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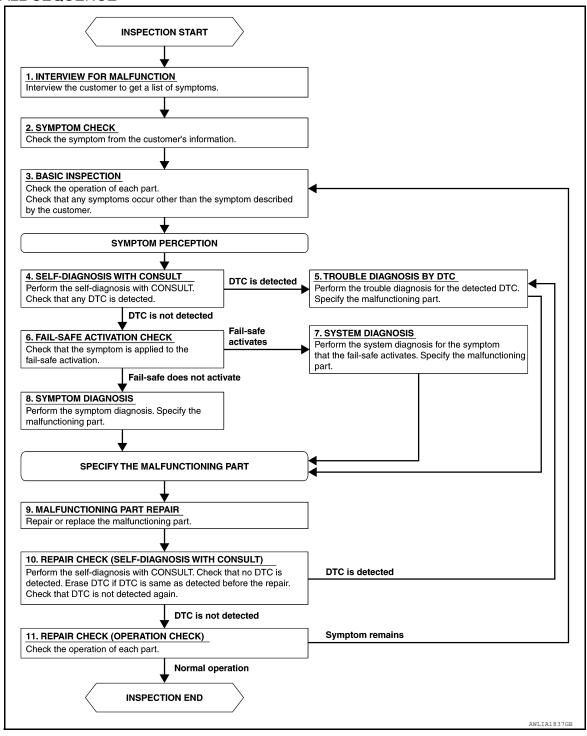
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# **BASIC INSPECTION**

# DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

### **OVERALL SEQUENCE**



### **DIAGNOSIS AND REPAIR WORKFLOW**

# < BASIC INSPECTION > **DETAILED FLOW** Α 1.INTERVIEW FOR MALFUNCTION Find out what the customer's concerns are. В >> GO TO 2 2.SYMPTOM CHECK Verify the symptom from the customer's information. D >> GO TO 3 3.BASIC INSPECTION Check the operation of each part. Check that any concerns occur other than those mentioned in the customer interview. >> GO TO 4 F f 4 . SELF-DIAGNOSIS WITH CONSULT Perform the self diagnosis with CONSULT. Check that any DTC is detected. Is any DTC detected? YES >> GO TO 5 NO >> GO TO 6 $oldsymbol{5}$ . TROUBLE DIAGNOSIS BY DTC Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part. >> GO TO 9 6. FAIL-SAFE ACTIVATION CHECK Determine if the customer's concern is related to fail-safe activation. Does the fail-safe activate? K YES >> GO TO 7 NO >> GO TO 8 **1.**SYSTEM DIAGNOSIS **EXL** Perform the system diagnosis for the system in which the fail-safe activates. Specify the malfunctioning part. M >> GO TO 9 8.SYMPTOM DIAGNOSIS Perform the symptom diagnosis. Specify the malfunctioning part. >> GO TO 9 9.malfunction part repair Repair or replace the malfunctioning part. Р >> GO TO 11 10. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT) Perform the self diagnosis with CONSULT. Verify that no DTCs are detected. Erase all DTCs detected prior to the repair. Verify that DTC is not detected again.

Revision: January 2013 EXL-5 2013 Xterra

Is any DTC detected?

### **DIAGNOSIS AND REPAIR WORKFLOW**

### < BASIC INSPECTION >

YES >> GO TO 5 NO >> GO TO 11

11. REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

### Does it operate normally?

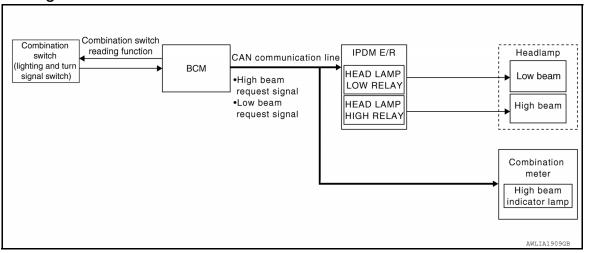
YES >> Inspection End.

NO >> GO TO 3

# SYSTEM DESCRIPTION

### **HEADLAMP**

System Diagram



# System Description

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Control of the headlamp system operation is dependent upon the position of the combination switch (lighting and turn signal switch). When the combination switch (lighting and turn signal switch) is placed in the 2nd position, the BCM (body control module) receives input requesting the headlamps and park lamps to illuminate. This input is communicated to the IPDM E/R (intelligent power distribution module engine room) via the CAN communication lines. The CPU (central processing unit) of the IPDM E/R controls the headlamp high and headlamp low relay coils. When energized, these relays direct power to the respective headlamps, which then illuminate.

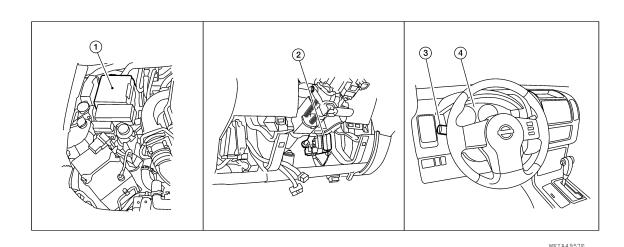
#### HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

With the combination switch (lighting and turn signal switch) in the 2ND position and placed in HIGH position, the BCM receives input requesting the headlamp high beams to illuminate. The flash to pass feature can be used any time and also sends a signal to the BCM. This input is communicated to the IPDM E/R via the CAN communication lines. The CPU of the combination meter controls the ON/OFF status off the HIGH BEAM indicator. The CPU of the IPDM E/R controls the headlamp high relay coil which supplies power to the high beam headlamps.

The combination meter receives a high beam request signal (ON) via the CAN communication lines and turns the high beam indicator lamp ON.

# **Component Parts Location**

INFOID:0000000008798046



Revision: January 2013 EXL-7 2013 Xterra

### **HEADLAMP**

### < SYSTEM DESCRIPTION >

- 1. IPDM E/R E122, E123, E124
- BCM M18, M20 (view with lower instru- 3. ment panel LH removed)
- Combination switch (lighting and turn signal switch) M28

4. Combination meter M24

# **Component Description**

INFOID:0000000008798047

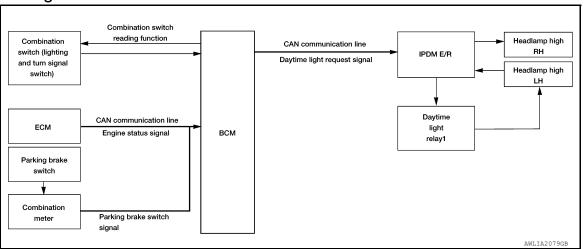
Part name	Description
ВСМ	<ul> <li>Receives combination switch (lighting and turn signal switch) request via BCM combination switch reading function.</li> <li>Sends headlamp high/low request signal to the IPDM E/R.</li> </ul>
IPDM E/R	Activates the headlamp high and headlamp low relays upon request from the BCM.
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.

### **DAYTIME RUNNING LIGHT SYSTEM**

#### < SYSTEM DESCRIPTION >

### DAYTIME RUNNING LIGHT SYSTEM

### System Diagram



# System Description

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INFOID:0000000008798048

The headlamp system for Canada vehicles is equipped with a daytime light control that activates the high beam headlamps at approximately half illumination whenever the engine is operating. If the parking brake is applied before the engine is started the daytime lights will not be illuminated. The daytime lights will illuminate once the parking brake is released. Thereafter, the daytime lights will continue to operate when the parking brake is applied.

#### **OPERATION**

The BCM monitors inputs from the parking brake switch and the combination switch (lighting and turn signal switch) to determine when to activate the daytime light system. The BCM sends a daytime light request to the IPDM E/R via the CAN communication lines. The IPDM E/R grounds the daytime light relay 1 which in turn, provides power to the ground side of the LH high beam lamp. Power flows backward through the LH high beam lamp to the IPDM E/R, through the high beam fuses, through the RH high beam lamp circuit to the RH high beam lamp and on to ground. The high beam lamps are wired in series which causes them to illuminate at a reduced intensity.

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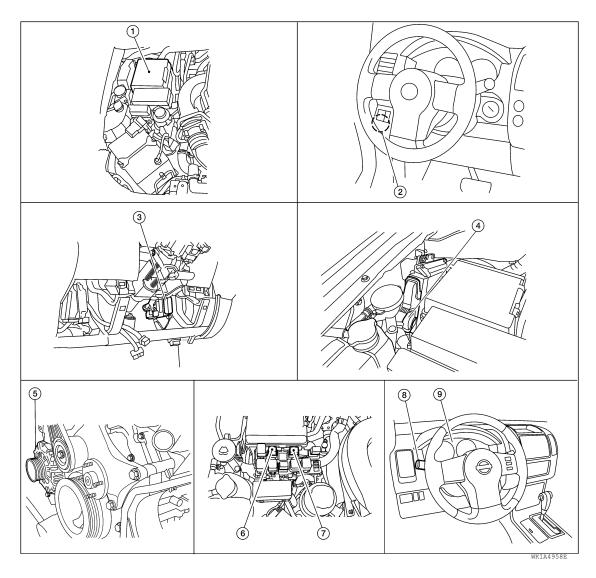
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# **Component Parts Location**

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- 1. IPDM E/R E119, E122, E123, E124
- 4. ECM E16 (view with ECM cover removed)
- 7. Daytime light relay 2 E104
- Parking brake switch B84
- 5. Generator E205, E209
- 8. Combination switch (lighting and turn 9. signal switch) M28
- 3. BCM M18, M20 (view with lower instrument panel LH removed)
- 6. Daytime light relay 1 E103
- O. Combination meter M24

# **Component Description**

INFOID:0000000008798051

Part name	Description
ВСМ	<ul> <li>Receives combination switch (lighting and turn signal switch) inputs via BCM combination switch reading function.</li> <li>Receives park brake applied input from the park brake switch.</li> <li>Receives engine running status from the ECM via CAN communication.</li> </ul>
IPDM E/R	Receives daytime light request from the BCM and activates the daytime light relay.
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.

### **DAYTIME RUNNING LIGHT SYSTEM**

### < SYSTEM DESCRIPTION >

Parking brake switch	Outputs parking brake status to the combination meter which forwards that information to the BCM via CAN communication.
ECM	Outputs engine running status to the BCM.

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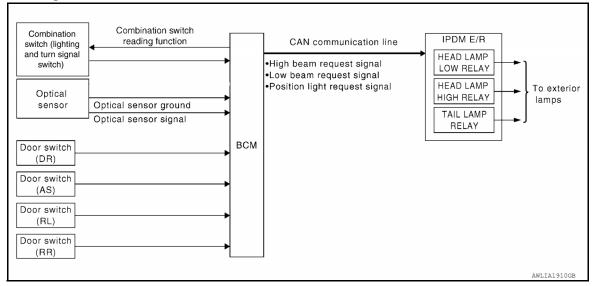
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### **AUTO LIGHT SYSTEM**

### System Diagram

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# System Description

INFOID:0000000009279152

The auto light control system has an optical sensor that detects outside brightness.

When the combination switch (lighting and turn signal switch) is in AUTO position, it automatically turns ON/ OFF the parking, license plate, tail and headlamps in accordance with the ambient light. Sensitivity can be adjusted in four steps. For the details, refer to <a href="https://example.com/BCS-19">BCS-19</a>, "HEADLAMP: CONSULT Function (BCM - HEADLAMP)".

#### **AUTO LIGHT OPERATION**

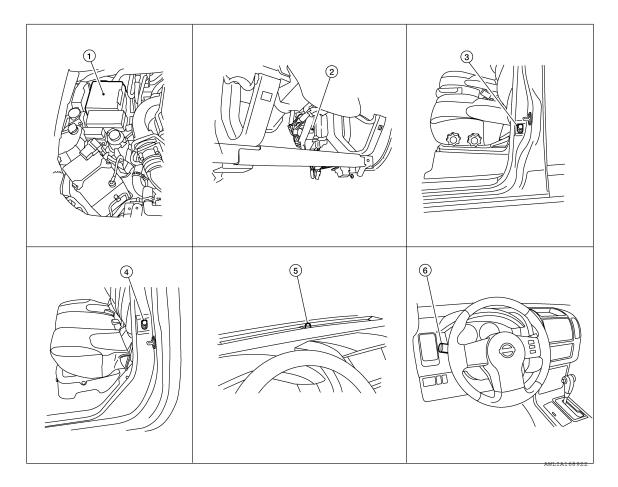
The auto light system operates the low beam and high beam headlamps, parking lamps, tail lamps and license plate lamps. The BCM monitors the combination switch (lighting and turn signal switch) position as a part of the BCM combination switch reading function. When the combination switch (lighting and turn signal switch) is in the AUTO position, the BCM automatically turns the lamps ON/OFF according to ambient light brightness. When the key is turned OFF and all doors are closed, the auto light system keeps the headlamps ON for 45 seconds.

#### NOTE:

Timing for when lamps turn ON/OFF can be changed by the CONSULT. Refer to <u>BCS-19</u>, "<u>HEADLAMP</u>: <u>CONSULT Function (BCM - HEAD LAMP)</u>".

# **Component Parts Location**

INFOID:0000000009279153



- IPDM E/R E122, E123, E124
- Rear door switch LH B18 RH B116

- BCM M18, M19, M20 (view with lower 3. instrument panel LH removed)
- Optical sensor M14

- Front door switch LH B8 **RH B108**
- Combination switch (lighting and turn signal switch) M28

# **Component Description**

INFOID:0000000009279154

Part name	Description
BCM	BCM (Body Control Module) controls auto light operation according to signals from optical sensor, lighting switch and ignition switch.
IPDM E/R	IPDM E/R (Intelligent Power Distribution Module Engine Room) operates parking, license plate, tail and headlamps according to CAN communication signals from BCM.
Combination switch (lighting and turn signal switch)	The lighting switch outputs lighting requests to the BCM.
Optical sensor	Optical sensor detects ambient brightness and converts light (lux) to voltage, then sends the optical sensor signal to BCM.
Door switches	Detects door open/closed status and forwards that status to the BCM.

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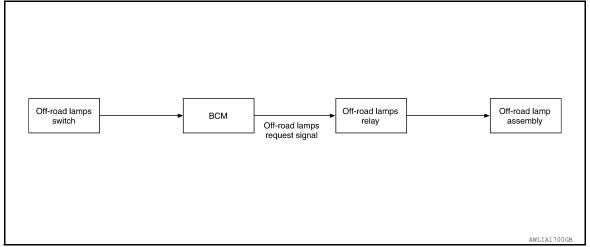
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### **OFF-ROAD LAMPS**

### System Diagram

INFOID:0000000008798052



# System Description

INFOID:0000000008798053

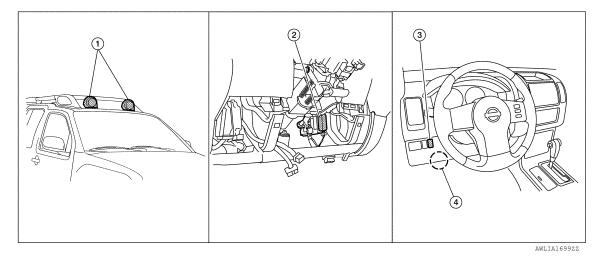
The off-road lamps are activated with the off-road lamps switch. The off-road lamps switch provides a request signal to the BCM. The BCM grounds the off-road lamps relay coil to activate the off-road lamps. The high beam headlamps must be ON and the off-road lamp covers removed in order for the BCM to activate the off-road lamps relay.

#### OFF ROAD LAMP OPERATION

When the off-road lamps switch is in the ON position, the lighting switch is in the 2nd position with the high beams activated and the off-road lamp covers removed, the BCM grounds the off-road lamp relay coil to activate the off-road lamps. The BCM monitors the off-road lamps switch, the lighting switch position via the combination switch reading function and the off-road lamp covers via the off-road lamp cover sensors. The off-road lamp cover sensor is a magnetic sensor which monitors for the presence of the off-road lamp covers.

# Component Parts Location

INFOID:0000000008798054



- Off-road lamp assembly LH B527, B528 RH B529, B530
- Off-road lamps relay M81
- BCM M18, M19, M20 (view with lower 3. Off-road lamps switch M80 instrument panel LH removed)

### **OFF-ROAD LAMPS**

# < SYSTEM DESCRIPTION >

# **Component Description**

INFOID:0000000008798055

Part name	Description
ВСМ	<ul> <li>Receives lighting switch requests via BCM combination switch reading function.</li> <li>Receives off-road lamps request information from the off-road lamps switch.</li> <li>Receives off-road lamp cover installation status from the off-road lamp cover sensors.</li> <li>Grounds the off-road lamps relay to activate the off-road lamps.</li> </ul>
Off-road lamps switch	Sends off-road lamps request signal to the BCM.
Combination switch (lighting and turn signal switch)	Monitors lighting switch position.
Off-road lamp cover sensors	Senses whether the off-road lamp covers are installed.

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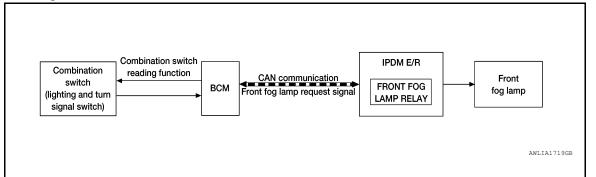
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### FRONT FOG LAMP

### System Diagram

INFOID:0000000008798056



# System Description

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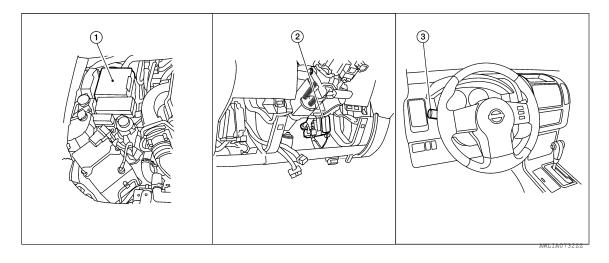
The front fog lamps are activated with the combination switch (lighting and turn signal switch). The combination switch (lighting and turn signal switch) signal to the BCM is monitored with the BCM combination switch reading function. When the fog lamps are turned ON with the combination switch (lighting and turn signal switch), the BCM sends a front fog lamp request signal via CAN communication lines to the IPDM E/R. The IPDM E/R grounds the front fog lamp relay coil to activate the front fog lamps.

#### FRONT FOG LAMP OPERATION

When the combination switch (lighting and turn signal switch) is in front fog lamp ON position and also in 1ST or 2ND position or AUTO (if equipped) position (headlamp is ON), the BCM detects FR FOG ON and the HEAD LAMP1 or 2 ON. The BCM sends a front fog lamp request ON signal via the CAN communication lines to the IPDM E/R. The IPDM E/R then turns ON the front fog lamp relay sending power to the front fog lamps.

### **Component Parts Location**

INFOID:0000000008798058



- IPDM E/R E122, E123, E124
- 2. BCM M18, M20 (view with lower instru- 3. ment panel LH removed)
- Combination switch (lighting and turn signal switch) M28

# Component Description

INFOID:0000000008798059

Part name	Description
BCM	<ul> <li>Receives lighting switch requests via BCM combination switch reading function.</li> <li>Sends headlamp high/low request signal to the IPDM E/R.</li> </ul>

### FRONT FOG LAMP

# < SYSTEM DESCRIPTION >

IPDM E/R	Activates the front fog lamp relay upon request from the BCM.
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.

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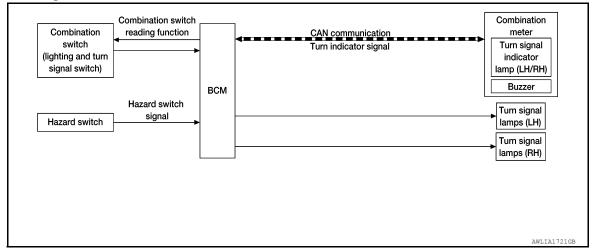
### TURN SIGNAL AND HAZARD WARNING LAMPS

< SYSTEM DESCRIPTION >

# TURN SIGNAL AND HAZARD WARNING LAMPS

### System Diagram

INFOID:0000000008798060



# System Description

INFOID:0000000008798061

#### TURN SIGNAL OPERATION

When the combination switch (lighting and turn signal switch) is in LH or RH position with the ignition switch in ON position, the BCM detects the TURN RH or TURN LH ON request. The BCM outputs the flasher signal to the respective turn signal lamp. The BCM also sends a turn indicator signal ON request via the CAN communication lines to the combination meter. The combination meter then activates the appropriate turn signal indicator and audible buzzer.

