off/On]	×	Displays the status of the low beam request signal received from BCM via CAN communication.	
HL HI REQ [Off/On]	×	Displays the status of the high beam request signal received from BCM via CAN communication.	
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.	
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.	

#### < SYSTEM DESCRIPTION >

Monitor Item [Unit]	MAIN SIG- NALS	Description	
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.	
WIP PROT [Off/BLOCK]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.	
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.	
INTER/NP SW [Off/On]		Displays the status of the shift position (CVT models) judged by IPDM E/R.	
ST RLY-REQ [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.	
DTRL REQ [Off/On]		Displays the status of the daytime running light request signal received from BC via CAN communication. NOTE: This item is monitored only the vehicle with daytime running light system.	
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.	
HOOD SW [Off/On]		NOTE: The item is indicated, but not monitored.	
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.	
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN com- munication.	

#### ACTIVE TEST

Test item

Test item	Operation	Description
HORN	On	Operates horn relay for 20 ms.
	Off	OFF
FRONT WIPER	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.
MOTOR FAN	1	OFF
	2	Operates the cooling fan relay (LO operation).
	3	Operates the cooling for relay (HI operation)
	4	Operates the cooling fan relay (HI operation).
	Off	OFF
	TAIL	Operates the tail lamp relay.
EXTERNAL LAMPS	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 sec- ond intervals.
	Fog	Operates the front fog lamp relay.

### < DTC/CIRCUIT DIAGNOSIS >

# DTC/CIRCUIT DIAGNOSIS

## POWER SUPPLY AND GROUND CIRCUIT BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

## BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:000000007946348

## 1.CHECK FUSE AND FUSIBLE LINK

Check that the following fuse and fusible link are not blown.

Signal name	Fuse and fusible link No.	
Battony power supply	G	
Battery power supply	8	

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

(•	+)	()	Voltage (Approx.)
B	CM		(Approx.)
Connector	Connector Terminal		
M70	70	Ground	Pottony voltage
WI7 U	57		Battery voltage

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

 ${f 3.}$ CHECK GROUND CIRCUIT

Check continuity between BCM harness connector and ground.

B	CM		Continuity
Connector	Terminal	Ground	Continuity
M70	67	*	Existed

#### Does continuity exist?

YES >> INSPECTION END

NO >> Repair harness or connector.

BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

#### BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure INFOID:000000007946349

1. CHECK FUSES AND FUSIBLE LINK

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

#### < DTC/CIRCUIT DIAGNOSIS >

Signal name						Fuses and fusible link No.
	Br	attery power s	supply			8
Dattery power suppry						G
	A	ACC power su	ipply			20
	lgı	nition power s	supply			2
NO >> 2.CHECK 1. Turn ig 2. Discon	<ul> <li>Replace</li> <li>blown.</li> <li>GO TO 2</li> <li>POWER \$</li> <li>pnition switted</li> </ul>	SUPPLY C	IRCUIT			ring the affected circuit if a fuse or fusible link is
	Terminals					
(+			Igniti	on switch po	osition	
BC	CM	(-)	OFF	ACC	ON	
Connector	Terminal					
M67	70 57	-	Battery voltage	Battery voltage	Battery voltage	
M65	11	Ground	Approx. 0 V	Battery voltage	Battery voltage	
M65 -			Approx	Approx.	<b>D</b>	
	38 surement v	/alue norm	Approx. 0 V al?	0 V	Battery voltage	
<u>s the meas</u> YES >> NO >> <b>3.</b> CHECK	surement v > GO TO 3 > Repair ha GROUND	arness or c CIRCUIT	al? onnector.	0 V	voltage	
Is the meas YES >> NO >> <b>3.</b> CHECK	surement v > GO TO 3 > Repair ha GROUND tinuity betw	arness or c CIRCUIT	al? onnector.	0 V	voltage	ıd.
Is the meas YES >> NO >> <b>3.</b> CHECK Check cont	SUREMENT V SOTO 3 SREPAIR ha GROUND tinuity betw BCM	arness or c CIRCUIT veen BCM	onnector.	onnector	voltage	d.
Is the meas YES >> NO >> <b>3.</b> CHECK	SUREMENT V SOTO 3 SREPAIR ha GROUND tinuity betw BCM	arness or c CIRCUIT	al? onnector.	onnector	voltage and grour	d.
Is the meas YES >> NO >> 3.CHECK Check cont Connecto M67 Does contin YES >>	SUREMENT V S GO TO 3 S Repair ha GROUND tinuity betw BCM Dr Te nuity exist? S INSPECT S Repair ha	CIRCUIT veen BCM erminal 67 CION END arness or c	onnector. harness c Ground	onnector C	and grour ontinuity Existed	
Is the meas YES >> NO >> 3.CHECK Check cont Connecto M67 Does contin YES >> NO >> IPDM E/I	SUITEMENT V SOTO 3 SOTO 3 S	CIRCUIT veen BCM erminal 67 CION END arness or c HINTEL	onnector. harness c Ground	onnector	and grour ontinuity Existed	
Is the meas YES >> NO >> 3.CHECK Check cont Connecto M67 Does contin YES >> NO >> IPDM E/I IPDM E/I 1.CHECK	SUITEMENT V SOTO 3 SOTO 3 S	CIRCUIT veen BCM erminal 67 CION END arness or c HINTEL INTEL	onnector. harness c Ground LIGENT	onnector	and grour ontinuity Existed SYSTE	M) ) : Diagnosis Procedure INFOID:000000007946350
Is the meas YES >> NO >> 3.CHECK Check cont Connecto M67 Does contin YES >> NO >> IPDM E/	SUITEMENT V SOTO 3 SOTO 3 S	CIRCUIT veen BCM erminal 67 CION END arness or c HINTEL INTEL	onnector. harness c Ground LIGENT	onnector	and grour ontinuity Existed SYSTE	M) ) : Diagnosis Procedure INFOID:000000007946350
Is the meas YES >> NO >> 3.CHECK Check cont Connecto M67 Does contir YES >> NO >> IPDM E/I IPDM E/I 1.CHECK	Surement V SGO TO 3 Repair ha GROUND tinuity betw BCM Dr Te NSPECT NSPECT Repair ha (WITH R (WITH FUSES A the followi	CIRCUIT veen BCM erminal 67 CION END arness or c HINTEL INTEL	onnector. harness c Ground LIGENT	onnector	and grour ontinuity Existed SYSTE	M) ) : Diagnosis Procedure INFOID:000000007946350
Is the meas YES >> NO >> 3.CHECK Check cont Connecto M67 Does contir YES >> NO >> IPDM E/I IPDM E/I 1.CHECK	Surement V GO TO 3 Repair ha GROUND tinuity betw BCM or Te nuity exist? NSPECT Repair ha Repair ha R (WITH FUSES A the followi Sign	CIRCUIT Veen BCM erminal 67 CION END arness or c HINTELL ND FUSIB	onnector. harness c Ground LIGENT	onnector	and grour ontinuity Existed SYSTE	M) ) : Diagnosis Procedure ™FOID:000000007946350 not blown.

Is the fuse fusing?

< DTC/CIRCUIT DIAGNOSIS >

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

	Terminals		
(1	+)	(-)	Voltage (Approx.)
IPDN	/I E/R	(-)	(Approx.)
Connector	Connector Terminal		
E9	1	Ground	
23	2	Cround	Battery voltage
E10	8		

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.

IPDM E	E/R		Continuity	
Connector	Terminal	Ground	Continuity	
E11	9	Ground	Existed	
E12	19		Existed	

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector.

## IPDM E/R (WITHOUT INTELLIGENT KEY SYSTEM)

# IPDM E/R (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:000000007946351

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

Check that the following IPDM E/R fuses or fusible links are not blown.

Signal name	Fuses and fusible link No.
	C
Battery power supply	D
	J

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 IPDM E/R connector.

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

#### < DTC/CIRCUIT DIAGNOSIS >

(+)       (-)       Voltage (Approx.)         Connector       Terminal       (-)         E9       1       Ground       Battery voltage         E10       8       Connector         NO       >> Repair the harness or connector.         3C-HECK IGNITION POWER SUPPLY CIRCUIT         1. Turn the ignition switch ON.         2. Check voltage between IPDM E/R harness connector and the ground.         (+)       (-)       Voltage (Approx.)         Connector       Terminal       Ground         Is the measurement value normal?       YES         YES       > GO TO 4.       NO         NO       >> Repair the harness or connector.         4CHECK GROUND CIRCUIT       Iter instruct of FF.         2. Check continuity between IPDM E/R harness connectors and the ground.         Image: Solution Switch OFF.       Ground         Connector       Terminal       Ground         Existed       19       Existed		Terminals				
E9       1       Ground       Battery voltage         E10       8       Battery voltage         s the measurement value normal?       YES       >> GO TO 3.         NO       >> Repair the harness or connector.       A.CHECK IGNITION POWER SUPPLY CIRCUIT         1. Turn the ignition switch ON.       Concertor       Terminals         (+)       (-)       Voltage         (+)       (-)       Voltage         (+)       (-)       Voltage         (Approx.)       Connector       Terminal         Ground       Battery voltage         s the measurement value normal?       Yes         YES       >S OT 0 4.         NO       >> Repair the harness or connector.         4. CHECK GROUND CIRCUIT       1.         1. Turn the ignition switch OFF.       2.         2. Check continuity between IPDM E/R harness connectors and the ground.         IPDM E/R       Ground         E11       9         E12       19         Open E/R       Ground         Existed       Existed			- (-)			
E9       2       Ground       Battery voltage         E10       8       Ground       Battery voltage         Is the measurement value normal?       YES       >> GO TO 3.         NO       >> Repair the harness or connector.         3. CHECK IGNITION POWER SUPPLY CIRCUIT         1. Turn the ignition switch ON.       2.         2. Check voltage between IPDM E/R harness connector and the ground.         IPDM E/R       (-)         (+)       (-)         Voltage       (Approx.)         Connector       Terminal         (+)       (-)         Voltage       (Approx.)         Connector       Terminal         State measurement value normal?       YES         YES       >> GO TO 4.         NO       >> Repair the harness or connector.         4.CHECK GROUND CIRCUIT       1.         1. Turn the ignition switch OFF.       2.         2. Check continuity between IPDM E/R harness connectors and the ground.         IPDM E/R       Ground         E11       9         E12       19         Does continuity exist?         YES       >> INSPECTION END	Connector	Terminal				
Is the measurement value normal?         YES       >> GO TO 3.         NO       >> Repair the harness or connector.         3.CHECK IGNITION POWER SUPPLY CIRCUIT         1. Turn the ignition switch ON.         2. Check voltage between IPDM E/R harness connector and the ground.         Image: the measurement value normal?         YES       >> GO TO 4.         NO       >> Repair the harness or connector.         4. CHECK GROUND CIRCUIT         1. Turn the ignition switch OFF.         2. Check continuity between IPDM E/R harness connectors and the ground.         Image: the measurement value normal?         YES       >> GO TO 4.         NO       >> Repair the harness or connector.         4.CHECK GROUND CIRCUIT         1. Turn the ignition switch OFF.         2. Check continuity between IPDM E/R harness connectors and the ground.         IPDM E/R       Continuity         Ground       Continuity         E11       9         E12       19         Does continuity existi?         YES       >> INSPECTION END	E9 -		Ground	Battery voltage	-	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	E10	8				
NO       >> Repair the harness or connector.         3. CHECK IGNITION POWER SUPPLY CIRCUIT         1. Turn the ignition switch ON.         2. Check voltage between IPDM E/R harness connector and the ground.         Image: team of the ignition switch ON.         2. Check voltage between IPDM E/R harness connector and the ground.         Image: team of the ignition switch ON.         Image: team of team o	s the measure	ement value	normal?			
1. Turn the ignition switch ON.         2. Check voltage between IPDM E/R harness connector and the ground.         Terminals         (+)       (-)         Voltage (Approx.)         Connector       Terminal         E12       18         S the measurement value normal?         YES       >> GO TO 4.         NO       >> Repair the harness or connector.         4.CHECK GROUND CIRCUIT         1. Turn the ignition switch OFF.         2. Check continuity between IPDM E/R harness connectors and the ground.         IPDM E/R         Ground         IPDM E/R         Ground         Image: Continuity between IPDM E/R harness connectors and the ground.         Image: Continuity between IPDM E/R harness connectors and the ground.         Image: Continuity between IPDM E/R         E11       9         E12       19         Consector       Terminal         Ground       Existed         Does continuity exist?       YES         YES       > INSPECTION END	NO >> Re	epair the hari				
Terminals         (+)       (-)       Voltage (Approx.)         Connector       Terminal       Ground         E12       18       Battery voltage         s the measurement value normal?       YES       >> GO TO 4.         YES       >> GO TO 4.       Battery voltage         NO       >> Repair the harness or connector.       4.         4. CHECK GROUND CIRCUIT       1.       Turn the ignition switch OFF.         2.       Check continuity between IPDM E/R harness connectors and the ground.         IPDM E/R       Ground       Continuity         E11       9       Ground       Existed         Does continuity exist?       YES       >> INSPECTION END	. Turn the ig	gnition switch	n ON.			
(+)       (-)       Voltage (Approx.)         Connector       Terminal       Ground         E12       18       Battery voltage         Is the measurement value normal? YES >> GO TO 4. NO >> Repair the harness or connector.       Battery voltage         1. Turn the ignition switch OFF.       Check continuity between IPDM E/R harness connectors and the ground.         Image: the trained between the trained betw	. Check vol	tage betweer	n IPDM E/R ha	rness connector ar	d the ground.	
(+)       (-)       Voltage (Approx.)         Connector       Terminal       Ground         E12       18       Battery voltage         Is the measurement value normal? YES >> GO TO 4. NO >> Repair the harness or connector.       Battery voltage         1. Turn the ignition switch OFF.       Check continuity between IPDM E/R harness connectors and the ground.         Image: the trained between the trained betw		<b>T.</b>				
IPDM E/R     Ground       Connector     Terminal       E12     18       Battery voltage       Is the measurement value normal?       YES     >> GO TO 4.       NO     >> Repair the harness or connector.       4.CHECK GROUND CIRCUIT       1.     Turn the ignition switch OFF.       2.     Check continuity between IPDM E/R harness connectors and the ground.       IPDM E/R     Continuity       Ground     Existed       E11     9       E12     19       Does continuity exist?       YES     >> INSPECTION END	/		( )			
Connector       Terminal       Ground         E12       18       Battery voltage         Is the measurement value normal?       YES >> GO TO 4.         YES >> GO TO 4.       NO >> Repair the harness or connector.         A.CHECK GROUND CIRCUIT       1. Turn the ignition switch OFF.         1. Turn the ignition switch OFF.       2. Check continuity between IPDM E/R harness connectors and the ground.         Image: PDM E/R       Ground         Image: Ground       Continuity         E11       9         E12       19         Does continuity exist?       YES >> INSPECTION END			(-)			
E12     18     Battery voltage       Is the measurement value normal? YES >> GO TO 4. NO >> Repair the harness or connector.     A.CHECK GROUND CIRCUIT       1. Turn the ignition switch OFF.     2. Check continuity between IPDM E/R harness connectors and the ground.       IPDM E/R     Continuity       E11     9       E12     19       Does continuity exist?       YES >> INSPECTION END			Ground	/·		
Is the measurement value normal?         YES       >> GO TO 4.         NO       >> Repair the harness or connector. <b>4.CHECK GROUND CIRCUIT</b> 1. Turn the ignition switch OFF.         2. Check continuity between IPDM E/R harness connectors and the ground.         IPDM E/R         Ground         E11       9         E12       19         Does continuity exist?         YES       >> INSPECTION END			Giodila	Battery voltage	-	
YES >> GO TO 4. NO >> Repair the harness or connector. 4.CHECK GROUND CIRCUIT 1. Turn the ignition switch OFF. 2. Check continuity between IPDM E/R harness connectors and the ground. IPDM E/R       Continuity         Ground       Continuity         E11       9         E12       19         Does continuity exist?         YES       >> INSPECTION END		10		Dattery voltage		
2. Check continuity between IPDM E/R harness connectors and the ground.          IPDM E/R       Continuity         Connector       Terminal         Ground       Ground         E11       9         E12       19         Does continuity exist?         YES       >> INSPECTION END	YES >> G	O TO 4.		tor	-	
Connector     Terminal       E11     9       E12     19       Does continuity exist?       YES     >> INSPECTION END	YES >> G NO >> R CHECK GF	O TO 4. epair the han ROUND CIR(	ness or connec CUIT	tor.		
E11     9       E12     19       Does continuity exist?       YES       >> INSPECTION END	YES >> G NO >> R CHECK GF	O TO 4. epair the harn ROUND CIRC gnition switch	ness or connec CUIT 1 OFF.		and the ground.	
Does continuity exist? YES >> INSPECTION END	YES >> G NO >> R CHECK GF . Turn the iq . Check cor	O TO 4. epair the ham ROUND CIRC gnition switch ntinuity betwe	ness or connec CUIT OFF. een IPDM E/R I	harness connector	and the ground.	
YES >> INSPECTION END	YES >> G NO >> R CHECK GF Turn the iq Check cor IPDM B Connector E11	O TO 4. epair the ham ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9	ness or connec CUIT OFF. een IPDM E/R I	harness connector	and the ground.	
	YES >> G NO >> R CHECK GF Turn the ig Check cor IPDM I Connector E11 E12	O TO 4. epair the harn ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9 19	ness or connec CUIT OFF. een IPDM E/R I	harness connector	and the ground.	
	YES >> G NO >> R CHECK GF Turn the ig Check cor IPDM F Connector E11 E12 Does continuit YES >> IN	O TO 4. epair the harr ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9 19 19 ty exist? ISPECTION	ness or connec CUIT OFF. een IPDM E/R I Ground	harness connector Continuity Existed	and the ground.	
	YES >> G NO >> R CHECK GF Turn the ig Check cor IPDM F Connector E11 E12 Does continuit YES >> IN	O TO 4. epair the harr ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9 19 19 ty exist? ISPECTION	ness or connec CUIT OFF. een IPDM E/R I Ground	harness connector Continuity Existed	and the ground.	
	YES >> G NO >> R CHECK GF Turn the ig Check cor IPDM F Connector E11 E12 Does continuit YES >> IN	O TO 4. epair the harr ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9 19 19 ty exist? ISPECTION	ness or connec CUIT OFF. een IPDM E/R I Ground	harness connector Continuity Existed	and the ground.	
	YES >> G NO >> R CHECK GF Turn the ig Check cor IPDM F Connector E11 E12 Does continuit YES >> IN	O TO 4. epair the harr ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9 19 19 ty exist? ISPECTION	ness or connec CUIT OFF. een IPDM E/R I Ground	harness connector Continuity Existed	and the ground.	
	YES >> G NO >> R CHECK GF Turn the ig Check cor IPDM F Connector E11 E12 Does continuit YES >> IN	O TO 4. epair the harr ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9 19 19 ty exist? ISPECTION	ness or connec CUIT OFF. een IPDM E/R I Ground	harness connector Continuity Existed	and the ground.	
	YES >> G NO >> R CHECK GF Turn the ig Check cor IPDM F Connector E11 E12 Does continuit YES >> IN	O TO 4. epair the harr ROUND CIRC gnition switch ntinuity betwee E/R Terminal 9 19 19 ty exist? ISPECTION	ness or connec CUIT OFF. een IPDM E/R I Ground	harness connector Continuity Existed	and the ground.	

< DTC/CIRCUIT DIAGNOSIS >

# HEADLAMP (HI) CIRCUIT

## Component Function Check

INFOID:000000007772570

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

**®**IPDM E/R AUTO ACTIVE TEST

- 1. Start IPDM E/R auto active test. Refer to <u>EXL-33</u>, "<u>Diagnosis Description</u>" (with Intelligent Key) or <u>EXL-38</u>, "<u>Diagnosis Description</u>" (without Intelligent Key).
- 2. Check that the headlamp switches to the high beam.

CONSULT ACTIVE TEST

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

#### Off : Headlamp (HI) OFF

#### NOTE:

ON/OFF is repeated 1 second each.

#### Is the headlamp (HI) turned ON?

- YES >> Headlamp (HI) circuit is normal.
- NO >> Refer to EXL-46. "Diagnosis Procedure".

### Diagnosis Procedure

1.CHECK HEADLAMP (HI) OUTPUT VOLTAGE

**CONSULT ACTIVE TEST** 

- 1. Turn the ignition switch OFF.
- 2. Disconnect the headlamp 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		
	(+)		(-)		Voltage	
	IPDM E	/R		EXTERNAL	(Approx.)	
Cor	Connector Terminal			LAMPS		
RH		49	Ground	Hi	Battery voltage	
	E15		Clound	Off	0 V	
LH	210	50		Hi	Battery voltage	
				Off	0 V	

Is the measurement value normal?

NO >> GO TO 3.

2. CHECK HEADLAMP (HI) OPEN CIRCUIT

1. Turn the ignition switch OFF.

2. Disconnect the IPDM E/R connector.

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

INFOID:000000007772571

#### < DTC/CIRCUIT DIAGNOSIS >

IPDM E/R		'R		Headl	amp	Continuity	
Conr	nector	Terminal	Co	onnector	Terminal	- Continuity	
RH	E15	49		E45	1	Existed	
LH	E13 -	50		E26	1	LAISIEU	
YES (\ YES (\ NO	Vith dayt >> Rep	laytime ru time runn air the ha	ing lig arness	t syster ses or co	stem)>>G m)>>GO T nnectors.		
		DLAMP ( ition swite					
2. Che	eck that t	he follow	ring fu	ses are r	not fusing.		
	Unit		Loo	cation	Fuse No.	Capacity	
Headlan	np HI (RH)		IPD	M E/R	#51	10 A	
Headlan	np HI (LH)		IPD	M E/R	#52	10 A	
ls the fu	se fusing	<u>g?</u>			·	•	•
YES NO	>> GO >> Rep	TO 4. lace IPD	M E/R	ł.			
4					ORT CIRC	UIT	
1. Dise	connect	the IPDN	1 E/R (	connecto	r.		
2. Che	eck conti	nuity betv	ween t	the IPDN	I E/R harn	ess connec	tor terminal and the ground.
	IPDM	E/D					
<u> </u>	nnector	E/R Term	vinal			Continuity	
RH		49		Gro	ound		
	E15	4:				Not existed	
	ontinuity		5				
YES			arness	ses or co	nnectors	And then re	place the fuse.
NO							is fusing again.)
5.сне	CK HEA	DLAMP (	(HI) GI	ROUND	OPEN CII	RCUIT	
							nd the ground.
	Headl	amp				0	
Со	nnector	Term	inal	-		Continuity	
RH	E45	2	2	Gro	ound –		
LH	E26	2	2			Existed	
Does co	ontinuity	exist?					
YES NO	>> Rep	lace the			bulb. nnectors.		
-	•					RCUIT (LH)	
6.сн⊧			. ,			. ,	or and the ground.
	ontinuit	hotwoor	C	ieauid[]]	л сп нате	SS CONNECT	
	ontinuity	<sup>,</sup> betweer					
	-					Continuity	
Check c	continuity Headl				bund	Continuity	

Does continuity exist?

E26

2

LH

< DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 7.

NO >> Repair the harnesses or connectors.

**7.**CHECK CONTINUITY BETWEEN HEADLAMP HIGH (RH) AND DAYTIME RUNNING LIGHT RELAY-1

- 1. Remove the daytime running light relay-1.
- 2. Check continuity between the headlamp RH harness connector and the daytime running light relay-1 harness connector.

Headlamp			Daytime runnin	Continuity	
Conr	nector	Terminal	Connector	Terminal	Existed
RH	E45	2	E57	1	LAISted

Does continuity exist?

YES >> GO TO 8.

NO >> Repair the harness or connector.

 $\mathbf{8}$ . CHECK THE DAYTIME RUNNING LIGHT RELAY-1 GROUND OPEN CIRCUIT

Check continuity between the daytime running light relay-1 harness connector and the ground.

Daytime running I	ight relay-1		Continuity
Connector	Terminal	Ground	Existed
E57	4	<b>†</b>	LAISLEU

Does continuity exist?

YES >> GO TO 9.

NO >> Repair the harness or connector.

9.CHECK THE DAYTIME RUNNING LIGHT RELAY-1

Check the daytime running light relay-1. Refer to EXL-57, "Component Inspection (Daytime Running Light Relay-1)".

Is the daytime running light relay-1 normal?

- YES >> Replace the headlamp (HI) bulb.
- NO >> Replace the daytime running light relay-1.

< DTC/CIRCUIT DIAGNOSIS > HEADLAMP (LO) CIRCUIT А **Component Function Check** INFOID:000000007772572 **1.**CHECK HEADLAMP (LO) OPERATION В IPDM E/R AUTO ACTIVE TEST Start IPDM E/R auto active test. Refer to EXL-33, "Diagnosis Description" (with Intelligent Key) or EXL-38, 1. "Diagnosis Description" (without Intelligent Key). 2. Check that the headlamp is turned ON. **©CONSULT ACTIVE TEST** 1. Select "EXTERNAL LAMPS" of IPDM E/R active test item. D 2. With operating the test items, check that the headlamp (LO) is turned ON. Lo : Headlamp (LO) ON Е : Headlamp (LO) OFF Off Is the headlamp (LO) turned ON? F YES >> Headlamp (LO) is normal. NO (With daytime running light system)>>Refer to EXL-49, "WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure". NO (Without daytime running light system)>>Refer to EXL-52, "WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure". WITH DAYTIME RUNNING LIGHT SYSTEM Н WITH DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure INFOID:000000007772573 **1.**CHECK HEADLAMP LOW (LH) OUTPUT VOLTAGE CONSULT ACTIVE TEST 1. Turn the ignition switch OFF. Disconnect the headlamp LH connector. 3. Turn the ignition switch ON. Select "EXTERNAL LAMPS" of IPDM E/R active test item. 4.

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

	Terminals	Test item		
(	(+)		Test item	Voltage
IPDN	IPDM E/R		EXTERNAL	(Approx.)
Connector	Terminal		LAMPS	
E15	E15 51		Lo	Battery voltage
			Off	0 V

Is the measurement value normal?

YES >> GO TO 2. NO >> GO TO 8.

2.CHECK HEADLAMP LOW (RH) OUTPUT VOLTAGE

CONSULT ACTIVE TEST

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

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#### < DTC/CIRCUIT DIAGNOSIS >

	Terminals	Test item		
(+	(+) (–)			Voltage
IPDN	I E/R		EXTERNAL	(Approx.)
Connector	Terminal		LAMPS	
E15	Gro E15 52		Lo	Battery voltage
			Off	0 V

Is the measurement value normal?

YES >> GO TO 3.

NO >> GO TO 8.

 ${
m 3.check}$  headlamp low (LH) open circuit

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

IPDM	E/R	Headlar	Continuity	
Connector	Terminal	Connector Terminal		Continuity
E15	51	E26	3	Existed

Does continuity exist?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

**4.**CHECK CONTINUITY BETWEEN IPDM E/R AND THE DAYTIME RUNNING LIGHT RELAY-2

1. Turn the ignition switch OFF.

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

IPDM E/R		Daytime running	Continuity		
Connector	Terminal	Connector Terminal		Continuity	
E15	52	E59	2	Existed	
LIJ	52	L39	5	LAISIEU	

#### Does continuity exist?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

### ${f 5.}$ CHECK THE DAYTIME RUNNING LIGHT RELAY-2 GROUND OPEN CIRCUIT

Check continuity between the daytime running light relay-2 harness connector and the ground.

Daytime runnii	ng light relay-2		Continuity
Connector	Terminal	Ground	Continuity
E59	1		Existed

Does continuity exist?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

6.CHECK CONTINUITY BETWEEN THE DAYTIME RUNNING LIGHT RELAY-2 AND HEADLAMP RH

- 1. Turn the ignition switch OFF.
- 2. Disconnect the headlamp RH connector.
- 3. Check continuity between the daytime running light relay-2 harness connector and the headlamp RH harness connector.

#### < DTC/CIRCUIT DIAGNOSIS >

Daytime runnii	ng light relay-2	2 Headla	mp RH		-
Connector	Terminal	Connector	Terminal	<ul> <li>Continuity</li> </ul>	
E59	3	E45	3	Existed	-
Does continu	-				-
	GO TO 7.				
NO >> F	Repair the h	arnesses or co	nnectors.		
7. СНЕСК Т	HE DAYTIN	IE RUNNING L	IGHT REL	AY-2	
	aytime runr	ning light relay-	2. Refer to	) <u>EXL-58,</u> "(	Component Inspection (Daytime Running Light
<u>Relay-2)"</u>					
		ght relay-2 norr	<u>nal?</u>		
	GO TO 10. Replace the	daytime runnir	na liaht rela	v-2	
В.снеск н	•	•	ig light fold	y 2.	
	ignition swi at the follov	ton OFF.	not fusina.		
Un	it	Location	Fuse No.	Capacity	
Headlamp LO	(LH)	IPDM E/R	#53	10 A	
Headlamp LO	(RH)	IPDM E/R	#54	10 A	
s the fuse fu	sing?				
YES >> 0	GO TO 9.				
~	Replace IPD				
<b>J.</b> CHECK H	IEADLAMP	(LO) SHORT (	CIRCUIT		
1. Disconne	ect the IPDN	A E/R connecto	or.		
2. Check co	ontinuity bet	ween the IPDN	/I E/R harne	ess connect	or terminal and the ground.
	PDM E/R			Continuity	
Connecto			ound		
	E15	51		Not existed	
RH	5	52			
Does continu	•				
		arnesses or co fuse. (Replace			
	•	· ·			<b>o o</b> <i>i</i>
		IP (LO) GROUI			
Check contin	uity betwee	n the headlam	p LH harne	ss connecto	r and the ground.
	adlamp RH			Continuity	
Connecto			ound	Existed	
	E26 2	2			
	· · · · · · · · · · · · · · · · · · ·				
Does continu	-				
Does continu YES >> (	GO TO 11.		nnostoro		
Does continu YES >> ( NO >> F	GO TO 11. Repair the h	arnesses or co			
<u>Does continu</u> YES >> ( NO >> F 11.CHECK	GO TO 11. Repair the h CONTINUI	TY BETWEEN	HEADLAN	IP LOW (RH	) AND DAYTIME RUNNING LIGHT RELAY-1
Does continu YES >> ( NO >> F 11.CHECK	GO TO 11. Repair the h CONTINUI the daytime	TY BETWEEN	HEADLAN elay-1.		) AND DAYTIME RUNNING LIGHT RELAY-1

### < DTC/CIRCUIT DIAGNOSIS >

Headlamp RH			Daytime running	Continuity	
Conr	Connector Termin		Connector	Terminal	Existed
RH	E45	2	E57	3	LAISIEU

#### Does continuity exist?

YES >> GO TO 12.

NO >> Repair the harness or connector.

# 12. CHECK THE DAYTIME RUNNING LIGHT RELAY-1 GROUND OPEN CIRCUIT

Check continuity between the daytime running light relay-1 harness connector and the ground.

Daytime running I	ight relay-1		Continuity
Connector	Terminal	Ground	Existed
E57	4	† 	LAISted

Does continuity exist?

YES >> GO TO 13.

NO >> Repair the harness or connector.

**13.**CHECK THE DAYTIME RUNNING LIGHT RELAY-1

Check the daytime running light relay-1. Refer to EXL-57. "Component Inspection (Daytime Running Light Relay-1)".

Is the daytime running light relay-1 normal?

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

NO >> Replace the daytime running light relay-1.

WITHOUT DAYTIME RUNNING LIGHT SYSTEM

WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Diagnosis Procedure

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

### CONSULT ACTIVE TEST

- 1. Turn the ignition switch OFF.
- 2. Disconnect the headlamp 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		
	(	+)	(-)	restitem	Voltage
	IPD	/I E/R		EXTERNAL	(Approx.)
Conr	nector	Terminal		LAMPS	
RH		52	Ground	Lo	Battery voltage
	E15			Off	0 V
LH	- E15	5		Lo	Battery voltage
				Off	0 V
Is the	meas	urement valu	ie normal?		
YES NO 2 CL	>>	GO TO 2. GO TO 3.	(LO) OPEN		

1. Turn the ignition switch OFF.

## HEADI AMP (I.O) CIRCUIT

						_	
	IPDM E	E/R	Headlamp		Continuity	_	
Conn	ector	Terminal	Connector	Terminal	Continuity		
RH	E15 —	52	E45	3	Existed		
LH	210	51	E26	3	Exiotod	_	
YES NO	>> G >> R	•	arnesses or ( (LO) FUSE	connectors.			
		gnition swi t the follow	tch OFF. wing fuses are	e not fusing.			
	Unit		Lotion	Fuse No.	Capacity	-	
Headla	amp LO (F	RH)	IPDM E/R	#54	15 A	-	
Headla	amp LO (L	_H)	IPDM E/R	#53	15 A	-	
үез NO <b>1.</b> сні	>> R ECK HE	O TO 4. eplace IPI ADLAMP	(LO) SHORT				
YES NO <b>1.</b> CHI	>> G >> R ECK HE sconned neck cor	O TO 4. eplace IPI ADLAMP ct the IPDI ntinuity be	(LO) SHORT	tor.	ess connec	_ ctor and the ground. _	
YES NO <b>1.</b> CHI . Dia 2. Ch	>> G >> R ECK HE sconned neck cor	O TO 4. eplace IPI ADLAMP ct the IPDI	(LO) SHORT	tor. DM E/R harn	ess connec Continuity	 ctor and the ground. _	
YES NO 1.CHI . Dis 2. Cr Cor RH LH	>> G >> R ECK HE sconned neck cor IPE nnector E15	O TO 4. eplace IPI ADLAMP ot the IPDI ntinuity be DM E/R Termi 52 51	(LO) SHORT	ound		_ ctor and the ground. _ _	
YES NO 1.CHI . Di: 2. Cr Cor RH LH Does C YES NO 5.CHI	>> G >> R ECK HE sconnec neck cor IPE nector E15 >> R >> R ECK HE	O TO 4. eplace IPI ADLAMP t the IPDI ntinuity be DM E/R Termi 52 51 y exist? epair the h eplace the ADLAMP	(LO) SHORT	ound connectors. / ce IPDM E/F	Continuity Not existed And then re R if the fuse RCUIT	ctor and the ground. 	
YES NO 1.CHI . Di: 2. Cr Cor RH LH Does C YES NO 5.CHI	>> G >> R ECK HE sconnec neck cor IPE nector E15 continuit >> R ECK HE continu	O TO 4. eplace IPI ADLAMP the IPDI ntinuity be M E/R Termi 52 51 <u>y exist?</u> epair the h eplace the ADLAMP ity betwee	(LO) SHORT	ound connectors. / ce IPDM E/F	Continuity Not existed And then re R if the fuse RCUIT	eplace the fuse.	
YES NO 1.CHI . Dis 2. Cr Cor RH LH Does C YES NO D.CHI Check	>> G >> R ECK HE sconnec neck cor IPE nector E15 continuit >> R ECK HE continu	O TO 4. eplace IPI ADLAMP t the IPDI ntinuity be DM E/R Termi 52 51 y exist? epair the h eplace the ADLAMP	(LO) SHORT	ound connectors. / ce IPDM E/F ID OPEN CI	Continuity Not existed And then re R if the fuse RCUIT	eplace the fuse.	
YES NO 1.CHI . Dis 2. Cr Cor RH LH Does C YES NO D.CHI Check	>> G >> R ECK HE sconnec neck con IPE nector E15 continuit >> R >> R ECK HE continu	O TO 4. eplace IPI ADLAMP the IPDI ntinuity be DM E/R Termi 52 51 <u>y exist?</u> eplace the ADLAMP ity betwee	(LO) SHORT	ound connectors. Acce IPDM E/R ID OPEN CI	Continuity Not existed And then re R if the fuse RCUIT connector a	eplace the fuse.	

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. Start IPDM E/R auto active test. Refer to <u>EXL-33</u>, "Diagnosis Description" (with Intelligent Key) or <u>EXL-38</u>, "Diagnosis Description" (without Intelligent Key).
- 2. Check that the front fog lamp is turned ON.

CONSULT ACTIVE TEST

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

### Fog : Front fog lamp ON

#### Off : Front fog lamp OFF

#### Is the front fog lamp turned ON?

YES >> Front fog lamp circuit is normal.

NO >> Refer to EXL-54, "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	#50	15 A

Is the fuse fusing?

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

NO *>>* GOTO 3. **7** 

## 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	
Conr	Connector		Ground	Continuity	
RH	E12	21	Ground	Not existed	
LH	E12	22		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 ACTIVE TEST

1. Disconnect the front fog lamp connector.

- 2. Turn the ignition switch ON.
- 3. Select "EXTERNAL LAMPS" of IPDM E/R active test item.

## EXL-54

INFOID:000000007772575

INFOID:000000007772576

## 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				
		Ciriniais		Test item		
	(+)		(-)		Voltage	
	IPDM E/R			EXTERNAL	(Approx.)	
Co	nnector	Terminal		LAMPS		
RH		21	Ground	Fog	Battery voltage	
	E12	22		Ground	Off	0 V
LH			1	Fog	Battery voltage	
				Off	0 V	

Is the measurement value normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

## 5. CHECK FRONT FOG 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 front fog lamp harness connector.

	IPDM E	/R	Front fog	Continuity		
Conr	nector	Terminal	Connector	Terminal	Continuity	
RH	E12	21	E48	1	Existed	
LH	E12	22	E30	1	EXISTED	

Does continuity exist?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

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

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

	Front fog la	amp		Continuity
Conr	Connector		Ground	Continuity
RH	E48	2	Ground	Existed
LH	E30	2		Existed

Does continuity exist?

YES >> Replace the front fog lamp.

NO >> Repair the harnesses or connectors.

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## DAYTIME RUNNING LIGHT RELAY CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

## DAYTIME RUNNING LIGHT RELAY CIRCUIT

### Component Function Check

#### NOTE:

Check the headlamp (HI) circuit if the headlamp (HI) is not turned ON. Refer to EXL-46, "Component Function Check".

#### **CAUTION:**

#### Before performing the diagnosis, check that the headlamp (HI) bulb is normal.

**1**.CHECK DAYTIME RUNNING LIGHT OPERATION

#### **©CONSULT ACTIVE TEST**

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

#### Off : Daytime running light OFF

#### Is the daytime running light turned ON/OFF?

YES >> Daytime running light relay-1 circuit is normal. >> Refer to <u>EXL-56, "Diagnosis Procedure"</u>.

NO

### **Diagnosis** Procedure

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

Check that the following fuse is not fusing.

Unit	Location	Fuse No.	Capacity
Daytime running light relay-1	Fuse and fusible link block	#32	10A

### Is the fuse fusina?

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

NO >> GO TO 2.

# **2.**CHECK DAYTIME RUNNING LIGHT RELAY-1 POWER SUPPLY

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

	Terminals					
(	+)	()	Voltage (Approx.)			
Daytime runn	ing light relay-1					
Connector	Terminal	Ground				
E57	2	Giouna	Pattony voltage			
EST	5		Battery voltage			

#### Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair harnesses or connectors.

 ${
m 3.}$ CHECK DAYTIME RUNNING LIGHT RELAY-1

Check daytime running light relay-1. Refer to EXL-57, "Component Inspection (Daytime Running Light Relay-<u>1)"</u>.

### Is the daytime running light relay-1 normal?

YES >> GO TO 4.

>> Replace daytime running light relay-1. NO

 ${f 4}.$ CHECK DAYTIME RUNNING LIGHT RELAY-1 CONTROL SIGNAL OUTPUT

### **EXL-56**

INFOID:000000007772577

INFOID:000000007772578

## DAYTIME RUNNING LIGHT RELAY CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

			>			
	LT ACTIVE	E TEST				
	ne ignition	switch OFF				А
		Inning light	relay-1.			
		switch ON. = RUNNIN(	GLIGHT" of I	BCM (HEAD LA	AMP) active test item.	_
					DM E/R harness connector and the ground.	В
	_			-		
	Terminals		<b>-</b>		=	С
(+	-)	(–)	Test item			0
IPDM	I E/R		DAYTIME	Voltage (Approx.)	)	
Connector	Terminal		RUNNING			D
	Terrinidi	Ground	LIGHT	0.14	_	
E13	28		On	0 V	_	_
		_	Off	Battery voltage	_	E
Is the meas						
YES >>		aytime run Light Relay		ay-1 circuit. Re	efer to EXL-57, "Component Inspection (Daytime	F
Fixed at 0	V >> GO		<u></u> .			
Fixed at b	attery volt	age >>Rep	lace IPDM E	/R.		
<b>5.</b> CHECK	DAYTIME		LIGHT REL	AY-1 CONTRO	DL SIGNAL OPEN CIRCUIT	G
		running lig				
			ess connecto	r.		
		between I	PDM E/R ha	rness connecto	or and daytime running light relay-1 harness con-	Н
nector.						
	/IE/R	Douting a ru	aning light roles	. 4		1
		-	nning light relay	— Continuity		
Connector	Terminal	Connecto E57				
	28		1	Existed		
E13	-		•			J
Does conti	nuity exist	?				J
Does conti YES >>	nuity exist	<u>?</u> 6.		tors		
Does conti YES >> NO >>	nuity exist > GO TO 6 > Repair th	? ? ie harnesse	es or connec			J K
Does contil YES >> NO >> 6.CHECK	nuity exist > GO TO 6 > Repair th DAYTIME	? be harnesse RUNNING	s or connec	AY- CONTROL	SIGNAL SHORT CIRCUIT	
Does contil YES >> NO >> 6.CHECK	nuity exist > GO TO 6 > Repair th DAYTIME	? be harnesse RUNNING	s or connec			K
Does contil YES >> NO >> 6.CHECK	nuity exist - GO TO 6 - Repair th DAYTIME tinuity betw	? be harnesse RUNNING	s or connec	AY- CONTROL		
Does conti YES >> NO >> 6.CHECK Check cont	nuity exist GO TO 6 Repair th DAYTIME tinuity betw IPDM E/R	? ie harnesse RUNNING veen IPDM	es or connec i LIGHT REL E/R harness	AY- CONTROL		K
Does contil YES >> NO >> 6.CHECK Check cont	nuity exist GO TO 6 Repair th DAYTIME tinuity betw IPDM E/R	? ie harnesse RUNNING veen IPDM erminal	s or connec	AY- CONTROI		K
Does conti YES >> NO >> 6.CHECK Check cont Connecto E13	nuity exist GO TO 6 Repair th DAYTIME tinuity betw IPDM E/R or To	2 ie harnesse E RUNNING veen IPDM erminal 28	es or connec i LIGHT REL E/R harness	AY- CONTROI		K
Does conti YES >> NO >> 6.CHECK Check cont Connecto E13 Does conti	nuity exist GO TO 6 > Repair th DAYTIME tinuity betw IPDM E/R pr To nuity exist	? ie harnesse RUNNING veen IPDM erminal 28 ?	es or connect LIGHT REL E/R harness Ground	AY- CONTROL s connector and Continuity Not existed		K EXL M
Does contil YES >> NO >> 6.CHECK Check cont Connecto E13 Does contil YES >>	nuity exist - GO TO 6 - Repair th DAYTIME tinuity betw IPDM E/R pr To nuity exist - Repair th	? ie harnesse RUNNING veen IPDM erminal 28 ?	es or connec i LIGHT REL E/R harness	AY- CONTROL s connector and Continuity Not existed		K
Does conti YES >> NO >> 6.CHECK Check cont Connecto E13 Does conti YES >> NO >>	nuity exist GO TO 6 Repair th DAYTIME tinuity betw IPDM E/R or To nuity exist Repair th Repair ch	2 3. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5	es or connect ELIGHT REL E/R harness Ground	AY- CONTROL s connector and Continuity Not existed	the ground.	K EXL M
Does contil YES >> NO >> 6.CHECK Check cont E13 Does contil YES >> NO >> Compon	nuity exist - GO TO 6 - Repair th DAYTIME tinuity betw IPDM E/R - Tr - nuity exist - Repair th - Replace ent Insp	e harnesse RUNNING veen IPDM erminal 28 PDM E/R. ection (E	es or connect ELIGHT REL E/R harness Ground	AY- CONTROL s connector and Continuity Not existed tors.	the ground.	K EXL M
Does contil YES >> NO >> 6.CHECK Check conti Connecto E13 Does contil YES >> NO >> Compon 1.CHECK 1. Turn th	nuity exist > GO TO 6 > Repair th DAYTIME tinuity betw IPDM E/R or To nuity exist > Repair th > Replace ent Insp DAYTIME ne ignition	P RUNNING RUNNING RUNNING reminal 28 PDM E/R. ection (E RUNNING switch OFF	es or connect ELIGHT REL E/R harness Ground es or connect Daytime R ELIGHT REL	AY- CONTROL s connector and Continuity Not existed tors.	the ground.	K EXL M
Does conti YES >> NO >> 6.CHECK Check cont Connecto E13 Does conti YES >> NO >> Compon 1.CHECK 1. Turn th 2. Remov	nuity exist > GO TO 6 > Repair th DAYTIME tinuity betw IPDM E/R or To nuity exist > Repair th > Replace ent Insp DAYTIME ne ignition /e daytime	P P P P P P P P P P P P P P P P P P P	es or connect E LIGHT REL E/R harness Ground es or connect Daytime R E LIGHT REL ht relay-1.	AY- CONTROL s connector and Continuity Not existed tors. unning Light	t Relay-1)	K EXL M N
Does contil YES >> NO >> 6.CHECK Check cont E13 Does contil YES >> NO >> Compon 1.CHECK 1. Turn th 2. Remov 3. Apply b	nuity exist - GO TO 6 - Repair th DAYTIME tinuity betw IPDM E/R or To nuity exist - Repair th - Repair th - Replace ent Insp DAYTIME the ignition /e daytime pattery vol	P P P P P P P P P P P P P P P P P P P	es or connect E LIGHT REL E/R harness Ground es or connect Daytime R E LIGHT REL ht relay-1.	AY- CONTROL s connector and Continuity Not existed tors. unning Light AY-1	the ground.	K EXL M N

## DAYTIME RUNNING LIGHT RELAY CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

Daytime runni	ng light relay-1	Condition	Continuity
Terr	minal	Voltage	Continuity
5		Apply	Existed
5	3	Not Apply	Not existed
4		Apply	Not existed
4		Not Apply	Existed

Does continuity exist?

YES >> Daytime running light relay-1 is normal.

NO >> Replace daytime running light relay-1.

## Component Inspection (Daytime Running Light Relay-2)

INFOID:000000007772580

# **1.**CHECK DAYTIME RUNNING LIGHT RELAY-2

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

Daytime runn	ing light relay-1	Condition	Continuity
Ter	Terminal		Continuity
3	5	Apply	Existed
3	5	Not Apply	Not existed

#### Does continuity exist?

- YES >> Daytime running light relay-2 is normal.
- NO >> Replace Daytime running light relay-2.

## **PARKING LAMP CIRCUIT**

PARKING LAMP					
Component Function				INF0ID:00000007772581	А
1.CHECK PARKING L		ON			В
<ul> <li>PDM E/R AUTO ACT</li> <li>Start IPDM E/R auto</li> <li><u>"Diagnosis Descript</u></li> <li>Check that the park</li> <li>CONSULT ACTIVE T</li> <li>Select "EXTERNAL</li> <li>With operating the t</li> </ul>	o active test. Ref tion" (without Intr ing lamp is turne EST . LAMPS" of IPD	elligent Ke ed ON. M E/R ac	ey). tive test iten		C
	ing lamp ON				Е
Off : Park	ing lamp OFF				
YES >> Parking lam	p circuit is norm L-59, "Diagnosis		<u>ire"</u> .		F
Diagnosis Procedu	ire			INFOID:00000007772582	G
1.CHECK PARKING L	AMP FUSE				0
<ol> <li>Turn the ignition sw</li> <li>Check that the follo</li> </ol>		not fusing.			Η
Unit	Location	Fuse No.	Capacity	-	
<ul> <li>Parking lamp</li> <li>License plate lamp</li> <li>Side marker lamp</li> <li>Tail lamp</li> </ul>	IPDM E/R	#47	10 A	-	J
$\begin{array}{llllllllllllllllllllllllllllllllllll$	AMP SHORT CI	RCUIT			K
<ol> <li>Disconnect IPDM E</li> <li>Check continuity be</li> </ol>					EXL
	minal Gro	und -	Continuity		M
E14	36		Not existed		Ν
Does continuity exist?	I				
NO >> Replace the	narnesses or col e fuse. (Replace				0
3.CHECK PARKING L					Ρ
Check the applicable lan Is the bulb normal?	מוטמ קווו.				
YES >> GO TO 4. NO >> Replace the	e bulb.				
4.CHECK PARKING L	AMP OUTPUT \	/OLTAGE			
CONSULT ACTIVE T	EST				

< DTC/CIRCUIT DIAGNOSIS >

## PARKING LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

- 1. Disconnect the parking 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
	IPDM E	/R		EXTERNAL	(Approx.)
Cor	nnector	Terminal		LAMPS	
RH	E14	37	Ground	TAIL	Battery voltage
LH		36		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 lamp		Continuity
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	E14	37	E43	1	Existed
LH	L14	36	E24	1	LAISteu

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 lamp				Continuity
Conr	nector	Terminal	Ground	Continuity
RH	E43	2	Giouna	Existed
LH	LH E24			Existed

Does continuity exist?

YES >> Replace the front combination lamp.

NO >> Repair the harnesses or connectors.

## **TURN SIGNAL LAMP CIRCUIT**

Description NFOID:00000007772583 BCM performs the high flasher operation 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
<ul> <li>CONSULT ACTIVE TEST</li> <li>Select "FLASHER" of BCM (FLASHER) active test item.</li> <li>With operating the test items, check that the turn signal lamps blink.</li> </ul>
LH : Turn signal lamps (LH) blink
RH : Turn signal lamps (RH) blink
Off : Turn signal lamps OFF
Does the turn signal lamps blink?
YES >> Turn signal lamp circuit is normal. NO >> Refer to <u>EXL-61, "Diagnosis Procedure"</u> .
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 OPEN CIRCUIT
1. Turn the ignition switch OFF.
<ol> <li>Disconnect BCM connector.</li> <li>Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> </ol>
<ol> <li>Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal</li> </ol>
<ol> <li>Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> </ol>
<ul> <li>Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> </ul>
<ul> <li>3. Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>4. Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> </ul> Front turn signal lamp           Example         Example         Example         Existed
<ul> <li>Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> </ul> Front turn signal lamp           Front turn signal lamp         Continuity           BCM         Front turn signal lamp         Continuity           Connector         Terminal         Connector         Terminal           RH         M67         61         E46         1           LH         M67         60         E27         1         Existed
<ul> <li>Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> </ul> Front turn signal lamp           Front turn signal lamp         Continuity <u>BCM</u> <u>Front turn signal lamp</u> <u>Connector</u> <u>Connector</u> <u>Continuity</u> <u>Continuity</u> <u>Side turn signal lamp</u> <u>Continuity</u>
<ul> <li>3. Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>4. Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> <li>Front turn signal lamp         <ul> <li>Front turn signal lamp</li> <li>Connector</li> <li>Terminal</li> <li>Continuity</li> </ul> </li> <li>Front turn signal lamp</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Continuity</li> <li>Continuity</li> <li>Side turn signal lamp</li> <li>Continuity</li> </ul>
<ul> <li>3. Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>4. Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> <li>Front turn signal lamp         <ul> <li>Front turn signal lamp</li> <li>Connector</li> <li>Terminal</li> <li>Continuity</li> </ul> <ul> <li>Connector</li> <li>Terminal</li> <li>Continuity</li> </ul> <ul> <li>Continuity</li> </ul> </li> </ul>
<ul> <li>3. Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>4. Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> <li>Front turn signal lamp         <ul> <li><u>BCM</u> Front turn signal lamp</li> <li><u>Connector</u> Terminal Connector Terminal</li> <li><u>Continuity</u></li> <li><u>Connector</u> 1 Existed</li> </ul> </li> <li>Side turn signal lamp</li> <li><u>BCM</u> Side turn signal lamp</li> <li><u>Continuity</u></li> <li><u>Connector</u> Terminal Connector Terminal</li> </ul>
<ul> <li>3. Disconnect the front turn signal lamp connector, side turn signal lamp connector, or the rear combination lamp connector.</li> <li>4. Check continuity between the BCM harness connector and the front turn signal lamp, side turn signal lamp or the rear combination lamp harness connector.</li> <li>Front turn signal lamp         <ul> <li>Front turn signal lamp</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Continuity</li> </ul> </li> <li>BCM</li> <li>Front turn signal lamp</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> </ul> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li> <li>Connector</li> <li>Terminal</li> <li>Connector</li>

BCMRear combination lampConnectorTerminalConnectorTerminalRHM6761B594ExistedLH60B804Existed

## **TURN SIGNAL LAMP CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

Does continuity exist?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3. CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between the BCM harness connector and the ground.

BCM				Continuity
Connector		Connector Terminal		Continuity
RH	M67	61	Ground	Not existed
LH	IVIO7	60		NOT EXISTED

#### Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> GO TO 4.

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

Check continuity between the BCM harness connector and the front turn signal lamp, side 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	Ground	Existed
LH	E27	2		
Side turn signal lamp				
Side turn signal lamp				Orationity
	0	<b>T</b>	-	Continuity

Connector		Terminal	Ground	
RH	E40	2	Cround	Existed
LH	E23	2		Existed

Rear turn signal lamp

	Rear combinat	ion lamp		Continuity
Connector		Terminal	Ground	Continuity
RH	B59	3	Giouna	Existed
LH	B80	5		LAISTER

Does continuity exist?

YES >> Replace BCM.

NO >> Repair the harnesses or connectors.

## **OPTICAL SENSOR**

## < DTC/CIRCUIT DIAGNOSIS >

# OPTICAL SENSOR

Description	ו			INFOID:000000007772586
Optical senso	or converts	the outside brightn	ess (lux) to voltage ar	nd transmits the optical sensor signal to BCM.
Componer	nt Functio	on Check		INFOID:000000007772587
1 CUECKO		NSOR SIGNAL B		
			CONSULI	
CONSULT 1. Turn the	DATA MOR			
2. Select "O	PTISEN (C	TCT)" of BCM (HE	ADLAMP) data moni	tor item.
	lighting swi optical sens		eck the monitor status	8.
		<b>U</b> ,		
Monitor item		Condition	Voltage (Approx.)	
OPTISEN	Optical	When illuminating	3.1 V or more *	
(DTCT)	sensor	When shutting off ligh		
			ss than the standard value	if brightness is weak.
<u>Is the item sta</u> YES >> C		or is normal.		
		<u>-63, "Diagnosis Pi</u>	ocedure".	
Diagnosis	Procedu	re		INFOID:000000007772588
T.CHECK O	PTICAL SE	NSOR POWER S	JPPLY INPUT	
	ignition swi			
	lighting swi e voltage b		sensor harness conn	ector and the ground.
	Termina	ls		
	(+)	(-)	Voltage	
	al sensor		(Approx.)	
Connector	Termina	al Ground		
M17	1		5 V	
<u>Is the measur</u> YES >> G	<u>ement valu</u> 30 TO 2.	ie normal?		
	GO TO 2. GO TO 4.			
2.снеско	PTICAL SE	NSOR GROUND	NPUT	
			or harness connecto	r and the ground.
	<u> </u>			5
	Termina	ls		
	(+)	(-)	Voltage	
Optica	al sensor		(Approx.)	
Connector	Termina	al Ground		
M17	3		0 V	
Is the measur		<u>ie normal?</u>		
	GO TO 3. GO TO 6.			
-		NSOR SIGNAL O		
J.CHECK U	F HUAL SE	INSUR SIGNAL U	JIFUI	

## **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	cal sensor		Optical sensor	(Approx.)	
Connector	Terminal	Ground	Optical sensor		
M17	2	Giouna	When illuminating	3.1 V or more *	
	2		When shutting off light	0.6 V or less	

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

Is the measurement value normal?

YES >> GO TO 7.

NO >> Replace the optical sensor.

4.CHECK OPTICAL SENSOR 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	CM	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M17	1	M68	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.

Optica	l 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.

Optica	sensor	B	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M17	3	M68	18	Existed

Does continuity exist?

YES >> Replace BCM.

NO >> Repair the harnesses or connectors.

7. CHECK OPTICAL SENSOR SIGNAL 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**

### < DTC/CIRCUIT DIAGNOSIS >

				1	_	_							
Optical s			M	Continuity	v								
onnector	Terminal	Connector	Terminal		,	_							
M17	2	M68	14	Existed	_	-							
es continui													
	O TO 8.	orpoooo or	aannaatara										
		arnesses or											
		NSOR SHO											
ck the cor	ntinuity betw	ween the opt	ical sensor	harness con	onnec	nec	ecto	ector	tor ar	and th	ie grou	nd.	
			i										
	al sensor			Continuity									
Connector	Termina	l Gr	ound			_							
M17	2			Not existed		-							
es continui	ty exist?												
S >> R >> R	epair the ha	arnesses or	connectors.										
>> R	eplace BCI	И.											

## < DTC/CIRCUIT DIAGNOSIS >

## HAZARD SWITCH

## Component Function Check

1. CHECK HAZARD SWITCH SIGNAL BY CONSULT

CONSULT 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	dition	Monitor status
HAZARD SW	Hazard switch	ON	On
	TIAZATU SWILCH	OFF	Off

Is the item status normal?

YES >> Hazard switch circuit is normal.

NO >> Refer to EXL-66, "Diagnosis Procedure".