#### HAZARD LAMP OPERATION

When the hazard switch is in ON position, the BCM detects the hazard switch signal ON. The BCM outputs the flasher signal (right and left). The BCM sends a hazard indicator signal ON request via the CAN communication lines to the combination meter. The combination meter then activates the hazard indicator and audible buzzer.

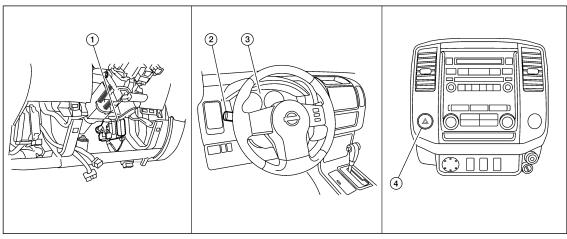
#### REMOTE KEYLESS ENTRY OPERATION

The remote keyless entry receiver transmits a hazard request signal to the BCM, then BCM controls hazard lamps.

Refer to DLK-14, "REMOTE KEYLESS ENTRY: System Description".

# **Component Parts Location**

INFOID:0000000008798062



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### TURN SIGNAL AND HAZARD WARNING LAMPS

### < SYSTEM DESCRIPTION >

- 1. BCM M18, M20 (view with lower in-
- strument panel LH removed)
- 2. Combination switch (lighting and turn 3. Combination meter M24 signal switch) M28

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Hazard switch M55

# **Component Description**

INFOID:0000000008798063

Part name	Description
BCM	Controls turn signal and hazard flasher operation.
Combination switch (lighting and turn signal switch)	Lighting and turn signal switch requests are output to the BCM.
Hazard switch	Hazard flasher request signal is output to the BCM.
Combination meter	Outputs turn and hazard indicator as requested by the BCM.

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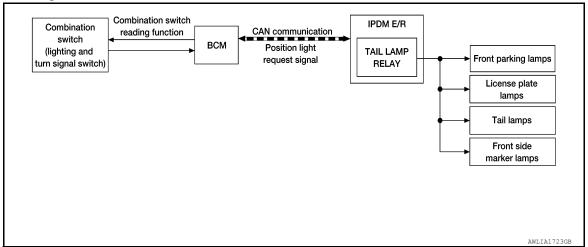
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# PARKING, LICENSE PLATE AND TAIL LAMPS

System Diagram

INFOID:0000000008798064



# System Description

INFOID:0000000008798065

#### PARKING, LICENCE PLATE AND TAIL LAMPS OPERATION

When the combination switch (lighting and turn signal switch) is in 1ST position, BCM detects the LIGHTING SWITCH 1ST POSITION ON. The BCM sends a parking light ON request via the CAN communication lines to the IPDM E/R. The IPDM E/R then activates the tail lamp relay which sends power to the parking and instrument illumination circuits.

#### EXTERIOR LAMP BATTERY SAVER CONTROL

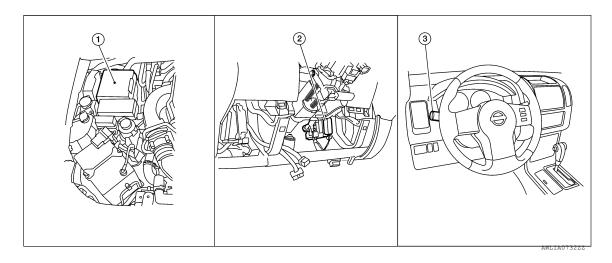
With the combination switch (lighting and turn signal switch) in the 2ND position and the ignition switch is turned from ON or ACC to OFF, the battery saver feature is activated.

Under this condition, the headlamps remain illuminated for 45 seconds unless the combination switch (lighting and turn signal switch) position is changed. If the combination switch (lighting and turn signal switch) position is changed, then the headlamps are turned off.

This setting can be changed by CONSULT. Refer to <u>BCS-19</u>, "<u>HEADLAMP</u>: <u>CONSULT Function (BCM - HEAD LAMP</u>)".

# **Component Parts Location**

INFOID:0000000008798066



1. IPDM E/R E121, E122, E123, E124

BCM M18, M20 (view with lower instru- 3. ment panel LH removed)

Combination switch (lighting and turn signal switch) M28

# PARKING, LICENSE PLATE AND TAIL LAMPS

# < SYSTEM DESCRIPTION >

# **Component Description**

INFOID:0000000008798067

Part name	Description		
BCM	<ul> <li>Receives combination switch (lighting and turn signal switch) requests via BCM combination switch reading function.</li> <li>Sends parking light request signal to the IPDM E/R.</li> </ul>		
IPDM E/R	Activates the tail lamp relay upon request of the BCM.		
Combination switch (lighting and turn signal switch)	Outputs lighting requests to the BCM.		

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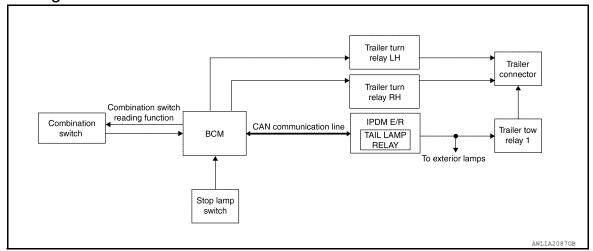
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### TRAILER TOW

### System Diagram

INFOID:0000000008798068



# System Description

INFOID:0000000008798069

#### TRAILER TAIL LAMP OPERATION

The trailer tail lamps are controlled by the trailer tow relay 1 located on the front of the IPDM E/R. With the combination switch (lighting and turn signal switch) in the 1st position, the BCM detects the LIGHTING SWITCH 1ST POSITION ON. The BCM sends a parking light ON request via the CAN communication lines to the IPDM E/R. The IPDM E/R then activates the tail lamp relay which activates the trailer tow relay 1 and sends power to the trailer connector.

#### TRAILER TURN SIGNAL LAMP OPERATION

The trailer turn signal lamps are controlled by the BCM. When the combination switch (lighting and turn signal switch) is in the LH or RH position with the ignition switch ON, the combination switch (lighting and turn signal switch) sends a signal to the BCM. The BCM detects the TURN RH or TURN LH ON request. The BCM sends a control signal to the respective trailer turn relay which sends power to the trailer connector.

#### TRAILER HAZARD LAMP OPERATION

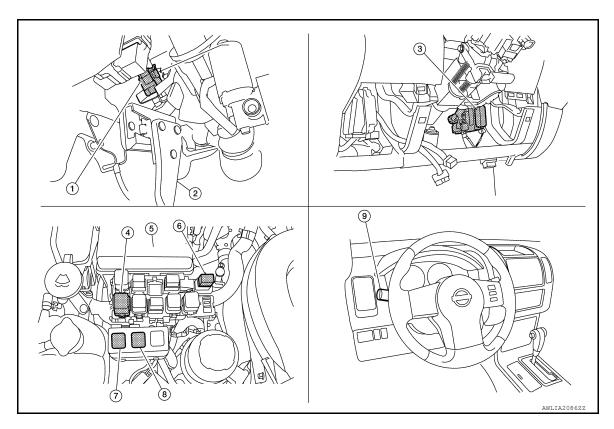
The trailer hazard lamps are controlled by the BCM. When the hazard switch is pressed, the BCM detects the the hazard ON request. The BCM then sends a control signal to both trailer turn relays which sends power to the trailer connector.

#### TRAILER BRAKE LAMP OPERATION

The trailer brake lamps are controlled by the BCM. When the brake pedal is depressed, the stop lamp switch sends the brake signal to the BCM. The BCM then sends a control signal to both trailer turn relays which sends power to the trailer connector.

# **Component Parts Location**

INFOID:0000000008798070



- Stop lamp switch E38 (with M/T) or E39 (with A/T) (view with lower instrument panel LH removed)
- Trailer turn relay LH E169
- Trailer tow relay 2 E228
- Brake pedal
- IPDM E/R E121, E122, E124
- 8. Trailer tow relay 1 E227
- BCM, M18, M19, M20 (view with lower instrument panel LH removed)
- 6. Trailer turn relay RH E170
- 9. Combination switch (lighting and turn signal switch) M28

**Component Description** 

INFOID:0000000008798071

Part name	Description
BCM	<ul> <li>Receives lighting and turn signal requests from combination switch (lighting and turn signal switch).</li> <li>Sends lighting signal request to the IPDM E/R to control the tail lamp relay via CAN communication.</li> <li>Sends turn/hazard/brake control signal to the trailer turn relays.</li> </ul>
IPDM E/R	Activates the tail lamp relay upon request from the BCM via CAN communication.
Combination switch (lighting and turn signal switch)	Outputs lighting and turn signal requests to the BCM.

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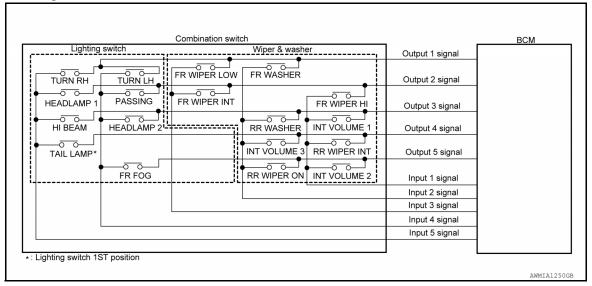
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### System Diagram

INFOID:0000000009280223



# **System Description**

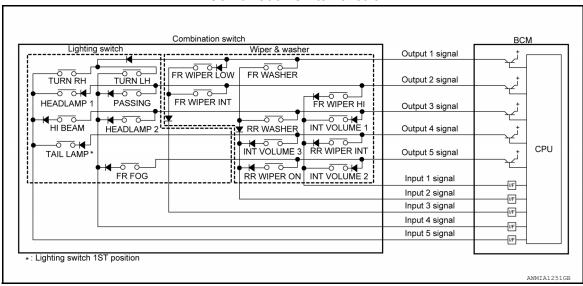
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#### **OUTLINE**

- BCM reads the status of the combination switch (light, turn signal, wiper and washer) and recognizes the status of each switch.
- BCM has a combination of 5 output terminals (OUTPUT 1 5) and 5 input terminals (INPUT 1 5) and reads a maximum of 20 switch states.

#### COMBINATION SWITCH MATRIX

#### Combination switch circuit



#### Combination switch INPUT-OUTPUT system list

System	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
OUTPUT 1	_	FR WASHER	FR WIPER LOW	TURN LH	TURN RH
OUTPUT 2	FR WIPER HI	_	FR WIPER INT	PASSING	HEADLAMP 1
OUTPUT 3	INT VOLUME 1	RR WASHER	_	HEADLAMP 2	HI BEAM

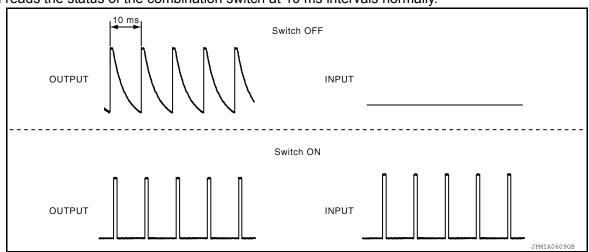
#### < SYSTEM DESCRIPTION >

System	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5
OUTPUT 4	RR WIPER INT	INT VOLUME 3	_	_	TAIL LAMP
OUTPUT 5	INT VOLUME 2	RR WIPER ON	_	FR FOG	_

#### COMBINATION SWITCH READING FUNCTION

#### Description

BCM reads the status of the combination switch at 10 ms intervals normally.



#### NOTE:

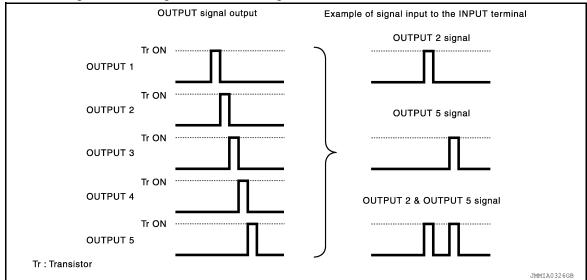
BCM reads the status of the combination switch at 60 ms intervals when BCM is controlled at low power consumption control mode.

• BCM operates as follows and judges the status of the combination switch.

- It operates the transistor on OUTPUT side in the following order: OUTPUT 1  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4  $\rightarrow$  5, and outputs voltage waveform.

- The voltage waveform of OUTPUT corresponding to the formed circuit is input into the interface on INPUT side if any (1 or more) switches are ON.

- It reads this change of the voltage as the status signal of the combination switch.



#### Operation Example

In the following operation example, the combination of the status signals of the combination switch is replaced as follows: INPUT 1 - 5 to "1 - 5" and OUTPUT 1 - 5 to "A - E".

Example 1: When a switch (TAIL LAMP) is turned ON

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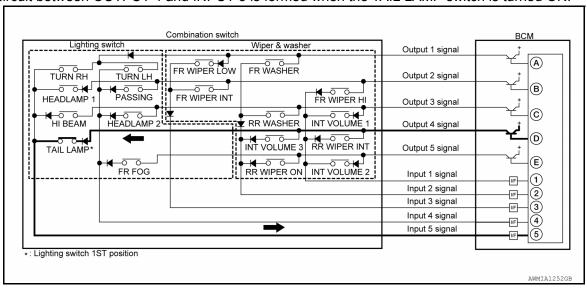
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#### < SYSTEM DESCRIPTION >

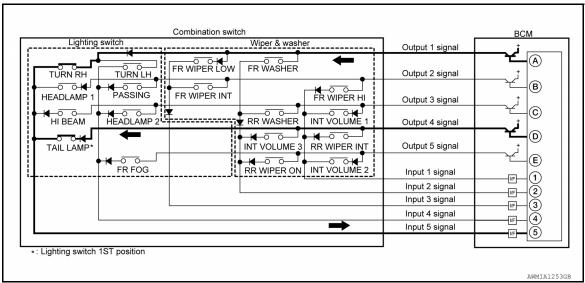
• The circuit between OUTPUT 4 and INPUT 5 is formed when the TAIL LAMP switch is turned ON.



- BCM detects the combination switch status signal "5D" when the signal of OUTPUT 4 is input to INPUT 5.
- BCM judges that the TAIL LAMP switch is ON when the signal "5D" is detected.

Example 2: When some switches (TURN RH, TAIL LAMP) are turned ON

 The circuits between OUTPUT 1 and INPUT 5 and between OUTPUT 4 and INPUT 5 are formed when the TURN RH switch and TAIL LAMP switch are turned ON.



- BCM detects the combination switch status signal "5AD" when the signals of OUTPUT 1 and OUTPUT 4 are input to INPUT 5.
- BCM judges that the TURN RH switch and TAIL LAMP switch are ON when the signal "5AD" is detected.

WIPER INTERMITTENT DIAL POSITION SETTING (FRONT WIPER INTERMITTENT OPERATION) BCM judges the wiper intermittent dial 1 - 7 by the status of INT VOLUME 1, 2, and 3 switches.

# < SYSTEM DESCRIPTION >

Wiper intermittent	Intermittent	INT	VOLUME switch ON/OFF st	atus
dial position	operation delay interval	INT VOLUME 1	INT VOLUME 2	INT VOLUME 3
1	Short	ON	ON	ON
2	1	ON	ON	OFF
3		ON	OFF	OFF
4		OFF	OFF	OFF
5		OFF	OFF	ON
6	<b>+</b>	OFF	ON	ON
7	Long	OFF	ON	OFF

# **Component Parts Location**

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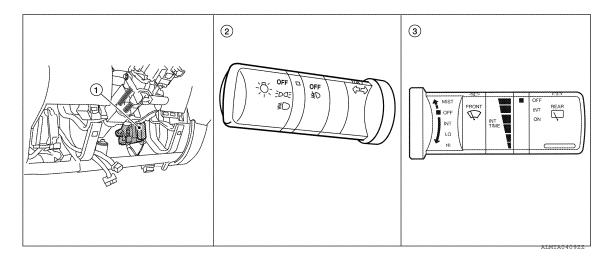
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- BCM M18, M19, M20 (view with low- 2. er instrument panel LH removed)
- Combination switch (lighting and turn signal switch) M28
- 3. Combination switch (wiper and washer switch) M28

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### < SYSTEM DESCRIPTION >

# DIAGNOSIS SYSTEM (BCM)

**COMMON ITEM** 

COMMON ITEM: CONSULT Function (BCM - COMMON ITEM)

INFOID:0000000009280226

### **APPLICATION ITEM**

CONSULT performs the following functions via CAN communication with BCM.

Direct Diagnostic Mode	Description
ECU Identification	The BCM part number is displayed.
Self Diagnostic Result	The BCM self diagnostic results are displayed.
Data Monitor	The BCM input/output data is displayed in real time.
Active Test	The BCM activates outputs to test components.
Work support	The settings for BCM functions can be changed.
Configuration	<ul> <li>The vehicle specification can be read and saved.</li> <li>The vehicle specification can be written when replacing BCM.</li> </ul>
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.

### SYSTEM APPLICATION

BCM can perform the following functions.

				Direct [	Diagnosti	c Mode		
System	Sub System	ECU Identification	Self Diagnostic Result	Data Monitor	Active Test	Work support	Configuration	CAN Diag Support Mntr
Door lock	DOOR LOCK			×	×	×		
Rear window defogger	REAR DEFOGGER			×	×			
Warning chime	BUZZER			×	×			
Interior room lamp timer	INT LAMP			×	×	×		
Remote keyless entry system	MULTI REMOTE ENT			×	×	×		
Exterior lamp	HEAD LAMP			×	×	×		
Wiper and washer	WIPER			×	×	×		
Turn signal and hazard warning lamps	FLASHER			×	×			
Air conditioner	AIR CONDITIONER			×				
Combination switch	COMB SW			×				
BCM	BCM	×	×			×	×	×
Immobilizer	IMMU		×	×	×			
Interior room lamp battery saver	BATTERY SAVER			×	×	×		
Back door open	TRUNK			×	×			
Vehicle security system	THEFT ALM			×	×	×		
RAP system	RETAINED PWR			×	×	×		
Signal buffer system	SIGNAL BUFFER			×	×			
TPMS	AIR PRESSURE MONITOR		×	×	×	×		
Panic alarm system	PANIC ALARM				×			

# **HEADLAMP**

### < SYSTEM DESCRIPTION >

# HEADLAMP : CONSULT Function (BCM - HEAD LAMP)

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### **DATA MONITOR**

Monitor Item [Unit]	Description	
IGN ON SW [On/Off]	Indicates condition of ignition switch ON position.	
ACC ON SW [On/Off]	Indicates condition of ignition switch ACC position.	
HI BEAM SW [On/Off]		
HEAD LAMP SW 1 [On/Off]		
HEAD LAMP SW 2 [On/Off]		
LIGHT SW 1ST [On/Off]	Indicates condition of combination switch.	
AUTO LIGHT SW [On/Off]		
PASSING SW [On/Off]		
FR FOG SW [On/Off]		
DOOR SW-DR [On/Off]	Indicates condition of front door switch LH.	
DOOR SW-AS [On/Off]	Indicates condition of front door switch RH.	
DOOR SW-RR [On/Off]	Indicates condition of rear door switch RH.	
CARGO LAMP SW [On/Off]	Indicates condition of cargo lamp switch.	
OPTICAL SENSOR [V]	Indicates condition of voltage signal from optical sensor.	
DOOR SW-RL [On/Off]	Indicates condition of rear door switch LH.	
BACK DOOR SW [On/Off]	Indicates condition of back door switch.	
TURN SIGNAL R [On/Off]	Indicates condition of combination quitab	
TURN SIGNAL L [On/Off]	Indicates condition of combination switch.	

### **ACTIVE TEST**

Test Item	Description
TAIL LAMP	This test is able to check tail lamp operation [Off/On].
HEAD LAMP	This test is able to check head lamp operation [Off/Lo/Hi].
FR FOG LAMP	This test is able to check front fog lamp operation [Off/On].

### **WORK SUPPORT**

Support Item	Setting	Description
BATTERY SAVER SET	Off	Exterior lamp battery saver function OFF.
BATTERT SAVER SET	On*	Exterior lamp battery saver function ON.
	MODE4	Less sensitive setting than normal setting (Turns ON later than normal operation).
CUSTOM A/LIGHT SETTING	MODE3	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2).
	MODE2	More sensitive setting than normal setting (Turns ON earlier than normal operation).
	MODE1*	Normal.

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### < SYSTEM DESCRIPTION >

Support Item	Se	tting	Description
	MODE8	180 sec	
	MODE7	150 sec	
	MODE6	120 sec	
ILL DELAY SET	MODE5	90 sec	Sets delay timer function operation time
ILL DELAT SET	MODE4	60 sec	(All doors closed).
	MODE3	30 sec	
	MODE2	OFF	
	MODE1*	45 sec	

<sup>\*:</sup> Initial setting

### **FLASHER**

# FLASHER: CONSULT Function (BCM - FLASHER)

INFOID:0000000009280229

### **DATA MONITOR**

Monitor Item [Unit]	Description		
IGN ON SW [On/Off]	Indicates condition of ignition switch ON position.		
HAZARD SW [On/Off]	Indicates condition of hazard switch.		
TURN SIGNAL R [On/Off]	Indicates condition of turn signal function of combination quitab		
TURN SIGNAL L [On/Off]	Indicates condition of turn signal function of combination switch.		
BRAKE SW [On/Off]	Indicates condition of brake switch.		

### **ACTIVE TEST**

Test Item	Description	
FLASHER	This test is able to check turn signal lamp operation [Off/LH/RH].	

# **COMB SW**

# COMB SW: CONSULT Function (BCM - COMB SW)

INFOID:0000000009280231

### **DATA MONITOR**

Monitor Item [Unit]	Description
TURN SIGNAL R [On/Off]	Indicates condition of turn signal apprection of combination switch
TURN SIGNAL L [On/Off]	Indicates condition of turn signal operation of combination switch.
HI BEAM SW [On/Off]	Indicates condition of hi beam operation of combination switch.
HEAD LAMP SW 1 [On/Off]	Indicates condition of headlamp operation of combination switch.
HEAD LAMP SW 2 [On/Off]	indicates condition of neadlamp operation of combination switch.
LIGHT SW 1ST [On/Off]	Indicates condition of lighting operation of combination switch.
PASSING SW [On/Off]	Indicates condition of passing switch operation of combination switch.
FR FOG SW [On/Off]	Indicates condition of front fog light operation of combination switch.
FR WIPER HI [On/Off]	
FR WIPER LOW [On/Off]	Indicates condition of front wiper operation of combination switch.
FR WIPER INT [On/Off]	
FR WASHER SW [On/Off]	Indicates condition of front washer operation of combination switch.
INT VOLUME [1 - 7]	Indicates condition of intermittent wiper operation of combination switch.

### < SYSTEM DESCRIPTION >

Monitor Item [Unit]	Description	
RR WIPER ON [On/Off]	Indicates condition of rear wiper operation of combination switch.	
RR WIPER INT [On/Off]		
RR WASHER SW [On/Off]	Indicates condition of rear washer operation of combination switch.	В

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### **Diagnosis Description**

#### INFOID:0000000009280217

#### **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 low warning indicator
- · Oil pressure gauge
- Rear window defogger
- · Front wipers
- · Tail, license and parking lamps
- Front fog lamps (if equipped)
- Headlamps (Hi, Lo)
- A/C compressor (magnetic clutch)
- Cooling fan

#### Operation Procedure

Close the hood and front door RH, and lift the wiper arms from the windshield (to prevent windshield damage due to wiper operation).

#### NOTE:

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

- 2. Turn ignition switch OFF.
- 3. Turn the ignition switch ON and, within 20 seconds, press the front door switch LH 10 times. Then turn the ignition switch OFF.
- 4. Turn the ignition switch ON within 10 seconds. After that the horn sounds once and the auto active test starts.
- 5. After a series of the following operations is repeated 3 times, auto active test is completed.

#### NOTE:

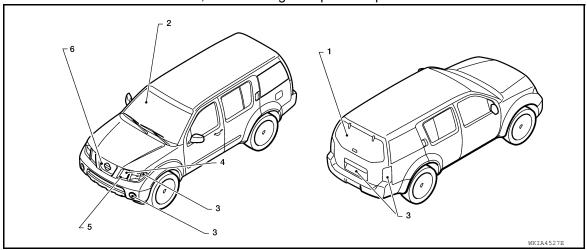
When auto active test mode has to be cancelled halfway through test, turn ignition switch OFF.

#### **CAUTION:**

- If auto active test mode cannot be actuated, check door switch system. Refer to <a href="DLK-24">DLK-24</a>, "Description".
- · Do not start the engine.

Inspection in Auto Active Test Mode

When auto active test mode is actuated, the following 7 steps are repeated 3 times.

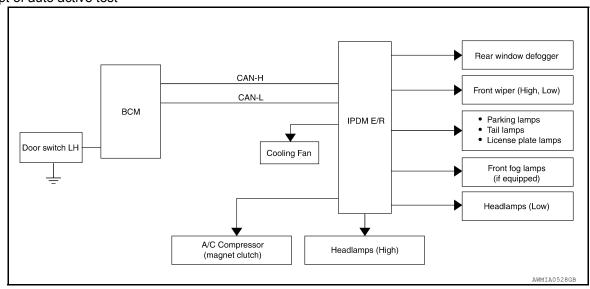


Item Number	Test Item	Operation Time/Frequency	
1	Rear window defogger	10 seconds	
2	Front wipers	LOW 5 seconds then HIGH 5 seconds	
3	License plate, tail, parking and fog lamps (if equipped)	10 seconds	

### < SYSTEM DESCRIPTION >

Item Number	Test Item	Operation Time/Frequency
4	Headlamps	LOW 10 seconds then HIGH ON-OFF 5 times
5	A/C compressor (magnet clutch)	ON-OFF 5 times
6	Cooling fan	LOW 5 seconds, then HIGH 5 seconds

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	
Oil pressure low warning indicator does not operate	Perform auto active test. Does the oil pressure low warning indicator operate?	YES	IPDM E/R signal input circuit     ECM signal input circuit     CAN communication signal between ECM and combination meter	
			CAN communication signal between IPDM E/R, BCM and combination meter	
	Perform auto active test.	YES	IPDM E/R signal input circuit	
Oil pressure gauge does not operate	Does the oil pressure gauge operate?		CAN communication signal between IPDM E/R, BCM and combination meter	
		YES	BCM signal input circuit	
Rear window defogger does not operate	Perform auto active test.  Does the rear window defogger operate?	NO	Harness or connector between front air control and BCM     CAN communication signal between BCM and IPDM E/R	

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# < SYSTEM DESCRIPTION >

Symptom	Inspection contents		Possible cause	
		YES	BCM signal input system	
Any of the following components do not operate  Front wipers  Tail lamps  License plate lamps  Parking lamps  Front fog lamps (if equipped)  Headlamps (Hi, Lo)	Perform auto active test.  Does the applicable system operate?	NO	Lamp or front wiper motor malfunction Lamp or front wiper motor ground circuit Harness or connector between IPDM E/R and applicable system IPDM E/R (integrated relay malfunction)	
	Perform auto active test.	YES	BCM signal input circuit     CAN communication signal between BCM and ECM     CAN communication signal between ECM and IPDM E/R	
A/C compressor does not operate	Does the A/C compressor operate?		Magnetic clutch malfunction     Harness or connector between IPDM E/R and magnetic clutch     IPDM E/R (integrated relay malfunction)	
		YES	ECM signal input circuit     CAN communication signal between ECM and IPDM E/R	
Cooling fan does not operate	Perform auto active test.  Does the cooling fan operate?		Cooling fan motor malfunction     Harness or connector between IPDM E/R and cooling fan     IPDM E/R (integrated relay malfunction)	

# CONSULT Function (IPDM E/R)

INFOID:0000000009280218

### APPLICATION ITEM

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

Direct Diagnostic Mode	Description	
Self Diagnostic Result	The IPDM E/R self diagnostic results are displayed.	
Data Monitor	The IPDM E/R input/output data is displayed in real time.	
Active Test	The IPDM E/R activates outputs to test components.	
CAN Diag Support Mntr	The result of transmit/receive diagnosis of CAN communication is displayed.	

# SELF DIAGNOSTIC RESULT

Refer to PCS-21, "DTC Index".

### DATA MONITOR

Monitor Item [Unit]	Main Signals	Description
MOTOR FAN REQ [1/2/3/4]	×	Indicates cooling fan speed signal received from ECM on CAN communication line
AC COMP REQ [On/Off]	×	Indicates A/C compressor request signal received from ECM on CAN communication line

### < SYSTEM DESCRIPTION >

Monitor Item [Unit]	Main Signals	Description	
TAIL&CLR REQ [On/Off]	×	Indicates position light request signal received from BCM on CAN communication line	
HL LO REQ [On/Off]	×	Indicates low beam request signal received from BCM on CAN communication line	
HL HI REQ [On/Off]	×	Indicates high beam request signal received from BCM on CAN communication line	
FR FOG REQ [On/Off]	×	Indicates front fog light request signal received from BCM on CAN communication line	
FR WIP REQ [Stop/1LOW/Low/Hi]	×	Indicates front wiper request signal received from BCM on CAN communication line	
WIP AUTO STOP [STOP P/ACT P]	×	Indicates condition of front wiper auto stop signal	
WIP PROT [Off/BLOCK]	×	Indicates condition of front wiper fail-safe operation	
ST RLY REQ [On/Off]		Indicates starter request signal received from ECM on CAN communication line	
IGN RLY [On/Off]	×	Indicates condition of ignition relay	
RR DEF REQ [On/Off]	×	Indicates rear defogger request signal received from BCM on CAN communication line	
OIL P SW [Open/Close]		Indicates condition of oil pressure switch	
DTRL REQ [Off]		Indicates daytime light request signal received from BCM on CAN communication line	
THFT HRN REQ [On/Off]		Indicates theft warning horn request signal received from BCM on CAN communication line	
HORN CHIRP [On/Off]		Indicates horn reminder signal received from BCM on CAN communication line	

# **ACTIVE TEST**

Test item	Description		
REAR DEFOGGER	This test is able to check rear defogger operation [On/Off].		
FRONT WIPER	This test is able to check wiper motor operation [Hi/Lo/Off].		
MOTOR FAN	This test is able to check cooling fan operation [4/3/2/1].		
EXTERNAL LAMPS	This test is able to check external lamp operation [Fog/Hi/Lo/TAIL/Off].		
HORN	This test is able to check horn operation [On].		

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### POWER SUPPLY AND GROUND CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

# DTC/CIRCUIT DIAGNOSIS

# POWER SUPPLY AND GROUND CIRCUIT BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE): Diagnosis Procedure

INFOID:0000000009280237

Regarding Wiring Diagram information, refer to BCS-44, "Wiring Diagram".

# 1. CHECK FUSES AND FUSIBLE LINK

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

Terminal No.	Signal name	Fuses and fusible link No.
57	Pottory power gupply	21 (10A)
70	Battery power supply	G (50A)
11	Ignition ACC or ON	4 (10A)
38	Ignition ON or START	1 (10A)

#### Is the fuse blown?

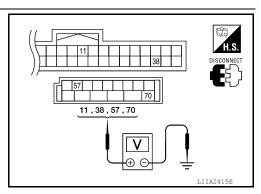
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2

# 2. CHECK POWER SUPPLY CIRCUIT

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

Connector	Terminals		Power	Condition	Voltage (V) (Ap-
	(+)	(-)	source	Condition	prox.)
M18	11	Ground	ACC power supply	Ignition switch ACC or ON	Battery voltage
	38	Ground	Ignition power supply	Ignition switch ON or START	Battery voltage
M20	57	Ground	Battery power supply	Ignition switch OFF	Battery voltage
	70	Ground	Battery power supply	Ignition switch OFF	Battery voltage



### Is the measurement value normal?

YES >> GO TO 3

NO >> Repair or replace harness.

 $oldsymbol{3}$  . CHECK GROUND CIRCUIT

#### **POWER SUPPLY AND GROUND CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

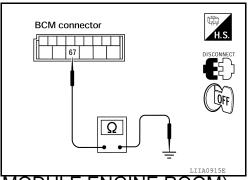
Check continuity between BCM harness connector and ground.

В	СМ		Continuity
Connector	Terminal	Ground	Continuity
M20	67		Yes

#### Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.



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

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

Regarding Wiring Diagram information, refer to PCS-22, "Wiring Diagram".

# 1. CHECK FUSIBLE LINKS

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

Terminal No.	Signal name	Fusible link No.
1		A, D
2	Battery	С
22		E, I

#### Is the fusible link blown?

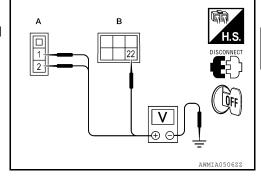
YES >> Replace the blown fusible link after repairing the affected circuit.

NO >> GO TO 2

# 2. CHECK BATTERY POWER SUPPLY CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect IPDM E/R.
- 3. Check voltage between IPDM E/R harness connectors and ground.

Terminals			Ignition	\/-lt(\/)	
(+)		(-)	switch posi-	Voltage (V) (Approx.)	
Connector	Terminal	(-)	tion	(	
E118 (A)	1				
E110 (A)	2	Ground	OFF	Battery voltage	
E120 (B)	22			voltage	



Is there voltage on all pins?

YES >> GO TO 3

NO >> Repair or replace harness.

# 3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

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#### POWER SUPPLY AND GROUND CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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

IPDM	E/R		Continuity	
Connector	Terminal	Ground	Continuity	
E122 (A)	38	Giodila	Yes	
E124 (B)	59		165	

# A DISCONNECT OF STANDARD ANNIA DO 24 2 Z Z

#### Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.

#### **HEADLAMP (HI) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

## **HEADLAMP (HI) CIRCUIT**

Description INFOID:0000000008798083

The IPDM E/R (intelligent power distribution module engine room) controls the headlamp high relay based on inputs from the BCM via the CAN communication lines. When the headlamp high relay is energized, power flows through fuses 34 and 35, located in the IPDM E/R. Power then flows to the front combination lamps to the headlamp high beam.

#### Component Function Check

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# 1. CHECK HEADLAMP (HI) OPERATION

#### ®WITHOUT CONSULT

1. Start IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".

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

#### NOTE:

HI/LO is repeated 1 second each when using the IPDM E/R auto active test.

#### (I) WITH CONSULT

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

2. With the test item operating, check that the headlamp switches to high beam.

HI: Headlamp switches to the high beam.

OFF : Headlamp OFF

#### Does the headlamp switch to high beam?

YES >> Headlamp (HI) circuit is normal.

NO >> Refer to EXL-39, "Diagnosis Procedure".

#### Diagnosis Procedure

INFOID:0000000008798085

Regarding Wiring Diagram information, refer to <u>EXL-83, "Wiring Diagram"</u> (without DTRL) or <u>EXL-87, "Wiring Diagram"</u> (with DTRL).

# 1. CHECK HEADLAMP (HI) FUSES

Turn the ignition switch OFF.

2. Check that the following fuses are not open.

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Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	35	10A
Headlamp HI (RH)	IPDM E/R	34	10A

#### Is the fuse open?

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

NO >> GO TO 2

# 2.CHECK HEADLAMP (HI) OUTPUT VOLTAGE

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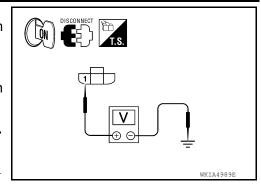
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#### **HEADLAMP (HI) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

- 1. Turn the ignition switch OFF.
- 2. Disconnect the front combination lamp connector E7 (with DTRL), E11(without DTRL) or E107.
- 3. Turn the ignition switch ON.
- 4. Turn the high beam headlamps ON.
- 5. With the high beam headlamps ON, check the voltage between the combination lamp connector and ground.

(+)		(-)	Voltage	
	Connector	Terminal	(-)	voltage
LH	E7 (with DTRL)			
LII	E11 (without DTRL)	1	Ground	Battery voltage
RH	E107			



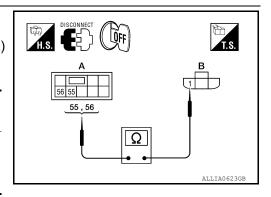
#### Is battery voltage present?

YES >> GO TO 4 NO >> GO TO 3

# 3.CHECK HEADLAMP (HI) CIRCUIT FOR OPEN

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector E123.
- 3. Check continuity between the IPDM E/R harness connector (A) and the front combination lamp harness connector (B).

	Α		В		Continuity		
Conn	ector	Terminal	Connector	Terminal	Continuity		
LH		55	E7 (with DTRL)				
LII	E123	E11 (without DTRL)			E11 (without DTRL)	1	Yes
RH		56	E107				



#### Does continuity exist?

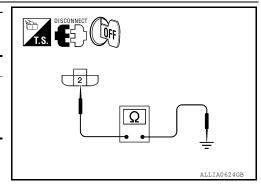
YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair the harnesses or connectors.

# 4. CHECK FRONT COMBINATION LAMP (HI) GROUND CIRCUIT

Check continuity between the front combination lamp harness connector terminal and ground.

	Connector	Terminal	_	Continuity
LH	E7 (with DTRL)			
LII	E11 (without DTRL)	2	Ground	Yes
RH	E107			



#### Does continuity exist?

YES >> Inspect the headlamp bulb.

NO (Except LH with DTRL)>> Repair the harness.

NO (LH with DTRL)>> GO TO 5.

# 5.CHECK CONTINUITY BETWEEN FRONT HEADLAMP LH (HI) AND DAYTIME LIGHT RELAY 1

- Disconnect daytime light relay 1 connector.
- Check continuity between front headlamp LH harness connector and daytime light relay 1 harness connector.

Front hea	ndlamp LH	Daytime light relay 1		Continuity
Connector	Terminal	Connector Terminal		Continuity
E7	2	E103	3	Yes

#### **HEADLAMP (HI) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

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YES >> GO TO 6.

NO >> Repair the harness or connector.

# 6. CHECK DAYTIME LIGHT RELAY 1 GROUND CIRCUIT

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

Daytime li	ght relay 1		Continuity	
Connector	Terminal	Ground	Continuity	
E103	4		Yes	

#### Does continuity exist?

YES >> GO TO 7.

NO >> Repair the harness or connector.

# 7.CHECK DAYTIME LIGHT RELAY 1

Check daytime light relay 1. Refer to EXL-47, "Component Inspection"

#### Is the inspection result normal?

YES >> Inspect the headlamp bulb.

NO >> Replace daytime light relay 1.

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#### **HEADLAMP (LO) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

# **HEADLAMP (LO) CIRCUIT**

Description INFOID:000000008798086

The IPDM E/R (intelligent power distribution module engine room) controls the headlamp low relay based on inputs from the BCM via the CAN communication lines. When the headlamp low relay is energized, power flows through fuses 40 and 41, located in the IPDM E/R. Power then flows to the front combination lamps to the headlamp low beam.

#### Component Function Check

INFOID:0000000008798087

# 1. CHECK HEADLAMP (LO) OPERATION

#### **NWITHOUT CONSULT**

- 1. Start IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".
- 2. Check that the headlamp is turned ON.

#### NOTE:

HI/LO is repeated 1 second each when using the IPDM E/R auto active test.

#### (P)WITH CONSULT

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

LO : Headlamp ON OFF : Headlamp OFF

#### Is the headlamp turned ON?

YES >> Headlamp (LO) is normal.

NO >> Refer to EXL-42, "Diagnosis Procedure".