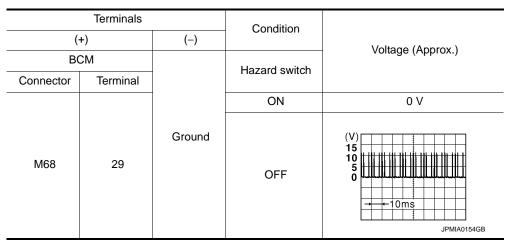
## **Diagnosis Procedure**

INFOID:000000007772590

INFOID:000000007772589

## 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-142, "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	Continuity	
M45	2	M68	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-66**

## HAZARD SWITCH

### < DTC/CIRCUIT DIAGNOSIS >

M45       2       Not existed         s continuity exist?       S       >> Repair the harnesses or connectors.         S       >> GO TO 4.       S         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT       Continuity between the hazard switch harness connector and the ground.         Hazard switch       Continuity         Connector       Terminal         M45       1         S continuity exist?         S       >> Replace the hazard switch.	Innector       Terminal       Ground       Continuity         M45       2       Not existed         continuity exist?       Not existed         >> Repair the harnesses or connectors.       >> GO TO 4.         HECK HAZARD SWITCH GROUND OPEN CIRCUIT       K continuity between the hazard switch harness connector and the ground.         Hazard switch       Ground       Continuity         M45       1       Continuity         M45       1       Existed         continuity exist?       >> Replace the hazard switch.	Connector       Terminal       Ground       Continuity         M45       2       Not existed         Not existed       Not existed         SS continuity exist?       S         SS >> Repair the harnesses or connectors.       >> GO TO 4.         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT       Continuity         eck continuity between the hazard switch harness connector and the ground.         Hazard switch       Continuity         Connector       Terminal         M45       1         Ves continuity exist?       S         SS continuity exist?       S         SS >> Replace the hazard switch.       Existed					
Connector       Terminal       Ground         M45       2       Not existed         S continuity exist?       S         S >> Repair the harnesses or connectors.       >> GO TO 4.         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT       Continuity between the hazard switch harness connector and the ground.         Hazard switch       Ground       Continuity         M45       1       Ground         S continuity exist?       S         S scontinuity exist?       S         S >> Replace the hazard switch.       State	Immedia     Ground       M45     2       Not existed       continuity exist?       >> Repair the harnesses or connectors.       >> GO TO 4.       HECK HAZARD SWITCH GROUND OPEN CIRCUIT       K continuity between the hazard switch harness connector and the ground.       Hazard switch       Onnector     Terminal       Ground     Continuity       M45     1       Continuity exist?       >> Replace the hazard switch.	Connector       Terminal       Ground         M45       2       Not existed         iss continuity exist?       Image: Source of the second	Hazaro	d switch		Continuity	
s continuity exist?         S       >> Repair the harnesses or connectors.         >>> GO TO 4.         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT         ck continuity between the hazard switch harness connector and the ground.         Hazard switch         Connector       Terminal         Ground       Continuity         M45       1         S continuity exist?         S       >> Replace the hazard switch.	continuity exist?         >> Repair the harnesses or connectors.         >> GO TO 4.         HECK HAZARD SWITCH GROUND OPEN CIRCUIT         k continuity between the hazard switch harness connector and the ground.         Hazard switch         onnector       Terminal         Ground       Continuity         M45       1         Continuity exist?         >> Replace the hazard switch.	es continuity exist?         S       >> Repair the harnesses or connectors.         D       >> GO TO 4.         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT         eck continuity between the hazard switch harness connector and the ground.         Hazard switch         Connector       Terminal         M45       1         es continuity exist?         S       >> Replace the hazard switch.	Connector	Terminal	Ground	Continuity	
S       >> Repair the harnesses or connectors.         >> GO TO 4.         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT         ck continuity between the hazard switch harness connector and the ground.         Hazard switch         Connector       Terminal         M45       1         S continuity exist?         S       >> Replace the hazard switch.	>> Repair the harnesses or connectors. >> GO TO 4. HECK HAZARD SWITCH GROUND OPEN CIRCUIT A continuity between the hazard switch harness connector and the ground.          Hazard switch       Continuity         Image: Continuity exist?       Continuity         >> Replace the hazard switch.       Existed	S       >> Repair the harnesses or connectors.         O       >> GO TO 4.         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT         eck continuity between the hazard switch harness connector and the ground.         Hazard switch       Continuity         Connector       Terminal         M45       1         Es continuity exist?         S       >> Replace the hazard switch.	M45	2		Not existed	
<ul> <li>&gt;&gt; GO TO 4.</li> <li>CHECK HAZARD SWITCH GROUND OPEN CIRCUIT</li> <li>ck continuity between the hazard switch harness connector and the ground.</li> <li>Hazard switch         <ul> <li>Ground</li> <li>Continuity</li> <li>M45 1</li> <li>Ground</li> <li>Existed</li> </ul> </li> <li>s continuity exist?</li> <li>S &gt;&gt; Replace the hazard switch.</li> </ul>	>> GO TO 4.   HECK HAZARD SWITCH GROUND OPEN CIRCUIT   k continuity between the hazard switch harness connector and the ground.     Hazard switch   Image: marked barrier	>> GO TO 4.         CHECK HAZARD SWITCH GROUND OPEN CIRCUIT         eck continuity between the hazard switch harness connector and the ground.         Hazard switch         Gonnector       Terminal         M45       1         Es continuity exist?         S       >> Replace the hazard switch.	pes continuit	<u>y exist?</u>			
CHECK HAZARD SWITCH GROUND OPEN CIRCUIT         ck continuity between the hazard switch harness connector and the ground.         Hazard switch         Connector       Terminal         M45       1         S continuity exist?         S >> Replace the hazard switch.	HECK HAZARD SWITCH GROUND OPEN CIRCUIT         k continuity between the hazard switch harness connector and the ground.         Hazard switch         Image: Mass of the mass	CHECK HAZARD SWITCH GROUND OPEN CIRCUIT         eck continuity between the hazard switch harness connector and the ground.         Hazard switch       Continuity         Ground       Continuity         M45       1         Es continuity exist?       Existed         S       >> Replace the hazard switch.	′ES >> Re IO >> G	epair the harnes	sses or connector	S.	
Label continuity between the hazard switch harness connector and the ground.         Hazard switch         Continuity         Continuity         Continuity         Continuity         M45       Continuity         M45       Continuity         S continuity exist?         S >> Replace the hazard switch.	K continuity between the hazard switch harness connector and the ground.         Hazard switch         Continuity         Onnector       Terminal       Continuity         M45       Existed         Continuity         Continuity         S Replace the hazard switch.	Ack continuity between the hazard switch harness connector and the ground.         Hazard switch         Continuity         Continuity         Continuity         M45       Continuity         M45       Continuity         M45       Continuity         Existed         S continuity exist?         S >> Replace the hazard switch.					
Hazard switch       Connector     Terminal     Ground       M45     1     Existed       s continuity exist?     S       S     >> Replace the hazard switch.	Hazard switch       Onnector     Terminal     Ground       M45     1     Existed       continuity exist?     >> Replace the hazard switch.	Hazard switch       Connector     Terminal     Ground       M45     1     Existed       es continuity exist?     Existed					
Connector     Terminal     Ground       M45     1     Existed       s continuity exist?     S       S     >> Replace the hazard switch.	Image: marked background     Continuity       M45     1     Existed       Continuity exist?     >> Replace the hazard switch.	Connector     Terminal     Ground       M45     1     Existed       es continuity exist?     Existed       ES     >> Replace the hazard switch.	ieck continu	ity between the	a nazaru switch na	mess connector and the ground.	
Connector     Terminal     Ground       M45     1     Existed       s continuity exist?     S     >> Replace the hazard switch.	Image: Second system     Ground       M45     1       Existed       continuity exist?       >> Replace the hazard switch.	Connector     Terminal     Ground       M45     1     Existed       es continuity exist?     Existed       ES     >> Replace the hazard switch.	Hazar	d switch		Continuity	
<u>s continuity exist?</u> S    >> Replace the hazard switch.	continuity exist? >> Replace the hazard switch.	es continuity exist? S >> Replace the hazard switch.	Connector	Terminal	Ground	Continuity	
S >> Replace the hazard switch.	>> Replace the hazard switch.	S >> Replace the hazard switch.	M45	1		Existed	
S >> Replace the hazard switch.	>> Replace the hazard switch.	S >> Replace the hazard switch.	oes continuit	v exist?			
>> Repair the harnesses or connectors.	>> Repair the harnesses or connectors.	> Repair the harnesses or connectors.			ard switch.		
			D >> Re	pair the harnes	sses or connector	S.	

#### < DTC/CIRCUIT DIAGNOSIS >

## TAIL LAMP CIRCUIT

### **Component Function Check**

NOTE:

Check the parking lamp circuit if the parking lamp and the tail lamp are not turned ON.

**1.**CHECK TAIL LAMP OPERATION

DIPDM E/R AUTO ACTIVE TEST

- 1. Start IPDM E/R auto active test. Refer to <u>EXL-33</u>, "Diagnosis Description" (with Intelligent Key) or <u>EXL-38</u>, "Diagnosis Description" (without Intelligent Key).
- 2. Check that the tail lamp is turned ON.

**CONSULT ACTIVE TEST** 

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

TAIL : Tail lamp ON

Off : Tail lamp OFF

Is the tail lamp turned ON?

YES >> Tail lamp circuit is normal.

NO >> Refer to EXL-68, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:000000007772592

### **1.**CHECK TAIL LAMP OUTPUT VOLTAGE

CONSULT 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.

	٦	Ferminals		Test item		
	(+)		(–)	iest item	Voltage	
	IPDM E	/R		EXTERNAL	(Approx.)	
Co	onnector	Terminal		LAMPS		
RH	RH 38	38	Ground	TAIL	Battery volt- age	
	E14		Ciouna	Off	0 V	
LH		41		TAIL	Battery volt- age	
				Off	0 V	

Is the measurement value normal?

YES >> GO TO 2.

NO >> Replace IPDM E/R.

2. CHECK TAIL LAMP OPEN CIRCUIT

1. Turn the ignition switch OFF.

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

INFOID:000000007772591

## TAIL LAMP CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

IPDM E/R		Rear combination lamp		Continuity	
C	Connector Terminal Connector Termi		Terminal	Continuity	
RH	E14	38	B59	6	Existed
LH		41	B80	6	LXISIEU

Does continuity exist?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

**3.**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	3	Giodila	Existed
LH	B80	3		EXISTED

Does continuity exist?

YES >> Replace the rear combination lamp.

NO >> Repair the harnesses or connectors.

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< DTC/CIRCUIT DIAGNOSIS >

## REAR SIDE MARKER LAMP CIRCUIT

## Component Function Check

INFOID:000000007772593

#### NOTE:

Check the parking lamp circuit if the parking lamp and the rear side marker lamp are not turned ON.

**1.**CHECK REAR SIDE MARKER LAMP OPERATION

DIPDM E/R AUTO ACTIVE TEST

- 1. Start IPDM E/R auto active test. Refer to <u>EXL-33</u>, "<u>Diagnosis Description</u>" (with Intelligent Key) or <u>EXL-38</u>, "<u>Diagnosis Description</u>" (without Intelligent Key).
- 2. Check that the rear side marker lamp is turned ON.

**CONSULT ACTIVE TEST** 

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

TAIL : Rear side marker lamp ON

#### Off : Rear side marker lamp OFF

Is the rear side marker lamp turned ON/OFF?

YES >> Rear side marker lamp circuit is normal.

NO >> Refer to EXL-70, "Diagnosis Procedure".

### Diagnosis Procedure

**1.**CHECK REAR SIDE MARKER LAMP BULB

Check the applicable lamp bulb.

Is the bulb normal?

YES >> GO TO 2.

NO >> Replace the bulb.

2. CHECK REAR SIDE MARKER LAMP OPEN CIRCUIT

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector and the rear side marker lamp connector.
- 3. Check continuity between the IPDM E/R harness connector and the rear side marker lamp harness connector.

IPDM E/R		Rear side marker lamp		Continuity		
C	Connector	Terminal	Connector Terminal		Continuity	
RH	E14	41	T5	1	Existed	
LH	L14	41	T4	1	LNSIEU	

Does continuity exist?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

3.CHECK REAR SIDE MARKER LAMP GROUND OPEN CIRCUIT

Check continuity between the rear side marker lamp harness connector and the ground.

	Rear side mar	ker lamp		Continuity	
Connector Term		Terminal	Ground	Continuity	
RH	T5	1	Giouna	Existed	
LH	T4	1		Existed	

Does continuity exist?

YES >> Replace the rear side marker lamp assembly.

NO >> Repair the harnesses or connectors.

INFOID:000000007772594

## LICENSE PLATE LAMP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >	
LICENSE PLATE LAMP CIRCUIT	А
Component Function Check	A
NOTE: Check the parking lamp circuit if the parking lamp and the license plate lamp are not turned ON. 1.CHECK LICENSE PLATE LAMP OPERATION	В
<ul> <li>IPDM E/R AUTO ACTIVE TEST</li> <li>Start IPDM E/R auto active test. Refer to <u>EXL-33</u>, "Diagnosis Description" (with Intelligent Key) or <u>EXL-38</u>, "Diagnosis Descriptingent Key) (with Intelligent Key) or <u>EXL-38</u>, "Diagnosis Desc</li></ul>	С
<ul> <li><u>"Diagnosis Description"</u> (without Intelligent Key).</li> <li>Check that the license plate lamp is turned ON.</li> <li>CONSULT ACTIVE TEST</li> </ul>	D
<ol> <li>Select "EXTERNAL LAMPS" of IPDM E/R active test item.</li> <li>With operating the lighting switch, check that the license plate lamp is turned ON.</li> </ol>	Е
TAIL       : License plate lamp ON         Off       : License plate lamp OFF	F
<u>Is the license plate lamp turned ON?</u> YES >> License plate lamp circuit is normal. NO >> Refer to <u>EXL-71, "Diagnosis Procedure"</u> .	G
Diagnosis Procedure	
1.CHECK LICENSE PLATE LAMP BULB	Н
Check the applicable lamp bulb.         Is the bulb normal?         YES       >> GO TO 2.         NO       >> Replace the bulb.	I
2. CHECK LICENSE PLATE LAMP OPEN CIRCUIT	J
<ol> <li>Turn the ignition switch OFF.</li> <li>Disconnect IPDM E/R connector and the license plate lamp connector.</li> <li>Check continuity between the IPDM E/R harness connector and the license plate lamp harness connector.</li> </ol>	K

Continuity	late lamp	License p	IPDM E/R		
Continuity	Connector Terminal		Terminal	onnector	С
Existed	1	Т3	41	F14	RH
LAISIEU	1	T2	41	L14	LH

Does continuity exist?

tor.

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

## **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	T3	2	Ground	Existed	
LH	T2	2	1	LAISted	

Does continuity exist?

YES >> Replace the license plate lamp.

NO >> Repair the harnesses or connectors.

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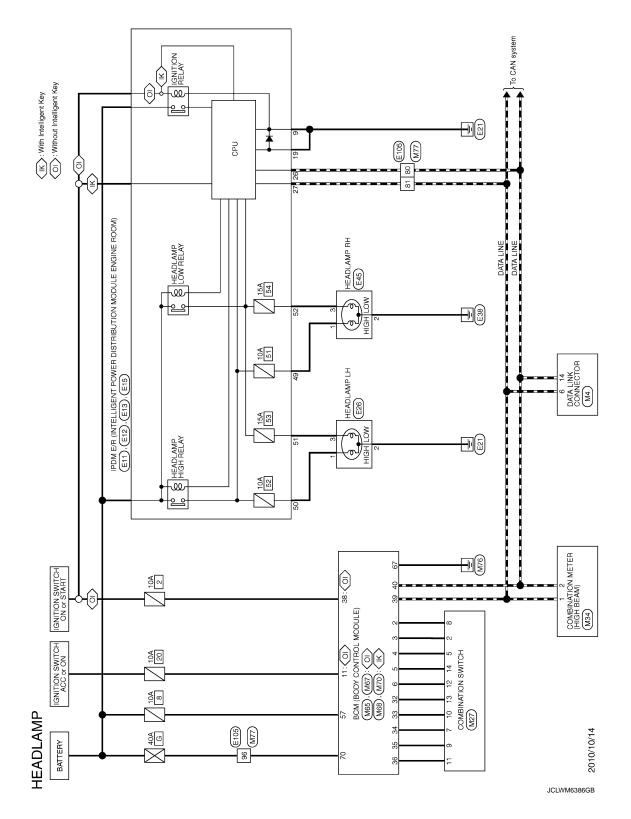
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## HEADLAMP SYSTEM

Wiring Diagram - HEADLAMP -

INFOID:000000007772597

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.

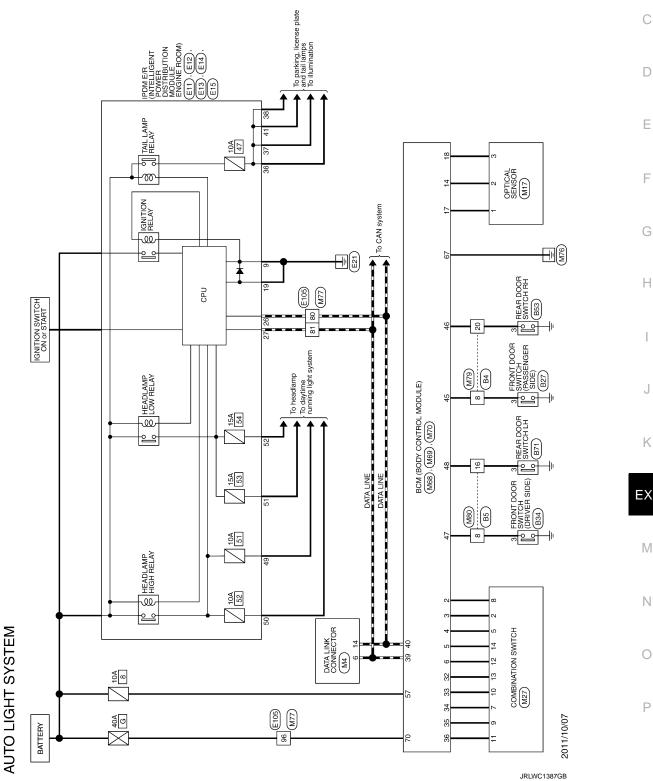


< DTC/CIRCUIT DIAGNOSIS >

# **AUTO LIGHT SYSTEM**

Wiring Diagram - AUTO LIGHT SYSTEM -

For connector terminal arrangements, harness layouts, and alphabets in a 🔿 (option abbreviation; if not В described in wiring diagram), refer to GI-12, "Connector Information".



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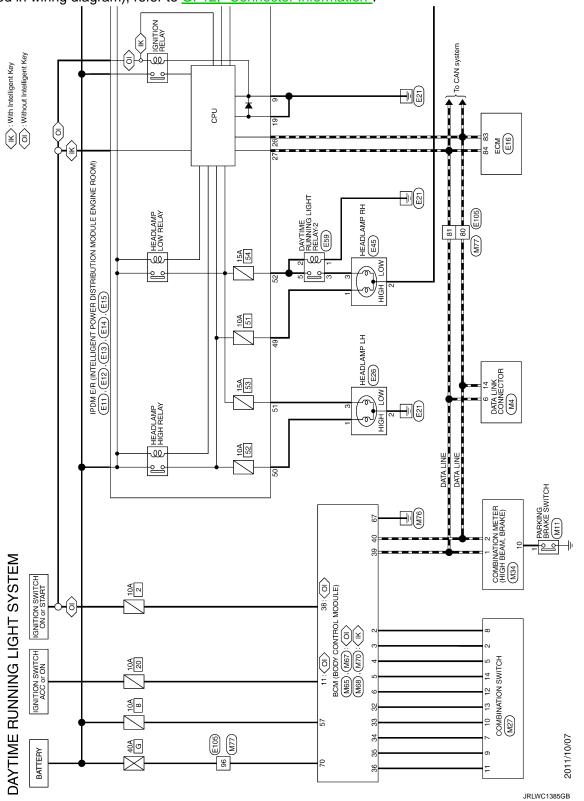
< DTC/CIRCUIT DIAGNOSIS >

### DAYTIME RUNNING LIGHT SYSTEM

### Wiring Diagram - DAYTIME RUNNING LIGHT SYSTEM -

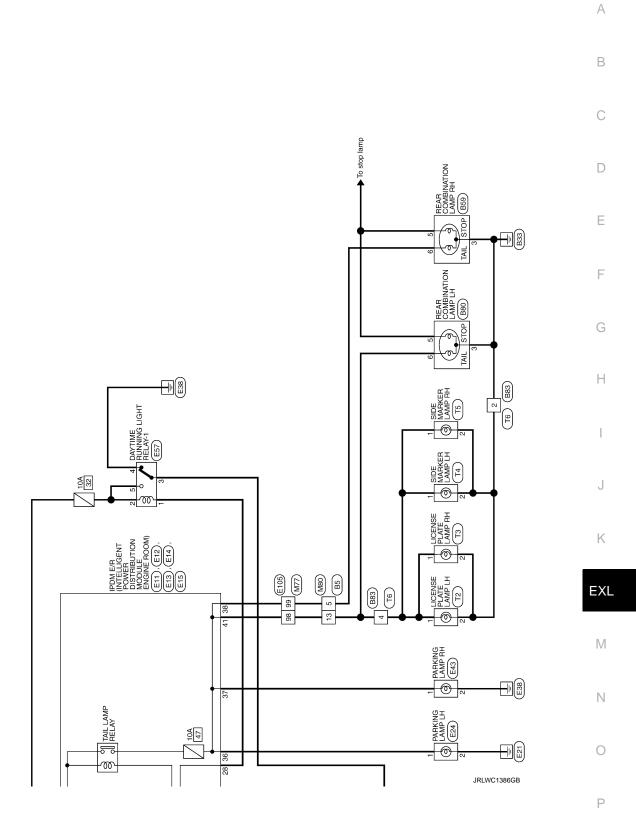
INFOID:000000007772599

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.



### DAYTIME RUNNING LIGHT SYSTEM

< DTC/CIRCUIT DIAGNOSIS >



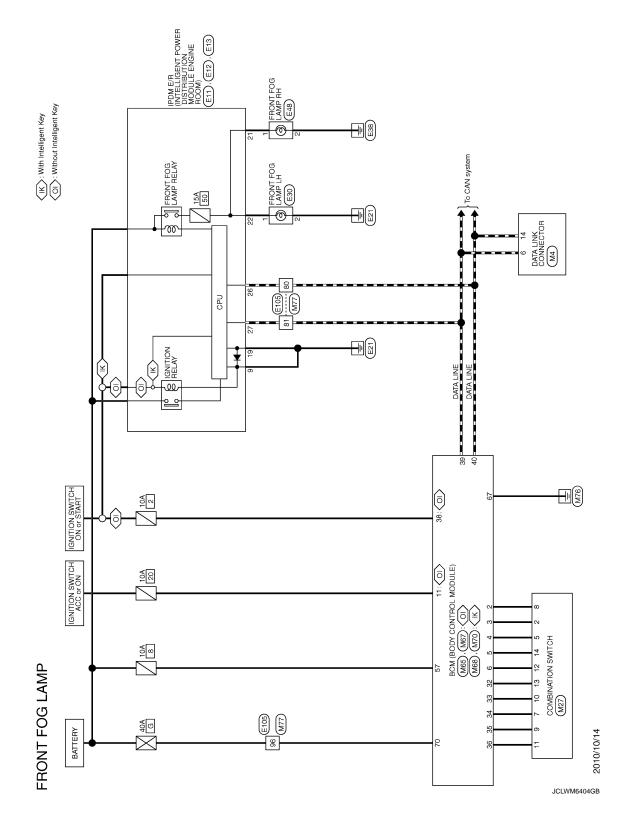
< DTC/CIRCUIT DIAGNOSIS >

### FRONT FOG LAMP SYSTEM

### Wiring Diagram - FRONT FOG LAMP -

INFOID:000000007772600

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.



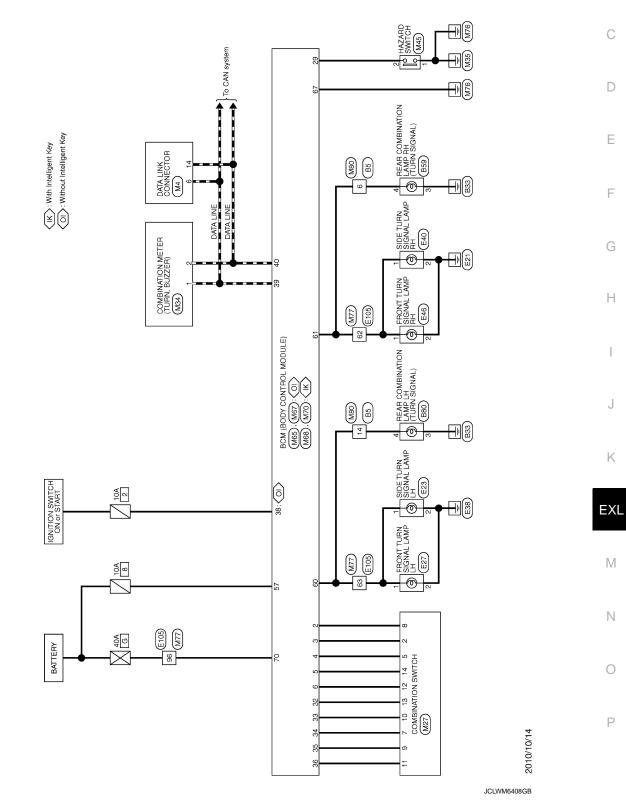
### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

< DTC/CIRCUIT DIAGNOSIS >

### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

Wiring Diagram - TURN AND HAZARD WARNING LAMPS -

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.



TURN SIGNAL AND HAZARD WARNING LAMPS

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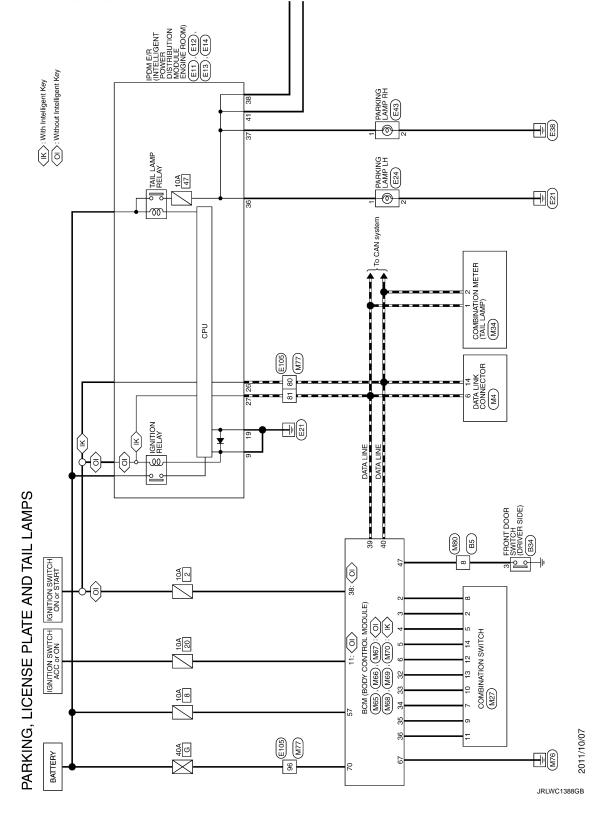
INFOID:000000007772601

# PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS SYSTEM < DTC/CIRCUIT DIAGNOSIS >

PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS SYSTEM Wiring Diagram - PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS -

INFOID:000000007772602

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.



# PARKING, LICENSE PLATE, SIDE MARKER AND TAIL LAMPS SYSTEM < DTC/CIRCUIT DIAGNOSIS >

REAR COMBINATION LAMP RH B59 В To stop lamp С STOP D TAIL REAR COMBINATION LAMP LH B80 Е F STOP 0 0 G TAIL SIDE MARKER T5 T5 Н ŝ \_\_\_\_\_\_, Left SIDE MARKER T4 LAMP LH J  $\odot$ LICENSE PLATE LAMP T3 Κ LICENSE PLATE LAMP LH T2 EXL 10 BB3 <u>\_</u> 4 Μ BS ഹ c M80 Ν (LM) 66 86 E105 Ο JRLWC1389GB

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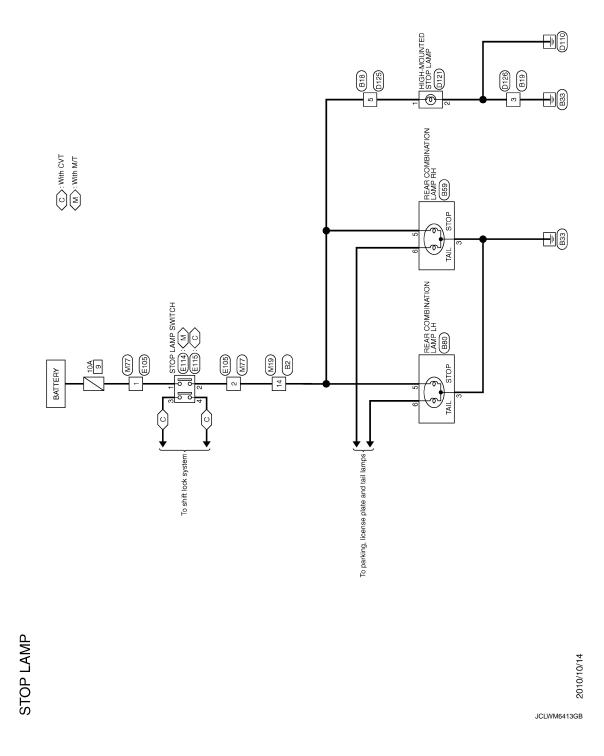
< DTC/CIRCUIT DIAGNOSIS >

# STOP LAMP

Wiring Diagram - STOP LAMP -

INFOID:000000007772603

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.

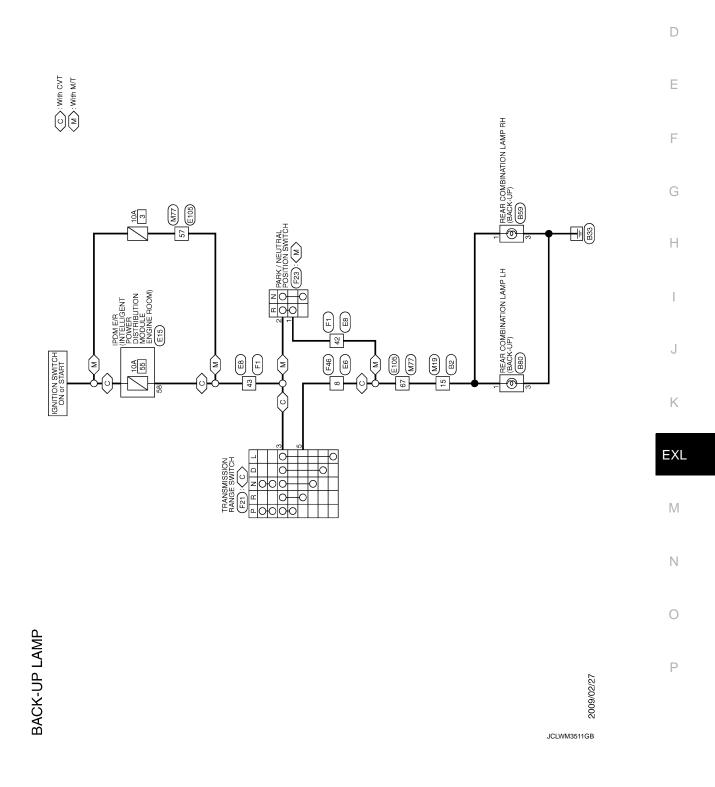




### BACK-UP LAMP

### Wiring Diagram - BACK-UP LAMP -

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.



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< ECU DIAGNOSIS INFORMATION >

# ECU DIAGNOSIS INFORMATION BCM (BODY CONTROL MODULE)

WITH INTELLIGENT KEY

### WITH INTELLIGENT KEY : Reference Value

INFOID:000000007946352

#### VALUES ON THE DIAGNOSIS TOOL

#### CONSULT MONITOR ITEM

Monitor Item	Condition	Value/Status
FR WIPER HI	Other than front wiper switch HI	Off
	Front wiper switch HI	On
FR WIPER LOW	Other than front wiper switch LO	Off
FR WIPER LOW	Front wiper switch LO	On
	Front washer switch OFF	Off
FR WASHER SW	Front washer switch ON	On
FR WIPER INT	Other than front wiper switch INT	Off
	Front wiper switch INT	On
	Front wiper is not in STOP position	Off
FR WIPER STOP	Front wiper is in STOP position	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	Wiper intermittent dial position
RR WIPER ON	Other than rear wiper switch ON	Off
	Rear wiper switch ON	On
RR WIPER INT	Other than rear wiper switch INT	Off
	Rear wiper switch INT	On
	Rear washer switch OFF	Off
RR WASHER SW	Rear washer switch ON	On
	Rear wiper is in STOP position	Off
RR WIPER STOP	Rear wiper is not in STOP position	On
TURN SIGNAL R	Other than turn signal switch RH	Off
I URN SIGNAL R	Turn signal switch RH	On
TURN SIGNAL L	Other than turn signal switch LH	Off
TORN SIGNAL L	Turn signal switch LH	On
TAIL LAMP SW	Other than lighting switch 1ST and 2ND	Off
TAIL LAWF SW	Lighting switch 1ST or 2ND	On
HI BEAM SW	Other than lighting switch HI	Off
	Lighting switch HI	On
HEAD LAMP SW 1	Other than lighting switch 2ND	Off
HEAD LAWF SVV I	Lighting switch 2ND	On
HEAD LAMP SW 2	Other than lighting switch 2ND	Off
HEAD LAIVIP SVV 2	Lighting switch 2ND	On
	Other than lighting switch PASS	Off
PASSING SW	Lighting switch PASS	On
	Other than lighting switch AUTO	Off
AUTO LIGHT SW	Lighting switch AUTO	On

Monitor Item	Condition	Value/Status			
FR FOG SW	Front fog lamp switch OFF	Off			
FR FUG SW	Front fog lamp switch ON	On			
	Driver door closed	Off			
DOOR SW-DR	Driver door opened	On			
	Passenger door closed	Off			
DOOR SW-AS	Passenger door opened	On			
	Rear RH door closed	Off			
DOOR SW-RR					
	Rear LH door closed	Off			
DOOR SW-RL	Rear LH door opened	On			
	Back door closed	Off			
DOOR SW-BK	Back door opened	On			
	Other than power door lock switch LOCK	Off			
CDL LOCK SW	Power door lock switch LOCK	On			
	Other than power door lock switch UNLOCK	Off			
CDL UNLOCK SW	Power door lock switch UNLOCK	On			
	Other than driver door key cylinder LOCK position	Off			
KEY CYL LK-SW	Driver door key cylinder LOCK position	On			
	Other than driver door key cylinder UNLOCK position	Off			
KEY CYL UN-SW	Driver door key cylinder UNLOCK position	On			
	Hazard switch is OFF	Off			
HAZARD SW	Hazard switch is ON	On			
	Rear window defogger switch OFF	Off			
REAR DEF SW	Rear window defogger switch ON	On			
	NOTE:				
TR/BD OPEN SW	The item is indicated, but not monitored.	Off			
TRNK/HAT MNTR	NOTE: The item is indicated, but not monitored.	Off			
	Blower fan OFF	Off			
FAN ON SIG	Blower fan ON	On			
	Air conditioner OFF (A/C switch indicator OFF)	Off			
AIR COND SW	Air conditioner ON (A/C switch indicator ON)	On			
	LOCK button of the key is not pressed	Off			
RKE-LOCK	LOCK button of the key is pressed	On			
	UNLOCK button of the key is not pressed	Off			
RKE-UNLOCK	UNLOCK button of the key is pressed	On			
	BACK DOOR OPEN button of the key is not pressed	Off			
RKE-TR/BD	BACK DOOR OPEN button of the key is pressed	On			
	PANIC button of the key is not pressed	Off			
RKE-PANIC	PANIC button of the key is pressed	On			
	LOCK/UNLOCK button of the key is not pressed and held simultaneously	Off			
RKE-MODE CHG	LOCK/UNLOCK button of the key is not pressed and held simultaneously	On			
	Bright outside of the vehicle	Close to 5 V			

#### < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
	Bright outside of the vehicle (Lighting switch AUTO)	Close to 5 V
OPTI SEN (FILT)	Dark outside of the vehicle (Lighting switch AUTO)	Close to 1.50 V
OPTICAL SENSOR	NOTE: The item is indicated, but not monitored.	Off
RAIN SENSOR	NOTE: The item is indicated, but not monitored.	Off
REQ SW -DR	Driver door request switch is not pressed	Off
	Driver door request switch is pressed	On
REQ SW -AS	Passenger door request switch is not pressed	Off
	Passenger door request switch is pressed	On
REQ SW -RR	<b>NOTE:</b> The item is indicated, but not monitored.	Off
REQ SW -RL	NOTE: The item is indicated, but not monitored.	Off
REQ SW -BD/TR	Back door request switch is not pressed	Off
NEQ 3W -DD/TR	Back door request switch is pressed	On
PUSH SW	Push-button ignition switch (push switch) is not pressed	Off
F03H 3W	Push-button ignition switch (push switch) is pressed	On
CLUCH SW	The clutch pedal is not depressed.	Off
CEUCITION	The clutch pedal is depressed	On
	The brake pedal is not depressed	Off
BRAKE SW 1	The brake pedal is depressed	On
	The brake pedal is depressed when No. 9 fuse is blown	Off
BRAKE SW 2	The brake pedal is not depressed when No. 9 fuse is blown, or No. 9 fuse is normal	On
DETE/CANCL SW	Selector lever in P position	Off
DETE/CANCE SW	Selector lever in any position other than P	On
SFT PN/N SW	Selector lever in any position other than P and N	Off
5FT PIN/IN 5VV	Selector lever in P or N position	On
S/L -LOCK	NOTE: The item is indicated, but not monitored.	Off
S/L -UNLOCK	NOTE: The item is indicated, but not monitored.	Off
S/L RELAY-F/B	NOTE: The item is indicated, but not monitored.	Off
UNLK SEN -DR	Driver door is locked	Off
UNER SEN -DR	Driver door is unlocked	On
PUSH SW -IPDM	Push-button ignition switch (push-switch) is not pressed	Off
	Push-button ignition switch (push-switch) is pressed	On
IGN RLY1 -F/B	Ignition switch in OFF or ACC position	Off
	Ignition switch in ON position	On
DETE SW -IPDM	Selector lever in any position other than P	Off
	Selector lever in P position	On
SFT PN -IPDM	Selector lever in any position other than P and N	Off
	Selector lever in P or N position	On
SET D MET	Selector lever in any position other than P	Off
SFT P -MET	Selector lever in P position	On

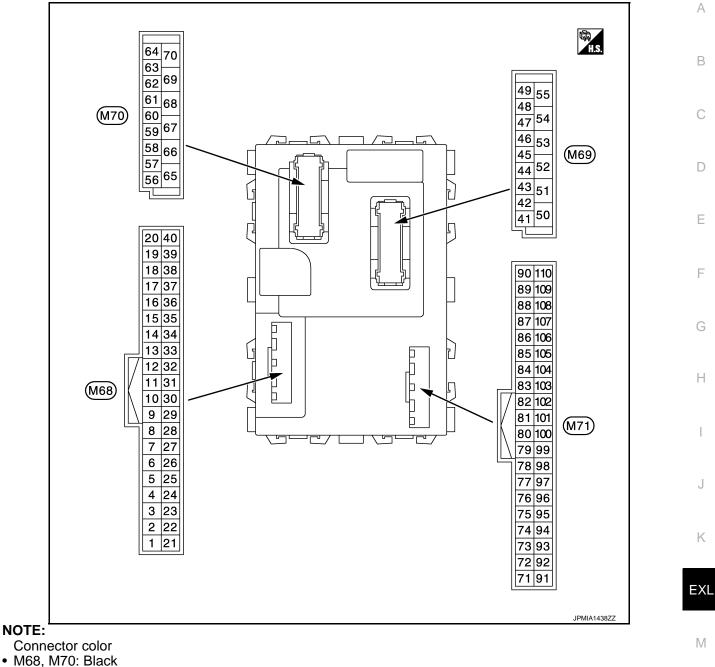
Revision: 2011 November

Monitor Item	Condition	Value/Status
SFT N -MET	Selector lever in any position other than N	Off
	Selector lever in N position	On
	Engine stopped	Stop
ENGINE STATE	While the engine stalls	Stall
	At engine cranking	Crank
	Engine running	Run
S/L LOCK-IPDM	NOTE: The item is indicated, but not monitored.	Off
S/L UNLK-IPDM	NOTE: The item is indicated, but not monitored.	Off
S/L RELAY-REQ	NOTE: The item is indicated, but not monitored.	Off
VEH SPEED 1	While driving	Equivalent to speed- ometer reading
VEH SPEED 2	While driving	Equivalent to speed- ometer reading
	Driver door is locked	LOCK
DOOR STAT-DR	Wait with selective UNLOCK operation (5 seconds)	READY
	Driver door is unlocked	UNLOCK
	Passenger door is locked	LOCK
DOOR STAT-AS	Wait with selective UNLOCK operation (5 seconds)	READY
	Passenger door is unlocked	UNLOCK
ID OK FLAG	Driver side door is open after ignition switch is turned OFF (Selector lever is in the P position except for M/T models)	Reset
	Ignition switch ON	Set
	The engine start is prohibited	Reset
PRMT ENG STRT	The engine start is permitted	Set
PRMT RKE STRT	NOTE: The item is indicated, but not monitored.	Reset
RKE OPE COUN1	During the operation of the key	Operation frequency of the key
RKE OPE COUN2	NOTE: The item is indicated, but not monitored.	_
CONFRM ID ALL	The key ID that the key slot receives is not recognized by any key ID reg- istered to BCM.	Yet
	The key ID that the key slot receives is recognized by any key ID registered to BCM.	Done
CONFIRM ID4	The key ID that the key slot receives is not recognized by the fourth key ID registered to BCM.	Yet
	The key ID that the key slot receives is recognized by the fourth key ID reg- istered to BCM.	Done
	The key ID that the key slot receives is not recognized by the third key ID registered to BCM.	Yet
CONFIRM ID3	The key ID that the key slot receives is recognized by the third key ID reg- istered to BCM.	Done
CONFIRM ID2	The key ID that the key slot receives is not recognized by the second key ID registered to BCM.	Yet
	The key ID that the key slot receives is recognized by the second key ID registered to BCM.	Done

Monitor Item	Condition	Value/Status
CONFIRM ID1	The key ID that the key slot receives is not recognized by the first key ID registered to BCM.	Yet
	The key ID that the key slot receives is recognized by the first key ID reg- istered to BCM.	Done
	BCM detects registered key ID, or BCM does not detect key ID.	ID OK
NOT REGISTERED	BCM detects non-registration key ID.	ID NG
TP 4	The ID of fourth key is not registered to BCM	Yet
1P 4	The ID of fourth key is registered to BCM	Done
TP 3	The ID of third key is not registered to BCM	Yet
1 - 3	The ID of third key is registered to BCM	Done
TP 2	The ID of second key is not registered to BCM	Yet
IF Z	The ID of second key is registered to BCM	Done
TP 1	The ID of first key is not registered to BCM	Yet
1 - 1	The ID of first key is registered to BCM	Done
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of fron LH tire
AIR PRESS FR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of from RH tire
AIR PRESS RR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rea RH tire
AIR PRESS RL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rea LH tire
	ID of front LH tire transmitter is registered	Done
ID REGST FL1	ID of front LH tire transmitter is not registered	Yet
	ID of front RH tire transmitter is registered	Done
ID REGST FR1	ID of front RH tire transmitter is not registered	Yet
ID REGST RR1	ID of rear RH tire transmitter is registered	Done
	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
DULLIN	Tire pressure warning alarm is sounding	On

#### < ECU DIAGNOSIS INFORMATION >

### **TERMINAL LAYOUT**



• M69, M71: White

PHYSICAL VALUES

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Terminal No. (Wire color)		Description				Value	
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)	
					All switch OFF Turn signal switch RH Lighting switch HI	0 V	
2 (BR/W)	Ground	Combination switch	Input	Combination switch (Wiper intermit-	Lighting switch 1ST	5 0 ++10ms PKIB4958J 1.0 V	
、 <i>,</i>				tent dial 4)	Lighting switch 2ND	(V) 15 10 5 0 ++10 ms 	
				Combination	All switch OFF	0 V	
		und Combination switch INPUT 4			Turn signal switch LH		
					Lighting switch PASS	(V) 15	
3					Lighting switch 2ND	10 5 0 ++10ms PKIB4958J	
3 (GR)	Ground		Input	switch (Wiper intermit-		1.0 V	
. ,				tent dial 4)	Front fog lamp switch ON	(V) 15 10 5 0 • • • 10ms • • • 10ms • • • PKIB4956J	
						0.8 V	
					All switch OFF	0 V	
					Front wiper switch LO	(V)+	
4	_	Combination switch INPUT 3		Combination switch	Front wiper switch MIST Front wiper switch INT	(V) 15 10 5	
4 (L/Y)	Ground		Input	(Wiper intermit- tent dial 4)	Lighting switch AUTO	0 ↓ ↓ 10ms ↓ ↓ 10ms PKIB4958J 1.0 V	

### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value	
(vvire +	- COIOF)	Signal name	Input/ Output		Condition	(Approx.)	
					All switch OFF (Wiper intermittent dial 4)	0 V	
					Front washer switch (Wiper intermittent dial 4) Rear washer ON		
					(Wiper intermittent dial 4) Any of the condition below with all switch OFF	5 0 ++10ms	
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	<ul> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 5</li> <li>Wiper intermittent dial 6</li> </ul>	□ □ □ ↓ ↓ ↓ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 5 0	
						++10ms ► ► ► ► ► ► ► ► ► ► ► ► ►	
					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)	++10ms PKIB4958J 1.0 V	
6 (L/R)	Ground	Combination switch INPUT 1	Input	Combination switch	Any of the condition below with all switch OFF	(V) 15 10 5 0	
					<ul> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 2</li> </ul>	→ +10ms → +10	
						(V) 15	
					<ul><li>Any of the condition below with all switch OFF</li><li>Wiper intermittent dial 6</li><li>Wiper intermittent dial 7</li></ul>	10 10 0 0 +++10ms	
						PKIB4956J	

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Terminal No.		Description				Value
(Wire +	color) –	Signal name	Input/ Output		Condition	(Approx.)
7 (W/R)	Ground	Door key cylinder switch UNLOCK	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	Oneveral	Door key cylinder	lased	Door key cylin-	NEUTRAL position	12 V
(W/B)	Ground	switch LOCK	Input	der switch	LOCK position	0 V
9	Ground	Stop Jomp quitch 1	laput	Stop lamp	OFF (Brake pedal is not depressed)	0 V
(R)	Ground	Stop lamp switch 1	Input	switch	ON (Brake pedal is de- pressed)	Battery voltage
12 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 10 10 10 10 JPMIA0012GB 1.0 - 1.5 V
					LOCK position	0 V
13 (BR)	Ground	Door lock and unlock switch UNLOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 ms JPMIA0012GB
						1.0 - 1.5 V
					UNLOCK position When bright outside of the	0 V
14	Ground	Ontical sensor	Innut	Ignition switch	vehicle	Close to 5 V
(L/G)	Ground	Optical sensor	Input	ON	When dark outside of the vehicle	Close to 0 V
15 (W/L)	Ground	Rear window defog- ger switch	Input	Rear window defogger switch	Not pressed	(V) 15 0 10 10 10 10 10 10 10 10 10
					Pressed	0 V
17	Ground	Optical sensor pow-	Output	Ignition switch	OFF, ACC	0 V
(R/G)		er supply		5	ON	5 V

#### < ECU DIAGNOSIS INFORMATION >

	nal No. color)	Description		Condition		Value	А
+	-	Signal name	Input/ Output			(Approx.)	
18 (V)	Ground	Sensor ground	Input	Ignition switch O	N	0 V	В
21 (P/L)	Ground	NATS antenna amp.	Input/ Output	Intelligent Key: Intelligent Key battery is re- moved	Brake pedal: Depressed <b>NOTE:</b> Waveform varies each time when brake pedal is depressed	(V) 15 10 10 10 10 10 10 10 10 10 10	C
					Brake pedal: Not de- pressed	12 V	E
					ON	0 V	
23 (R/Y)	Ground	Security indicator lamp	Output	Security indica- tor	Blinking (Ignition switch OFF)	(V) <sub>15</sub> 10 5 0	F
					OFF	JPMIA0590GB 12.0 V Battery voltage	Н
24* <sup>1</sup>			Input/		-		
(SB)	Ground	Dongle link	Output	Ignition switch O	FF	5 V	1
					Brake pedal: Depressed <b>NOTE:</b> Waveform varies each	(V) 15 10 5 5	J
25 (LG)	Ground	NATS antenna amp.	Input/ Output	During waiting	time when brake pedal is depressed	→ ← 40ms	К
					Brake pedal: Not de- pressed	12 V	EXL
26* <sup>2</sup>	Ground	Thermo control amp.	Input	Ignition switch O	N	0 V	
(GR)	Croand		mpor	Evaporator is ext	tremely low temperature	12 V	M

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	nal No.	Description				Value
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)
		A/C ON (Automatic A/C)		A/C	OFF (A/C switch indicator: OFF)	(V) 15 10 10 10 10 10 10 10 10 10 10
27 (O)	Ground		Input		ON (A/C switch indicator: ON)	0 V
		A/C switch (Manual A/C)		A/C switch	OFF	(V) 15 0 10 10 ms JPMIA0012GB 1.0 - 1.5 V
					ON	0 V
					Blower fan switch OFF	0 V
28	Ground	Blower fan switch (Automatic A/C)		Fan switch	Blower fan switch ON	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
(G/W)		Blower fan switch (Manual A/C)	Input		Blower fan switch OFF Blower fan switch ON	(V) 10 5 0 • • 10ms PIIB7730J 1.5 - 2.0 V 0 V
29					OFF	12 V
(L/W)	Ground	Hazard switch	Input	Hazard switch	ON	0 V
31 (G/B)	Ground	Front door lock as- sembly driver side (Unlock sensor)	Input	Driver door	LOCK status (Unlock sensor switch OFF)	(V) 15 0 5 0 • • • 10ms • • • 10ms • • • 10ms • • • • 10ms • • • • 10ms • • • • 10ms • • • • • • • • • • • • • • • • • • •
					UNLOCK status (Unlock sensor switch ON)	0 V

#### < ECU DIAGNOSIS INFORMATION >

	nal No.	Description				Value							
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)	A						
		O antiaction and the		Quarkinsting	All switch OFF (Wiper intermittent dial 4)	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0	B C D						
32 (LG)	Ground	Combination switch OUTPUT 5	Output	Combination switch	Front fog lamp switch ON (Wiper intermittent dial 4)								
					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 5	E						
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	0 t	F						
					<ul><li>Wiper intermittent dial 6</li><li>Wiper intermittent dial 7</li></ul>	PKIB4956J 1.0 V	G						
					All switch OFF	$\begin{pmatrix} V \\ 15 \\ 10 \\ 5 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ $	Н						
											(Wiper intermittent dial 4)	← 10ms PKIB4960J	I
33 (Y/L)	Ground	Combination switch OUTPUT 4	Output	Combination switch	Lighting switch 1ST (Wiper intermittent dial 4)	7.0 - 8.0 V	J						
(.,_)		001P01 4		SWITCH	Lighting switch AUTO (Wiper intermittent dial 4)	(V) 15 10	K						
					Rear wiper switch INT (Wiper intermittent dial 4)	5 0 ++10ms PKIB4958J 1.2 V							
					Any of the condition below with all switch OFF		EXL						
					<ul> <li>Wiper intermittent dial 1</li> <li>Wiper intermittent dial 5</li> <li>Wiper intermittent dial 6</li> </ul>		Μ						

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	nal No.	Description				Value	
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)	
					All switch OFF (Wiper intermittent dial 4)	(V) 10 0 0 0 0 0 0 0 0 0 0 0 0 0	
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	Lighting switch 2ND (Wiper intermittent dial 4)	7.0 ° 0.0 V	
					Lighting switch HI (Wiper intermittent dial 4)	(V) 15 10	
					Rear washer switch ON (Wiper intermittent dial 4)	5	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3	PKIB4958J 1.2 V	
		Combination switch OUTPUT 2	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	(V) 15 0 • • 10ms • • KIB4960J	
35 (R/L)	Ground				Lighting switch 2ND	7.0 - 8.0 V	
					Lighting switch PASS	(V) 15	
					Front wiper switch INT		
					Front wiper switch HI	+10ms PKIB4958J 1.2 V	
36				Combination	All switch OFF	(V) 10 50 ↓ 10ms → 10ms PKIB4960J 7.0 - 8.0 V	
(L/O)	Ground	Combination switch OUTPUT 1	Output	switch (Wiper intermit- tent dial 4)	Turn signal switch RH	(V) 15 10 5 0	
					Turn signal switch LH		
					Front wiper switch LO (Front wiper switch MIST)		
					Front washer switch ON	++10ms ► ► ► ► ► ► ► ► ► ► ► ► ►	
						1.2 V	

#### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description			Condition	Value				
+	-	Signal name	Input/ Output		Condition	(Approx.)				
37 (G/O)	Ground	Selector lever P po- sition switch	Input	Selector lever	P position Any position other than P	0 V 12 V				
				Ignition switch OFF (Remote keyless entry communication)	Waiting When operating either button on Intelligent Key	12 V				
38 (G/Y)	Ground	Receiver communi- cation	Input/ Output					Output Ignition switch	Waiting	(V) 15 10 5 0 100 ms JMMA0573GB
				ON (TPMS communication)	When receiving signal from tire pressure sensor	(V) 15 10 5 0 100 ms JMMIA0574GB				
39 (L)	Ground	CAN-H	Input/ Output		_	_				
40 (P)	Ground	CAN-L	Input/ Output		_	_				
43 (W)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	(V) 10 0 0 0 0 0 0 0 0 0 0 0 0 0				
					ON (When back door opened)	0 V				
44	Organi	Rear wiper stop po-	10	Ignition switch	Rear wiper stop position	12 V				
(LG)	Ground	sition	Input	ON	Any position other than rear wiper stop position	0 V				

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	nal No.	Description				Value
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)
45 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	(V) 15 0 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
					ON (When passenger door opened)	0 V
46 (GR/L)	Ground	Rear RH door switch	Input	Rear RH door switch	OFF (When rear RH door closed)	(V) 10 0 0 0 0 0 0 0 0 0 0 0 0 0
					ON (When rear RH door opened)	0 V
47 (BR/Y)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
					ON (When driver door opened)	0 V
48 (W/G)	Ground	Rear LH door switch	Input	Rear LH door switch	OFF (When rear LH door closed)	(V) 15 10 5 0 • • • • • • • • • • • • •
					ON (When rear door LH opened)	0 V
50	Ground	Back door lock actu-	Output	Back door	LOCK (Actuator is activat- ed)	0 V
(R/W)		ator relay control	Calput		Other than LOCK (Actua- tor is not activated)	Battery voltage
51	Ground	Back door request	Input	Back door re-	ON (Pressed)	0 V
(W)		switch		quest switch	OFF (Not pressed)	12 V
54 (LG)	Ground	Rear wiper	Output	Rear wiper	OFF (Stopped) ON (Activated)	0 V 12 V
· - /						12 V

#### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description				Value	
(vvire +		Signal name	Input/ Output		Condition	(Approx.)	Α
55	Ground	Rear door UNLOCK	Output	Rear door	UNLOCK (Actuator is activated)	12 V	E
(G)	Cround		Output		Other then UNLOCK (Ac- tuator is not activated)	0 V	
					p battery saver is activated. room lamp power supply)	0 V	(
56 (L)	Ground	Interior room lamp power supply	Output	vated.	p battery saver is not acti- rior room lamp power sup-	12 V	[
57 (Y)	Ground	Battery power sup- ply	Input	Ignition switch O	FF	Battery voltage	E
59	Ground	Passenger door UN-	Output	Passenger door	UNLOCK (Actuator is activated)	12 V	F
(G)	Ground	LOCK	Output	Fassenger door	Other then UNLOCK (Ac- tuator is not activated)	0 V	
					Turn signal switch OFF	0 V	(
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch LH	(V) 15 10 5 0 15 15 15 15 15 15 15 15 15 15	F
					Turn signal switch OFF	0 V	
61 (W/L)	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	ł
62		Interior room lown		Interior room	OFF	6.0 V 12 V	N
63 (BR)	Ground	Interior room lamp control signal	Output	lamp	ON	0 V	
65	Crownel		Quit		LOCK (Actuator is activat- ed)	12 V	I
(V)	Ground	All doors LOCK	Output	All doors	Other then LOCK (Actua- tor is not activated)	0 V	
66	Ground	Driver door UN-	Output	Driver door	UNLOCK (Actuator is activated)	12 V	(
(L/B)	Ground	LOCK	Juipui		Other then UNLOCK (Ac- tuator is not activated)	0 V	
67 (B)	Ground	Ground	Output	Ignition switch O	N	0 V	
68 (L)	Ground	P/W power supply (IGN)	Output	Ignition switch O	N	12 V	
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch O	FF	12 V	

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	nal No.	Description				Value
(vvire +	color)	Signal name	Input/ Output	Condition		(Approx.)
70 (Y)	Ground	Battery power sup- ply	Input	Ignition switch O	FF	Battery voltage
72* <sup>2</sup> (SB)	Ground	A/C indicator	Output	A/C indicator	OFF ON	12 V 0 V
75		Driver door request		Driver door re-	ON (Pressed)	0 V
(SB)	Ground	switch	Input	quest switch	OFF (Not pressed)	12 V
76		Push-button ignition		Push-button ig-	Pressed	0 V
(L/O)	Ground	switch (push switch)	Input	nition switch (push switch)	Not pressed	12 V
78	Ground	Driver door antenna	Output	When the driver door request	When Intelligent Key is not in the antenna detec- tion area (The distance between In- telligent Key and antenna: Approx. 2 m)	(V) 15 10 50 500 ms JMKIA5954GB
(LG)	Giouna	(+)		switch is operat- ed with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 5 5 5 5 5 5 5 5 5 5 5 5 5
79	Ground Driver door antenna (-) Output door request switch is opera		When Intelligent Key is not in the antenna detec- tion area (The distance between In- telligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 5 5 5 5 5 5 5 5 5 5 5 5 5		
(V)			Uniput	switch is operat- ed with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 5 0 5 5 5 5 5 5 5 5 5 5 5 5 5

Terminal No. (Wire color)		Description		0		Value	
(Wire	e color) –	Signal name	Input/ Output		Condition	(Approx.)	A
80		Passenger door an-		When the pas- senger door re-	When Intelligent Key is not in the antenna detec- tion area (The distance between In- telligent Key and antenna: Approx. 2 m)	(V) 15 10 50 500 ms JMKIA5954GB	B C D
(BR/Y)	Ground	tenna (+)	Output	quest switch is operated with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms JMKIA5955GB	E
81		Passenger door an-		When the pas- senger door re- quest switch is operated with ignition switch ON	When Intelligent Key is not in the antenna detec- tion area (The distance between In- telligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 500 ms JMKIA5954GB	G H I
(L/Y)	Ground	tenna (-)	Output		When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 0 50 500 ms JMKIA5955GB	J K
82		Back door antenna		When the back door request	When Intelligent Key is not in the antenna detec- tion area (The distance between In- telligent Key and antenna: Approx. 2 m)	(V) 15 10 5 0 500 ms JMKIA5954GB	M
(W/B)	Ground	(+)	Output	switch is operat- ed with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 50 50 500 ms JMKIA5955GB	O

	nal No.	Description				Value	
(vvire +	color)	Signal name	Input/ Output		Condition	(Approx.)	
83		Back door antenna (-		When the back door request	When Intelligent Key is not in the antenna detec- tion area (The distance between In- telligent Key and antenna: Approx. 2 m)	(V) 15 10 50 50 500 ms JMKIA5954GB	
(B/W)	Ground	)	Output	switch is operat- ed with ignition switch ON	When Intelligent Key is in the antenna detection area (The distance between In- telligent Key and antenna: 80 cm or less)	(V) 15 10 5 0 500 ms JMKIA5955GB	
84	Ground	Room antenna (+) (Instrument center)	Output	Ignition switch ON	When Intelligent Key is not in the antenna detec- tion area	(V) 15 0 10 10 10 10 10 10 10 10 10	
(Y/G)					When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 1 1 1 1 1 1 1 1 1 1 1 1 1	
85	Ground	Room antenna (-)	Outout	Ignition switch	When Intelligent Key is not in the antenna detec- tion area	(V) 15 10 5 0 11 1 1 1 1 1 1 1 1 1 1 1 1	
(Y/L)	Ground	nd (Instrument center)	Output	ŎN	When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 1 5 0 1 5 0 1 5 0 1 5 0 1 5 0 1 5 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 10 5 0 15 15 10 10 10 10 10 10 10 10 10 10 10 10 10	

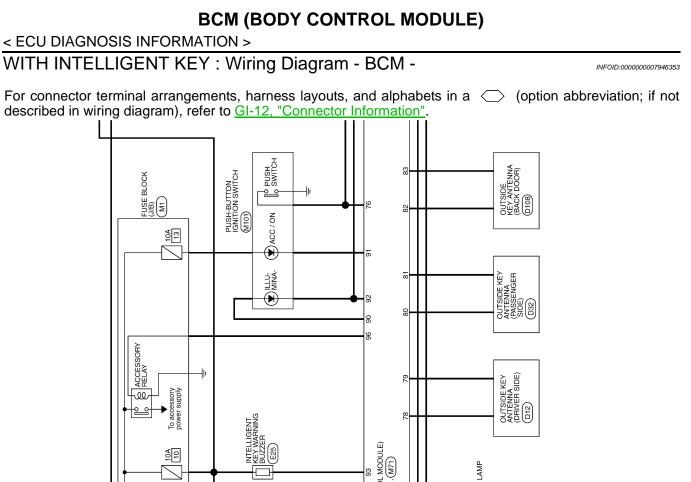
	nal No.	Description				Value	٨
	color)	Signal name	Input/		Condition	(Approx.)	А
+	_		Output			00	В
86				Ignition switch ON	When Intelligent Key is not in the antenna detec- tion area	(V) 15 10 5 0 1 1 1 1 1 1 1 1 1 1 1 1 1	C
(P)	Ground	tenna (+)			When Intelligent Key is in the antenna detection area	(V) 15 10 5 0 1 s JMKIA3839GB	E
87	Ground	Luggage room an-	Output	Ignition switch	When Intelligent Key is not in the antenna detec- tion area	(V) 15 10 5 0 1 s JMKIA5951GB	G H
(L)		tenna (-)	Cupu	ON	When Intelligent Key is in the antenna detection area	(V) 15 0 0 15 0 15 0 15 0 15 0 15 0 15 0 1	J K EXL
90		Push-button ignition		Push-button ig-	ON	12 V	
90 (W/L)	Ground	switch illumination	Output	nition switch illu- mination	OFF	0 V	M
91	Ground	ACC/ON indicator	0		OFF	Battery voltage	141
(Y)	Ground	lamp	Output	Ignition switch	ACC or ON	0.5 V	
92 (BR/R)	Ground	Push-button ignition switch illumination ground	Output	Tail lamp	OFF	0 V NOTE: When the illumination brighten- ing/dimming level is in the neutral position (V) 15 10 10 ms JPMIA1554GB 6.0 - 7.0 V	N O P