#### Diagnosis Procedure

INFOID:0000000008798088

Regarding Wiring Diagram information, refer to <u>EXL-83, "Wiring Diagram"</u> (without DTRL) or <u>EXL-87, "Wiring Diagram"</u> (with DTRL).

# 1. CHECK HEADLAMP (LO) FUSES

- Turn the ignition switch OFF.
- Check that the following fuses are not open.

Unit	Location	Fuse No.	Capacity
Headlamp LO (LH)	IPDM E/R	40	15A
Headlamp LO (RH)	IPDM E/R	41	15A

#### Is the fuse open?

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

NO >> GO TO 2

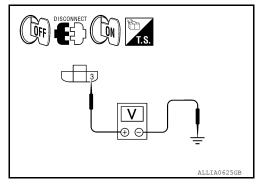
# 2.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

#### **HEADLAMP (LO) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

- 1. Turn the ignition switch OFF.
- 2. Disconnect the front combination lamp connector.
- 3. Turn the ignition switch ON.
- 4. Turn the low beam headlamps ON.
- 5. With the low beam headlamps ON, check the voltage between the combination lamp connector and ground.

(+)		(-)	Voltage	
	Connector	Terminal	(-)	voltage
LH	E7 (with DTRL)			
LII	E11 (without DTRL)	3	Ground	Battery voltage
RH	E107			



#### Is battery voltage present?

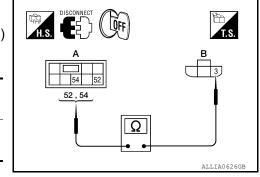
YES >> GO TO 8

NO (Except LH with DTRL)>>CHECK HEADLAMP (LO) CIRCUIT FOR OPEN GO TO 3 NO (LH with DTRL)>>CHECK HEADLAMP (LO) CIRCUIT FOR OPEN GO TO 4

# 3. CHECK HEADLAMP (LO) CIRCUIT FOR OPEN (EXCEPT LH WITH DTRL)

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector E123.
- Check continuity between the IPDM E/R harness connector (A) and the front headlamp harness connector (B).

Α		В		Continuity	
Conr	nector	Terminal	Connector	Terminal	Continuity
LH	E123	52	E11	3	Yes
RH	L123	54	E107	3	100



#### Does continuity exist?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair the harnesses or connectors.

# 4.CHECK HEADLAMP (LO) CIRCUIT FOR OPEN (LH WITH DTRL)

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector E123 and daytime light relay 2 connector.
- Check continuity between the IPDM E/R harness connector and the daytime light relay 2 harness connector.

IPDM E/I	IPDM E/R		Daytime light relay 2	
Connector	Terminal	Connector	Terminal	Continuity
E123	52	E104	5	Yes
E123	52	E 104	2	165

#### Does continuity exist?

YES >> GO TO 5

NO >> Repair the harnesses or connectors.

# 5.CHECK DAYTIME LIGHT RELAY $2\,$ CIRCUIT

 Check continuity between the daytime light relay 2 harness connector and the front headlamp LH harness connector.

Daytime light relay 2		Front headlamp LH		Continuity
Connector	Terminal	Connector	Terminal	Continuity
E104	3	E7	3	Yes

<sup>2.</sup> Check continuity between the daytime light relay 2 harness connector and ground.

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#### < DTC/CIRCUIT DIAGNOSIS >

Daytime li	ght relay 2		Continuity
Connector	Terminal	Ground	Continuity
E104	3		No

#### Is the measurement value normal?

YES >> GO TO 6

NO >> Repair the harnesses or connectors.

#### $oldsymbol{6}$ .CHECK DAYTIME LIGHT RELAY 2 GROUND CIRCUIT

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

Daytime light relay 2			Continuity
Connector	Terminal	Ground	Continuity
E104	1		Yes

#### Does continuity exist?

YES >> GO TO 7

NO >> Repair the harness or connector.

#### 7.CHECK DAYTIME LIGHT RELAY 2

Check daytime light relay 2. Refer to EXL-45, "Component Inspection".

#### Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Replace daytime light relay 2.

### 8.CHECK FRONT HEADLAMP (LO) GROUND CIRCUIT

Check continuity between the front headlamp harness connector terminal 2 and ground.

	Connector	Terminal	_	Continuity
LH	E7 (with DTRL)			
	E11 (without DTRL)	2	Ground	Yes
RH	E107			

# DISCONNECT OFF

#### Does continuity exist?

YES >> Inspect the headlamp bulb.

NO (Except LH with DTRL)>> Repair the harness.

NO (LH with DTRL)>> GO TO 9

# 9.CHECK CONTINUITY BETWEEN FRONT HEADLAMP LH (HI) AND DAYTIME LIGHT RELAY 1

- 1. Disconnect daytime light relay 1 connector.
- 2. Check continuity between front headlamp LH harness connector and daytime light relay 1 harness connector.

Front headlamp LH		Daytime light relay 1		Continuity
Connector	Terminal	Connector Terminal		Continuity
E7	2	E103	3	Yes

#### Does continuity exist?

YES >> GO TO 10

NO >> Repair the harness or connector.

# 10.CHECK DAYTIME LIGHT RELAY 1 GROUND CIRCUIT

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

#### **HEADLAMP (LO) CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

Daytime light relay 1			Continuity
Connector	Terminal	Ground	Continuity
E103	4		Yes

Does continuity exist?

YES >> GO TO 11

NO >> Repair the harness or connector.

# 11. CHECK DAYTIME LIGHT RELAY 1

Check daytime light relay 1. Refer to EXL-47, "Component Inspection"

#### Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Replace daytime light relay 1.

#### Component Inspection

# 1. CHECK DAYTIME LIGHT RELAY 2

- 1. Turn ignition switch OFF.
- 2. Remove daytime light relay 2.
- 3. Check the continuity between daytime light relay 2 terminals under the following conditions.

Terminals	Condition	Continuity
3 and 5	12V direct current supply between terminals 1 and 2	Yes
J and J	No current supply	No

#### Is the inspection result normal?

YES >> Inspection End.

NO >> Replace daytime light relay 2.

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#### DAYTIME LIGHT RELAY CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### DAYTIME LIGHT RELAY CIRCUIT

Description INFOID:0000000008798090

The BCM sends a daytime light request to the IPDM E/R via the CAN communication lines. The power flows backward through fuse 45 located in IPDM E/R to daytime light relay 1 and LH high beam lamp to IPDM E/R, through the high beam fuses, through the RH high beam lamp and on to ground. The high beam lamps are wired in series which causes them to illuminate at a reduced intensity.

#### Diagnosis Procedure

INFOID:0000000008798091

Regarding Wiring Diagram information, refer to EXL-87, "Wiring Diagram".

# 1. CHECK DAYTIME LIGHT RELAY 1 FUSE

- Turn the ignition switch OFF.
- Check that the following fuse is not open.

Unit	Location	Fuse No.	Capacity
Daytime light relay 1	IPDM E/R	45	10A

#### Is the fuse open?

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

NO >> GO TO 2

# 2.CHECK IPDM E/R OUTPUT SIGNAL

- Turn the ignition switch OFF.
- Disconnect the daytime light relay 1 connector.
- Turn the ignition switch ON.
- Check the voltage between the daytime light relay 1 harness connector and ground.

(+)		( )	Voltage	
Connector	Terminal	(-)	voltage	
E103	2	Ground	Rattery voltage	
E103	5	Giodila	Battery voltage	

#### Is battery voltage present?

YES >> GO TO 3 NO

>> GO TO 5

# 3.CHECK DAYTIME LIGHT RELAY 1 CIRCUIT

- Turn the ignition switch OFF.
- Disconnect IPDM E/R connector E122.
- Check continuity between the IPDM E/R harness connector and the daytime light relay 1 harness connector.

IPDM	1 E/R	Daytime light relay 1		Continuity
Connector	Terminal	Connector Terminal		Continuity
E122	44	E103	1	Yes

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

Connector	Terminal	_	Continuity
E103	1	Ground	No

#### Is the measurement value normal?

#### **DAYTIME LIGHT RELAY CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

YES >> GO TO 4

NO >> Repair the harnesses or connectors.

#### 4. CHECK DAYTIME LIGHT RELAY 1

Check daytime light relay 1. Refer to EXL-47, "Component Inspection".

#### Is the inspection result normal?

YES >> Check headlamp (HI) circuit. If OK, replace IPDM E/R. Refer to PCS-28, "Removal and Installation". If NG, refer to EXL-39, "Diagnosis Procedure".

NO >> Replace daytime light relay1.

# 5.CHECK DAYTIME LIGHT RELAY CIRCUIT FOR OPEN

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector E119.
- Check continuity between the IPDM E/R harness connector and the daytime light relay 1 harness connector.

IPDM E/R		Daytime light relay 1		Continuity	
Connector	Terminal	Connector Terminal		Continuity	
E110	E119 10	E103	2	Yes	
L119	10	L 103	5	165	

#### Does continuity exist?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair the harnesses or connectors.

#### Component Inspection

1. CHECK DAYTIME LIGHT RELAY 1

- 1. Turn ignition switch OFF.
- 2. Remove daytime light relay 1.
- 3. Check the continuity between daytime light relay 1 terminals under the following conditions.

Terminals	Condition	Continuity
3 and 5	12V direct current supply between terminals 1 and 2	Yes
3 and 3	No current supply	No
3 and 4	12V direct current supply between terminals 1 and 2	No
3 and 4	No current supply	Yes

#### Is the inspection result normal?

YES >> Inspection End.

NO >> Replace daytime light relay 1

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#### OFF-ROAD LAMPS SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

#### OFF-ROAD LAMPS SWITCH CIRCUIT

Description INFOID:0000000008798093

The off-road lamps switch sends a momentary ground signal to the BCM requesting the off-road lamps be activated. The BCM controls the off-road lamps relay based on inputs from the combination switch (lighting and turn signal switch), the off-road lamps switch and the off-road lamp cover sensors. If the headlamps are on high beam, the off-road lamp covers are removed and the off-road lamps switch is activated, the BCM grounds the off-road lamp relay. When the off-road lamps relay is energized, power flows from the off-road lamps relay to the off-road lamps assembly.

#### Component Function Check

INFOID:0000000008798094

#### 1. CHECK OFF-ROAD LAMPS SWITCH OPERATION

Check that the indicator lamp on the off-road lamps switch illuminates from the off-road lamps switch, combination switch (lighting and turn signal switch) and off-road lamp cover sensor.

#### Is the inspection result normal?

YES >> Off-road lamps switch function is OK.

NO >> Inoperative from off-road lamps switch only, refer to EXL-48, "Diagnosis Procedure".

#### Diagnosis Procedure

INFOID:0000000008798095

Regarding Wiring Diagram information, refer to EXL-104, "Wiring Diagram".

# 1. CHECK OFF-ROAD LAMPS SWITCH VOLTAGE

- Turn the ignition switch OFF.
- 2. Disconnect the off-road lamps switch connector M80.
- Turn the ignition switch ON.
- 4. Check the voltage between the off-road lamps switch connector M80 terminal 1 and ground.

(+)		(-)	Voltago
Connector	Terminal	(-)	Voltage
M80	1	Ground	5V

#### Is the inspection result normal?

YES >> GO TO 3

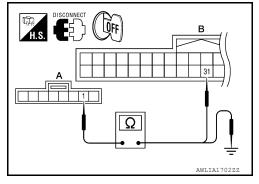
NO >> GO TO 2.

# 2.CHECK OFF-ROAD LAMPS SWITCH SIGNAL CIRCUIT

- Turn the ignition switch OFF.
- 2. Disconnect BCM connector M18.
- Check continuity between the off-road lamps switch harness connector (A) and BCM harness connector (B).

	Α	В		Continuity	
Connector	Terminal	Connector	Terminal	Continuity	
M80	1	M18	31	Yes	

4. Check continuity between the off-road lamps switch harness connector (A) and ground.



#### **OFF-ROAD LAMPS SWITCH CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

А			Continuity	
Connector	Terminal	<u> </u>	Continuity	
M80	1	Ground	No	

#### Is inspection result normal?

YES >> Replace BCM. Refer to BCS-50, "Removal and Installation".

NO >> Repair the harness.

# 3.check off-road lamps switch ground circuit

- 1. Turn the ignition switch OFF.
- 2. Check continuity between the off-road lamps switch harness connector M80 terminals 2, 6 and ground.

Connector	Terminal	_	Continuity
M80	2	Ground Yes	
	6	Ground	163

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#### Does continuity exist?

YES >> GO TO 4

NO >> Repair the harness or connector.

# 4. CHECK OFF-ROAD LAMPS SWITCH INDICATOR CIRCUIT

- 1. Disconnect off-road lamps relay.
- Check continuity between the off-road lamps relay harness connector and off-road lamps switch harness connector.

Off-road	lamps relay	Off-road lamps switch		Continuity
Connector	Terminal	Connector Terminal		Continuity
M81	5	M80	5	Yes

#### Does continuity exist?

- YES >> Check off-road lamps circuit. If OK, Replace off-road lamps switch. If NG, refer to <u>EXL-53</u>, "<u>Diagnosis Procedure</u>".
- NO >> Repair and replace the harness.

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#### OFF-ROAD LAMP COVER SENSOR CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

## OFF-ROAD LAMP COVER SENSOR CIRCUIT

Description INFOID:000000008798096

The off-road lamp cover sensors sense the presence of the off-road lamp covers. If the off-road lamp covers are installed on the vehicle, the BCM will not activate the off-road lamps. The BCM controls the off-road lamps relay based on inputs from the combination switch (lighting and turn signal switch), the off-road lamps switch and the off-road lamp cover sensors. When the off-road lamps relay is energized, power flows from the off-road lamps relay to the off-road lamps assembly.

## Component Function Check

INFOID:0000000008798097

#### 1. CHECK OFF-ROAD LAMPS SWITCH OPERATION

Check that the indicator lamp on the off-road lamps switch illuminates from the off-road lamps switch, combination switch (lighting and turn signal switch) and off-road lamp cover sensor.

#### Is the inspection result normal?

YES >> Off-road lamps switch function is OK.

NO >> Inoperative from off-road lamp cover sensor only, refer to EXL-50, "Diagnosis Procedure".

#### Diagnosis Procedure

INFOID:0000000008798098

Regarding Wiring Diagram information, refer to EXL-104, "Wiring Diagram".

#### 1. CHECK OFF-ROAD LAMPS FUSE

- 1. Turn the ignition switch OFF.
- 2. Check that the following fuse is not open.

Unit	Location	Fuse No.	Capacity
Off-road lamp cover sensor	Fuse block (J/B)	12	10A

#### Is the fuse open?

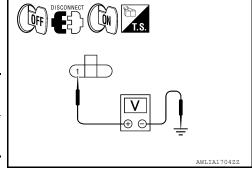
YES >> Replace the fuse after repairing the affected circuit.

NO >> GO TO 2

# 2.CHECK OFF-ROAD LAMP COVER SENSOR POWER SUPPLY

- 1. Disconnect the off-road lamp assembly connectors.
- 2. Turn the ignition switch ON.
- 3. Check the voltage between the off-road lamp assembly connectors and ground.

(+)			(-)	Voltage
Co	nnector	Terminal	(-)	voltage
LH	B527	1	Ground	Battery voltage
RH	B529	1	Ground	



#### Is battery voltage present?

YES >> GO TO 3 NO >> GO TO 6

## 3.CHECK OFF-ROAD LAMP COVER SENSOR GROUND CIRCUIT

1. Turn the ignition switch OFF.

#### OFF-ROAD LAMP COVER SENSOR CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

2. Check continuity between the off-road lamp assembly harness connectors and ground.

Conr	nector	Terminal	_	Continuity
LH	B527	2	Ground	Yes
RH	B529	2	Sibulia	103

# DISCONNECT T.S.

#### Does continuity exist?

YES >> GO TO 4.

NO >> Repair the harness.

# 4. CHECK OFF-ROAD LAMP COVER SENSOR OUTPUT SIGNAL

- 1. Disconnect BCM connector M19 and connect the off-road lamp assembly.
- 2. Remove off-road lamp cover.
- 3. Turn the ignition switch ON.
- 4. Check voltage between off-road lamp cover sensor harness connector and ground.

(+)			(-)	Voltage	
Со	Connector Terminal		(-)	voltage	
LH	B527	3	Ground	5V	
RH	B529	3	Giouna	30	

#### Is inspection result normal?

YES >> Replace BCM. Refer to BCS-50, "Removal and Installation".

NO >> GO TO 5

# CHECK OFF-ROAD LAMP COVER SENSOR SIGNAL CIRCUIT

- Turn the ignition switch OFF.
- 2. Disconnect off-road lamp assembly.
- 3. Check continuity between the off-road lamp assembly harness connectors (A) and BCM harness connector (B).

А			1	Continuity	
Со	nnector	Terminal	Connector	Terminal	Continuity
LH	B527	3	M19	42	Yes
RH	B529	3	IVITS	42	163

4. Check continuity between the off-road lamp assembly harness connector and ground.

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	AWLIA1706ZZ

Α				Continuity	
Connector Terminal		_			
LH	B527	3	Ground	No	
RH	B529	3	Ground	140	

#### Is inspection result normal?

YES >> Replace the off-road lamp cover sensor.

NO >> Repair the harness.

#### 6.CHECK OFF-ROAD LAMP COVER SENSOR CIRCUIT FOR OPEN

- Turn the ignition switch OFF.
- 2. Disconnect fuse block (J/B) connector M4.
- Check continuity between the off-road lamp assembly harness connector and fuse block (J/B) harness connector.

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#### OFF-ROAD LAMP COVER SENSOR CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

Off-road lamp cover assembly			Fuse blo	Continuity	
Со	Connector Terminal		Connector	Terminal	
LH	B527	1	M4	2P	Yes
RH	B529	1	IVI <del>-1</del>	21	163

#### Does continuity exist?

>> Replace fuse block (J/B). >> Repair the harness. YES

NO

#### OFF-ROAD LAMPS CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### OFF-ROAD LAMPS CIRCUIT

Description

The BCM controls the off-road lamps relay based on inputs from the combination switch (lighting and turn signal switch), the off-road lamps switch and the off-road lamp cover sensors. When the off-road lamps relay is energized, power flows from the off-road lamps relay to the off-road lamps assembly.

# Component Function Check

# 1. CHECK OFF-ROAD LAMPS SWITCH OPERATION

Check that the indicator lamp on the off-road lamps switch illuminates from the off-road lamps switch, combination switch (lighting and turn signal switch) and off-road lamp cover sensor.

#### Is the inspection result normal?

YES >> Off-road lamps switch function is OK.

NO >> Inoperative from off-road lamp only, refer to <a href="EXL-53">EXL-53</a>, "Diagnosis Procedure".

#### Diagnosis Procedure

Regarding Wiring Diagram information, refer to EXL-104. "Wiring Diagram".

# 1. CHECK OFF-ROAD LAMPS FUSE

- 1. Turn the ignition switch OFF.
- 2. Check that the following fuse is not open.

Unit	Location	Fuse No.	Capacity
Off road lamps assembly	Fuse block (J/B)	9	15A

#### Is the fuse open?

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

NO >> GO TO 2

# 2.CHECK OFF-ROAD LAMPS VOLTAGE

- 1. Turn the ignition switch OFF.
- Disconnect the off-road lamps assembly connectors.
- 3. Remove the off-road lamps covers.
- 4. Turn the ignition switch ON.
- 5. Turn the high beam headlamps ON.
- 6. Turn the off-road lamps ON.
- Check the voltage between the off-road lamp assembly connectors and ground.

(+)		( )	Condition	Voltage		
Co	nnector	Terminal	(-)	Condition	voltage	
LH	B528	4	Ground	Off-road lamps switch :ON	Battery voltage	
RH	B530	4	Ground	Off-road lamps switch :OFF	0V	

#### Is the inspection result normal?

YES >> GO TO 3 Fixed ON>>GO TO 9

Fixed OFF>>GO TO 4

3.CHECK OFF-ROAD LAMPS GROUND CIRCUIT

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INFOID:0000000008798100

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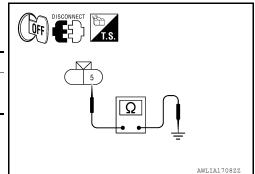
C

#### **OFF-ROAD LAMPS CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

Check continuity between the off-road lamps assembly harness connector and ground.