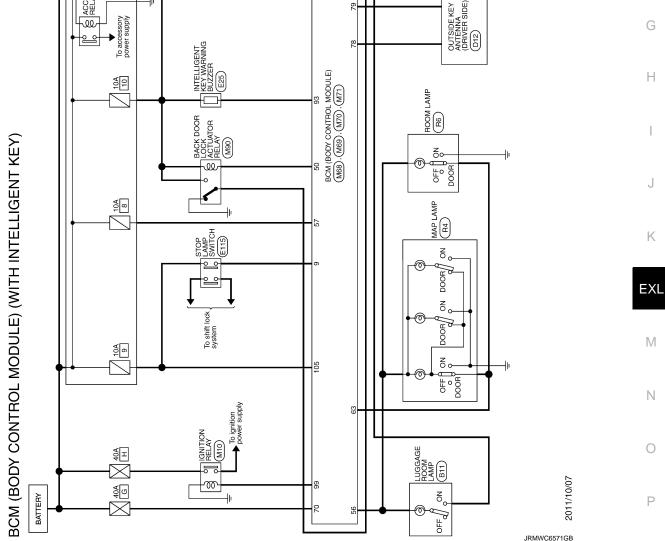
#### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description				Value
+	-	Signal name	Input/ Output		Condition	(Approx.)
93	Ground	Intelligent Key warn-	Output	Intelligent Key	Sounding	0 V
(GR/W)	Ground	ing buzzer	Output	warning buzzer	Not sounding	12 V
96	Ground	ACC rolay control	Output	Ignition switch	OFF	0 V
(BR/W)	Ground	ACC relay control	Output	Ignition switch	ACC or ON	12 V
97	Ground	Starter relay control	Output	Ignition switch	When selector lever is in P or N position	Battery voltage
(L/R)	Ground	Starter relay control	Output	ON	When selector lever is not in P or N position	0 V
98	Ground	Ignition relay (IPDM	Output	Ignition owitch	OFF or ACC	12 V
(BR)	Ground	E/R) control	Output	Ignition switch	ON	0 V
99	Ground	Ignition relay control	Output	Ignition switch	OFF or ACC	0 V
(W/R)	Ground	Ignition relay control	Output	Ignition Switch	ON	12 V
100	Ground	Passenger door re-	Input	Passenger door request switch	ON (Pressed)	0 V
(G)	Giouna	quest switch	input		OFF (Not pressed)	12 V
102	Ground	Selector lever P/N	Input	Selector lever	P or N position	Battery voltage
(G)	Ground	position	mput	Selector level	Except P and N positions	0 V
					A/C mode defroster ON position	0 V
103* <sup>2</sup> (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	Other than A/C mode de- froster ON position	(V) 15 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
104 (Y/R)	Ground	CVT shift selector (detention switch) power supply	Output	Ignition switch ON		12 V
105 (B/O)	Ground	Stop lamp switch 2	Input	Ignition switch O	FF	Battery voltage
106	Ground	Blower fan motor re-	Output	Ignition switch	OFF or ACC	0 V
(Y/B)	Ground	lay control	Supul		ON	12 V

\*1: For Canada

\*2: Manual air conditioner





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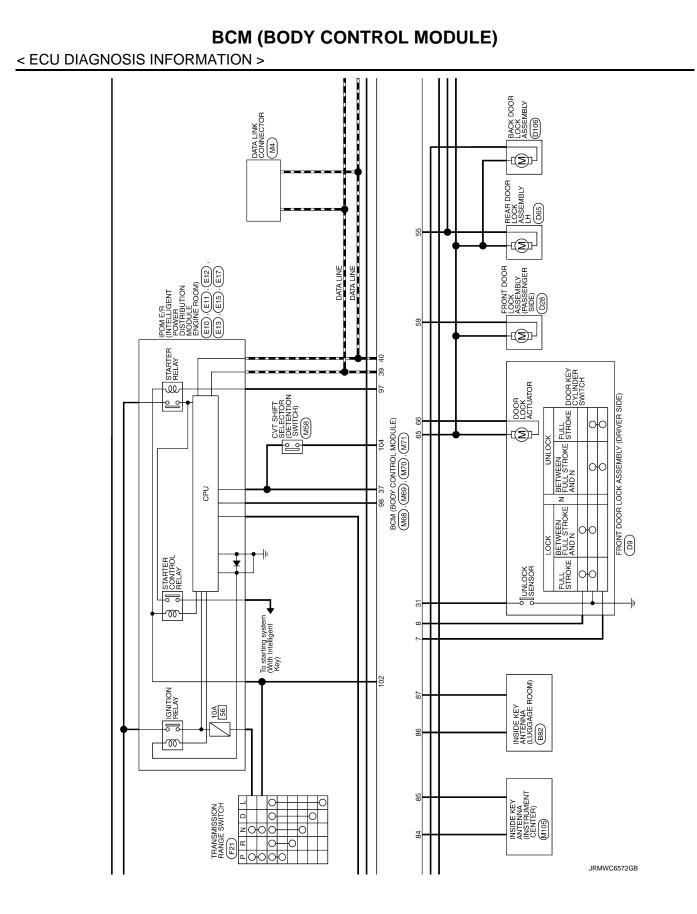
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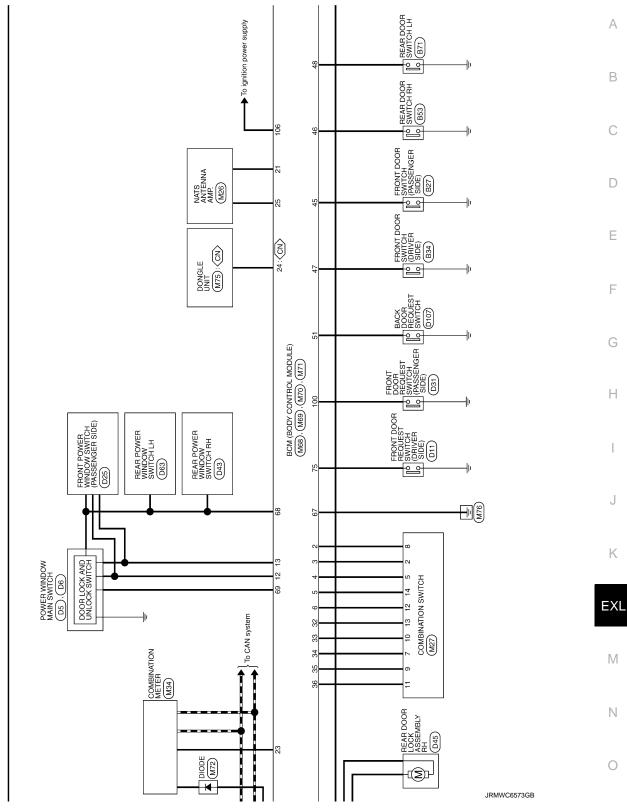
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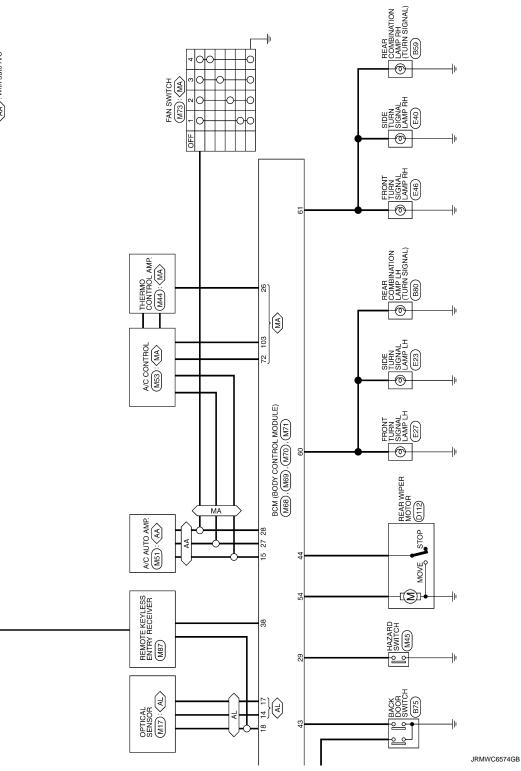
#### < ECU DIAGNOSIS INFORMATION >

 CN>: For Canada

 (MA): With manual A/C

 (AL): With autolight system

 (AA): With auto A/C



### WITH INTELLIGENT KEY : Fail-safe

### FAIL-SAFE CONTROL BY DTC

BCM performs fail-safe control when any DTC are detected.

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#### < ECU DIAGNOSIS INFORMATION >

Display contents of CONSULT	Fail-safe	Cancellation
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC
B2195: ANTI-SCANNING	Inhibit engine cranking	Ignition switch $ON \rightarrow OFF$
B2196: DONGLE NG	Inhibit engine cranking	Erase DTC
B2198: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC
B2608: STARTER RELAY	Inhibit engine cranking	<ul> <li>500 ms after the following signal communication status becomes consistent</li> <li>Starter relay control signal</li> <li>Starter relay status signal (CAN)</li> </ul>
B260F: ENG STATE SIG LOST	Inhibit engine cranking	<ul><li>When any of the following conditions are fulfilled</li><li>Power position changes to ACC</li><li>Receives engine status signal (CAN)</li></ul>
B26F1: IGN RELAY OFF	Inhibit engine cranking	<ul> <li>When the following conditions are fulfilled</li> <li>Ignition switch ON signal (CAN: Transmitted from BCM): ON</li> <li>Ignition switch ON signal (CAN: Transmitted from IPDM E/R): ON</li> </ul>
B26F2: IGN RELAY ON	Inhibit engine cranking	<ul> <li>When the following conditions are fulfilled</li> <li>Ignition switch ON signal (CAN: Transmitted from BCM): OFF</li> <li>Ignition switch ON signal (CAN: Transmitted from IPDM E/R): OFF</li> </ul>
B26F3: START CONT RLY ON	Inhibit engine cranking	<ul> <li>When the following conditions are fulfilled</li> <li>Starter control relay signal (CAN: Transmitted from BCM): OFF</li> <li>Starter control relay signal (CAN: Transmitted from IPDM E/R): OFF</li> </ul>
B26F4: START CONT RLY OFF	Inhibit engine cranking	<ul> <li>When the following conditions are fulfilled</li> <li>Starter control relay signal (CAN: Transmitted from BCM): ON</li> <li>Starter control relay signal (CAN: Transmitted from IPDM E/R): ON</li> </ul>
B26F7: BCM	Inhibit engine cranking by Intelligent Key sys- tem	When room antenna and luggage room antenna functions normally

#### 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 for more than 5 seconds while driving the rear wiper, BCM stops power supply to protect the rear wiper motor.

Condition of cancellation

- 1. More than 1 minute is passed after the rear wiper stop.
- 2. Turn rear wiper switch OFF.
- 3. Operate the rear wiper switch or rear washer switch.

FAIL-SAFE CONTROL OF COMBINATION SWITCH READING FUNCTION CAUSED BY LOW POWER SUPPLY VOLTAGE

If voltage of battery power supply lower, BCM maintains combination switch reading to the status when input voltage is less than approximately 9 V.

#### NOTE:

When voltage of battery power supply is approximately 9 V or more, combination switch reading function returns to normal operation.

### WITH INTELLIGENT KEY : 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	B2562: LOW VOLTAGE
2	U1000: CAN COMM CIRCUIT     U1010: CONTROL UNIT (CAN)

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#### < ECU DIAGNOSIS INFORMATION >

Priority	DTC
3	<ul> <li>B2192: ID DISCORD BCM-ECM</li> <li>B2193: CHAIN OF BCM-ECM</li> <li>B2195: ANTI-SCANNING</li> <li>B2196: DONGLE NG</li> <li>B2198: NATS ANTENNA AMP</li> </ul>
4	<ul> <li>B2555: STOP LAMP</li> <li>B2556: PUSH-BTN IGN SW</li> <li>B2557: VEHICLE SPEED</li> <li>B2601: SHIFT POSITION</li> <li>B2602: SHIFT POSITION</li> <li>B2603: SHIFT POSI STATUS</li> <li>B2604: PNP/CLUTCH SW</li> <li>B2605: PNP/CLUTCH SW</li> <li>B2605: STARTER RELAY</li> <li>B260F: ENG STATE SIG LOST</li> <li>B2614: BCM</li> <li>B2615: BCM</li> <li>B2616: BCM</li> <li>B2618: BCM</li> <li>B2618: BCM</li> <li>B2614: PUSH-BTN IGN SW</li> <li>B2617: IGN RELAY OFF</li> <li>B26F4: START CONT RLY ON</li> <li>B26F4: START CONT RLY OFF</li> <li>B26F6: BCM</li> <li>B26F6: BCM</li> <li>B26F7: BCM</li> <li>B26F6: BCM</li> <li>B26F6: BCM</li> <li>B26F7: BCM</li> <li>B26F6: BCM</li> <li>B26F7: BCM</li> <li>B26F7: BCM</li> <li>B26F7: BCM</li> <li>B26F8: BCM</li> <li>B26F6: STARTON</li> <li>C1729: VHCL SPEED SIG ERR</li> <li>U0415: VEHICLE SPEED</li> </ul>
5	<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: [PRESSDATA ERR] FL</li> <li>C1717: [PRESSDATA ERR] FR</li> <li>C1718: [PRESSDATA ERR] RR</li> <li>C1719: [PRESSDATA ERR] RL</li> </ul>
6	B2621: INSIDE ANTENNA     B2622: INSIDE ANTENNA
7	B2626: OUTSIDE ANTENNA     B2627: OUTSIDE ANTENNA     B2628: OUTSIDE ANTENNA

### WITH INTELLIGENT KEY : DTC Index

#### NOTE:

The details of time display are as follows.

• CRNT: A malfunction is detected now.

• PAST: A malfunction was detected in the past.

IGN counter is displayed on Freeze Frame Data. For details of Freeze Frame Data, refer to <u>INL-13, "COM-MON ITEM : CONSULT Function (BCM - COMMON ITEM)"</u>.

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CONSULT display	Fail-safe	Freeze Frame Data •Vehicle Speed •Odo/Trip Meter •Vehicle Condi- tion	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page	A
No DTC is detected. further testing may be required.	_	_	_	_	_	С
U1000: CAN COMM	—	_	_	_	BCS-40	
U1010: CONTROL UNIT (CAN)	_		_	_	BCS-41	D
U0415: VEHICLE SPEED	_		×	_	BCS-42	
B2192: ID DISCORD BCM-ECM	×	_	_	—	<u>SEC-38</u>	
B2193: CHAIN OF BCM-ECM	×		_		<u>SEC-40</u>	E
B2195: ANTI-SCANNING	×		_	_	<u>SEC-41</u>	
B2196: DONGLE NG	×	_	_	—	<u>SEC-42</u>	F
B2198: NATS ANTENNA AMP	×	_	_	_	<u>SEC-44</u>	
B2555: STOP LAMP	_	×	×		<u>SEC-48</u>	
B2556: PUSH-BTN IGN SW	—	×	×	—	<u>SEC-50</u>	G
B2557: VEHICLE SPEED	_	×	×	_	<u>SEC-52</u>	
B2562: LOW VOLTAGE	_	×	_	_	BCS-43	Н
B2601: SHIFT POSITION	_	×	×	_	<u>SEC-53</u>	
B2602: SHIFT POSITION	—	×	×	—	<u>SEC-56</u>	
B2603: SHIFT POSI STATUS	_	×	×	_	<u>SEC-59</u>	
B2604: PNP/CLUTCH SW	_	×	×	_	<u>SEC-64</u>	
B2605: PNP/CLUTCH SW	—	×	×	_	<u>SEC-67</u>	
B2608: STARTER RELAY	×	×	×	_	<u>SEC-69</u>	0
B260F: ENG STATE SIG LOST	×	×	×	_	<u>SEC-71</u>	
B2614: BCM	_	×	×	_	PCS-75	K
B2615: BCM	—	×	×	—	PCS-78	
B2616: BCM	—	×	×	—	PCS-81	ΓV
B2618: BCM	_	×	×	_	PCS-84	EX
B261A: PUSH-BTN IGN SW	_	×	×	_	PCS-85	
B2621: INSIDE ANTENNA	_	×	_	_	<u>DLK-44</u>	N
B2622: INSIDE ANTENNA	_	×	—	_	<u>DLK-46</u>	
B2626: OUTSIDE ANTENNA	_	×	_	_	<u>DLK-50</u>	
B2627: OUTSIDE ANTENNA	—	×	—	—	<u>DLK-48</u>	N
B2628: OUTSIDE ANTENNA	_	×	_	_	DLK-52	
B26F1: IGN RELAY OFF	×	×	×	_	PCS-87	0
B26F2: IGN RELAY ON	×	×	×	_	PCS-89	
B26F3: START CONT RLY ON	×	×	×		<u>SEC-72</u>	
B26F4: START CONT RLY OFF	×	×	×	_	<u>SEC-73</u>	Ρ
B26F6: BCM	_	×	×	_	PCS-91	
B26F7: BCM	×	×	×	—	<u>SEC-75</u>	
B26F8: BCM	_	×	×	_	<u>SEC-76</u>	
B26FC: KEY REGISTRATION		×	×		<u>SEC-77</u>	

#### < ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Freeze Frame Data •Vehicle Speed •Odo/Trip Meter •Vehicle Condi- tion	Intelligent Key warning lamp ON	Tire pressure monitor warning lamp ON	Reference page
C1704: LOW PRESSURE FL	—	—	—	×	
C1705: LOW PRESSURE FR	—	—	—	×	
C1706: LOW PRESSURE RR	—	—	_	×	<u>WT-22</u>
C1707: LOW PRESSURE RL	—	—	_	×	
C1708: [NO DATA] FL	—	—	_	×	
C1709: [NO DATA] FR	—	—	—	×	<u>WT-24</u>
C1710: [NO DATA] RR	—	—	—	×	<u>vv1-24</u>
C1711: [NO DATA] RL	—	—	—	×	
C1716: [PRESSDATA ERR] FL	—	—	_	×	
C1717: [PRESSDATA ERR] FR	—	—	_	×	<u>WT-27</u>
C1718: [PRESSDATA ERR] RR	—	—	—	×	<u>vv1-27</u>
C1719: [PRESSDATA ERR] RL	—	—	—	×	1
C1729: VHCL SPEED SIG ERR	—	—	_	×	<u>WT-29</u>

# WITHOUT INTELLIGENT KEY WITHOUT INTELLIGENT KEY : Reference Value

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#### 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
	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
	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
LOCK STATUS	NOTE: The item is indicated, but not monitored.	Off
	Ignition switch OFF	Off
ACC ON SW	Ignition switch ACC or ON	On

#### < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
KEYLESS LOCK	"LOCK" button of key fob is not pressed	Off
ALTELSS LOOK	"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
SHOCK SENSOR	NOTE: The item is indicated, but not monitored.	NORMAL
	Other than driver door key cylinder LOCK position	Off
KEY CYL LK-SW	Driver door key cylinder LOCK position	On
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	Off
REFUTE UN-SW	Driver door key cylinder UNLOCK position	On
VEHICLE SPEED	While driving	Equivalent to speed- ometer reading
	Rear window defogger switch OFF	Off
REAR DEF SW	Rear window defogger switch ON	On
REVERSE SW CAN	NOTE:	Off
	The item is indicated, but not used.	On
TAIL LAMP SW	Lighting switch OFF	Off
TAIL LAIVIE OV	Lighting switch 1ST	On
FR FOG SW	NOTE: The item is indicated, but not monitored.	Off
BUCKLE SW	The seat belt (driver side) is fastened. [Seat belt switch (driver side) OFF]	Off
BUCKLE SW	The seat belt (driver side) is unfastened. [Seat belt switch (driver side) ON]	On
TRNK/HAT MNTR	NOTE: The item is indicated, but not monitored.	Off
ACC SW	Ignition switch OFF	Off
ACC 311	Ignition switch ACC or ON	On
KYLS TRNK/HAT	NOTE: The item is indicated, but not monitored.	Off
KEYLESS PANIC	PANIC button of key fob is not pressed	Off
RETLESS PAINIC	PANIC button of key fob is pressed	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	NOTE: The item is indicated, but not monitored.	Off
	Other than lighting switch PASS	Off
PASSING SW	Lighting switch PASS	On
RR FOG SW	NOTE: The item is indicated, but not monitored.	Off
	Turn signal switch OFF	Off
TURN SIGNAL R	Turn signal switch RH	On
	Turn signal switch OFF	Off
TURN SIGNAL L	Turn signal switch LH	On

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Monitor Item	Condition	Value/Status
PKB SW	Parking brake switch is OFF	Off
FRD SW	Parking brake switch is ON	On
	Engine stopped	Off
ENGINE RUN	Engine running	On
OPTI SEN (DTCT)	NOTE: The item is indicated, but not monitored.	Close to 5 V
OPTI SEN (FILT)	NOTE: The item is indicated, but not monitored.	Close to 5 V
LIG SEN COND	NOTE: The item is indicated, but not monitored.	OFF
	Ignition switch OFF or ACC	Off
IGN SW CAN	Ignition switch ON	On
	Front wiper switch OFF	Off
FR WIPER HI	Front wiper switch HI	On
	Front wiper switch OFF	Off
FR WIPER LOW	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
	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
RAIN SENSOR	NOTE: The item is indicated, but not monitored.	Off
	Hazard switch OFF	Off
HAZARD SW	Hazard switch ON	On
	Blower control dial OFF	Off
FAN ON SIG	Other than blower control dial OFF	On
	A/C switch OFF	Off
AIR COND SW	A/C switch ON	On
	Ignition switch ON	Off
THERMO AMP	Evaporator is extremely low temperature	On
	Other than A/C mode defroster ON position	Off
FR DEF SW	A/C mode defroster ON position	On
KEYLESS TRUNK	NOTE: The item is indicated, but not monitored.	Off

#### < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
TRNK OPNR SW	NOTE: The item is indicated, but not monitored.	Off
TRNK OPN MNTR	NOTE: The item is indicated, but not monitored.	Off
HOOD SW	Close the hood	Off
	Open the hood	On
	Other than the ignition switch is ON by key registered to BCM.	Off
TRANSPONDER	The ignition switch is ON by key registered to BCM.	On
INTELLI KEY	NOTE: The item is indicated, but not used.	Off
AUTO RELOCK	NOTE: The item is indicated, but not monitored.	Off
OIL PRESS SW	Ignition switch OFF or ACC     Engine running	Off
	Ignition switch ON	On
BRAKE SW	Brake pedal is not depressed	Off
DRARE JVV	Brake pedal is depressed	On

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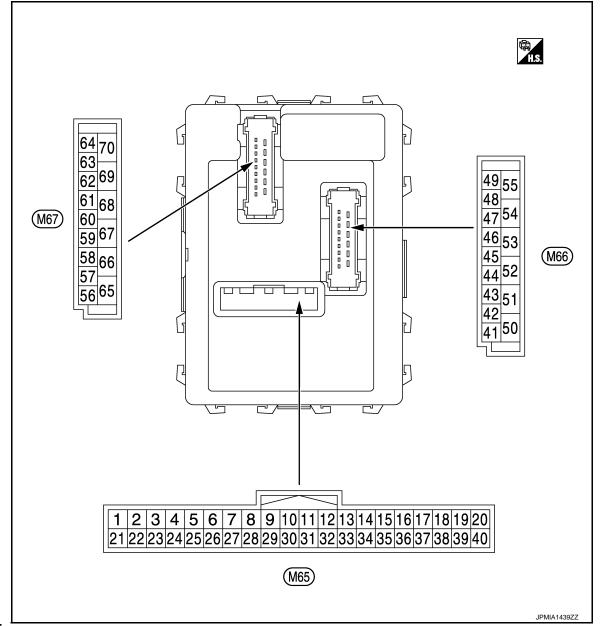
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#### < ECU DIAGNOSIS INFORMATION >

#### **TERMINAL LAYOUT**



#### NOTE:

• M65, M66: White

• M67: Black

PHYSICAL VALUES

#### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		-		Value	
+	-	Signal name	Input/ Output	Condition		(Approx.)	
					All switch OFF	0 V	
					Turn signal switch RH		
					Lighting switch HI	(V) 15	
2 (BR/W)	Ground	Combination switch INPUT 5	Input	Combination switch (Wiper intermit-	Lighting switch 1ST	10 5 0 • • • 10ms • • • • • • • • • • • • • • • • • • •	
(BR/W) 0101			015	tent dial 4)	Lighting switch 2ND	(V) 15 10 5 0 ••••10 ms ••••10 ms JPMIA0342JP 2.0 V	
					All switch OFF	0 V	
		round Combination switch INPUT 4	Input	Combination switch (Wiper intermit- tent dial 4)	Turn signal switch LH		
					Lighting switch PASS	(V) 15	
3 (GR) G	Ground				Lighting switch 2ND	PKIB4958J 1.0 V	
					All switch OFF	0 V	
					Front wiper switch LO		
4 (L/Y) Groun				Combination	Front wiper switch MIST	(V) 15	
	Ground	ound Combination switch INPUT 3 Input	switch (Wiper intermit- tent dial 4)	Front wiper switch INT	10 5 0 • • • 10ms • • • 10ms • • • 10ms • • • 10ms • • • 10ms		

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Terminal No.		Description				Value	
(Wire +	color)	Signal name	Input/ Output	Condition		(Approx.)	
					All switch OFF (Wiper intermittent dial 4)	0 V	
					Front washer switch (Wiper intermittent dial 4)	(V) 15	
					Rear washer switch ON (Wiper intermittent dial 4)		
5 (G)	Ground	Combination switch INPUT 2	Input	Combination switch	Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	+ 10ms PKIB4958J 1.0 V	
					Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15 10 5 0 +10ms PKIB4956J 0.8 V	
		round Combination switch Input	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)	0 V	
					Front wiper switch HI (Wiper intermittent dial 4) Rear wiper switch INT (Wiper intermittent dial 4) Wiper intermittent dial 3 (All switch OFF)	(V) 15 10 5 0 + 10ms FKIB4958J 1.0 V	
6 (L/R)	Ground				Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2	(V) 15 10 5 0 • 10ms • 10ms PKIB4952J 1.9 V	
					Any of the condition below with all switch OFF • Wiper intermittent dial 6 • Wiper intermittent dial 7	(V) 15 0 ••••10ms •••••10ms •••••10ms •••••10ms •••••10ms ••••••10ms ••••••••••••••••••••••••••••••••••••	

#### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description				Value
(Wire +	e color)	Signal name	Input/ Output		Condition	(Approx.)
7 (W/R)	Ground	Door key cylinder switch UNLOCK	Input	Door key cylin- der switch	NEUTRAL position	(V) 15 10 5 0 → + 10ms → + 10ms → FKIB4960J 7.0 - 8.0 V
					UNLOCK position	0 V
8	0	Door key cylinder	1	Door key cylin-	NEUTRAL position	12 V
(W/B)	Ground	switch LOCK	Input	der switch	LOCK position	0 V
9	Ground	Stop lamp switch	Input	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	Rear window	OFF (Not pressed)	12 V
(W/L)	Ground	ger switch	input	defogger switch	ON (Pressed)	0 V
11	Ground	Ignition switch ACC	Input	Ignition switch O	FF	0 V
(L/Y)	Croand	ignition ownon 700	mput	Ignition switch ACC or ON		Battery voltage
12 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	(V) 15 0 ↓ ↓ 10ms PKIB4960J 7.0 - 8.0 V
					ON (When passenger door opened)	0 V
13 (GR/L)	Ground	Rear RH door switch	Input	Rear RH door switch	OFF (When rear RH door closed)	(V) 15 0 
					ON (When rear RH door opened)	0 V
18 (V)	Ground	Receiver ground	Input	Ignition switch O	N	0 V

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	rminal No. Description		Value			
(Wire +	color) –	Signal name	Input/ Output		Condition	(Approx.)
					Insert mechanical key into ignition key cylinder	0 V
		Pomoto koviloso on			Remove mechanical key from ignition key cylinder (Any door opened)	5 V
19 (BR)	Ground	Remote keyless en- try receiver power supply	Input	Ignition switch OFF	Remove mechanical key from ignition key cylinder (Any door closed)	(V) 6 4 0 •••0.2 s JPMIA0338JP
					Insert mechanical key into ignition key cylinder	0 V
20 (G/Y)	Ground	Remote keyless en- try receiver commu- nication	Input	Ignition switch OFF	Waiting	(V) 6 4 2 0 ••••1.0ms PIIB7728J
					Signal receiving	(V) 6 2 0 ••••1.0ms PIIB7729J
21 (P/L)	Ground	NATS antenna amp.	Input/ Output	Just after insertin Other than above	g ignition key in key cylinder	Pointer of tester should move 0 V
					ON	0 V
23 (R/Y)	Ground	Security indicator	Input	Security indica- tor	Blinking (Ignition switch OFF)	(V) 15 0 15 15 15 15 15 15 15 15 15 15
					OFF	12 V
24* (GR/B)	Ground	Dongle link	Input/ Output	Ignition switch O	 FF	5 V
25 (LG)	Ground	NATS antenna amp.	Input/		g ignition key in key cylinder	Pointer of tester should move
			Output	Other than above Ignition switch O		0 V 0 V
26 (GR)	Ground	Thermo control amp.	Input		remely low temperature	12 V

Terminal No. (Wire color)		Description				Value	
+	-	Signal name	Input/ Output		Condition	(Approx.)	
27 (Y/G)	Ground	A/C switch	Input	A/C switch	OFF	(V) 15 10 5 10 10 ms JPMIA0012GB 1.0 - 1.5 V	
					ON	0 V	
28 (G/W)	Ground	Blower fan switch	Input	Fan switch	Blower fan switch OFF	(V) 10 5 0 → + 10ms PKIB4960J 7.0 - 8.0 V	
					Blower fan switch ON	0 V	
29	Ground	Hazard switch	Input	Hazard switch	OFF	Battery voltage	
(L/W)	Giound		input	Hazalu Switch	ON	0 V	
					A/C mode defroster ON position	0 V	
31 (G/Y)	Ground	Front defroster switch	Input	Ignition switch ON	Other than A/C mode de- froster ON position	(V) 10 5 0 <b>•</b> • 2ms JPMIA0589GB 8.0 - 9.0 V	
32		Combination switch		Combination	All switch OFF (Wiper intermittent dial 4)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V	
(LG)	Ground	OUTPUT 5	Output	switch	Rear wiper switch ON (Wiper intermittent dial 4)	(V) 15	
					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	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

### < ECU DIAGNOSIS INFORMATION >

Terminal No. Description					Value	
(Wire	e color) –	Signal name	Input/ Output	Condition		(Approx.)
33	Ground	Combination switch	Quant	Combination	All switch OFF (Wiper intermittent dial 4)	(V) 15 0 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
(Y/L)	Ground	OUTPUT 4	Output	switch	Lighting switch 1ST (Wiper intermittent dial 4) Rear wiper switch INT (Wiper intermittent dial 4)	(V) 15 10 5 0
					<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>	0 + +10ms PKIB4956J 1.2 V
					All switch OFF (Wiper intermittent dial 4)	(V) 10 50 •••••••••••••••••••••••••••••••••
34 (W)	Ground	Combination switch OUTPUT 3	Output	Combination switch	Lighting switch 2ND (Wiper intermittent dial 4)	
					Lighting switch HI (Wiper intermittent dial 4)	
					Rear washer 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 3	PKIB4958J 1.2 V
35	Ground	Combination switch	Output	Combination	All switch OFF	(V) 15 10 50 •••••••••••••••••••••••••••••••••
(R/L)	Ground	OUTPUT 2	Output	(Wiper intermit- tent dial 4)	Lighting switch 2ND Lighting switch PASS	(V) 15
					Front wiper switch INT	
					Front wiper switch HI	
						1.2 V

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Terminal No. (Wire color)		Description				Value
(Wire +	e color) _	Signal name	Input/ Output		Condition	(Approx.)
				All switch OFF		(V) 15 10 5 0 + 10ms
36 (L/O)	Ground	Combination switch OUTPUT 1	Output	Combination switch (Wiper intermit- tent dial 4)	Turn signal switch RH Turn signal switch LH Front wiper switch LO (Front wiper switch MIST)	PKIB4960J 7.0 - 8.0 V
					Front washer switch ON	++10ms PKIB4958J 1.2 V
37				Insert mechanica der	al key into ignition key cylin-	Battery voltage
(R/W)	Ground	Key switch	Input		nical key from ignition key	0 V
38	Cround	Institute outline ON	lanut	Ignition switch O	FF or ACC	0 V
(O)	Ground	Ignition switch ON	Input	Ignition switch O	N	Battery voltage
39 (L)	Ground	CAN-H	Input/ Output		_	_
40 (P)	Ground	CAN-L	Input/ Output		—	—
43 (W)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	(V) 15 10 5 0 + 10ms PKIB4960J
					ON (When back door	7.0 - 8.0 V
					opened) Rear wiper stop position	12 V
44 (LG)	Ground	Rear wiper stop po- sition	Input	Ignition switch ON	Any position other than rear wiper stop position	0 V
45 (GR)	Ground	Door lock and unlock switch LOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 5 0 10 10 10 10 10 10 10 10 10 10 10 10 1
						1.0 - 1.5 V
					LOCK position	0 V

Terminal No. (Wire color)		Description				Value
(Wire	color)	Signal name	Input/ Output		Condition	(Approx.)
46 (BR)	Ground	Door lock and unlock switch UNLOCK	Input	Door lock and unlock switch	NEUTRAL position	(V) 15 10 50 10 ms JPMIA0012GB 1.0 - 1.5 V
					UNLOCK position	0 V
47 (BR/Y)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	(V) 15 10 5 0 4 4 10ms 10 FKIB4960J 7.0 - 8.0 V
					ON (When driver door opened)	0 V
48 (W/G)	Ground	Rear LH door switch	Input	Rear LH door switch	OFF (When rear LH door closed)	(V) 15 10 5 0 + 10ms PKIB4960J 7.0 - 8.0 V
					ON (When rear LH door opened)	0 V
50	Ground	A/C indicator	Output	A/C indicator	OFF	12 V
(SB)					ON	0 V
54	Ground	Rear wiper	Output	Ignition switch	Rear wiper switch OFF	0 V
(LG)			-		Rear wiper switch ON p battery saver is activated. room lamp power supply)	12 V 0 V
56 (L)	Ground	Interior room lamp power supply	Output	Interior room lamp battery saver is not activated. (Outputs the interior room lamp power supply)		12 V
57 (Y)	Ground	Battery power sup- ply	Input	Ignition switch OFF		Battery voltage
59	Ground	Driver door UN-	Output	Driver door	UNLOCK (Actuator is activated)	12 V
(L/B)	e. sund	LOCK	pu		Other then UNLOCK (Ac- tuator is not activated)	0 V

### < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description				Value	
(vvire +	- COIOF)	Signal name	Input/ Output	Condition		(Approx.)	A
					Turn signal switch OFF	0 V	E
60 (W/B)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch LH	(V) 15 10 5 0 + 15 	(
					Turn signal switch OFF	6.0 V 0 V	E
61 (W/L)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch RH	(V) 15 10 5 0 15 10 10 10 10 10 10 10 10 10 10	F
						страна ркіссаятое 6.0 V	0
63 (BR)	Ground	Interior room lamp control signal	Output	Interior room lamp	OFF ON	12 V 0 V	ŀ
65	Ground	All doors LOCK	Output	All doors	LOCK (Actuator is activat- ed)	12 V	
(V)	Ciouna		Output	All doors	Other then LOCK (Actua- tor is not activated)	0 V	
66	Ground	Passenger door and	Output	Passenger door	UNLOCK (Actuator is activated)	12 V	
(G)	Ground	rear door UNLOCK	Output	and rear door	Other then UNLOCK (Ac- tuator is not activated)	0 V	-
67 (B)	Ground	Ground	Output	Ignition switch O	N	0 V	
68 (L)	Ground	P/W power supply (IGN)	Output	Ignition switch ON		12 V	Е
69 (P)	Ground	P/W power supply (BAT)	Output	Ignition switch OFF		12 V	
70 (Y)	Ground	Battery power sup- ply	Input	Ignition switch O	FF	Battery voltage	

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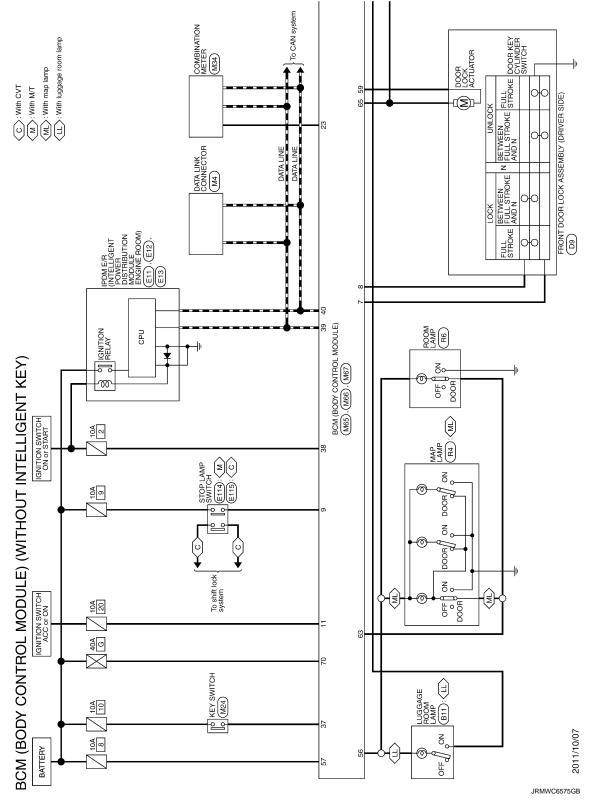
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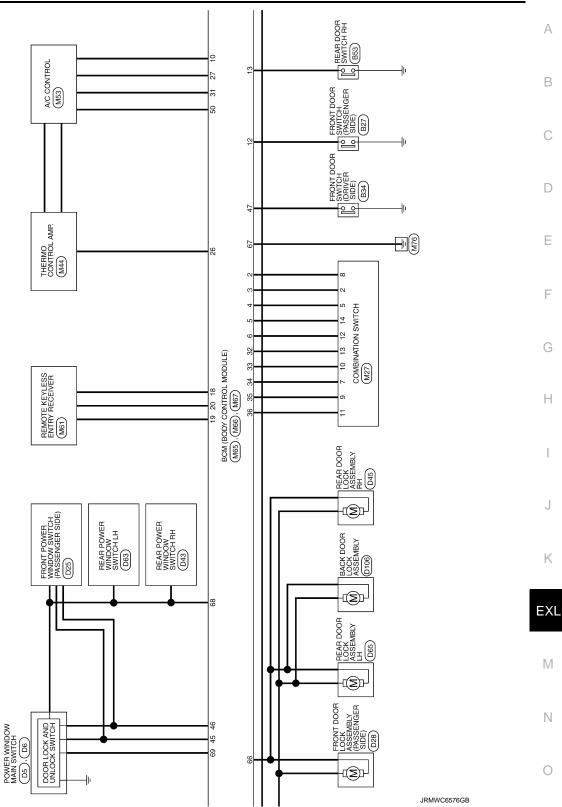
#### WITHOUT INTELLIGENT KEY : Wiring Diagram - BCM -

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For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12, "Connector Information"</u>.



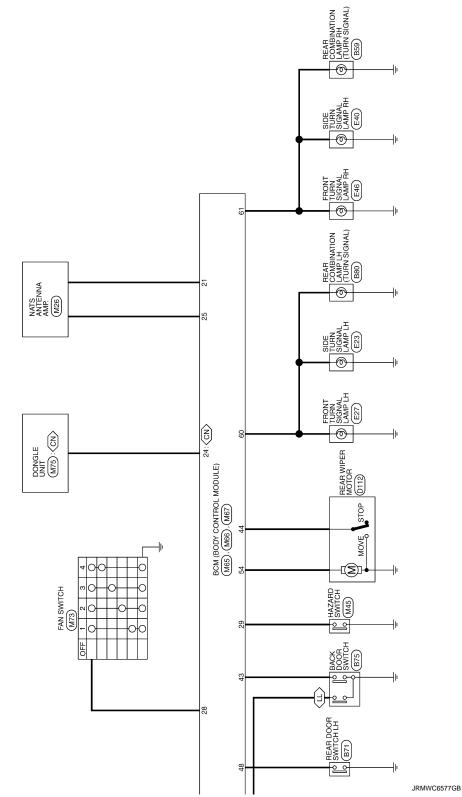
< ECU DIAGNOSIS INFORMATION >



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#### < ECU DIAGNOSIS INFORMATION >

CN : For Canada LL : With luggage room lamp



### WITHOUT INTELLIGENT KEY : Fail-safe

### FAIL-SAFE CONTROL BY DTC

BCM performs fail-safe control when any DTC are detected.

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#### < ECU DIAGNOSIS INFORMATION >

Display contents of CONSULT	Fail-safe	Cancellation	A
B2190: NATS ANTENNA AMP	Inhibit engine cranking	Erase DTC	
B2191: DIFFERENCE OF KEY	Inhibit engine cranking	Erase DTC	
B2192: ID DISCORD BCM-ECM	Inhibit engine cranking	Erase DTC	В
B2193: CHAIN OF BCM-ECM	Inhibit engine cranking	Erase DTC	
B2195: ANTI SCANNING	Inhibit engine cranking	Ignition switch $ON \rightarrow OFF$	С
B2196: DONGLE NG	Inhibit engine cranking	Erase DTC	

#### REAR WIPER MOTOR PROTECTION

BCM detects the rear wiper stopping position according to the rear wiper auto stop signal. When the rear wiper auto stop 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

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

### WITHOUT INTELLIGENT KEY : DTC Inspection Priority Chart

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

Priority	DTC	Н
1	U1000: CAN COMM     U1010: CONTROL UNIT (CAN)	
2	<ul> <li>B2190: NATS ANTENNA AMP</li> <li>B2191: DIFFERENCE OF KEY</li> <li>B2192: ID DISCORD BCM-ECM</li> <li>B2193: CHAIN OF BCM-ECM</li> <li>B2195: ANTI SCANNING</li> <li>B2196: DONGLE NG</li> </ul>	J
3	C1735: IGN CIRCUIT OPEN	
4	<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: [PRESSDATA ERR] FL</li> <li>C1717: [PRESSDATA ERR] FR</li> <li>C1718: [PRESSDATA ERR] RR</li> <li>C1719: [PRESSDATA ERR] RL</li> <li>C1729: VHCL SPEED SIG ERR</li> </ul>	K EXL M N

### WITHOUT INTELLIGENT KEY : 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.

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CONSULT display	Fail-safe	Tire pressure monitor warn- ing lamp ON	Reference
U1000: CAN COMM		_	<u>BCS-113</u>
U1010: CONTROL UNIT (CAN)	_	—	<u>BCS-114</u>
B2190: NATS ANTENNA AMP	×	—	<u>SEC-173</u>
B2191: DIFFERENCE OF KEY	×	—	<u>SEC-176</u>
B2192: ID DISCORD BCM-ECM	×	_	<u>SEC-177</u>
B2193: CHAIN OF BCM-ECM	×	—	<u>SEC-178</u>
B2195: ANTI SCANNING	×	_	<u>SEC-179</u>
B2196: DONGLE NG	×	_	<u>SEC-180</u>
C1704: LOW PRESSURE FL	_	×	
C1705: LOW PRESSURE FR	—	×	
C1706: LOW PRESSURE RR	_	×	<u>WT-22</u>
C1707: LOW PRESSURE RL	_	×	
C1708: [NO DATA] FL	_	×	
C1709: [NO DATA] FR	—	×	
C1710: [NO DATA] RR	—	×	<u>WT-24</u>
C1711: [NO DATA] RL	_	×	
C1716: [PRESS DATA ERR] FL	—	×	
C1717: [PRESS DATA ERR] FR	—	×	
C1718: [PRESS DATA ERR] RR	—	×	<u>WT-27</u>
C1719: [PRESS DATA ERR] RL	—	×	
C1729: VHCL SPEED SIG ERR	—	×	<u>WT-29</u>
C1735: IGN CIRCUIT OPEN	—	_	BCS-115

< ECU DIAGNOSIS INFORMATION >

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

### WITH INTELLIGENT KEY : Reference Value

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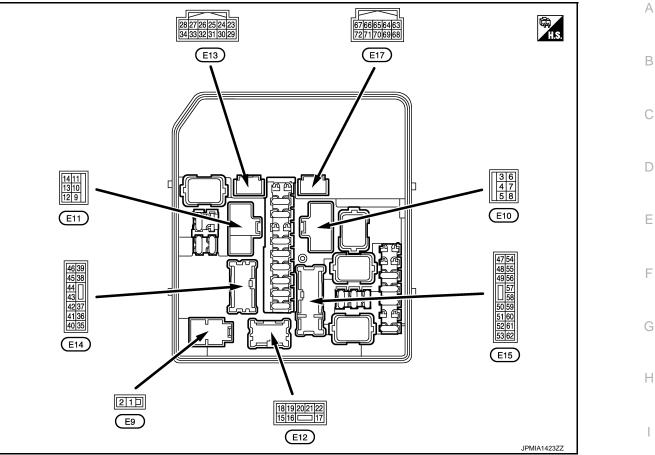
#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item		Value/Status	-	
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	1/2/3/4	_
		A/C switch OFF	Off	
AC COMP REQ	Engine running	A/C switch ON (Compressor is operating)	On	_
	Lighting switch OFF		Off	_
TAIL&CLR REQ	Lighting switch 1ST, 2ND, HI or	AUTO (Light is illuminated)	On	
	Lighting switch OFF		Off	-
HL LO REQ	Lighting switch 2ND, HI or AUT	O (Light is illuminated)	On	
	Lighting switch OFF		Off	
HL HI REQ	Lighting switch HI		On	-
	Lighting switch 2ND or	Front fog lamp switch OFF	Off	-
FR FOG REQ	AUTO (Light is illuminated)	Front fog lamp switch ON	On	-
		Front wiper switch OFF	Stop	
		Front wiper switch INT	1LOW	
FR 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 opera- tion	BLOCK	-
	Ignition switch OFF or ACC		Off	_
IGN RLY1 -REQ	Ignition switch ON		On	-
	Ignition switch OFF or ACC		Off	-
IGN RLY	Ignition switch ON		On	-
	Release the push-button ignition	n switch	Off	-
PUSH SW	Press the push-button ignition s	On	-	
INTER/NP SW	Ignition switch ON	<ul> <li>Selector lever in any position other than P or N (CVT models)</li> <li>Release clutch pedal (M/T models)</li> </ul>	Off	
INTER/INF OW		<ul> <li>Selector lever in P or N position (CVT models)</li> <li>Depress clutch pedal (M/T mod- els)</li> </ul>	On	_
ST RLY CONT	Ignition switch ON		Off	
STILLI GONT	At engine cranking	On		

Monitor Item	Con	dition	Value/Status		
IHBT RLY -REQ					
	At engine cranking		On		
	Ignition switch ON		Off		
	At engine cranking		$INHI\:ON\toST\:ON$		
ST/INHI RLY		control relay cannot be recognized by when the starter relay is ON and the	UNKWN		
DETENT SW	Ignition switch ON	<ul> <li>Pull the selector lever with selector lever in P position</li> <li>Selector lever in any position other than P</li> </ul>	Off		
	Release the selector lever with sele <b>NOTE:</b> Fixed On for M/T models	ector lever in P position	On		
S/L RLY -REQ	NOTE: The item is indicated, but not monited	Off			
S/L STATE	<b>NOTE:</b> The item is indicated, but not monited	ored.	UNLOCK		
DTRL REQ	Not operation		Off		
<b>NOTE:</b> This item is monitored only on the vehicle with the daytime running light system.	Daytime running light system is ope	erated.	On		
OIL P SW	Ignition switch OFF, ACC or engine	running	Open		
OIL P SW	Ignition switch ON		Close		
HOOD SW	<b>NOTE:</b> The item is indicated, but not monited	Off			
	Not operation		Off		
THFT HRN REQ	<ul> <li>Panic alarm is activated</li> <li>Horn is activated with VEHICLE S TEM</li> </ul>	On			
	Not operating		Off		
HORN CHIRP	Door locking with Intelligent Key (ho	orn chirp mode)	On		

< ECU DIAGNOSIS INFORMATION >

### TERMINAL LAYOUT



#### PHYSICAL VALUES

Terminal NO. (Wire color)		Description			Value	
(Wire +	color) —	Signal name	Input/ Output	Condition	(Approx.)	K
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	_
2 (G)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	EX
3	Ground	Starter motor	Quitouit	Ignition switch ON	0 V	
(BR)	Giouna	Starter motor	Output	At engine cranking	Battery voltage	M
4 (P)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	
5	Ground	Cooling fan relay-1	Quitouit	Cooling fan OFF	0 V	— N
(LG)	Ground	power supply	Output	Cooling fan operated	Battery voltage	_
_				Cooling fan OFF	0 V	0
7 (Y)	Ground	Cooling fan relay-2 power supply	Output	Cooling fan LO operated	9.0 V	_
(.)		pone cappi		Cooling fan HI operated	Battery voltage	
8 (V)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	— P
9 (B/W)	Ground	Ground	_	Ignition switch ON	0 V	
				Cooling fan OFF	0 V	
10 (L)	Ground	Cooling fan motor ground	Output	Cooling fan LO operated	5.0 V	
(-)		3		Cooling fan HI operated	0 V	

Revision: 2011 November

**EXL-131** 

2012 CUBE

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Termin		Description				Value		
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)		
13	Crownd	Door window doforcor	Output	Ignition Rear window defogger switch OFF		Ignition Output switch		0 V
(W)	Ground	Rear window defogger	Output	ON	Rear window defogger switch ON	Battery voltage		
19 (B/W)	Ground	Ground	_	Ignition sw	vitch ON	0 V		
21	Ground	Front fog lamp (RH)	Output	Lighting switch	Front fog lamp switch OFF	0 V		
(VV)				2ND	Front fog lamp switch ON	Battery voltage		
22 (V)	Ground	Front fog lamp (LH)	Output	Lighting switch	Front fog lamp switch OFF	0 V		
(*)				2ND	Front fog lamp switch ON	Battery voltage		
24 (LG)	Ground	Oil pressure switch	Input	Ignition switch ON	Engine stopped Engine running	0 V Battery voltage		
				Ignition	Front wiper stop position	0 V		
25 (Y)	Ground	Front wiper auto stop	Input	switch ON	Any position other than front wiper stop position	Battery voltage		
26 (P)	Ground	CAN-L	Input/ Output		_	_		
27 (L)	Ground	CAN-H	Input/ Output		_	_		
28 <sup>*1</sup>	Ground	Daytime running light	Output	Daytime ru	unning light deactivated	0 V		
(P)	Cround	relay-1 control	Output	Daytime ru	unning light activated	Battery voltage		
30 (SD)	Ground	Starter relay control	Output	At engine	-	0 V		
(SB)		-	-	Ignition sw		Battery voltage		
31	Ground	Fuel pump relay control	Output		mately 1 second after turn- gnition switch ON running	0 - 1.5 V		
(W)			·		ately 1 second or more after e ignition switch ON	Battery voltage		
				Ignition sw	vitch ON	Battery voltage		
33 (O)	Ground	und Power generation com- mand signal	Output		et on "ACTIVE TEST", "AL- OR DUTY" of "ENGINE"	(V) 6 2 0 4 2 0 4 2 m 5 2 m 5 2 m 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
					et on "ACTIVE TEST", "AL- OR DUTY" of "ENGINE"	(V) 6 2 0 4 2 0 4 2 1.4 V		

Terminal NO. (Wire color)		Description				Value		
(vvire +	-	Signal name	Input/ Output		Condition	(Approx.)		
34	Crownd			The horn i	s deactivated	Battery voltage		
(R)	Ground	Horn relay control	Output	The horn i	s activated	0 V		
36	Oraciand		Quitaut	Ignition	Lighting switch OFF	0 V		
(Y)	Ground	Parking lamp (LH)	Output	switch ON	Lighting switch 1ST	Battery voltage		
37	0		0 1 1	Ignition	Lighting switch OFF	0 V		
(V)	Ground	Parking lamp (RH)	Output	switch ON	Lighting switch 1ST	Battery voltage		
38		Tail lamp (RH) & illumi-	0	Ignition	Lighting switch OFF	0 V		
(G)	Ground	nations	Output	switch ON	Lighting switch 1ST	Battery voltage		
39	Cround	Front win or LU	0	Ignition	Front wiper switch OFF	0 V		
(V)	Ground	Front wiper HI	Output	switch ON	Front wiper switch HI	Battery voltage		
40				· ·	itch OFF a few seconds after turn- a switch OFF)	Battery voltage		
(R)	Ground	ECM relay control	Output	(For a fe	switch ON switch OFF ew seconds after turning ig- vitch OFF)	0 - 1.5 V		
41		Tail lamp (LH) & license		Ignition	Lighting switch OFF	0 V		
(SB)	Ground	plate lamps	Output	switch ON	Lighting switch 1ST	Battery voltage		
40				``	vitch OFF a few seconds after turn- a switch OFF)	0 V		
43 (G)	Ground	ECM relay power sup- ply		(For a fe	switch ON switch OFF ew seconds after turning ig- vitch OFF)	Battery voltage		
44						``	vitch OFF n a few seconds after turn- n switch OFF)	0 V
(P)	Ground	ECM relay power sup- ply	Output	(For a fe	switch ON switch OFF ew seconds after turning ig- vitch OFF)	Battery voltage		
45 (Y)	Ground	TCM power supply	Output	Ignition sw	vitch OFF	Battery voltage		
46				Ignition	Front wiper switch OFF	0 V		
(O)	Ground	Front wiper LO	Output	switch ON	Front wiper switch LO	Battery voltage		
		Transmission range		P or N (Igr	er in any position other than hition switch ON)	0 V		
47 (BR)	Ground	switch <sup>*2</sup>	Input	Select leve ON)	er P or N (Ignition switch	Battery voltage		
()		Clutch interlock		Release th	ne clutch pedal	0 V		
		switch <sup>*3</sup>		Depress th	ne clutch pedal	Battery voltage		

Terminal NO. (Wire color)		Description				Value	
(Wire +	-	Signal name	Input/ Output		Condition	(Approx.)	
				Ignition	Lighting switch OFF	0 V	
49 (W)	Ground	Headlamp HI (RH)	Output	switch ON	<ul><li>Lighting switch HI</li><li>Lighting switch PASS</li></ul>	Battery voltage	
				Daytime ru	unning light activated <sup>*1</sup>	7.0 V	
				Ignition	Lighting switch OFF	0 V	
50 (GR)	Ground	Headlamp HI (LH)	Output	switch ON	<ul><li>Lighting switch HI</li><li>Lighting switch PASS</li></ul>	Battery voltage	
				Daytime ru	unning light activated <sup>*1</sup>	7.0 V	
51				Ignition	Lighting switch OFF	0 V	
(R)	Ground	Headlamp LO (LH)	Output	switch ON	Lighting switch 2ND	Battery voltage	
=0		Headlamp LO (RH)		Ignition	Lighting switch OFF	0 V	
52 (P)	Ground	Daytime running light relay-2 <sup>*1</sup>	Output	switch ON	Lighting switch 2ND	Battery voltage	
54		Throttle control motor			· ·	itch OFF n a few seconds after turn- n switch OFF)	0 V
(GR)	Ground	relay power supply	Output	(For a fe	switch ON switch OFF aw seconds after turning ig- vitch OFF)	Battery voltage	
FF					ately 1 second or more than ng the ignition switch ON	0 V	
55 (P)	Ground	Fuel pump power sup- ply	Output		mately 1 second after turn- gnition switch ON running	Battery voltage	
					A/C switch OFF	0 V	
56 (SB)	Ground	A/C relay power supply	Output	Engine running	A/C switch ON (A/C compressor is oper- ating)	Battery voltage	
						0 - 1.0 V	
57 (G)	Ground	Throttle control motor relay control	Output	Ignition sw	vitch ON $\rightarrow$ OFF	↓ Battery voltage ↓ 0 V	
				Ignition sw	vitch ON	0 - 1.0 V	
58				Ignition sw		0 V	
(R) <sup>*2</sup> (Y) <sup>*3</sup>	Ground	Ignition relay power supply	Output	Ignition sw		Battery voltage	
59		Ignition relay power	0.1	Ignition switch OFF		0 V	
(Y)	Ground	supply	Output	Ignition switch ON		Battery voltage	
60	Crowned	Ignition relay power	0	Ignition switch OFF		0 V	
(V)	Ground	supply	Output	Ignition sw	vitch ON	Battery voltage	
61	Ground	Ignition relay power		Ignition sw	vitch OFF	0 V	
(W)	Ground	supply	Output	Ignition sw	vitch ON	Battery voltage	
62	Ground	Ignition relay power	Output	Ignition sw	vitch OFF	0 V	
(L)	Ground	supply	Output	Ignition sw	vitch ON	Battery voltage	

### < ECU DIAGNOSIS INFORMATION >

Termina		Description				Value	
(Wire color) + –		Signal name	Input/ Output	Condition		(Approx.)	
64 <sup>*2</sup>		nd CVT shift selector (Detention switch) Input		Ignition	Select lever P	0 V	
64 <sup>2</sup> (R)	Ground		Input	Input switch ON	Select lever in any posi- tion other than P	Battery voltage	
		Duch hutten impitien	Input	Press the push-button ignition switch		0 V	C
66 (L)	Ground	Push-button ignition switch		Input	Release the switch	he push-button ignition	Battery voltage
69	Oneveral		loput	Ignition sv	vitch OFF or ACC	Battery voltage	[
(Y)	Ground	d Ignition relay monitor Input		Ignition switch ON		0 V	

\*1: With daytime running light system

\*2: CVT models

\*3: M/T models

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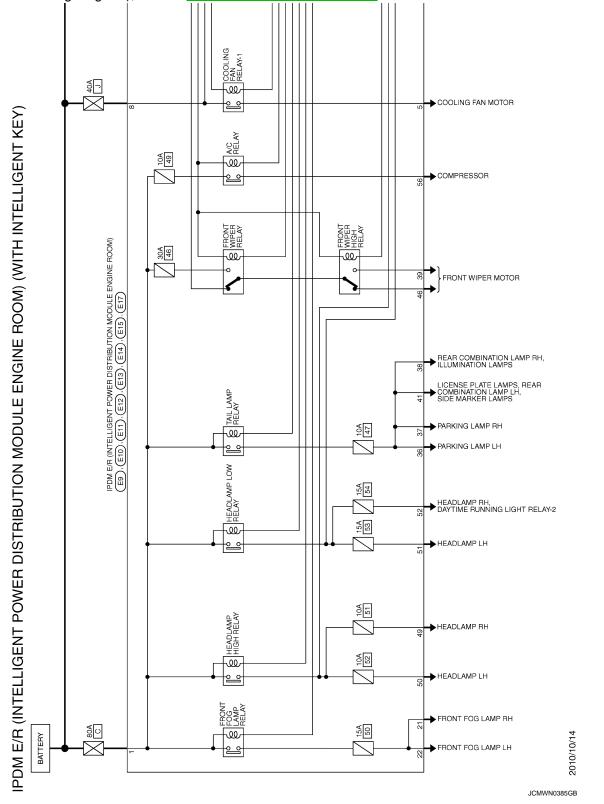
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< ECU DIAGNOSIS INFORMATION >

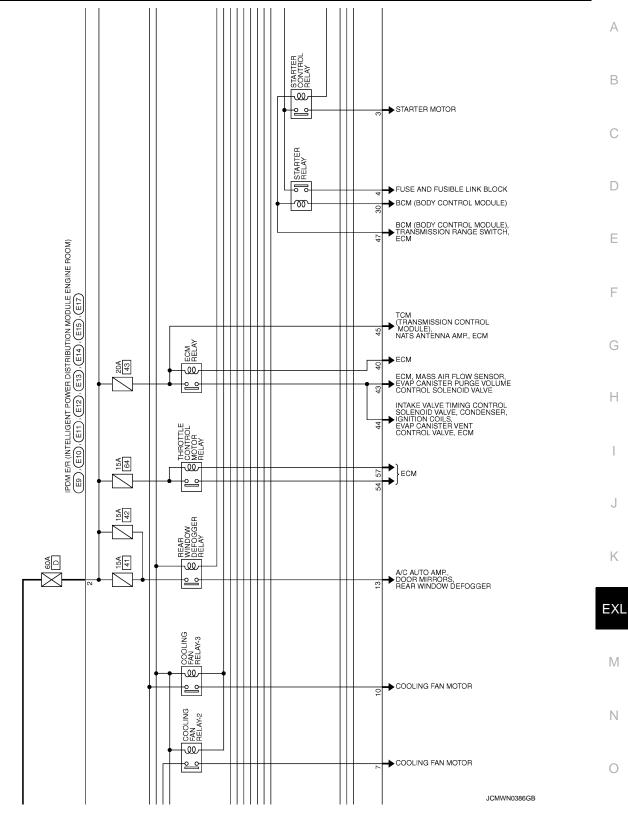
WITH INTELLIGENT KEY : Wiring Diagram — IPDM E/R —

For connector terminal arrangements, harness layouts, and alphabets in a  $\bigcirc$  (option abbreviation; if not described in wiring diagram), refer to <u>GI-12</u>, "<u>Connector Information</u>".