Coni	nector	Terminal	_	Continuity
LH	B528	5	Ground	Yes
RH	B530	5	Sibulia	163



#### Is the inspection result normal?

YES >> Inspect the off-road lamp bulb.

NO >> Repair the harness.

# 4. CHECK OFF-ROAD LAMPS RELAY

- 1. Turn the ignition switch OFF.
- 2. Disconnect the off-road lamps relay connector.
- 3. Check off-road lamps relay. Refer to EXL-55, "Component Inspection".

#### Is the inspection result normal?

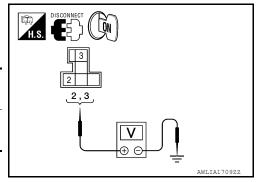
YES >> GO TO 5

NO >> Replace off-road lamps relay.

# 5. CHECK OFF-ROAD LAMPS RELAY POWER SUPPLY

- 1. Turn the ignition switch ON.
- 2. Check the voltage between the off-road lamps relay harness connector and ground.

(+)	(-)	Voltage		
Connector	Terminal	( )	Voltage	
M81	2	Ground	Battery voltage	
IVIO I	3	Glound	Battery Voltage	



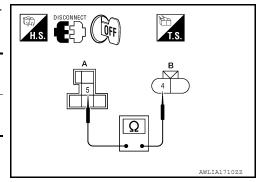
#### Is the inspection result normal?

YES >> GO TO 6 NO >> GO TO 8

#### 6.CHECK OFF-ROAD LAMPS POWER SUPPLY CIRCUIT

- 1. Turn the ignition switch OFF.
- Check continuity between the off-road lamps relay harness connector (A) and off-road lamp assembly harness connectors (B).

,	В			Continuity	
Connector	Terminal	Connector		Terminal	Continuity
M81	5	LH	B528	4	Yes
IVIO I	5	RH	B530	4	165



#### Is inspection result normal?

YES >> GO TO 7

NO >> Repair harness or connector.

#### .CHECK OFF-ROAD LAMPS RELAY CONTROL CIRCUIT

1. Disconnect BCM connector M19.

#### **OFF-ROAD LAMPS CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

2. Check continuity between the off-road lamps relay harness connector (A) and BCM harness connectors (B).

	A		Continuity		
Connector	Terminal	Connector Terminal		Continuity	
M81	1	M19	50	Yes	

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Is inspection result normal?

YES >> Replace BCM. Refer to <u>BCS-50</u>, "Removal and Installation".

NO >> Inspect harness or connectors.

# 8. CHECK OFF-ROAD LAMPS RELAY POWER SUPPLY CIRCUIT

- 1. Turn the ignition switch OFF.
- 2. Disconnect fuse block (J/B) connector M3.
- Check continuity between the off-road lamps relay harness connector and fuse block (J/B) harness connectors.

Off-road la	amps relay	Fuse block (J/B)		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M01	2	M3	2N	Vos
IVIOI	M81 3		ZIN	Yes

#### Does continuity exist?

YES >> Replace fuse block (J/B).

NO >> Repair the harness or connectors.

# 9. CHECK OFF-ROAD LAMPS RELAY FOR SHORT CIRCUIT

- 1. Turn the ignition switch OFF.
- Disconnect the off-road lamps relay connectors.
- 3. Check continuity between the off-road lamps relay harness connector and ground.

Connector	Terminal	_	Continuity
M81	1	Ground	No

#### Does continuity exist?

YES >> Repair the harness or connectors.

NO >> Replace BCM. Refer to <u>BCS-50</u>, "Removal and Installation".

# Component Inspection

# 1. CHECK OFF-ROAD LAMPS RELAY

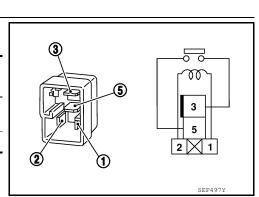
Check off-road lamps relay.

	minal amps relay	Condition	Continuity
3	5	12V direct current supply between terminals 1 and 2.	Yes
		No current supply	No

#### Is the inspection result normal?

YES >> Inspection End.

NO >> Replace off-road lamps relay.



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#### FRONT FOG LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### FRONT FOG LAMP CIRCUIT

Description INFOID:000000008798103

The IPDM E/R (intelligent power distribution module engine room) controls the front fog lamp relay based on inputs from the BCM via the CAN communication lines. When the front fog lamp relay is energized, power flows from the front fog lamp relay in the IPDM E/R to the front fog lamps.

#### Component Function Check

INFOID:0000000008798104

#### 1. CHECK FRONT FOG LAMP OPERATION

#### **NWITHOUT CONSULT**

- Activate IPDM E/R auto active test. Refer to <u>PCS-9</u>, "<u>Diagnosis Description</u>".
- Check that the front fog lamp is turned ON.

#### (P)WITH CONSULT

- 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-56, "Diagnosis Procedure".

#### Diagnosis Procedure

INFOID:0000000008798105

Regarding Wiring Diagram information, refer to <a>EXL-100</a>, "Wiring Diagram".

# 1. CHECK FRONT FOG LAMP FUSE

- 1. Turn the ignition switch OFF.
- 2. Check that the following fuse is not open.

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	56	20A

#### Is the fuse open?

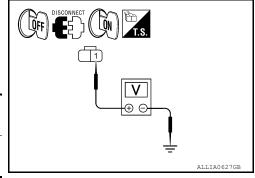
YES >> Replace the fuse after repairing the affected circuit.

NO >> GO TO 2

# 2.CHECK FRONT FOG LAMP OUTPUT VOLTAGE

- Turn the ignition switch OFF.
- 2. Disconnect the front fog lamp connector.
- 3. Turn the ignition switch ON.
- 4. Turn the front fog lamps ON.
- 5. Check the voltage between the fog lamp connector and ground.

(+)			(-)	Voltage	
Co	nnector	Terminal	(-)	voltage	
LH	E101	1	Ground	Patton, voltago	
RH	E102	1	Ground	Battery voltage	



#### Is battery voltage present?

YES >> GO TO 4 NO >> GO TO 3

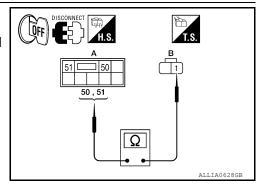
#### FRONT FOG LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

# 3.CHECK FRONT FOG LAMP OPEN CIRCUIT

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector E123.
- 3. Check continuity between the IPDM E/R harness connector and the front fog lamp harness connector.

	Α		В		Continuity
Conr	nector	Terminal	Connector	Terminal	Continuity
LH	E123	50	E101	1	Yes
RH	L123	51	E102	1	162



#### Does continuity exist?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair the harnesses or connectors.

# 4. CHECK FRONT FOG LAMP GROUND CIRCUIT

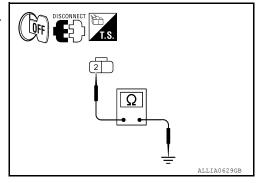
- 1. Disconnect the front fog lamp connector.
- 2. Check continuity between the front fog lamp harness connector terminal and ground.

Conr	nector	Terminal	_	Continuity
LH	E101	2	Ground	Yes
RH	E102	2	Ground	163

# Does continuity exist?

YES >> Inspect the fog lamp bulb.

NO >> Repair the harness.



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#### **PARKING LAMP CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

#### PARKING LAMP CIRCUIT

Description INFOID:000000008798106

The IPDM E/R (intelligent power distribution module engine room) controls the tail lamp relay based on inputs from the BCM via the CAN communication lines. When the tail lamp relay is energized, power flows through fuse 36 and 37, located in the IPDM E/R. Power then flows to the front and rear combination lamps, license plate lamp.

#### Component Function Check

INFOID:0000000008798107

# 1. CHECK PARKING LAMP OPERATION

#### **NWITHOUT CONSULT**

- 1. Activate IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".
- 2. Check that the parking lamp is turned ON.

#### **WITH CONSULT**

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

TAIL : Parking lamp ON
OFF : Parking lamp OFF

#### Is the parking lamp turned ON?

YES >> Parking lamp circuit is normal.

NO >> Refer to EXL-58, "Diagnosis Procedure".

#### Diagnosis Procedure

INFOID:0000000008798108

Regarding Wiring Diagram information, refer to EXL-115, "Wiring Diagram".

# 1. CHECK PARKING LAMP FUSES

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

Unit	Location	Fuse No.	Capacity
Parking lamps	IPDM E/R	36	10A
r arking lamps	IF DIVI L/IX	37	10A

#### Is the fuse open?

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

NO >> GO TO 2

# 2.CHECK TAIL LAMP RELAY OUTPUT (VOLTAGE)

- Turn the ignition switch OFF.
- Disconnect the front parking lamp connector, front side marker lamp connector, rear combination lamp connector and license plate lamp connector.
- Turn the ignition switch ON.
- 4. Turn the parking lamps ON.
- 5. With the parking lamps ON, check voltage between the front parking lamp connector and ground.

(+)		( )	Voltage	
	Connector	Terminal	(–)	voltage
LH	E27	5	Ground	Battery voltage
RH	E111	3	Ground	battery voltage

#### **PARKING LAMP CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

6. With the parking lamps ON, check voltage between the front side marker lamp connector and ground.

	(+)		Voltage	
-	Connector	Terminal	(-)	voltage
LH	E17	7	Ground	Battery voltage
RH	E108	,	Ground	Dattery Voltage

7. With the parking lamps ON, check voltage between the rear combination lamp connector and ground.

(+)		(–)	Voltage	
-	Connector	Terminal	(-)	voltage
LH	B35	1	Ground	Battery voltage
RH	B105	'	Giouna	Ballery Vollage

8. With the parking lamps ON, check voltage between the license plate lamp connector and ground

(+)		(-)	Voltage	
Connector	Terminal	( )	Voltage	
C12	1	Ground	Battery voltage	

#### Are voltage readings as specified?

YES >> GO TO 4 NO >> GO TO 3

 $3. \mathsf{CHECK}$  PARKING, LICENSE PLATE AND TAIL LAMP CIRCUIT (OPEN)

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- Check continuity between the IPDM E/R harness connector and the front parking lamp harness connector.

C	onnector	Terminal	Connector	Terminal	Continuity
LH	E121	28	E27	5	Yes
RH	E123	49	E111	3	163

4. Check continuity between the IPDM E/R harness connector and the front side marker lamp harness connector.

Connector		Terminal Connector		Terminal	Continuity
LH	E121	28	E17	7	Yes
RH	E123	49	E108	,	163

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

IPDM E/R			Rear comb	Continuity	
Co	onnector	Terminal	Connector	Terminal	Continuity
LH	F124	57	B35	1	Yes
RH E124	57	B105	- '	165	

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

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#### **PARKING LAMP CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

IPDI	M E/R	License <sub>I</sub>	Continuity	
Connector	Terminal	Connector	Terminal	Continuity
E124	57	C12	1	Yes

#### Are continuity results as specified?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair the harnesses or connectors.

# 4. CHECK PARKING, LICENSE AND TAIL LAMP GROUND CIRCUITS

1. Check continuity between the front parking lamp harness connectors and ground.

Connector		Terminal	_	Continuity
LH	E27	6	Ground	Yes
RH	E111	0	Ground	163

2. Check continuity between the front side marker lamp harness connectors and ground.

Connector		Terminal	_	Continuity
LH	E17	Q	Ground	Yes
RH	E108	O	Giouria	165

3. Check continuity between the rear combination lamp harness connectors and ground.

Connector		Terminal	_	Continuity
LH	B35	5	Ground	Yes
RH	B105	5	Ground	

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

Connector	Terminal	_	Continuity
C12	2	Ground	Yes

#### Are continuity results as specified?

YES >> Inspect the parking lamp bulb.

NO >> Repair the harness.

#### TURN SIGNAL LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

#### TURN SIGNAL LAMP CIRCUIT

Description INFOID:0000000008798109

The BCM monitors inputs from the combination switch (lighting and turn signal switch) to determine when to activate the turn signals. The BCM outputs voltage direction to the left and right turn signals during turn signal operation or both during hazard warning operation. The BCM sends a turn signal indicator request to the combination meter via the CAN communication lines.

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

#### NOTE:

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

#### Component Function Check

# 1.CHECK TURN SIGNAL LAMP

#### (P)CONSULT

- 1. Select "FLASHER" of BCM (FLASHER) active test item.
- 2. With operating the test items, check that the turn signal lamp blinks.

LH : Turn signal lamp LH blinking RH : Turn signal lamp RH blinking **OFF** : The turn signal lamp OFF

#### Does the turn signal lamp blink?

YES >> Turn signal lamp circuit is normal.

>> Refer to EXL-61, "Diagnosis Procedure". NO

#### Diagnosis Procedure

Regarding Wiring Diagram information, refer to <a>EXL-109</a>, "Wiring Diagram".

# 1. CHECK TURN SIGNAL LAMP BULB

Check the applicable lamp bulb to be sure the proper bulb standard is in use and the bulb is not open.

#### Is the bulb OK?

YES >> GO TO 2

NO >> Replace the bulb.

# 2.CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

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

(+) Connector Terminal		(-)	Voltage	
		Terminal	( )	rollage
E27	LH			
E111	RH	4	Ground	(V) 15 10 5 0 1 s

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#### **TURN SIGNAL LAMP CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

5. With turn signal switch operating, check the voltage between the rear combination lamp harness connector and ground.

(+)		(-)	Voltage	
Con	nector	Terminal	( )	Voltage
B35	LH			
B105	RH	4	Ground	(V) 15 10 5 0 1 s

#### Is voltage reading as specified?

YES >> GO TO 5 NO >> GO TO 3

# 3.check turn signal lamp circuit for open

- 1. Turn the ignition switch OFF.
- 2. Disconnect BCM connector M20.
- Check continuity between the BCM harness connector and the front combination lamps harness connector.

всм			Front comb	Continuity	
Con	nector	Terminal	Connector	Terminal	Continuity
Front LH	M20	60	E27	4	Yes
Front RH	IVIZU	61	E111	4	165

4. Check continuity between the BCM harness connector and the rear combination lamp harness connector.

ВСМ			Rear comb	Continuity		
Con	nector	Terminal	Connector Terminal		Continuity	
Rear LH	M20	60	B35	4	Yes	
Rear RH	IVIZU	61	B105	4	163	

#### Are continuity results as specified?

YES >> GO TO 4

NO >> Repair the harnesses or connectors.

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

Check continuity between the BCM harness connector M20 and ground.

Connector		Terminal	_	Continuity	
LH	M20	60	Ground	No	
RH	IVIZO	61	Ground	NO	

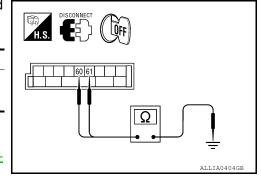
#### Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> Replace BCM. Refer to <u>BCS-50</u>, "Removal and Installation".

# 5. CHECK TURN SIGNAL LAMP GROUND CIRCUIT

1. Check continuity between the front combination lamp harness connectors and ground.



#### **TURN SIGNAL LAMP CIRCUIT**

#### < DTC/CIRCUIT DIAGNOSIS >

Conne	ector	Terminal	_	Continuity
Front LH	E27	6	Ground	Yes
Front RH	E111	0	Ground	163

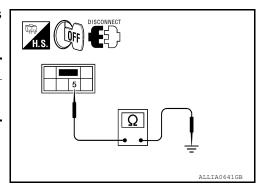
2. Check continuity between the rear combination lamp harness connectors and ground.

Conne	ector	Terminal	_	Continuity
Rear LH	B35	5	Ground	Yes
Rear RH	B105	5	Ground	res

#### Are continuity results as specified?

YES >> Replace the malfunctioning lamp.

NO >> Repair the harnesses or connectors.



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#### **OPTICAL SENSOR**

#### < DTC/CIRCUIT DIAGNOSIS >

#### **OPTICAL SENSOR**

Description INFOID:000000009279156

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

#### Diagnosis Procedure

INFOID:0000000009279157

Regarding Wiring Diagram information, refer to EXL-95, "Wiring Diagram".

# 1. CHECK OPTICAL SENSOR GROUND CIRCUIT

- 1. Turn the ignition switch OFF.
- 2. Disconnect BCM connector M18 and optical sensor connector M145.
- 3. Check continuity between BCM harness connector and optical sensor harness connector.

В	CM	Optica	Continuity	
Connector	Terminal	Connector Terminal		Continuity
M18	18	M14	3	Yes

4. Check continuity between BCM harness connector and ground.

В	CM		Continuity
Connector	Terminal		Continuity
M18	18	Ground	No

#### Are continuity results as specified?

YES >> GO TO 2

NO >> Repair harness or connector.

# 2.CHECK OPTICAL SENSOR SIGNAL CIRCUIT

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

В	СМ	Optica	Continuity	
Connector	Terminal	Connector Terminal		Continuity
M20	58	M14	4	Yes

2. Check continuity between BCM harness connector and ground.

В	CM		Continuity
Connector	Terminal		Continuity
M20	58	Ground	No

#### Are the continuity results as specified?

YES >> Replace the optical sensor. Refer to EXL-157, "Removal and Installation".

NO >> Repair harness or connector.