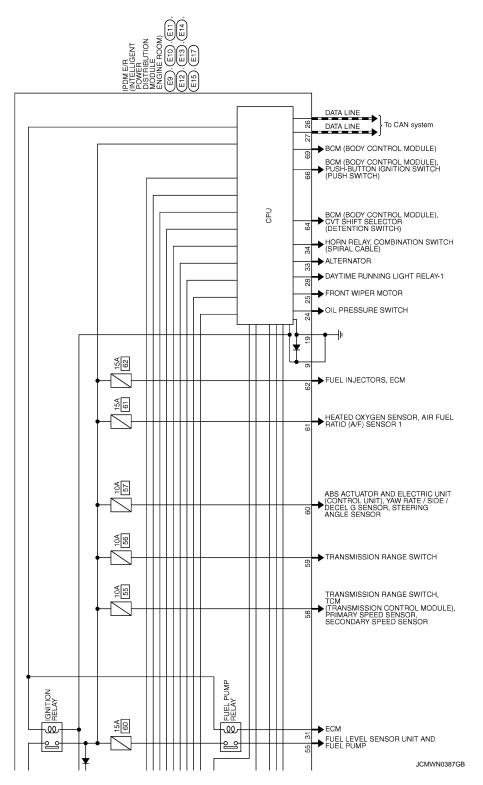
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#### < ECU DIAGNOSIS INFORMATION >



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< ECU DIAGNOSIS INFORMATION >



### WITH INTELLIGENT KEY : Fail-Safe

INFOID:000000007946366

#### 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

#### < ECU DIAGNOSIS INFORMATION >

Control part	Fail-safe operation
Cooling fan	<ul> <li>The cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 turn ON when the ignition switch is turned ON (Cooling fan HI operation)</li> <li>The cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 turn OFF when the ignition switch is turned OFF</li> </ul>
A/C compressor	A/C relay OFF
Alternator	Outputs the power generation command signal (PWM signal) 0%

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

Control part	Fail-safe operation
Headlamp	<ul> <li>Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> <li>Daytime running light relay OFF<sup>*</sup></li> </ul>
<ul> <li>Parking lamps</li> <li>Side marker lamps</li> <li>License plate lamps</li> <li>Illuminations</li> <li>Tail lamps</li> </ul>	<ul> <li>Turns ON the tail lamp relay when the ignition switch is turned ON</li> <li>Turns OFF the tail lamp relay when the ignition switch is turned OFF</li> </ul>
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 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 wipe motor is operating.</li> </ul>
Front fog lamps	Front fog lamp relay OFF
Horn	Horn OFF
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter control relay OFF

\*: With daytime running light system

#### IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay inside it.
- Κ • IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the excitation coil circuit.
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to EXL alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

Voltage judgmentIgnition relay contact sideIgnition relay excitation coil sideIPDM E/R judgmentONONIgnition relay ON normalOFFOFFIgnition relay OFF normalONOFFIgnition relay OFF normalONOFFIgnition relay ON stuck				
Ignition relay contact side		IPDM E/R judgment	Operation	M
ON	ON	Ignition relay ON normal		
OFF	OFF	Ignition relay OFF normal	-	N
ON	OFF	Ignition relay ON stuck	<ul> <li>Detects DTC "B2098: IGN RELAY ON"</li> <li>Turns ON the tail lamp relay for 10 minutes</li> </ul>	0
OFF	ON	Ignition relay OFF stuck	Detects DTC "B2099: IGN RELAY OFF"	

#### FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper stop position signal.

When a front wiper stop position signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 seconds activation and 20 seconds stop five times.

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#### < ECU DIAGNOSIS INFORMATION >

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.	
UN	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.

#### STARTER MOTOR PROTECTION FUNCTION

IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

#### WITH INTELLIGENT KEY : DTC Index

#### NOTE:

- The details of time display are as follows.
- CRNT: A malfunction is detected now.
- PAST: A malfunction was detected in the past.
- IGN counter is displayed on FFD (Freeze Frame data).
- The number is 0 when is detected now.
- The number increases like 1  $\rightarrow$  2  $\cdots$  38  $\rightarrow$  39 after returning to the normal condition whenever IGN OFF  $\rightarrow$  ON.
- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

		×: Applicable
CONSULT display	Fail-safe	Refer to
No DTC is detected. further testing may be required.	_	_
U1000: CAN COMM CIRCUIT	×	PCS-16
B2098: IGN RELAY ON	×	PCS-17
B2099: IGN RELAY OFF	_	PCS-18
B210B: START CONT RLY ON	_	<u>SEC-78</u>
B210C: START CONT RLY OFF	_	<u>SEC-79</u>
B210D: STARTER RELAY ON	_	<u>SEC-80</u>
B210E: STARTER RELAY OFF	_	<u>SEC-81</u>
B210F: INTRLCK/PNP SW ON	_	<u>SEC-83</u>
B2110: INTRLCK/PNP SW OFF	_	<u>SEC-85</u>

### WITHOUT INTELLIGENT KEY

### WITHOUT INTELLIGENT KEY : Reference Value

INFOID:000000007946374

#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item		Condition	Value/Status	
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	1/2/3/4	
		A/C switch OFF	Off	
AC COMP REQ	Engine running	A/C switch ON (Compressor is operating)	On	
	Lighting switch OFF		Off	
TAIL&CLR REQ	Lighting switch 1ST, 2ND, H	Lighting switch 1ST, 2ND, HI or AUTO (Light is illuminated)		

Revision: 2011 November

INFOID:000000007946367

### < ECU DIAGNOSIS INFORMATION >

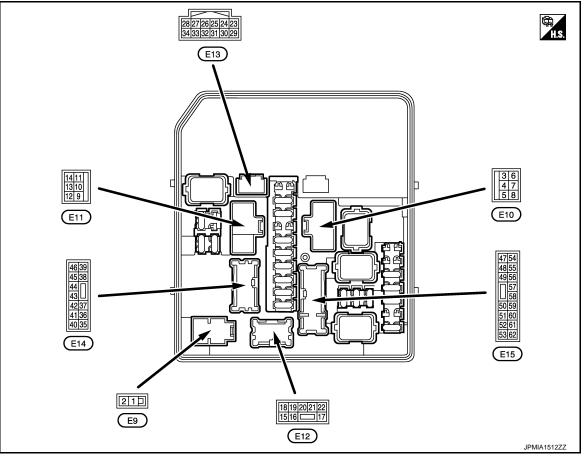
Monitor Item	(	Condition	Value/Status
	Lighting switch OFF		Off
HL LO REQ	Lighting switch 2ND, HI or AUTO	O (Light is illuminated)	On
	Lighting switch OFF		Off
HL HI REQ	Lighting switch HI		On
FR FOG REQ	Lighting switch 2ND or	Front fog lamp switch OFF	Off
	AUTO (Light is illuminated)	Front fog lamp switch ON	On
		Front wiper switch OFF	Stop
FR WIP REQ	Ignition switch ON	Front wiper switch INT	1LOW
		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 opera- tion	BLOCK
IGN RLY	Ignition switch OFF or ACC	Off	
	Ignition switch ON	On	
INTER/NP SW	Ignition switch ON	Selector lever in any position other than P or N (CVT models)	Off
		Selector lever in P or N position (CVT models)	On
ST RLY -REQ	Ignition switch OFF or ACC	Off	
SI KLI -KEQ	Ignition switch ON		On
DTRL REQ	Not operation		Off
<b>NOTE:</b> This item is monitored only on the vehicle with the daytime running light system.	Daytime running light system is operated.		On
OIL P SW	Ignition switch OFF, ACC or eng	ine running	Open
	Ignition switch ON		Close
HOOD SW	<b>NOTE:</b> The item is indicated, but not mo	onitored.	Off
	Not operation	Off	
THFT HRN REQ	<ul> <li>Panic alarm is activated</li> <li>Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM</li> </ul>		On
	Not operating		Off
HORN CHIRP	Door locking with key fob (horn	chirp mode)	On

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< ECU DIAGNOSIS INFORMATION >

### TERMINAL LAYOUT



#### PHYSICAL VALUES

Termin		Description			Value	
(Wire +	color) —	Signal name	Input/ Output	Condition	(Approx.)	
1 (R)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	
2 (G)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	
3	Ground Starter motor		Output	Ignition switch ON	0 V	
(BR)	Giouna	Starter motor	Output	At engine cranking	Battery voltage	
5	Ground	Cooling fan relay-1 power supply	Output	Cooling fan OFF	0 V	
(LG)	Ground			Cooling fan operated	Battery voltage	
6	Ground	Ignition switch START	Output	Any position other ignition switch START	0 V	
(SB)				Ignition switch START	Battery voltage	
_		Cooling fan relay-2 power supply	Output	Cooling fan OFF	0 V	
7 (Y)	Ground			Cooling fan LO operated	9.0 V	
(-)				Cooling fan HI operated	Battery voltage	
8 (V)	Ground	Battery power supply	Input	Ignition switch OFF	Battery voltage	
9 (B/W)	Ground	Ground	_	Ignition switch ON	0 V	

#### < ECU DIAGNOSIS INFORMATION >

Terminal NO. (Wire color)		Description				Value		
(Wire +	color)	Signal name	Input/ Output		Condition	(Approx.)		
				Cooling fa	n OFF	0 V	-	
10 (L) Ground	Cooling fan motor ground	Output	Cooling fa	n LO operated	5.0 V	-		
	ground		Cooling fa	n HI operated	0 V	-		
13 (W) Ground	Door window deferrer	Output	Ignition switch	Rear window defogger switch OFF	0 V	-		
	Ground	Rear window defogger	Output	ON	Rear window defogger switch ON	Battery voltage	-	
18	Ground	Ignition switch	Output	Ignition switch OFF		0 V	-	
(Y)	Giouna	Ignition switch	Output	Ignition switch ON		Battery voltage	-	
19 (B/W)	Ground	Ground	_	Ignition switch ON		0 V	-	
21	Ground	Front fog lamp (RH)	Output	Lighting Dutput switch 2ND	Front fog lamp switch OFF	0 V	-	
(W)		5 1 ( )	•		Front fog lamp switch ON	Battery voltage		
22	Ground	Front fog lamp (LH)	Output	Lighting Output switch 2ND	Front fog lamp switch OFF	0 V	-	
(V)			·		Front fog lamp switch ON	Battery voltage		
24					Ignition	Engine stopped	0 V	-
(LG)	Ground	Oil pressure switch	Input	switch ON	Engine running	Battery voltage	_	
25			Ignit		Ignition	Front wiper stop position	0 V	
(Y)	Ground	Front wiper auto stop	Input	switch ON	Any position other than front wiper stop position	Battery voltage		
26 (P)	Ground	CAN-L	Input/ Output	_		_	_	
27 (L)	Ground	CAN-H	Input/ Output	_		_	-	
28 <sup>*1</sup>	Ground	Daytime running light	Quitout	Daytime ru	unning light deactivated	0 V	-	
(P)	Ground	relay-1 control	Output	Daytime ru	unning light activated	Battery voltage	-	
31 (W)	Ground	Ground Fuel pump relay control	Output		mately 1 second after turn- ignition switch ON running	0 - 1.5 V		
(**)				Approximately 1 second or more after turning the ignition switch ON		Battery voltage		

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#### Terminal NO. Description Value (Wire color) Condition Input/ (Approx.) Signal name Output + \_ Ignition switch ON Battery voltage 40 % is set on "ACTIVE TEST", "AL-TERNATOR DUTY" of "ENGINE" JPMIA0002GB 33 Power generation com-Ground Output 3.8 V (O) mand signal 80 % is set on "ACTIVE TEST", "AL-TERNATOR DUTY" of "ENGINE" JPMIA0003GB 1.4 V The horn is deactivated Battery voltage 34 Ground Horn relay control Output (R) The horn is activated 0 V Ignition Lighting switch OFF 0 V 36 Ground Parking lamp (LH) Output switch (Y) Lighting switch 1ST Battery voltage ON 0 V Ignition Lighting switch OFF 37 Ground Parking lamp (RH) Output switch (V) Lighting switch 1ST Battery voltage ON Ignition Lighting switch OFF 0 V 38 Tail lamp (RH) & illumi-Ground Output switch (G) nations Lighting switch 1ST Battery voltage ON Ignition 0 V Front wiper switch OFF 39 switch Ground Front wiper HI Output (V) Front wiper switch HI Battery voltage ON Ignition switch OFF (More than a few seconds after turn-Battery voltage ing ignition switch OFF) 40 Ground ECM relay control Output · Ignition switch ON (R) • Ignition switch OFF 0 - 1.5 V (For a few seconds after turning ignition switch OFF) 0 V Ignition Lighting switch OFF 41 Tail lamp (LH) & license Ground Output switch (SB) plate lamps Lighting switch 1ST Battery voltage ON

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

< ECU DIAGNOSIS INFORMATION >

Ground

ply

ECM relay power sup-

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(G)

Ignition switch OFF

Output

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ing ignition switch OFF)

Ignition switch ON

· Ignition switch OFF

nition switch OFF)

(More than a few seconds after turn-

(For a few seconds after turning ig-

0 V

Battery voltage

### < ECU DIAGNOSIS INFORMATION >

Terminal NO.		Description				Value			
(Wire color) + –		Signal name			Condition	(Approx.)			
44		ECM relay power sup-		<b>`</b>	vitch OFF n a few seconds after turn- n switch OFF)	0 V	_		
(P) Ground	ply	Output	(For a fe	switch ON switch OFF ew seconds after turning ig- vitch OFF)	Battery voltage				
45 (Y)	Ground	TCM power supply	Output	Ignition sw	vitch OFF	Battery voltage			
46		<b>F</b>	<b>•</b> • •	Ignition	Front wiper switch OFF	0 V	•		
(O)	Ground	Front wiper LO	Output	switch ON	Front wiper switch LO	Battery voltage			
		Transmission range	la a st		er in any position other than nition switch ON)	0 V	•		
47 (BR)	Ground	switch <sup>*2</sup>	Input	Select leve ON)	er P or N (Ignition switch	Battery voltage			
(210)		Clutch interlock		Release th	ne clutch pedal	0 V	-		
		switch <sup>*3</sup>	Input	Depress th	ne clutch pedal	Battery voltage	-		
		nd Headlamp HI (RH)			Lighting switch OFF	0 V	•		
49 (W) Ground	Ground			<ul><li>Lighting switch HI</li><li>Lighting switch PASS</li></ul>	Battery voltage				
				Daytime ru	unning light activated <sup>*1</sup>	7.0 V	•		
		d Headlamp HI (LH)		Ignition	Lighting switch OFF	0 V	-		
50 (GR)	Ground		mp HI (LH) Output	Output ON	<ul><li>Lighting switch HI</li><li>Lighting switch PASS</li></ul>	Battery voltage	•		
					Daytime ru	unning light activated <sup>*1</sup>	7.0 V	•	
51		Headlamp LO (LH) Ou	Output	Ignition	Lighting switch OFF	0 V	-		
(R)	Ground			Output	switch ON	Lighting switch 2ND	Battery voltage	•	
=0		Headlamp LO (RH)		Ignition	Lighting switch OFF	0 V	-		
52 (P)	Ground	Daytime running light relay-2 <sup>*1</sup>	Output	switch ON	Lighting switch 2ND	Battery voltage	-		
54		Throttle control motor		•	vitch OFF n a few seconds after turn- n switch OFF)	0 V	. =		
54 (GR) Ground	Ground	relay power supply		-	• Ignitio (For a	<ul> <li>Ignition</li> <li>(For a feedback</li> </ul>	switch ON switch OFF ew seconds after turning ig- vitch OFF)	Battery voltage	
					ately 1 second or more than ng the ignition switch ON	0 V	-		
55 (P)	Ground	Fuel pump power sup- ply Output			mately 1 second after turn- gnition switch ON running	Battery voltage			
					A/C switch OFF	0 V			
56 (SB)	Ground	A/C relay power supply	Output	Engine running	A/C switch ON (A/C compressor is oper- ating)	Battery voltage	-		

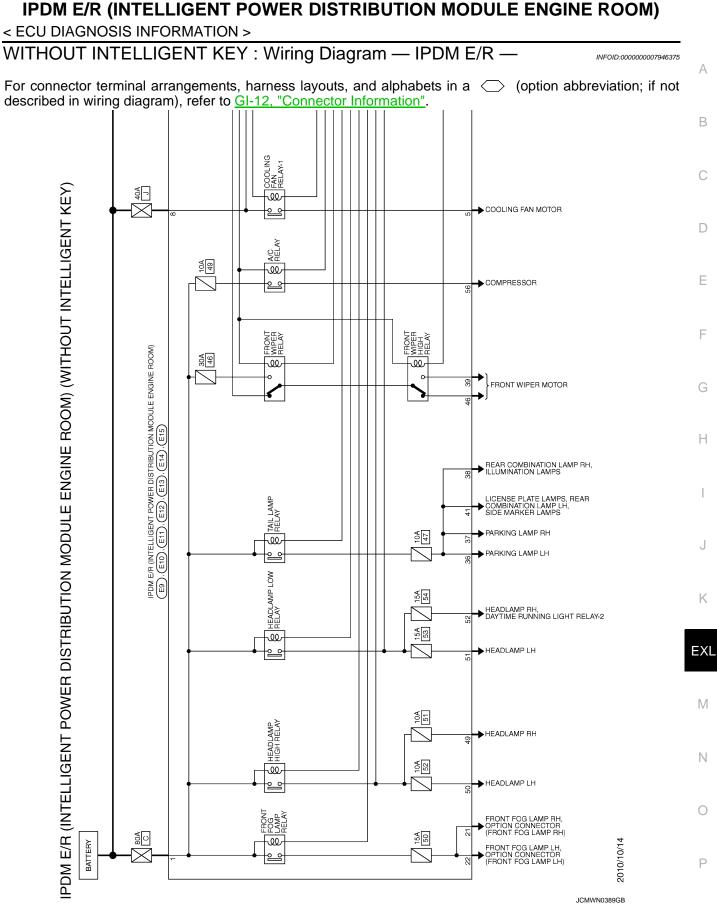
## < ECU DIAGNOSIS INFORMATION >

Terminal NO. (Wire color) + –		Description			Value		
		Signal name		Condition	(Approx.)		
57 (G) Grour	Ground	nd Throttle control motor relay control	Output	Ignition switch $ON \rightarrow OFF$	0 - 1.0 V ↓ Battery voltage ↓ 0 V		
				Ignition switch ON	0 - 1.0 V		
58						Ignition switch OFF	0 V
(R) <sup>*2</sup> (Y) <sup>*3</sup>	Ground	Ignition relay power supply	Output	Ignition switch ON	Battery voltage		
59	Ground	Ignition relay power	Ignition relay power	Output	Ignition switch OFF	0 V	
(Y)	Ground	supply	Output	Ignition switch ON	Battery voltage		
60	Ground	lgnition relay power Ou supply	Ignition relay power	Ground Ignition relay power	Output	Ignition switch OFF	0 V
(V)	Ground		Output	Ignition switch ON	Battery voltage		
61	Ground	Ignition relay power	Output	Ignition switch OFF	0 V		
(W)	Ground	supply	Output	Ignition switch ON	Battery voltage		
62	Ground	Ignition relay power	Output	Ignition switch OFF	0 V		
(L)	Giouna	supply	Output	Ignition switch ON	Battery voltage		

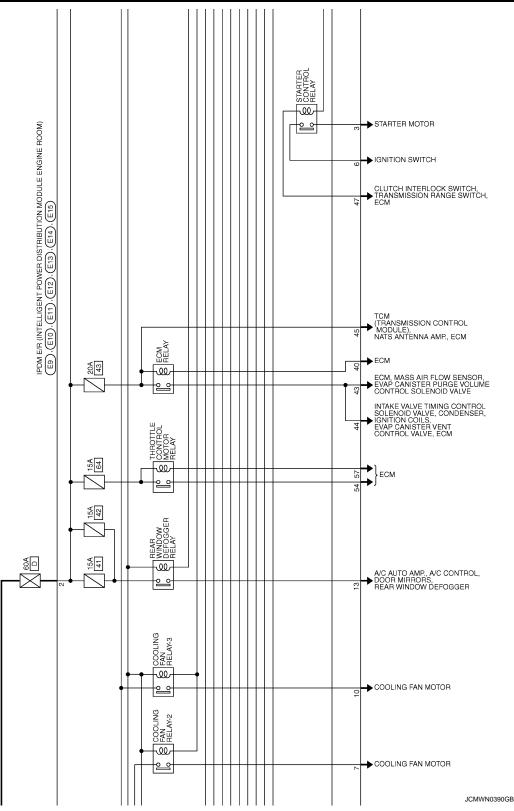
\*1: With daytime running light system

\*2: CVT models

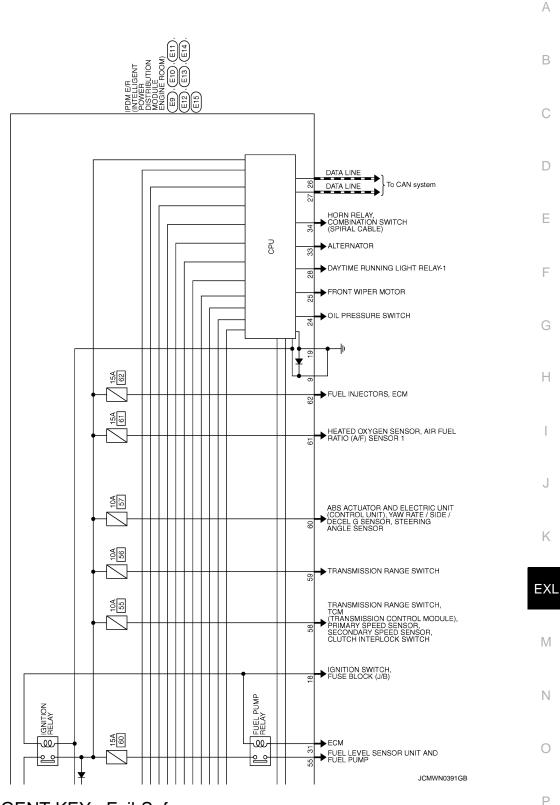
\*3: M/T models



## < ECU DIAGNOSIS INFORMATION >



< ECU DIAGNOSIS INFORMATION >



## WITHOUT INTELLIGENT KEY : Fail-Safe

#### 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

### < ECU DIAGNOSIS INFORMATION >

Control part	Fail-safe operation	
Cooling fan	<ul> <li>The cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 turn ON when the ignition switch is turned ON (Cooling fan HI operation)</li> <li>The cooling fan relay-1, the cooling fan relay-2 and the cooling fan relay-3 turn OFF when the ignition switch is turned OFF</li> </ul>	
A/C compressor	A/C relay OFF	
Alternator	Outputs the power generation command signal (PWM signal) 0%	

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

Control part	Fail-safe operation
Headlamp	<ul> <li>Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> <li>Daytime running light relay OFF<sup>*</sup></li> </ul>
<ul> <li>Parking lamps</li> <li>Side marker lamps</li> <li>License plate lamps</li> <li>Illuminations</li> <li>Tail lamps</li> </ul>	<ul> <li>Turns ON the tail lamp relay when the ignition switch is turned ON</li> <li>Turns OFF the tail lamp relay when the ignition switch is turned OFF</li> </ul>
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 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
Rear window defogger relay	Rear window defogger relay OFF
Horn	Horn OFF

\*: With daytime running light system

#### IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit of the ignition relay inside and ignition switch status from BCM via CAN communication.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the ignition switch status from BCM via CAN communication.
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

Voltage	judgment		Operation	
Ignition relay contact side	Ignition switch status from BCM	IPDM E/R judgment		
ON	ON	Ignition relay ON normal	_	
OFF	OFF	Ignition relay OFF normal	_	
ON	OFF	Ignition relay ON stuck	<ul> <li>Detects DTC "B2098: IGN RELAY ON"</li> <li>Turns ON the tail lamp relay for 10 minutes</li> </ul>	
OFF	ON	Ignition relay OFF stuck	Detects DTC "B2099: IGN RELAY OFF"	

#### FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper stop position signal.

When a front wiper stop position signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 seconds activation and 20 seconds stop five times.

### < ECU DIAGNOSIS INFORMATION >

Ignition switch	Front wiper switch	Front wiper stop position signal	A
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.	В

#### NOTE:

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

## WITHOUT INTELLIGENT KEY : DTC Index

#### NOTE:

- The details of time display are as follows.
- CRNT: A malfunction is detected now.
- PAST: A malfunction was detected in the past.
- IGN counter is displayed on FFD (Freeze Frame data).
- The number is 0 when is detected now.
- The number increases like 1  $\rightarrow$  2  $\cdots$  38  $\rightarrow$  39 after returning to the normal condition whenever IGN OFF  $\rightarrow$  FON.
- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

, and the second s		×: Applicable	G
CONSULT display	Fail-safe	Refer to	
No DTC is detected. further testing may be required.	_	_	ŀ
U1000: CAN COMM CIRCUIT	×	PCS-16	
B2098: IGN RELAY ON	×	PCS-17	
B2099: IGN RELAY OFF		PCS-47	

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< SYMPTOM DIAGNOSIS >

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

## WITHOUT DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

#### NOTE:

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

Symp	tom	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</li> <li>Harness between headlamp and the ground</li> <li>IPDM E/R</li> </ul>	Headlamp (HI) circuit Refer to <u>EXL-46</u> .
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) ARE NOT TURNED ON" Refer to <u>EXL-158</u> .	
High beam indicator lamp [Headlamp (HI) is turned		Combination meter	<ul> <li>Combination meter Data monitor "HI-BEAM IND"</li> <li>BCM (HEADLAMP) 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</li> <li>Harness between headlamp and the ground</li> <li>IPDM E/R</li> </ul>	Headlamp (LO) circuit Refer to <u>EXL-49</u> .
	Both sides	<b>Symptom diagnosis</b> "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <u>EXL-159</u> .	
Headlamp is not turned	When ignition switch is turned ON.		
OFF.	When ignition switch is turned OFF.	IPDM E/R	_
Headlamp is not turned O	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-140</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-63</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-54</u> .
	Both side	Symptom diagnosis	
Front fog lamp is not turne	ed ON.	"BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to <u>EXL-161</u> .	
Parking lamp is not turned	d ON.	<ul> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and the parking lamp</li> <li>Front combination lamp assembly</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to <u>EXL-59</u> .

#### < SYMPTOM DIAGNOSIS >

Sym	iptom	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 assembly</li> </ul>	Tail lamp circuit Refer to <u>EXL-68</u> .
Rear side marker lamp i	s not turned ON.	<ul> <li>Rear side marker lamp bulb</li> <li>Harness between IPDM E/R and the rear side marker lamp</li> <li>Rear side marker lamp assembly</li> </ul>	Rear side marker lamp circuit Refer to <u>EXL-70</u> .
License plate lamp is no	ot turned ON.	<ul> <li>License plate lamp bulb</li> <li>Harness between IPDM E/R and the license plate lamp</li> <li>License plate lamp assembly</li> </ul>	License plate lamp circuit Refer to <u>EXL-71</u> .
and license plate lam	p, rear side marker lamp o are not turned OFF.	<b>Symptom diagnosis</b> "PARKING, LICENSE PLATE, SIDE I NOT TURNED ON" Refer to <u>EXL-160</u> .	MARKER AND TAIL LAMPS ARE
Tail lamp indicator is not (Parking and tail lamps a		Combination meter	<ul> <li>Combination meter Data monitor "LIGHT IND"</li> <li>BCM (HEADLAMP) Active test "TAIL LAMP"</li> </ul>
Turn signal lamp does not blink.	Indicator lamp is nor- mal. (Applicable side per- forms 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-61</u> .
HOLDINK.	Indicator lamp is in- cluded.	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-140</u> .
	One side	Combination meter	_
Turn signal indicator lamp does not blink. (Turn signal indicator lamp is normal.)	Both sides (Always)	<ul> <li>Turn signal indicator lamp signal</li> <li>BCM</li> <li>Combination meter</li> </ul>	<ul> <li>Combination meter Data monitor "TURN IND"</li> <li>BCM (FLASHER) Active test "FLASHER"</li> </ul>
	Both sides (Only when activating hazard warning lamp with 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-39</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-66</u> .

## WITH DAYTIME RUNNING LIGHT SYSTEM

## WITH DAYTIME RUNNING LIGHT SYSTEM : Symptom Table

#### NOTE:

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

Revision: 2011 November

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### < SYMPTOM DIAGNOSIS >

Symp	otom	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</li> <li>Harness between the headlamp and the daytime running light relay-1</li> <li>Harness between the daytime running light relay-1 and the ground</li> <li>Harness between the headlamp and the ground</li> <li>Daytime running light relay-1</li> <li>IPDM E/R</li> </ul>	Headlamp (HI) circuit Refer to <u>EXL-46</u> .
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (HI) AR Refer to <u>EXL-158</u> .	E NOT TURNED ON"
High beam indicator lamp [Headlamp (HI) is turned		Combination meter	<ul> <li>Combination meter Data monitor "HI-BEAM IND"</li> <li>BCM (HEADLAMP) 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</li> <li>Harness between IPDM E/R and the daytime running light relay-2</li> <li>Harness between IPDM E/R and the headlamp</li> <li>Harness between IPDM E/R and the headlamp</li> <li>Harness between daytime running light relay-2 and the head-lamp</li> <li>Harness between the headlamp and the ground</li> <li>Harness between the headlamp and the daytime running light relay-1</li> <li>Harness between the daytime running light relay-1</li> <li>Daytime running light relay-1</li> <li>Daytime running light relay-2</li> <li>IPDM E/R</li> </ul>	Headlamp (LO) circuit Refer to <u>EXL-49</u> .
	Both sides	Symptom diagnosis	
Headlamp is not turned	When ignition switch is turned ON.	"BOTH SIDE HEADLAMPS (LO) AR Refer to <u>EXL-159</u> .	
OFF.	When ignition switch is turned OFF.	IPDM E/R	_
Daytime running light is r [Headlamp (HI) is turned		<ul> <li>Fuse</li> <li>Harness between IPDM E/R and the daytime running light relay-1</li> <li>Daytime running light relay-1</li> <li>IPDM E/R</li> <li>BCM</li> <li>ECM</li> <li>Combination meter</li> </ul>	<ul> <li>Daytime running light relay circuit Refer to <u>EXL-56</u>.</li> <li>BCM (HEADLAMP) Data monitor "ENGINE STATE"</li> <li>Combination mete Data monitor "PKB SW"</li> <li>BCM (HEADLAMP) Active test "DAYTIME RUNNING LIGHT"</li> </ul>

### < SYMPTOM DIAGNOSIS >

Sym	otom	Possible cause	Inspection item
Headlamp is not turned ON/OFF with the lighting switch AUTO.		<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-78</u> .
		<ul> <li>Optical sensor</li> <li>Harness between the optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <u>EXL-63</u> .
Front fog lamp is not urned 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-54</u> .
Front fog lamp is not turr	Both side	<b>Symptom diagnosis</b> "BOTH SIDE FRONT FOG LAMPS A Refer to <u>EXL-161</u> .	ARE NOT TURNED ON"
Parking lamp is not turned ON.		<ul> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and the parking lamp</li> <li>Front combination lamp assembly</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to <u>EXL-59</u> .
Tail lamp is not turned O	N.	<ul> <li>Tail lamp bulb</li> <li>Harness between IPDM E/R and the rear combination lamp</li> <li>Rear combination lamp assembly</li> </ul>	Tail lamp circuit Refer to <u>EXL-68</u> .
Rear side marker lamp is	s not turned ON.	<ul> <li>Rear side marker lamp bulb</li> <li>Harness between IPDM E/R and the rear side marker lamp</li> <li>Rear side marker lamp assembly</li> </ul>	Rear side marker lamp circuit Refer to $EXL-70$ .
License plate lamp is no	t turned ON.	<ul> <li>License plate lamp bulb</li> <li>Harness between IPDM E/R and the license plate lamp</li> <li>License plate lamp assembly</li> </ul>	License plate lamp circuit Refer to $EXL-71$ .
<ul> <li>Parking lamp, tail lamp, rear side marker lamp and license plate lamp are not turned ON.</li> <li>Parking lamp, tail lamp, rear side marker lamp and license plate lamp are not turned OFF.</li> <li>(Each illumination is turned ON/OFF.)</li> </ul>		<b>Symptom diagnosis</b> "PARKING, LICENSE PLATE, SIDE I NOT TURNED ON" Refer to <u>EXL-160</u> .	MARKER AND TAIL LAMPS ARE
Tail lamp indicator is not turned ON. (Parking and tail lamps are turned ON.)		Combination meter	<ul> <li>Combination meter Data monitor "LIGHT IND"</li> <li>BCM (HEADLAMP) Active test "TAIL LAMP"</li> </ul>
Turn signal lamp does not blink.	Indicator lamp is nor- mal. (Applicable side per- forms 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-61</u> .
יוטנ טווות.	Indicator lamp is in- cluded.	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-78</u> .