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< ECU DIAGNOSIS INFORMATION >

# **ECU DIAGNOSIS INFORMATION**

# **BCM (BODY CONTROL MODULE)**

Reference Value

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
ACC ON CW	Ignition switch OFF or ON	Off
ACC ON SW	Ignition switch ACC	On
AIR COND SW	A/C switch OFF	Off
AIR COND SW	A/C switch ON	On
AIR PRESS FL	Front left tire air pressure value	kPa, kg/cm <sup>2</sup> , psi
AIR PRESS FR	Front right tire air pressure value	kPa, kg/cm², psi
AIR PRESS RL	Rear left tire air pressure value	kPa, kg/cm², psi
AIR PRESS RR	Rear right tire air pressure value	kPa, kg/cm², psi
ALITO LICHT SW	Lighting switch OFF	Off
AUTO LIGHT SW	Lighting switch AUTO	On
DACK DOOD CW	Back door closed	Off
BACK DOOR SW	Back door opened	On
BRAKE SW	Brake pedal released	Off
BRAKE SW	Brake pedal applied	On
DUCKLE CW	Seat belt buckle unfastened	Off
BUCKLE SW	Seat belt buckle fastened	On
BUZZER	Buzzer in combination meter OFF	Off
DUZZER	Buzzer in combination meter ON	On
CARGO LAMP SW	Cargo lamp switch OFF	Off
CARGO LAIVIP SVV	Cargo lamp switch ON	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
CDL LOCK SW	Press door lock/unlock switch to the LOCK side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
CDL UNLOCK 3W	Press door lock/unlock switch to the UNLOCK side	On
DOOR SW-AS	Front door RH closed	Off
DOOR SW-AS	Front door RH opened	On
DOOR SW-DR	Front door LH closed	Off
DOOK SW-DK	Front door LH opened	On
DOOD SW DI	Rear door LH closed	Off
DOOR SW-RL	Rear door LH opened	On
DOOR SW-RR	Rear door RH closed	Off
DOOK SW-KK	Rear door RH opened	On

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Monitor Item	Condition	Value/Status
FAN ON SIG	Blower motor fan switch OFF	Off
17114 014 010	Blower motor fan switch ON	On
FR FOG SW	Front fog lamp switch OFF	Off
11(100 3W	Front fog lamp switch ON	On
FR WASHER SW	Front washer switch OFF	Off
TIN WASHEN SW	Front washer switch ON	On
FR WIPER LOW	Front wiper switch OFF	Off
TIX WIF EIX LOW	Front wiper switch LO	On
FR WIPER HI	Front wiper switch OFF	Off
I IX WIF LIX I II	Front wiper switch HI	On
ED WIDED INT	Front wiper switch OFF	Off
FR WIPER INT	Front wiper switch INT	On
ED WIDED STOD	Any position other than front wiper stop position	Off
FR WIPER STOP	Front wiper stop position	On
LIAZADD CW	When hazard switch is not pressed	Off
HAZARD SW	When hazard switch is pressed	On
LIEAD LAMB CW/4	Headlamp switch OFF	Off
HEAD LAMP SW 1	Headlamp switch 1st	On
LIEAD LAMB OW	Headlamp switch OFF	Off
HEAD LAMP SW 2	Headlamp switch 1st	On
LU DEANA OVA	High beam switch OFF	Off
HI BEAM SW	High beam switch HI	On
ID DECOT EL 4	ID registration of front left tire incomplete	YET
ID REGST FL1	ID registration of front left tire complete	DONE
ID DECOT ED4	ID registration of front right tire incomplete	YET
ID REGST FR1	ID registration of front right tire complete	DONE
ID DECOT DL 4	ID registration of rear left tire incomplete	YET
ID REGST RL1	ID registration of rear left tire complete	DONE
ID DECOT DD4	ID registration of rear right tire incomplete	YET
ID REGST RR1	ID registration of rear right tire complete	DONE
ION ON OW	Ignition switch OFF or ACC	Off
IGN ON SW	Ignition switch ON	On
1011 0111 0111	Ignition switch OFF or ACC	Off
IGN SW CAN	Ignition switch ON	On
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
	Door key cylinder LOCK position	Off
KEY CYL LK-SW	Door key cylinder other than LOCK position	On
MEN ON THE OWN	Door key cylinder UNLOCK position	Off
KEY CYL UN-SW	Door key cylinder other than UNLOCK position	On
	Mechanical key is removed from key cylinder	Off
KEY ON SW	Mechanical key is inserted to key cylinder	On
	LOCK button of key fob is not pressed	Off
KEYLESS LOCK	LOCK button of key fob is pressed	On

# < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
KEVI ECC DANIC	PANIC button of key fob is not pressed	Off
KEYLESS PANIC	PANIC 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
LICHT OW ACT	Lighting switch OFF	Off
LIGHT SW 1ST	Lighting switch 1st	On
OIL PRESS SW	Ignition switch OFF or ACC     Engine running	Off
	Ignition switch ON	On
OPTICAL SENSOR	Bright outside of the vehicle	Close to 5V
OPTICAL SENSOR	Dark outside of the vehicle	Close to 0V
DACCINIC CW	Other than lighting switch PASS	Off
PASSING SW	Lighting switch PASS	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
DD WASHED SW	Rear washer switch OFF	Off
RR WASHER SW	Rear washer switch ON	On
RR WIPER INT	Rear wiper switch OFF	Off
RR WIPER IN	Rear wiper switch INT	On
DD WIDED ON	Rear wiper switch OFF	Off
RR WIPER ON	Rear wiper switch ON	On
RR WIPER STOP	Rear wiper stop position	Off
RR WIPER STOP	Other than rear wiper stop position	On
TURN SIGNAL L	Turn signal switch OFF	Off
TURN SIGNAL L	Turn signal switch LH	On
TUDNI SIONAL D	Turn signal switch OFF	Off
TURN SIGNAL R	Turn signal switch RH	On
VEHICLE SPEED	While driving	Equivalent to speedometer reading
MADNING LAMD	Low tire pressure warning lamp in combination meter OFF	Off
WARNING LAMP	Low tire pressure warning lamp in combination meter ON	On

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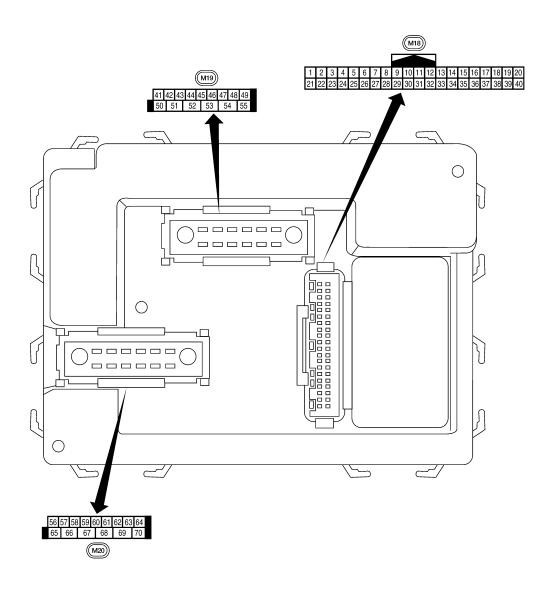
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Terminal Layout



LIIA2443E

**Physical Values** 

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	Wire		Signal		Measuring condition	Reference value or waveform
Terminal	color	Signal name	input/ output	Ignition switch	Operation or condition	(Approx.)
1	BR	Ignition keyhole illumi-	Output	OFF	Door is locked (SW OFF)	Battery voltage
'	DK	nation	Output	OFF	Door is unlocked (SW ON)	0V
2	Р	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 ***5ms
3	SB	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 ++5ms skia5292E
4	V	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 ***5ms
5	L	Combination switch input 2				00
6	R	Combination switch input 1	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 + 5ms SKIA5292E
		Front door lock as-			ON (open, 2nd turn)	Momentary 1.5V
7	GR	sembly LH (key cylinder switch) and back door key cylinder switch (unlock)	Input	OFF	OFF (closed)	0V
		Front door lock as-			ON (open)	Momentary 1.5V
8	SB	sembly LH (key cylin- der switch) and back door key cylinder switch (lock)	Input	OFF	OFF (closed)	0V
9	LG	Stop lamp switch	Input	OFF	Brake pedal depressed	Battery voltage
			pat		Brake pedal released	0V
11	G/B	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage
12	LG	Front door switch RH	Input	OFF	ON (open)	0V
			•		OFF (closed)	Battery voltage
13	L	Rear door switch RH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage

			Signal		Measuring condition	
Terminal	Wire color	Signal name	input/ output	Ignition switch	Operation or condition	Reference value or waveform (Approx.)
15	W	Tire pressure warning check connector	Input	OFF	_	5V
18	BR	Remote keyless entry receiver (ground)	Output	OFF	_	0V
19	V	Remote keyless entry receiver (power sup- ply)	Output	OFF	Ignition switch OFF	(V) 6 4 2 0 + 50 ms
20	G	Remote keyless entry	Input	OFF	Stand-by (keyfob buttons released)	(V) 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
20	20 G Reflicte Regiess entry receiver (signal) Input	при	Прис	When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	(V) 6 4 2 	
21	GR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
23	G	Security indicator lamp	Output	OFF	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0V
25	BR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
27	W	Compressor ON sig-	Input	ON	A/C switch OFF	5V
<u></u>	**	nal	mpat	514	A/C switch ON	0V
28	R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
			•		Front blower motor ON	0V
29	G	Hazard switch	Input	OFF	ON OFF	0V 5V
					OFF	0V
31	R	Off-road lamps switch	Input	ON	OFF	5V
					<del>-</del> :-	<u> </u>

	Wire color	Signal name	Signal		Measuring condition	Reference value or waveform
Terminal			input/ output	Ignition switch	Operation or condition	(Approx.)
32	0	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 **-5ms
33	GR	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 ***5ms
34	G	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 **5ms
35	BR	Combination switch output 2			Lighting, turn, wiper OFF Wiper dial position 4	(V)
36	LG	Combination switch output 1	Output	ON		5ms SKIA5292E
37	В	Key switch and key	Input	OFF	Key inserted	Battery voltage
		lock solenoid	<u> </u>		Key removed	0V
38 39	W/R L	Ignition switch (ON) CAN-H	Input	ON	_	Battery voltage
40	Р	CAN-H				
41	Y	Rear window defogger switch	Input	ON	Rear window defogger switch ON  Rear window defogger switch OFF	ov OV
42	L	Off-road lamps	Output	ON	Off-road ON lamps switch OFF	0V Battery voltage
43	Y	Back door switch	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage

	Wire	Signal name	Signal	Measuring condition		Reference value or waveform
Terminal	color		input/ output	Ignition switch	Operation or condition	(Approx.)
44	0	Rear wiper auto stop switch	Input	ON	Rise up position (rear wiper arm on stopper)	0V
					A Position (full clockwise stop position)	Battery voltage
					Forward sweep (counterclock wise direction)	Fluctuating
					B Position (full counterclockwise stop position)	0V
					Reverse sweep (clockwise d rection)	- Fluctuating
45	V	Lock switch	Input	OFF	ON (lock)	0V
					OFF	Battery voltage
46	LG	Unlock switch	Input	OFF	ON (unlock)	0V
46					OFF	Battery voltage
47	GR	Front door switch LH	Input	OFF	ON (open)	0V
47					OFF (closed)	Battery voltage
48	Р	Rear door switch LH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
40	L	Cargo lamp	Output	OFF	Any door open (ON)	0V
49					All doors closed (OFF)	Battery voltage
<b>5</b> 0		0.5			Off-road ON	0V
50	W	Off-road lamps relay	Output	ON	lamps switch OFF	Battery voltage
51	0	Trailer turn signal (right)	Output	ON	Turn right ON	(V) 15 10 5 500 ms SKIA3009J
52	LG	Trailer turn signal (left)	Output	ОИ	Turn left ON	(V) 15 10 500 ms
55	W	Rear wiper output circuit 1	Output	ON	OFF ON	0 Pattery voltage
		July 1	<u> </u>			Battery voltage
56	R/Y	Battery saver output	Output	OFF	10 minutes after ignition switch is turned OFF	0V
	D.".	Dette		ON	_	Battery voltage
57	R/Y	Battery power supply	Input	OFF	<del>-</del>	Battery voltage
58	w	Optical sensor	Input	ON	When optical sensor is illumi nated	3.1V OF MORE
50		The state of the s			When optical sensor is not illu	TI.

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

### < ECU DIAGNOSIS INFORMATION >

	Wire		Signal		Measuring cond	dition	Deference value or weveform
Terminal	color	Signal name	input/ output	Ignition switch	Operation	or condition	Reference value or waveform (Approx.)
		Front door lock as-	_		OFF (neutral)		0V
59	GR	sembly LH actuator (unlock)	Output	OFF	ON (unlock)		Battery voltage
60	LG	Turn signal (left)	Output	ON	Turn left ON		(V) 15 10 50 500 ms
61	G	Turn signal (right)	Output	ON	Turn right ON		(V) 15 10 500 ms 5000 ms
62	BR	Interior room/map	Output	OFF	Any door	ON (open)	0V
63	BK	lamp	Output	OFF	switch	OFF (closed)	Battery voltage
65	V	All door lock actuators	Output	OFF	OFF (neutral)	1	0V
05	V	(lock)	Output	OFF	ON (lock)		Battery voltage
		Front door lock actua-			OFF (neutral)		0V
66	L	tor RH, rear door lock actuators LH/RH and back door lock actua- tor (unlock)	Output	OFF	ON (unlock)		Battery voltage
67	В	Ground	Input	ON			0V
					Ignition switch	ON	Battery voltage
					Within 45 seco		Battery voltage
68	0	O Power window power supply (RAP)	Output	_	More than 45 seconds after ignition switch OFF		0V
					When front doo open or power operates		0V
70	W	Battery power supply	Input	OFF	_		Battery voltage

Fail Safe

### Fail-safe index

BCM performs fail-safe control when any DTC listed below is detected.

Display contents of CONSULT	Fail-safe	Cancellation
U1000: CAN COMM CIRCUIT	Inhibit engine cranking	When the BCM re-establishes communication with the other modules.

### 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.

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

### < ECU DIAGNOSIS INFORMATION >

Priority	DTC
1	U1000: CAN COMM CIRCUIT
2	B2190: NATS ANTENNA AMP B2191: DIFFERENCE OF KEY B2192: ID DISCORD BCM-ECM B2193: CHAIN OF BCM-ECM
3	C1729: VHCL SPEED SIG ERR     C1735: IGNITION SIGNAL
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] RR</li> <li>C1711: [NO DATA] RR</li> <li>C1712: [CHECKSUM ERR] FL</li> <li>C1713: [CHECKSUM ERR] FR</li> <li>C1714: [CHECKSUM ERR] RR</li> <li>C1715: [CHECKSUM ERR] RR</li> <li>C1716: [PRESSDATA ERR] FL</li> <li>C1717: [PRESSDATA ERR] FR</li> <li>C1718: [PRESSDATA ERR] RR</li> <li>C1719: [PRESSDATA ERR] RR</li> <li>C1720: [CODE ERR] FL</li> <li>C1721: [CODE ERR] FR</li> <li>C1722: [CODE ERR] RR</li> <li>C1723: [CODE ERR] RR</li> <li>C1724: [BATT VOLT LOW] FL</li> <li>C1725: [BATT VOLT LOW] FR</li> <li>C1727: [BATT VOLT LOW] RL</li> </ul>

DTC Index

### NOTE:

Details of time display

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

CONSULT display	Fail-safe	Low tire pressure warning lamp ON	Reference page
No DTC is detected. further testing may be required.	_	_	_
U1000: CAN COMM CIRCUIT	Х	_	BCS-27
B2190: NATS ANTENNA AMP	_	_	SEC-18
B2191: DIFFERENCE OF KEY	_	_	SEC-21
B2192: ID DISCORD BCM-ECM	_	_	<u>SEC-22</u>
B2193: CHAIN OF BCM-ECM	_	_	<u>SEC-24</u>
C1708: [NO DATA] FL	_	Х	<u>WT-14</u>
C1709: [NO DATA] FR	_	Х	<u>WT-14</u>
C1710: [NO DATA] RR	_	X	<u>WT-14</u>
C1711: [NO DATA] RL	_	X	<u>WT-14</u>

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

### < ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Low tire pressure warning lamp ON	Reference page
C1712: [CHECKSUM ERR] FL	_	Х	<u>WT-16</u>
C1713: [CHECKSUM ERR] FR	_	Х	<u>WT-16</u>
C1714: [CHECKSUM ERR] RR	_	X	<u>WT-16</u>
C1715: [CHECKSUM ERR] RL	_	X	<u>WT-16</u>
C1716: [PRESSDATA ERR] FL	_	X	<u>WT-18</u>
C1717: [PRESSDATA ERR] FR	_	X	<u>WT-18</u>
C1718: [PRESSDATA ERR] RR	_	X	<u>WT-18</u>
C1719: [PRESSDATA ERR] RL	_	X	<u>WT-18</u>
C1720: [CODE ERR] FL	_	X	<u>WT-16</u>
C1721: [CODE ERR] FR	_	X	<u>WT-16</u>
C1722: [CODE ERR] RR	_	X	<u>WT-16</u>
C1723: [CODE ERR] RL	_	X	<u>WT-16</u>
C1724: [BATT VOLT LOW] FL	_	X	<u>WT-16</u>
C1725: [BATT VOLT LOW] FR	_	X	<u>WT-16</u>
C1726: [BATT VOLT LOW] RR	_	X	<u>WT-16</u>
C1727: [BATT VOLT LOW] RL	_	X	<u>WT-16</u>
C1729: VHCL SPEED SIG ERR	_	X	<u>WT-20</u>
C1735: IGNITION SIGNAL	_	X	<u>WT-21</u>

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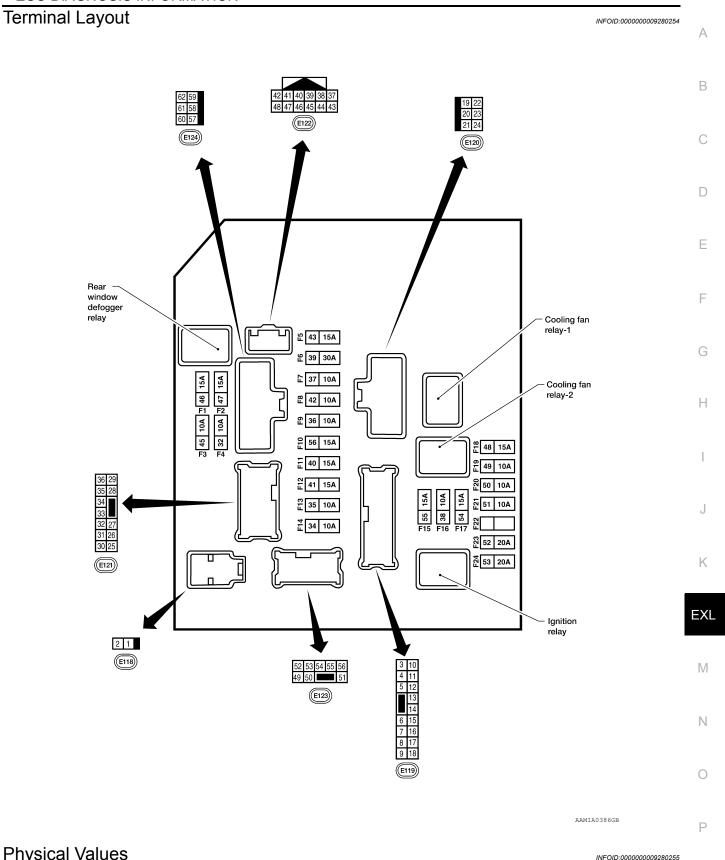
### IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Reference Value

### 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 COMP DEC	A/C switch OFF	A/C switch OFF				
A/C COMP REQ	A/C switch ON	A/C switch ON				
TAIL & CL D. DECO	Lighting switch OFF		Off			
TAIL&CLR REQ	Lighting switch 1ST, 2ND, HI	or AUTO (Light is illuminated)	On			
HL LO REQ	Lighting switch OFF		Off			
nl lo req	Lighting switch 2ND HI or AU	O (Light is illuminated)	On			
UL ULBEO	Lighting switch OFF		Off			
HL HI REQ	Lighting switch HI		On			
ED FOC DEO	Lighting quitab OND	Front fog lamp switch OFF	Off			
FR FOG REQ	Lighting switch 2ND	Front fog lamp switch ON	On			
		Front wiper switch OFF	Stop			
FR WIP REQ	Ignition switch ON	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 operation		BLOCK			
ST RLY REQ	Ignition switch OFF or ACC		Off			
STREE REQ	Ignition switch START	On				
IGN RLY	Ignition switch OFF or ACC		Off			
IGN KLT	Ignition switch ON	On				
	Rear defogger switch OFF		Off			
RR DEF REQ Rear defogger switch ON			On			
OIL D CW	Ignition switch OFF, ACC or en	ngine running	Open			
OIL P SW	Ignition switch ON	Close				
DIDL DEG	Daytime light system requeste	Off				
DTRL REQ	Daytime light system requeste	On				
	Not operated	Off				
THFT HRN REQ	Particular and stand					
	Not operated		Off			
HORN CHIRP	On					

< ECU DIAGNOSIS INFORMATION >



**Physical Values** 

PHYSICAL VALUES

< ECU DIAGNOSIS INFORMATION >

			Signal		Measuring condition		
Terminal	Wire color	Signal name	input/ output	Igni- tion switch	Operation or condition	Reference value (Approx.)	
1	W	Battery power supply	Input	OFF	_	Battery voltage	
2	R	Battery power supply	Input	OFF	_	Battery voltage	
3	G	ECM relay	Output		Ignition switch ON or START	Battery voltage	
3	G	LOWITEIAY	Output	_	Ignition switch OFF or ACC	0V	
4	R	ECM relay	Output		Ignition switch ON or START	Battery voltage	
7	IX.	Low relay	Output	_	Ignition switch OFF or ACC	0V	
6	V	Throttle control motor	Output		Ignition switch ON or START	Battery voltage	
O	V	relay	Output	_	Ignition switch OFF or ACC	0V	
7	BR	ECM relay control	Input		Ignition switch ON or START	0V	
,	DK	ECIVITEIAY CONTION	iliput	_	Ignition switch OFF or ACC	Battery voltage	
8	W/R	Fuse 54	Output	_	Ignition switch ON or START	Battery voltage	
0	VV/IX	ruse 54	Output	_	Ignition switch OFF or ACC	0V	
10	R/B	Fuse 45	Output	ON	Daytime light system active	0V	
10	R/D	ruse 45	Output	ON	Daytime light system inactive	Battery voltage	
11	Y	A/C compressor	Output	ON or	A/C switch ON or defrost A/C switch	Battery voltage	
11	1	A/C compressor	START	A/C switch OFF or defrost A/C switch	0V		
12	W/G	Ignition switch sup-	lanut		OFF or ACC	0V	
12	W/G	plied power	Input	_	ON or START	Battery voltage	
13	R	Fuel pump relay	Output		Ignition switch ON or START	Battery voltage	
10	IX.	r dei pump relay	Output	_	Ignition switch OFF or ACC	0V	
14	W/G	Fuse 49	Output		Ignition switch ON or START	Battery voltage	
17	W/O	1 436 43	Output	_	Ignition switch OFF or ACC	0V	
15	W/R	Fuse 50 (ABS)	Output		Ignition switch ON or START	Battery voltage	
15	V V / I \	1 dae 00 (ADO)	Output		Ignition switch OFF or ACC	0V	
16	W/G	Fuse 51	Output		Ignition switch ON or START	Battery voltage	
10	vv/G	1 USC 01	σαιραι		Ignition switch OFF or ACC	0V	
17	W/G	Fuso 55	Output		Ignition switch ON or START	Battery voltage	
17	vv/G	Fuse 55	Output		Ignition switch OFF or ACC	0V	
19	W	Starter motor	Output	START	_	Battery voltage	
20	BR	Cooling fan motor (low)	Output	ON or START	_	Battery voltage	
04	OD.	Ignition switch sup-	lan:4		OFF or ACC	0V	
21	GR	plied power	Input	_	START	Battery voltage	
22	G	Battery power supply	Output	OFF	_	Battery voltage	
23	LG	Door mirror defogger	Output	_	When rear defogger switch is ON	Battery voltage	
		output signal	Jacpac		When raker defogger switch is OFF	0V	

< ECU DIAGNOSIS INFORMATION >

			Signal		Measuring condition  Operation or condition														
Terminal	Wire color	Signal name	input/ output	Igni- tion switch			Reference value (Approx.)												
24	Б	Cooling fan motor	Output		Conditions correct for cooling fan operation		Battery voltage												
24	Р	(high)	Output	_	Conditions not cooling fan op		0V												
27	W/G	Fuse 38	Output		Ignition switch	ON or START	Battery voltage												
21	VV/G	ruse so	Output	_	Ignition switch	OFF or ACC	0V												
28	R	LH front parking and	Output	OFF	Lighting switch 1st po-	OFF	0V												
20	K	front side marker lamp	Output	OFF	sition	ON	Battery voltage												
	_		_		Lighting	OFF	0V												
29	G	Trailer tow relay	Output	ON	switch 1st po- sition	ON	Battery voltage												
					Ignition switch	ON or START	Battery voltage												
30	R/B	Fuse 53	Output	_	Ignition switch		0V												
20	00	Wiper low speed sig-	O : 14m : 14	ON or	Minor outlet	OFF	0V												
32	GR	nal	Output	START	Wiper switch	LO or INT	Battery voltage												
35	L	Wiper high speed sig-	Output	ON or	Wiper switch	OFF, LO, INT	0V												
55		nal	Output	START	vviper switch	HI	Battery voltage												
					Ignition switch	ON	942001GB 6.3 V												
37	Y	Power generation command signal	Output —		Output	Output	Output	Output	Output	Output	Output	Output -	Output	Output —	Output —	Output —	40% is set on "ALTERNATOI "ENGINE"		(V) 6 4 2 0 2ms JPMIA0002GB 3.8 V
					40% is set on "ALTERNATOI" "ENGINE"		(V) 6 4 2 0 2 2 2 ms JPMIA0003GB 1.4 V												
38	В	Ground	Input	_	-	_	0V												
39	L	CAN-H	<u> </u>	ON	-	_	_												
40	Р	CAN-L		ON	-	_	_												
42	GR	Oil pressure switch	Input		Engine running	9	Battery voltage												
74	GIX	On pressure switch	mput	_	Engine stoppe	d	0V												

< ECU DIAGNOSIS INFORMATION >

			Signal		Measuring con	dition		
Terminal	Wire color	Signal name	input/ output	lgni- tion switch	Operation or condition		Reference value (Approx.)	
43	G	Wiper auto stop signal	Input	ON or START	Wiper switch	OFF, LO, INT	Battery voltage	
44	R	Daytime light relay	Input	ON	Daytime light s	system active	0V	
44	IX	control (Canada only)	iliput	ON	Daytime light s	system inactive	Battery voltage	
45	LG	Horn relay control	Input	ON	When door lock using keyfob (	ks are operated OFF → ON)*	Battery voltage $\rightarrow$ 0V	
46	V	Fuel pump relay con-	Input		Ignition switch	ON or START	0V	
40	V	trol	iliput	_	Ignition switch	OFF or ACC	Battery voltage	
47	0	Throttle control motor	Input		Ignition switch	ON or START	0V	
47	O	relay control	iriput	_	Ignition switch	OFF or ACC	Battery voltage	
		Ctarter relay (ronge		ON or	Selector lever	in "P" or "N"	0V	
48	R	Starter relay (range switch)	Input	ON or START	Selector lever	any other posi-	Battery voltage	
		Front RH parking and			Lighting	OFF	0V	
49	GR	front side marker lamp	Output	OFF	switch 1st po- sition	ON	Battery voltage	
					Lighting	OFF	0V	
50	W	Front fog lamp (LH)	Output	ON or START	switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch	ON	Battery voltage	
					Lighting	OFF	0V	
51	V	Front fog lamp (RH)	Output	ON or START	switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch	ON	Battery voltage	
52	Р	LH low beam head- lamp	Output	_	Lighting switch	in 2nd position	Battery voltage	
54	R	RH low beam head- lamp	Output	_	Lighting switch	in 2nd position	Battery voltage	
55	G	LH high beam head- lamp	Output	_	Lighting switch and placed in I position	in 2nd position HIGH or PASS	Battery voltage	
56	L	RH high beam head- lamp	Output	_	Lighting switch and placed in I position	in 2nd position HIGH or PASS	Battery voltage	
57	GR	Parking, license and tail lamps and off-road	Output	ON	Lighting switch 1st po- sition	OFF ON	0V Battery voltage	
59	В	lamp switch Ground	Input	_	510011		OV	
30	ر		input	ONLor	Rear defogger	switch ON	Battery voltage	
60	GR	Rear window defog- ger relay	Output	ON or START	Rear defogger		0V	
61	R/B	Fuse 32	Output	OFF	_	_	Battery voltage	

<sup>\*:</sup> When horn reminder is ON

< ECU DIAGNOSIS INFORMATION >

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

Control part	Fail-safe in operation
Cooling fan	<ul> <li>Turns ON the cooling fan relay when the ignition switch is turned ON</li> <li>Turns OFF the cooling fan relay when the ignition switch is turned OFF</li> </ul>

### If No CAN Communication Is Available With BCM

Control part	Fail-safe in operation
Headlamp	<ul> <li>Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> </ul>
<ul><li>Parking lamps</li><li>License plate lamps</li><li>Tail lamps</li></ul>	Turns ON the tail lamp relay when the ignition switch is turned ON Turns OFF the tail lamp relay when the ignition switch is turned OFF
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>
Rear window defogger	Rear window defogger relay OFF
A/C compressor	A/C relay OFF
Front fog lamps (if equipped)	Front fog lamp relay OFF

### 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.
- 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 alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

Ignition switch	Ignition relay	Tail lamp relay
ON	ON	_
OFF	OFF	_

### NOTE:

The tail lamp turns OFF when the ignition switch is turned ON.

### FRONT WIPER CONTROL

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

When a front wiper auto stop 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.

Ignition switch	Front wiper switch	Auto stop signal
ON	OFF	Front wiper stop position signal cannot be input 10 seconds.
	ON	The 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

Revision: January 2013 EXL-81 2013 Xterra

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< ECU DIAGNOSIS INFORMATION >

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

DTC Index

CONSULT display	Fail-safe	TIME	NOTE	Refer to
No DTC is detected. further testing may be required.	_	_	_	_
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-13

### NOTE:

The details of TIME display are as follows.

- CRNT: The malfunctions that are detected now
- 1 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 ··· 38 → 39 after returning to the normal condition whenever IGN OFF → ON. It is fixed to 39 until the self-diagnosis results are erased if it is over 39. It returns to 0 when a malfunction is detected again in the process.

Α

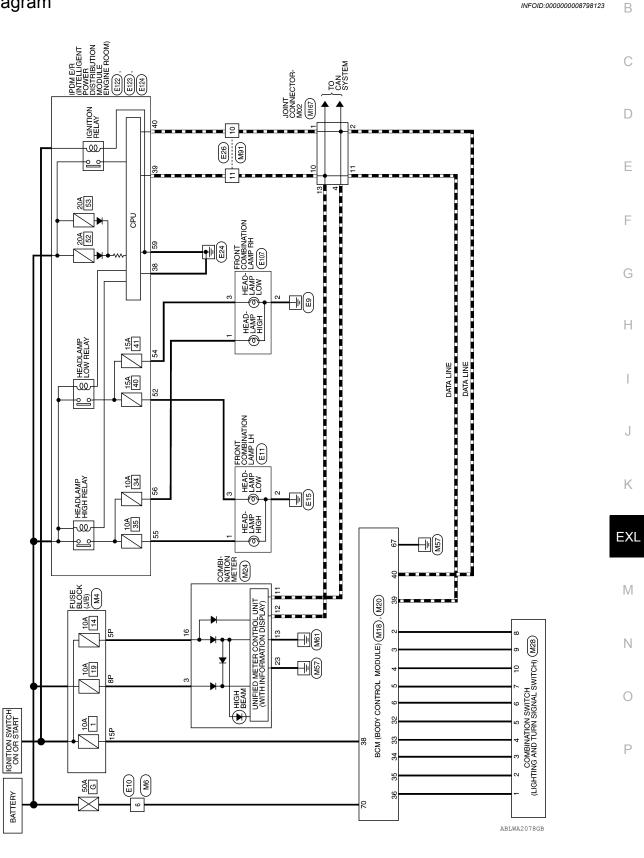
INFOID:0000000008798123

### WIRING DIAGRAM

### **HEADLAMP**

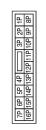
HEADLAMP

Wiring Diagram

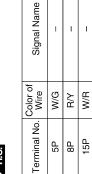


### HEADLAMP CONNECTORS

IVI4	Connector Name FUSE BLOCK (J/B)	WHITE	
Connector No.	Connector Name	Connector Color WHITE	



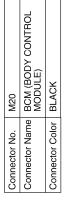




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	RE TO WIRE	IITE	2 \( \tau \)	Signal Name
. M6	me WIF	lor WHITE	8 9	Color of Wire
Connector No.	Connector Name WIRE TO WIRE	Connector Color	南 H.S.	Terminal No.







Terminal No.	Color of Wire	Signal Name
29	В	GND (POWEF
20	M	BAT (F/L)

Terminal No.	Color of Wire	Signal Name
4	>	INPUT 3
2	٦	INPUT 2
9	В	INPUT 1
32	0	OUTPUT 5
33	ВĐ	OUTPUT 4
34	9	OUTPUT 3
35	BR	OUTPUT 2
36	bЛ	OUTPUT 1
38	H/M	IGN SW
39	٦	CAN-H
40	Ь	CAN-L

M18	Connector Name BCM (BODY CONTROL MODULE)	WHITE	
Connector No.	Connector Name	Connector Color WHITE	



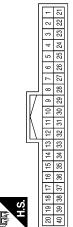
Signal Name	INPUT 5	INPUT 4
Color of Wire	Ь	SB
Terminal No.	2	3

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Signal Name	1	I	I	1	_	1	I
Color of Wire	GR	0	æ	٦	Ь	SB	>
Terminal No. Wire	4	5	9	7	8	6	10

Connector No.	M28
Connector Name	Connector Name COMBINATION SWITCH
Connector Color	WHITE
画 H.S.	1213 10 0 9 8 7 1411 1 2 3 4 5 6

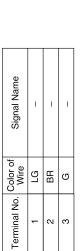
l	8	2	
l	6	4	
L	١П	က	
г	Ш	N	
l	10	-	
l	13	=	
L	12	4	
ľ	1	Ø	ı
þ	F	₹	



Connector Name | COMBINATION METER

Connector No. M24

Connector Color WHITE



Signal Name	BATTERY	CAN-L	CAN-H	GROUND	RUN START	POWER GND
Color of Wire	R/Υ	Д		GR	W/G	В
Terminal No. Wire	က	1	12	13	16	23

	WIRE TO WIRE	11	0 0 0 0	Signal Name	1
E10		or WHITE	4	Color of Wire	>
Connector No.	Connector Name	Connector Color	副 H.S.	Terminal No.	9

	1-M02			_	10	
	는		Ш	1	Ξ	
	Ĕ			2	12	
	ы		Ш	3	13	
	Z			4	16 15 14 13 12 11	
	ŏ			5	15	
	7			9	16	
M167	Ż	B		7	20 19 18 17	
M1	9	BL		8	18	
	σ.	_		6	19	
or No.	or Name JOINT CONNECTOR-M02	or Color BLUE			20	
ō	5	ō				

Connector No. Connector Nam Connector Colo	H.S.
--	------

Connector Name WIRE TO WIRE

M91

Connector No.

Connector Color WHITE

_	

Signal Name	I	1	I	I	I	ı
Color of Wire	Д	Ь	Д	٦	٦	٦
Terminal No. Wire	-	2	4	10	11	13

Signal Name	ı	1
Color of Wire	Д	Γ
Terminal No.	10	11

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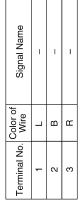
Ν

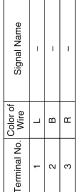
0

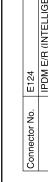
Р

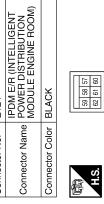
Connector Name FRONT COMBINATION LAMP RH Connector Color BLACK	Connector No.	E107
Connector Color BLACK	Connector Name	FRONT COMBINATION
Connector Color BLACK		LAMP RH
	Connector Color	BLACK

3 2 2	Signal Name	I	ı	I
	Color of Wire	Τ	В	α
<u>vi</u>	minal No.	1	2	ď









E124	IPDM E/R POWER D MODULE E	BLACK
Connector No.	Connector Name	Connector Color BLACK

Connector Name Connector Color

E123

Connector No.

BROWN

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Terminal No. Wire
_
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GND (POWER) Signal Name

Color of Wire М

Terminal No. 29



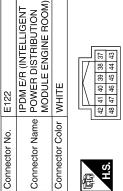


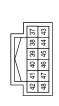
Signal Name	ı	ı	
Color of Wre	Ь	٦	
Terminal No.	10	11	

Conne	E	SH
	Conne	Conne

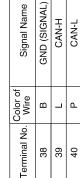
Connector No. E11

FRONT COMBINATION LAMP LH (WITHOUT DAYTIME LIGHT SYSTEM)	ACK	3 2 1	Signal Name	ı	-	1
	lor BL		Color of Wire	თ	В	۵
Connector Name	Connector Color BLACK	H.S.	Terminal No.	-	2	e





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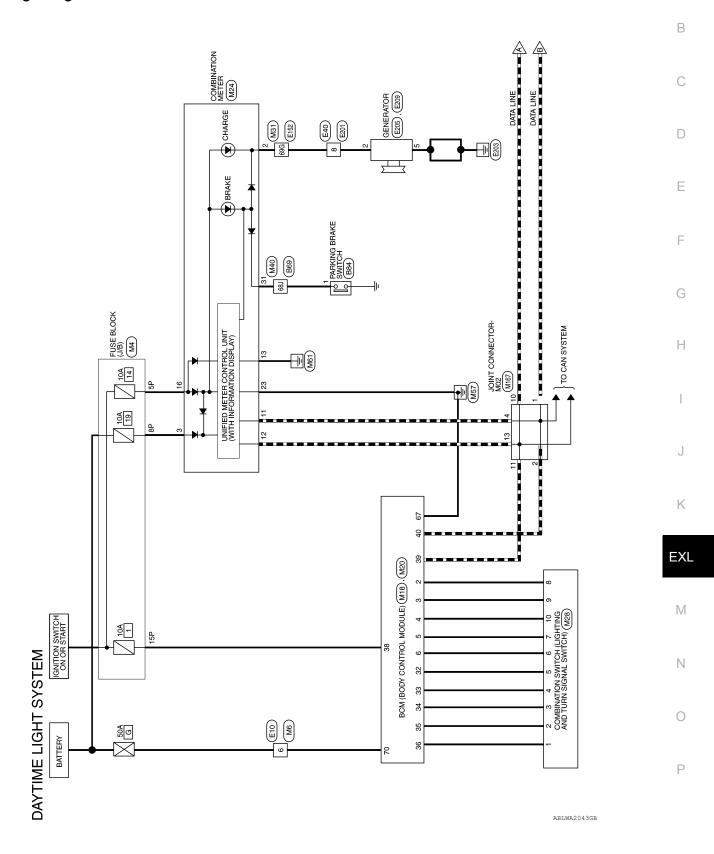


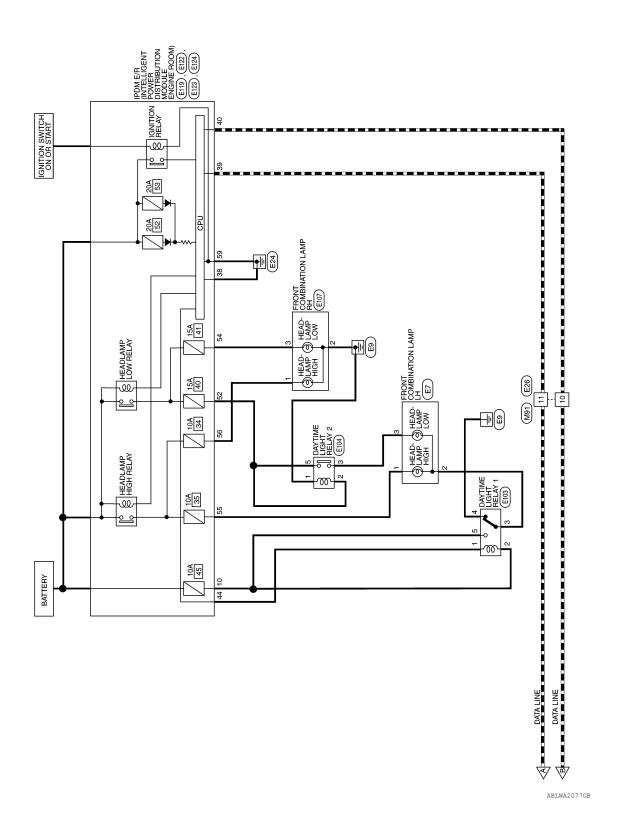
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### **DAYTIME LIGHT SYSTEM**

Wiring Diagram

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# DAYTIME LIGHT SYSTEM CONNECTORS

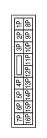
Connector No. M4  Connector Name FUSE BLOCK (J/B)  Connector Color WHITE
nector Color WHITE

Connector Name WIRE TO WIRE

Connector No. M6

Connector Color WHITE





Signal Name	1	1	1	
Color of Wire	M/G	R/Υ	W/R	
Terminal No.	2b	8P	15P	

Signal Name

Color of Wire ≥

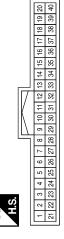
Terminal No. 9

L		
	Connector No.	M20
	Sonnector Name	Connector Name   BCM (BODY CONTROL   MODULE)
	Connector Color BLACK	BLACK

| 56|57|58|59|60|61|62|63|64 | 65| 66| 67| 68| 69| 70

Signal Name	INPUT 3	INPUT 2	INPUT 1	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	MS NDI	CAN-H	CAN-L
Color of Wire	>	T	ш	0	GR	ŋ	BR	ГG	W/R	L	Ь
Terminal No.	4	5	9	32	33	34	35	36	38	39	40

M18	Connector Name BCM (BODY CONTROL MODULE)	WHITE	
Connector No.	Connector Name	Connector Color WHITE	