#### < SYMPTOM DIAGNOSIS >

Symp	otom	Possible cause	Inspection item
	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-39</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-66</u> .

## NORMAL OPERATING CONDITION

## Description

## AUTO LIGHT SYSTEM

< SYMPTOM DIAGNOSIS >

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 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-78, "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 DATA MONITOR**

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

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

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

Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-81, "Exploded View"</u>.

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

Check the headlamp (HI) circuit. Refer to EXL-46. "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 >

DUTH SIDE HEADLAIVIPS	(LO) ARE NOT TURNED ON

					А
Description				INFOID:000000007772628	Λ
Both side head	lamps (LO) are r	not turned ON	in any condition.		В
Diagnosis P	rocedure			INFOID:00000007772629	
1.снеск со	MBINATION SW	ITCH			С
Is the combinat YES >> GC NO >> Re	bination switch. <u>ion switch norma</u> ) TO 2. pair or replace th ADLAMP (LO) R	al? ne malfunction	• ·		D
<ol> <li>Select "HL</li> <li>With opera</li> </ol>		switch, check	the monitor status.		F
Monitor item	Cond	ition	Monitor status		
HL LO REQ	Lighting switch	2ND	ON		G
	Lighting Switch	OFF	OFF		
NO >> Re	) TO 3.		"Exploded View".		H
	. ,				
			L-49. "Component Function Check".		
YES >> Re	<u>o (LO) circuit nor</u> place IPDM E/R pair or replace th		ing part.		J

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

< SYMPTOM DIAGNOSIS >

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

## Description

INFOID:000000007772630

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

## Diagnosis Procedure

INFOID:000000007772631

## **1**.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to <u>BCS-78, "Symptom Table"</u>.

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

CONSULT DATA MONITOR

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

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

Monitor item	Con	dition	Monitor status
TAIL & CLR	Lighting switch	1ST	ON
REQ		OFF	OFF

Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-81, "Exploded View"</u>.

**3.** TAIL LAMP CIRCUIT INSPECTION

Check the tail lamp circuit. Refer to EXL-68, "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

< SYMPTOM DIAGNOSIS >	

## BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

BO I LI 21D	E FRONT FUG	LAIVIP	5 ARE IN	JI TURNED U	N	А
Description					INFOID:000000007772632	$\frown$
The front fog la	mps are not turned ON	l in any co	ondition.			В
Diagnosis P	rocedure	Ē			INFOID:000000007772633	D
1.CHECK FUS						С
	following fuse is fusing	1				
Check that the						
Unit	Location	Fuse N	lo. Capacity	-		D
Front fog lamp	IPDM E/R	#65	15 A	-		
Is the fuse fusir	-			_		Е
	pair the applicable circ ) TO 2.	uit. And th	en replace th	e fuse.		
2.COMBINATI	ON SWITCH INSPEC	TION				F
Check the com	bination switch. Refer	to <u>BCS-78</u>	8, "Symptom 1	Table".		
Is the combinat	ion switch normal?					G
	) TO 3.	functionin	a port			0
•	pair or replace the mal ONT FOG LAMP REQ		• •			
		UEST 316	INAL INPUT			Η
	ATA MONITOR FOG REQ" of IPDM E	/R data m	onitor item			
	ting the front fog lamp			tor status.		I
				-		
Monitor item	Condition		Monitor status	_		J
FR FOG REQ	Front fog lamp switch (With lighting switch 1ST)	ON OFF	ON OFF	-		0
Is the item statu	us normal?			-		K
YES >> GC	) TO 4.					
4	place BCM. Refer to <u>B</u>			<u>′″</u> .		
	G LAMP CIRCUIT INS					EXL
	fog lamp circuit. Refer	r to <u>EXL-5</u>	4, "Compone	nt Function Check".	•	
	lamp circuit normal?					M
	place IPDM E/R. pair or replace the mal	functionin	g part.			
						Ν
						IN
						0

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### < PRECAUTION >

## PRECAUTION PRECAUTIONS

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

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS AIR BAG" and "SEAT BELT" of this Service Manual.

#### WARNING:

Always observe the following items for preventing accidental activation.

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

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

#### WARNING:

Always observe the following items for preventing accidental activation.

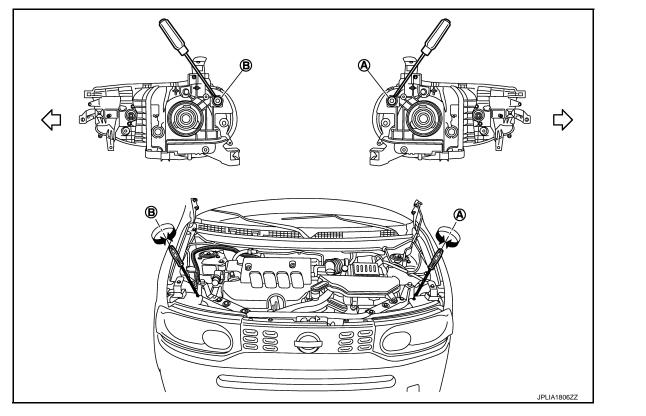
- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious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

## PERIODIC MAINTENANCE HEADLAMP AIMING ADJUSTMENT

#### Description INFOID:000000007772635 В 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. D Before performing aiming adjustment, check the following. Adjust the tire pressure to the specification. • Fill with fuel, engine coolant and each oil. Ε • Maintain the unloaded vehicle condition. (Remove luggage from the passenger compartment and the trunk room.) NOTE: Do not remove the temporary tire, jack and on-vehicle tool. F • 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

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## HEADLAMP AIMING ADJUSTMENT

#### < PERIODIC MAINTENANCE >

	Adjustment screw	Screw driver rotation	Facing direction
А	Headlamp (RH) UP/DOWN	Clockwise	DOWN
A		Counterclockwise	UP
в	Headlamp (LH) LID/DO)/(N	Clockwise	DOWN
В	Headlamp (LH) UP/DOWN	Counterclockwise	UP

## Aiming Adjustment Procedure

INFOID:000000007772636

- 1. Place the screen.
  - NOTE:
  - Stop the vehicle facing the wall.
  - Place the board on a plain road vertically.
- 2. Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the headlamp center and the screen.
- 3. Start the engine. Turn the headlamp (LO) ON. **NOTE:**

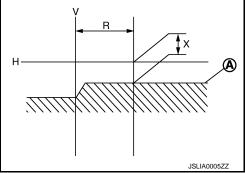
Shut off the headlamp light with the board to prevent from illuminating the adjustment screen. **CAUTION:** 

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

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

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

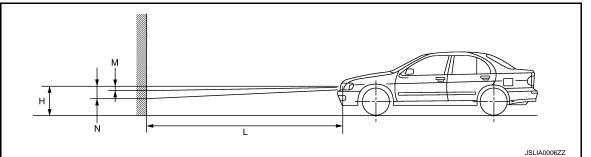
Low beam distribution on the screen



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

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





: 10 m (32.8 ft)	А
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## 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.

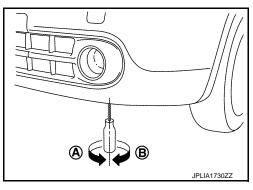
A: UP

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.



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## Aiming Adjustment Procedure

1. Place the screen.

#### NOTE:

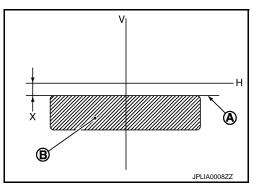
- Stop the vehicle facing the wall.
- Place the board on a plain road vertically.
- 2. Face the vehicle with the screen. Maintain 10 m (32.8 ft) between the front fog lamp center and the screen.
- 3. Start the engine. Illuminate the front fog lamp.

#### 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 200 mm (7.87 in).

Front fog lamp light distribution on the screen



A B	: Cutoff line : High illuminance area	А
H V X	: Horizontal center line of front fog lamp : Vertical center line of front fog lamp : Cutoff line height	В
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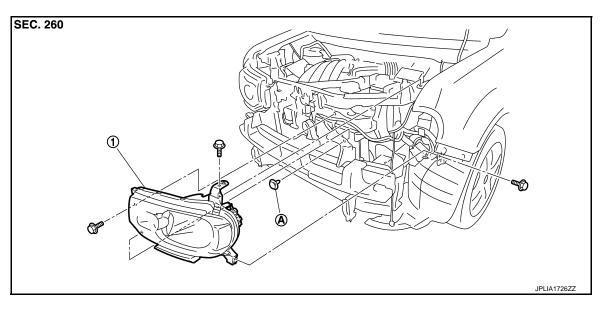
## < REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION FRONT COMBINATION LAMP

## **Exploded View**

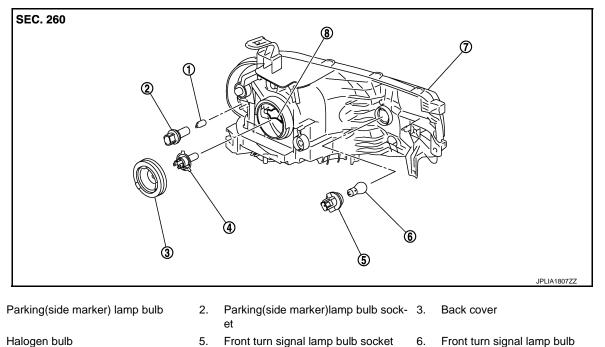
### REMOVAL

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- 1. Front combination lamp
- A. Air duct clip(only left)

### DISASSEMBLY



7. Headlamp housing assembly

## Removal and Installation

#### REMOVAL

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Retaining spring

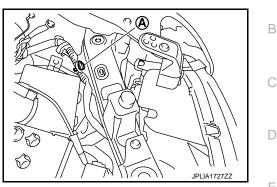
## FRONT COMBINATION LAMP

< REMOVAL AND INSTALLATION >

#### **CAUTION:**

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

- 1. Remove front bumper fascia. Refer to <u>EXT-11, "Exploded View"</u>.
- Remove the harness clips (A)\*.
   \*: When replace a left.
- Remove the air duct clip\*.
   \*: When replace a left.
- 4. Remove the headlamp mounting bolts.
- 5. Pull out the headlamp assembly forward the vehicle.
- Disconnect the connector before removing the headlamp assembly.



#### INSTALLATION

Install in the reverse order of removal. **NOTE:** After installation, perform aiming adjustment. Refer to <u>EXL-163</u>, "Description".

#### Replacement

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- **CAUTION:**
- Disconnect the battery negative terminal or the fuse.
- After installing the bulb, install the resin cap and the bulb socket securely for watertightness.
- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it.
   Never touch bulb by hand while it is lit or right after being turned off.
- Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

#### HEADLAMP BULB

- 1. Disconnect the headlamp bulb connector.
- 2. Remove the back cover.
- 3. Remove the retaining spring lock. And remove the bulb from the headlamp housing assembly.

#### PARKING(FRONT SIDE MARKER) LAMP BULB

- 1. Remove the fender protector. Refer to <u>EXT-21, "FENDER PROTECTOR : Exploded View"</u>. Keep a service area.
- 2. Rotate the bulb socket counterclockwise and unlock it.
- 3. Remove the bulb from the bulb socket.

#### FRONT TURN SIGNAL LAMP BULB

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

#### Disassembly and Assembly

#### DISASSEMBLY

- 1. Remove the back cover.
- 2. Remove the retaining spring lock. And remove the bulb from the headlamp housing assembly.
- 3. Rotate the parking(front side marker) lamp bulb socket counterclockwise and unlock it.
- 4. Remove the bulb from the parking(front side marker) lamp bulb socket.
- 5. Rotate the front turn signal lamp bulb socket counterclockwise and unlock it.
- 6. Remove the bulb from the front turn signal lamp bulb socket.

#### ASSEMBLY

Assemble in the reverse order of disassembly. CAUTION:

## EXL-169

## **FRONT COMBINATION LAMP**

### < REMOVAL AND INSTALLATION >

After installing the bulb, install the resin cap and the bulb socket securely for watertightness.

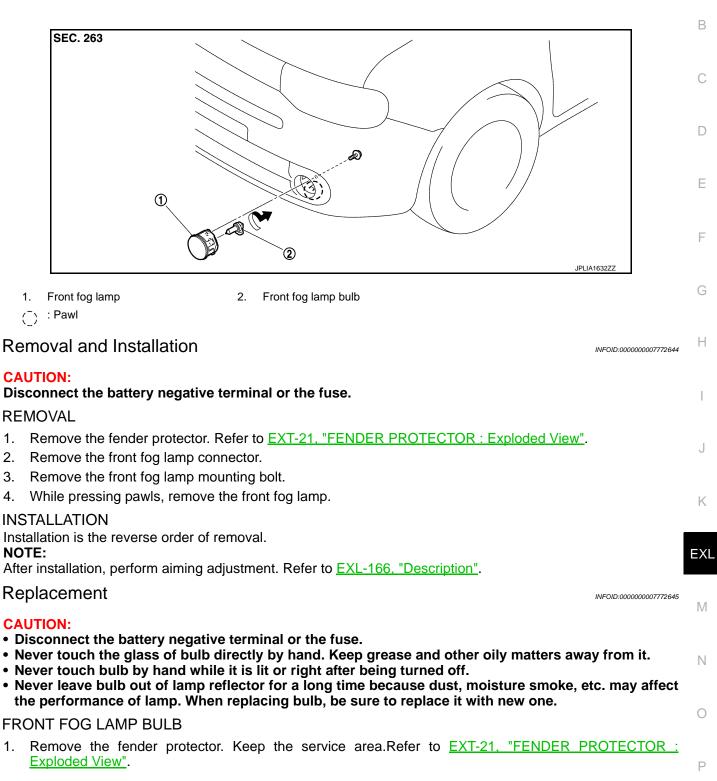
## < REMOVAL AND INSTALLATION >

## FRONT FOG LAMP

## Exploded View

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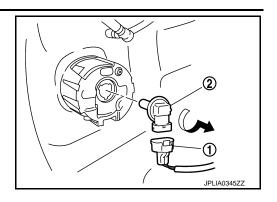
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## FRONT FOG LAMP

### < REMOVAL AND INSTALLATION >

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



## **OPTICAL SENSOR**

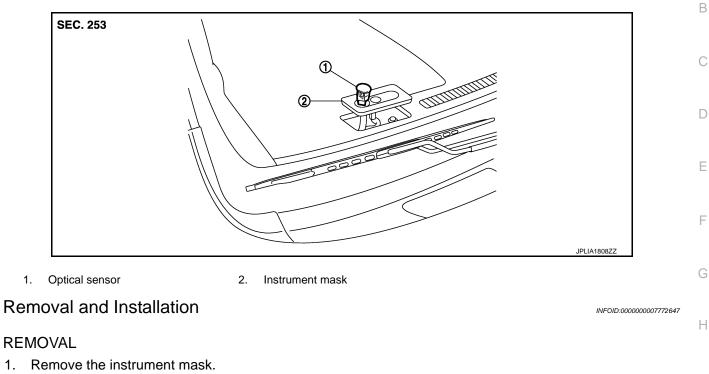
## < REMOVAL AND INSTALLATION >

## **OPTICAL SENSOR**

## Exploded View

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2. Disconnect the connector. Remove the optical sensor.

#### **INSTALLATION**

1.

Install in the reverse order of removal.

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## **LIGHTING & TURN SIGNAL SWITCH**

### < REMOVAL AND INSTALLATION >

## LIGHTING & TURN SIGNAL SWITCH

## Exploded View

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The lighting & turn switch is integrated in the combination switch. Refer to BCS-82, "Exploded View".

## SIDE TURN SIGNAL LAMP

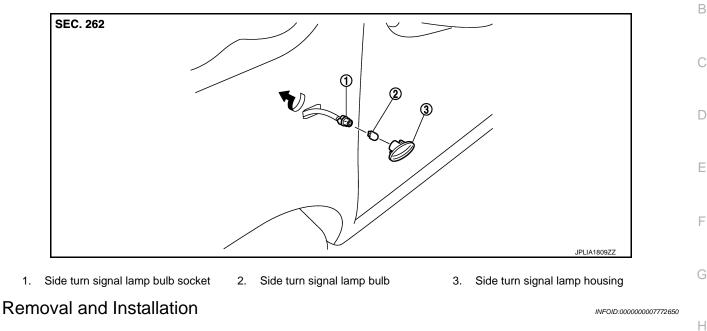
## < REMOVAL AND INSTALLATION >

## SIDE TURN SIGNAL LAMP

## Exploded View

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#### **CAUTION:**

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

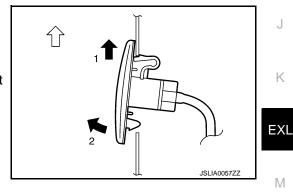
#### REMOVAL

1. Remove the side turn signal lamp in numerical order shown in the figure.

<□ : Installable both direction

fall into the front fender.

 Rotate the bulb socket counterclockwise and unlock it.
 NOTE: Support side turn signal lamp harness with tape so that it won't



#### INSTALLATION

- 1. Rotate the bulb socket clockwise and lock it.
- 2. Fix the pawl-side behind the side turn signal lamp housing first, then push the resin clip-side.

### Replacement

#### **CAUTION:**

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

#### SIDE TURN SIGNAL LAMP BULB

- 1. Remove the side turn signal lamp.
- 2. Rotate the bulb socket counterclockwise and unlock it. **NOTE:**

## EXL-175

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## SIDE TURN SIGNAL LAMP

### < REMOVAL AND INSTALLATION >

Support the vehicle-side harness of the side turn signal lamp with tape so that it does not drop inside the front fender.

3. Remove the bulb from the bulb socket.

## **HAZARD SWITCH**

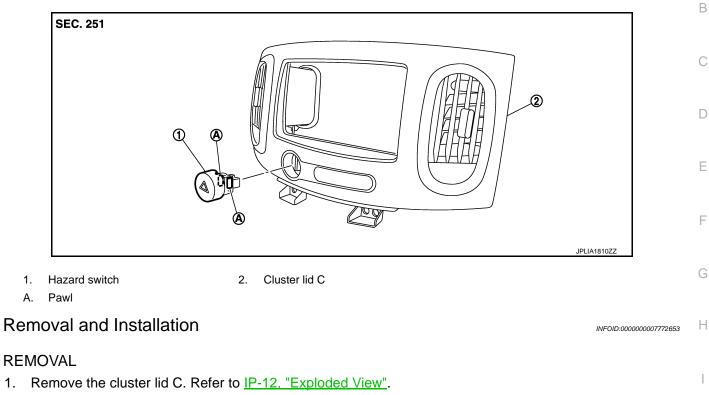
## < REMOVAL AND INSTALLATION >

# HAZARD SWITCH

## Exploded View

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2. While pressing pawls, push the hazard switch. And remove it.

### **INSTALLATION**

1.

Install in the reverse order of removal.

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## **REAR COMBINATION LAMP**

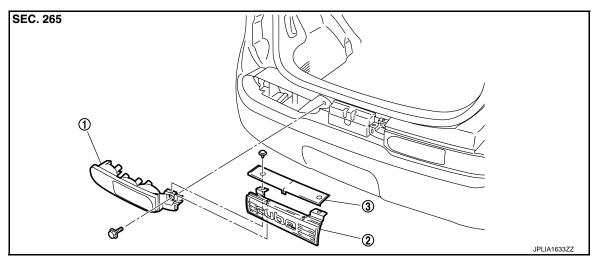
## < REMOVAL AND INSTALLATION >

## REAR COMBINATION LAMP

## **Exploded View**

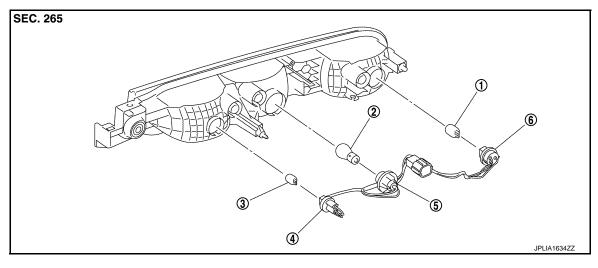
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## REMOVAL



1. Rear combination lamp 2. Back door finisher 3. Back door finisher cover

## DISASSEMBLY



- 1. Stop/tail lamp bulb
- Rear turn signal lamp bulb
   Rear turn signal lamp bulb socket
- 3. Reverse lamp bulb
- 6. Stop/tail lamp bulb socket

## Removal and Installation

Reverse lamp bulb socket

#### **CAUTION:**

4.

- Disconnect the battery negative terminal or the fuse.
- Wrap the tip of remover tool with a cloth to protect the body from damage.

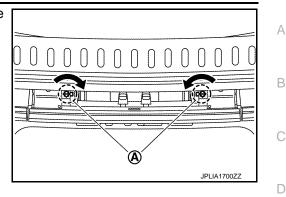
### REMOVAL

1. Remove rear back door finisher cover.

## **REAR COMBINATION LAMP**

### < REMOVAL AND INSTALLATION >

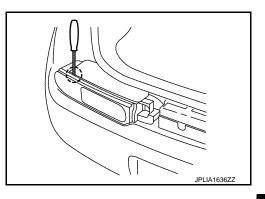
2. Disengage backdoor finisher mounting fastener (A) to remove the back door finisher.



- 3. Remove rear combination lamp mounting bolts.
- 4. Slightly turn the rear combination lamp to leave a clearance.

 Insert an appropriate tool into the clearance between the rear combination lamp and the rear bamper side bracket.
 CAUTION:

Since the rear combination lamp has another clip at the lower center, be careful when removing the outer clip.



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- 6. Pull rear combination lamp rearward to remove.
- 7. Disconnect rear combination lamp connector.

#### INSTALLATION

Install in the reverse order of removal.

#### NOTE:

The back door finisher mounting fastener remains on the rear combination lamp side after removing the back door finisher. Therefore, be sure to install the mountind fastener on the back door finisher side.

#### Replacement

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it.
- Never touch bulb by hand while it is lit or right after being turned off.
- Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect
   P
   the performance of lamp. When replacing bulb, be sure to replace it with new one.

#### STOP/TAIL LAMP BULB

Revision: 2011 November

- 1. Remove rear combination lamp assembly.
- 2. Rotate the stop/tail lamp bulb socket counterclockwise, and unlock it.
- 3. Remove bulb from the bulb socket.

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## **REAR COMBINATION LAMP**

### < REMOVAL AND INSTALLATION >

### REAR TURN SIGNAL LAMP BULB

- 1. Remove rear combination lamp assembly.
- 2. Rotate the rear turn signal lamp bulb socket counterclockwise, and unlock it.
- 3. Remove bulb from the bulb socket.

#### BACK-UP LAMP BULB

- 1. Remove rear combination lamp assembly.
- 2. Rotate the back-up lamp bulb socket counterclockwise, and unlock it.
- 3. Remove bulb from the bulb socket.

## **REAR SIDE MARKER LAMP**

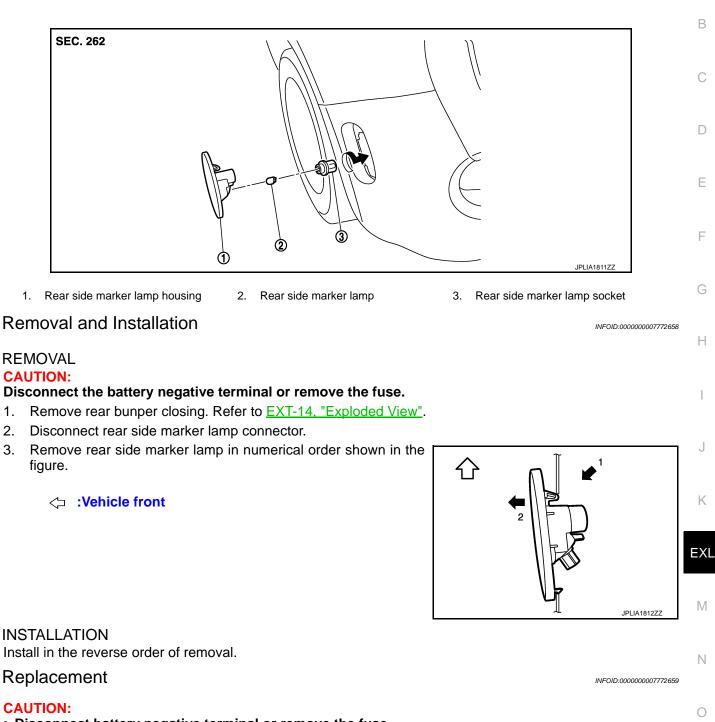
## < REMOVAL AND INSTALLATION >

## REAR SIDE MARKER LAMP

## Exploded View

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

#### REAR SIDE MARKER LAMP BULB

- 1. Remove the rear side marker lamp.
- 2. Rotate the bulb socket counterclockwise and unlock it.
- 3. Remove the bulb from the bulb socket.

## EXL-181

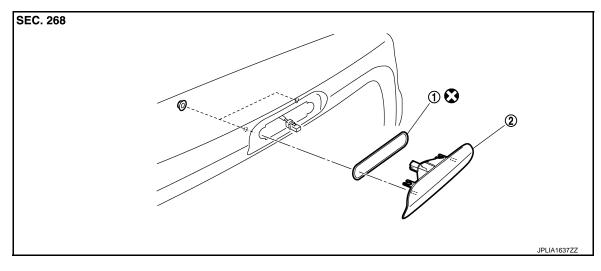
## **HIGH-MOUNTED STOP LAMP**

## < REMOVAL AND INSTALLATION >

## HIGH-MOUNTED STOP LAMP

## Exploded View

INFOID:000000007772660



1. Seal packing2. High-mounted stop lampRefer to GI-4, "Components" for symbols in the figure.

## Removal and Installation

#### **CAUTION:**

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

#### REMOVAL

- 1. Remove the back door finisher upper. Refer to INT-27, "Exploded View".
- 2. Remove the mounting nuts.
- 3. Disconnect the high-mounted stop lamp connector.
- 4. Pull the high-mounted stop lamp toward rear of the vehicle.

#### INSTALLATION

Install in the reverse order of removal.

#### **CAUTION:**

#### Seal packing cannot be reused.

#### Replacement

#### **CAUTION:**

- Disconnect the battery negative terminal or the fuse.
- Never touch the glass of bulb directly by hand. Keep grease and other oily matters away from it.
- Never touch bulb by hand while it is lit or right after being turned off.
- Never leave bulb out of lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of lamp. When replacing bulb, be sure to replace it with new one.

### HIGH-MOUNTED STOP LAMP BULB

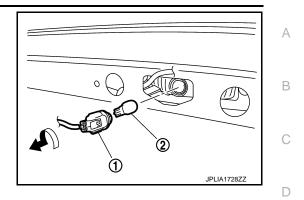
1. Remove the back door finisher upper. Refer to INT-27, "Exploded View".

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## **HIGH-MOUNTED STOP LAMP**

## < REMOVAL AND INSTALLATION >

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



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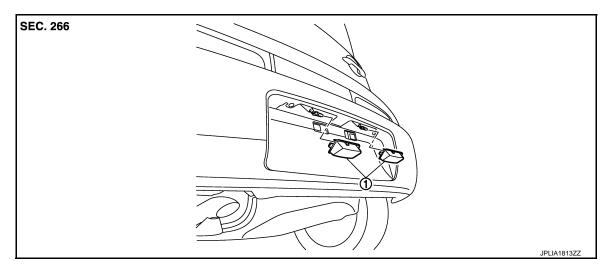
## < REMOVAL AND INSTALLATION >

## LICENSE PLATE LAMP

## **Exploded View**

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1. License plate lamp

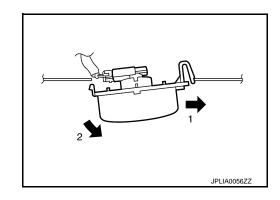
## Removal and Installation

#### **CAUTION:**

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

#### REMOVAL

- 1. Remove the license plate lamp in numerical order.
- 2. Disconnect the license plate lamp connector.
- 3. Remove the license plate lamp.



#### INSTALLATION

- 1. Connect the license plate lamp connector.
- 2. Fix the pawl side. And then push the resin clip side.

#### Replacement

#### **CAUTION:**

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

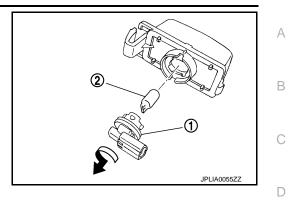
#### LICENSE PLATE LAMP BULB

1. Remove the license plate lamp.

## LICENSE PLATE LAMP

### < REMOVAL AND INSTALLATION >

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



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## SERVICE DATA AND SPECIFICATIONS (SDS)

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

## **Bulb Specifications**

	Item	Туре	Wattage (W)
	Headlamp (HI/LO)	H4	60/55
Front combination lamp	Front turn signal lamp	PY21W (Amber)	21
	Parking(front side marker) lamp	W5W	5
Front fog lamp		H8	35
Side turn signal lamp		WY5W (Amber)	5
Rear combination lamp	Stop lamp/Tail lamp	W21/5W	21/5
	Rear turn signal lamp	PY21W	16
	Back-up lamp	W16W	21
License plate lamp		W5W	5
High-mounted stop lamp		W16W	—
Rear side marker lamp		W5W	5