	Color of	No. Wire	В	>	
		Terminal No.	29	70	
OI ITPI IT 9	3 10 100	OUTPUT 1	IGN SW	CAN-H	CAN-L

GND (POWER) Signal Name

BAT (F/L)

Signal Nam	INPUT 5	4 TUPUT 4	
Color of Wire	Ь	SB	
Terminal No.	2	3	

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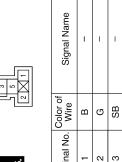
Connector No.   M24   Connector No.   M26   Connector No.   M26   Connector No.   M26   Connector No.   M26   Connector No.   M27   Connector No.   M27		7																	
W M	BINATION SWITCH	<u>.</u>	8 6	2 3 4 5	Signal Name	ı	1	ı	ı	ı	ı	I	1	ı	ı	Oign Name	Olginal Ivalile	I	
W M DUT	me COM	2	12 13	14 11	Color of Wire	PJ	BB	ŋ	GR	0	Œ	_	۵	SB	>	Color of	Wire	۵	
W N N N N N N N N N N N N N N N N N N N	Connector No		唇	H.S.	Terminal No.	-	2	က	4	5	9	7	8	6	10	Toriginal		969	
	Connector No. M24 Connector Name COMBINATION METER		原即	H.S.	18     17     16     15     14     13     12     11     10     9     8     7     6     5     4     3     2       38     37     36     38     34     33     23     31     30     29     29     27     26     25     24     23     22     22	Color of	Wire	Ь	R/Y	Ь		GR	M/G	В	ŋ				H.S.   SG   4G   3G   2G   1G   1G   1G   1G   1G   1G   1

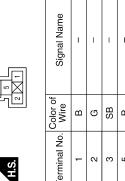
### **DAYTIME LIGHT SYSTEM**

Connector No.   M91	
Connector Name WIRE TO Vonnector Name WIRE TO Vonnector Color of Terminal No. Wire 10 P 11 L 11 L L 11 L L 11 L L Connector Name WIRE TO Connector Name WIRE TO Connector Color WHITE 11 S S S S CONNECTOR OF TERMINAL No. Color of S S S S S S S S S S S S S S S S S S	
Connector No.  Connector Name Connector Color Terminal No. Wii.  Connector No. Connector No. Connector No. Connector Color Terminal No. Wii.  A.S.  Connector No. Connector Color  Color  Connector Color	
WHAD   WHE TO WIRE   Su	1
MITE	SB
Connector Name WIRE TO WIRE  Connector Name WIRE TO WIRE  Connector Color WHITE    101   2	m

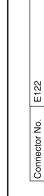
Revision: January 2013 **EXL-91** 2013 Xterra

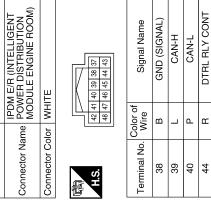
Connector No.	E104
Connector Name	Connector Name DAYTIME LIGHT RELAY 2
Connector Color BLUE	BLUE





Signal Name	
Color of Wire B	Ъ
Terminal No.	2





GENT TION ROOM)		11 10

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	2	12	
	П	13	
	Ш	14	
	9	12	
	7	16	
	8	17	
	6	8	
l		_	J

Signal Name	DTRL RLY SUPPLY	
Color of Wire	B/B	
Terminal No.	10	





Signal Name	ı	ı	_	I	1
Color of Wire	œ	B/B	В	GR	R/B
Terminal No.	-	2	3	4	5

	ارامار
H.S.	

<u> </u>			l
		i	
0			
Signal Name			
gnal I	1		
S			

	Connector No.	E119
	Connector Name	IPDM E/R (INTELLIG POWER DISTRIBUT MODULE ENGINE R
	Connector Color WHITE	WHITE
ı		

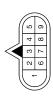
E107 FRONT COMBINATION LAMP RH	BLACK	3 2 1
--------------------------------------	-------	-------

Connector Name Connector Color

Connector No.

Signal Name	I	I	ı
Color of Wire	٦	В	В
Terminal No.	-	2	3

E40	WIRE TO WIRE	GRAY	
Connector No.	Connector Name WIRE TO WIRE	Connector Color GRAY	

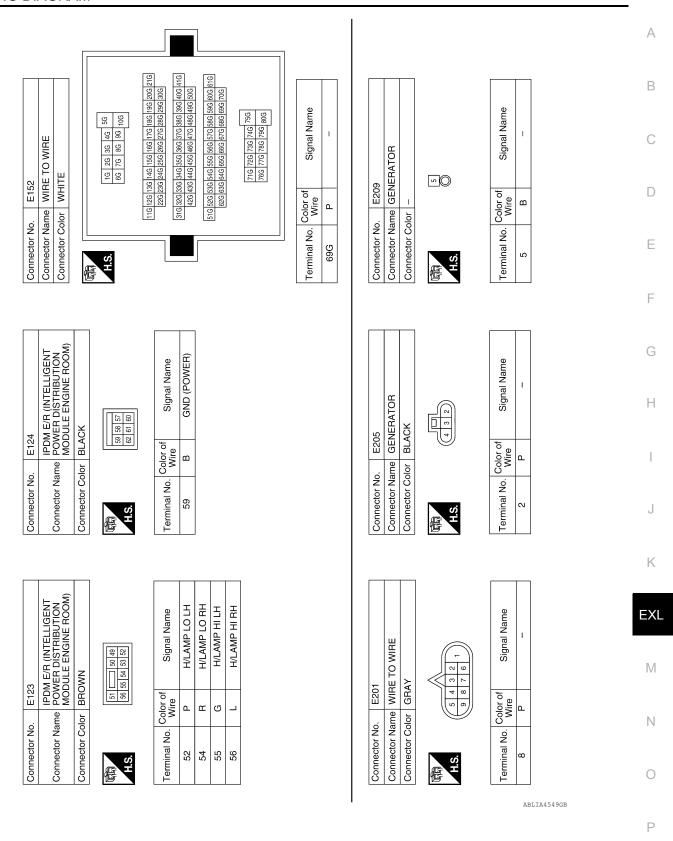




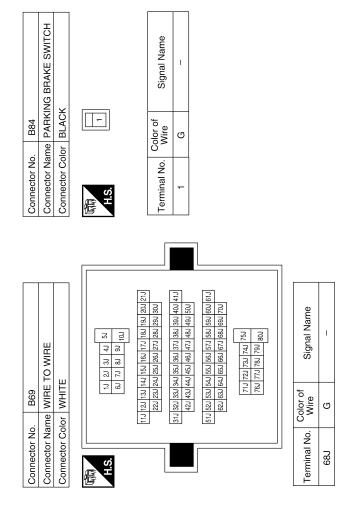
Color of Wire	Ь
Terminal No.	8

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### **DAYTIME LIGHT SYSTEM**



Revision: January 2013 EXL-93 2013 Xterra

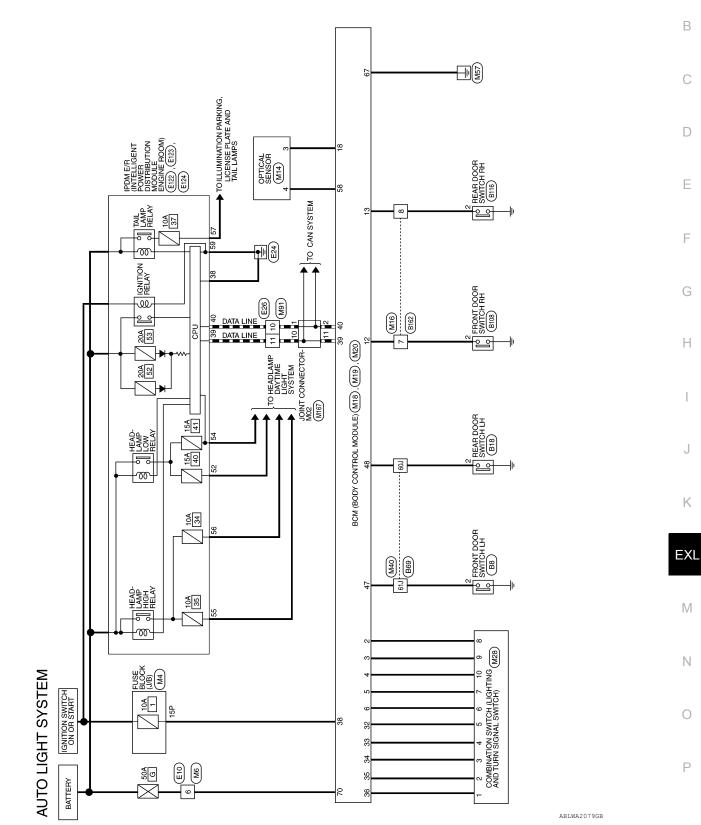


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### **AUTO LIGHT SYSTEM**

Wiring Diagram

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Connector Name OPTICAL SENSOR

Connector No. M14

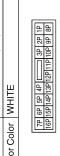
Connector No. M6
Connector Name WIRE TO WIRE

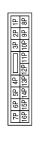
Connector Color WHITE

Connector Color BLACK

## AUTO LIGHT SYSTEM CONNECTORS

Connector No.	M4
Connector Name	onnector Name   FUSE BLOCK (J/B)
Connector Color WHITE	WHITE









Signal Name	1	ı	
Color of Wire	Д	8	
Terminal No.	3	4	

Signal Name	1	ı	
Color of Wire	Д	8	
Terminal No.	3	4	

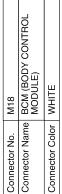
Signal Name

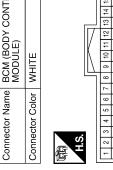
Terminal No. Wire

≥

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Signal Name	INPUT 2	INPUT 1	DOOR SW (AS)	DOOR SW (RR)	KEYLESS & AUTO LIGHT SENSOR GND	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire		ш	LG	٦	BB	0	GR	ŋ	BR	ГС	W/R	٦	Ь
Terminal No.	5	9	12	13	18	32	33	34	35	36	38	39	40





	_	_	٦.				
	ន	9					
	19	33					
	10 11 12 13 14 15 16 17 18 19 20	38					
	4	37					
	16	36 37		မွ			
	15	35		Signal Name	22	4	က
	7	34		Z	15	INPUT 4	INPUT 3
	5	33		na l	INPUT 5		P
	12	32		l iĝ	=	=	=
	Ξ	31		0,			
IN.	9	99					
$\Pi$	6	29					
	0 ∞	28				_	
	_	27		응흥	□	SB	>
	9	26		ŏ_			
	2	25		<u>o</u>			
	4	24		=			
4	က	23		_ <u>aa</u>	N	က	4
2	2	21 22 23 24 25 26 27 28 29 30 31 32 33 34 35		Terminal No. Wire			
•	lĿ	7		Te			
_	$\overline{}$		_	$\overline{}$		_	

Connector No	M16	·
Connector Name		WIRE TO WIRE
Connector Color	olor WHITE	IITE
雨 H.S.	6 2 1 1 1 0 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	00 9 8 7
Terminal No. Wire	Color of Wire	Signal Name
7	ГG	I
8	7	ı

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Connector No. M28  Connector Name COMBINATION SWITCH			10 2 3 4 5 6	Signal Name	ı	ı	1	1	ı	-	1	ı	ı	ı		TO WIRE			4     3   2   1   13   12   11   10   9   8		Signal Name	1	1				
me COME	lor WHITE		12 13	Color of Wire	LG	BB	G	GR	0	В	_	۵	SB	>	M91	me WIRE	lor WHITE		7 6 5 4 16 15 14 13		Color of Wire	<u>a</u>	_				
Connector Nar	Connector Color WHITE		H.S.	Terminal No.	-	2	က	4	2	9	7	8	6	10	Connector No.	Connector Name WIRE TO WIRE	Connector Color WHITE		S. E.S.		Terminal No.	10	<del>-</del>				
3 8	88	2		Te											<u> </u> පි	<u> ප</u>	] පි		E T		Te						
Τ		7							$\neg$																		
BCM (BODY CONTROL	ÚLE) ن۲	4	56 57 58 59 60 61 62 63 64   65  66  67  68  69  70		Signal Name	AUTO LIGHT	SENSOR INPUT 2	GND (POWER)	BAT (F/L)							olginal ivallie	I	1									
- 1		_	56 57 58 59	30,00	Wire		:	В	×						Color of	Wire	Ь	GR									
Connector Name	Connector Color		H.S.		Terminal No.	58	3	67	70							S	600	61J									
	<b>,</b>	_			-																F		]				
<u> </u>		7															Ī			12J 11J			52J 51J 62J				_
(BODY CONTROL	MODÙLE)	<u>u</u>	41   42   43   44   45   46   47   48   49		Signal Name	DOOR SW (DR)	DOOR SW (RL)									E TO WIRE	1	<b>!</b>	5J 4J 3J 2J 1J 10J 9J 8J 7J 6J	21.3 20.0 19.0 18.0 17.0 16.0 15.0 14.0 13.0 12.0	100   250   2	50.1 49.1 48.1 47.1 46.1 45.1 44.1 43.1 42.1	61J 60J 59J 58J 57J 56J 55J 54J 53J 52J 77J 66J 65J 64J 63J 65J 65J 65J 65J 65J 65J 65J 65J 65J 65		75J 74J 73J 72J 71J	08 (37 (37) (38)	
Vo. MIS	MODÚL	IDIO	41 42 4: 50 51		5	GR	Ф								No. M40	Vame WIR	Color WHITE			21, 20, 19,	300 230	501 491	61 60 59	83			
Connector No.	Connector Color		H.S.		Terminal No.	47	48								Connector No.	Connector Name WIRE TO WIRE	Connector Color		H.S.								
																								AB	LIA457	75GB	

Revision: January 2013 EXL-97 2013 Xterra

### **AUTO LIGHT SYSTEM**

### < WIRING DIAGRAM >











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10	11
	10 P –

Signal Name

Color of Wire ≥

Terminal No. 9







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Connector No.	M167					
Connector Name JOINT CONNECTOR-M02	JOINT	8	$\leq$	[일	힏	3-M02
Connector Color BLUE	BLUE					
						F
	9 8 7 6	3	4	က	-	=
H.S.	20 19 18 17 16 15 14 13 12 11 10	15	4	5	2 11	9
			Ш			1



	Signal Name	1	-	ı	ı
olor of	Wire	۵	Ь	_	٦
	Terminal No. Wire	-	2	10	11

E124	Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM)	-ACK
Connector No.	Connector Name P. M	Connector Color BLACK



Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	lor BLACK	CK
崎 H.S.	59 58 62 61	58 57 61 60
Terminal No.	Color of Wire	Signal Name
22	GR	TAIL LAMP
29	В	GND (POWER)

PDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)				
FI S S			49	25
			20	23
	ΙZ		П	24
DM E/I OWER ODULE	2		Ш	22
PDM E/R POWER D MODULE	BROWN		5	99
		Ι,		

E123

Connector No.

Connector Name

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

Connector Name

Connector No.



Signal Name	H/LAMP LO LH	H/LAMP LO RH	H/LAMP HI LH	H/LAMP HI RH
Color of Wire	۵	В	В	_
erminal No.	52	54	22	56

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ш	<i> </i>	39	45	l
WHITE	N	41 40 39	48 47 46 45 44 43	l
₹	$        \rangle$	4	47	l
		42	48	l
Connector Color		S I		J

	37	43		Sigr	GND	ľ
7	42 41 40 39 38 37	44		0)	ੋ	
	39	46 45				
	9	46				
	14	48 47		o o		
1	42	48		Color of Wire	В	-
			_	ŏ_		
				ıal No.	80	



Signal Name	GND (SIGNAL)	CAN-H	CAN-L
Color of Wire	В	_	Ь
Terminal No.	38	39	40

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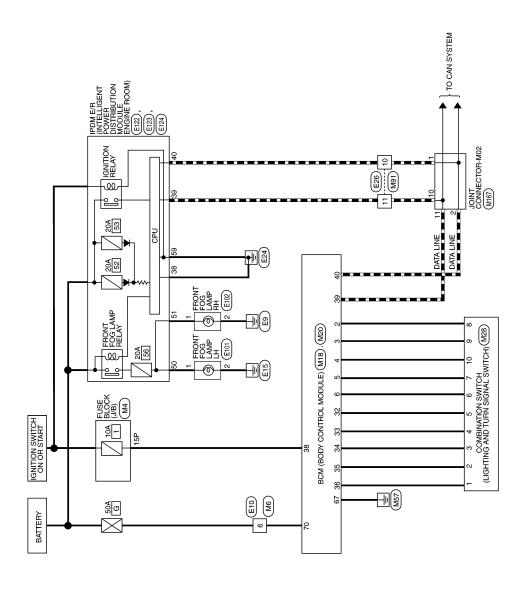
### **AUTO LIGHT SYSTEM**

		1 190 200 21 J 1 280 300 J 1 391 400 41 J 1 491 500 J 1 581 601 61 J 1 691 700 J	lame lame		үате	
E TO WIRE	1.1 2.1 3.1 4.1 5.1 6.1 7.1 8.1 9.1 10.1	11. [22] [33] [44] [53] [65] [72] [88] [39] [30] [31] [32] [32] [34] [35] [35] [35] [35] [35] [35] [35] [35	Signal Name	32 RE TO WIRE HITE 4 5 6 10 11 12	Signal Name	
Connector No. B69 Connector Name WIRE TO WIRE Connector Color WHITE		11.0   12.0   13.0	Color o Wire P	M WH B16	o. Color of LG LG	
Connector No. Connector Name Connector Color	H.S.		Terminal No. 60J 61J	Connector No. Connector Colc	Terminal No. 7 8	
Connector No. B18 Connector Name REAR DOOR SWITCH LH Connector Color WHITE		Signal Name		B116 REAR DOOR SWITCH RH WHITE	Signal Name -	
AR DOOR :	Q - Q 6	1		B116 REAR DOOR WHITE		
No. B18 Name REA Color WHI		O Color of Wire			o. Color of L	
Connector No. B18 Connector Name REAR I Connector Color WHITE	H.S.	Terminal No.		Connector No. Connector Name Connector Color	Terminal No.	
Connector No. B8 Connector Name FRONT DOOR SWITCH LH Connector Color WHITE		Signal Name		Connector No. B108 Connector Name FRONT DOOR SWITCH RH Connector Color WHITE	Signal Name -	E
B8 FRONT DC WHITE	<u></u>	1		B108 B108 WHITE		
Connector No. B8 Connector Name FRONT Connector Color WHITE		No. Color of Wire GR		Connector No. B108 Connector Name FRONT Connector Color WHITE	No. Color of Wire	
Connector No. Connector Col	雨 H.S.	Terminal No.		Connector No. Connector Col	Terminal No.	
				l	ABLIA4576GB	

Revision: January 2013 EXL-99 2013 Xterra

### FRONT FOG LAMP SYSTEM

Wiring Diagram



FRONT FOG LAMP

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Connector No. M6
Connector Name WIRE TO WIRE

Connector Color WHITE

	Connector No.	M		
	Connector Na	me FUS	Connector Name FUSE BLOCK (J/B)	
	Connector Color WHITE	lor WHI	TE	
	雨 H.S.	7P 6P 5P 4P 13P 13P 13P 13P 13P 13P 13P 13P 13P 13	7P 6P 5P 4P (	
	Terminal No.	Color of Wire	Signal Name	
_	15P	W/B	1	

Signal Name

Terminal No. Wire 6 W

0	BCM (BODY CONTROL MODULE)	BLACK	56 57 58 58 60 61 62 63 64 65 66 67 68 69 70	Signal Name	GND (POWER)	BAT (F/L)
. M20			5657 56	Color of Wire	В	Μ
Connector No.	Connector Name	Connector Color	所 H.S.	Terminal No.	29	20

Signal Name	INPUT 3	INPUT 2	INPUT 1	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	>	_	œ	0	GR	g	BB	PC	M/R	٦	Д
Terminal No.	4	5	9	32	33	34	35	36	38	39	40

					98			
	BCM (BODY CONTROL MODULE)	ш		11 12 13 14 15 16 17 18	30 31 32 33 34 35 36 35 37 38	Signal Name	INPUT 5	INPUT 4
. M18		lor WHITE		7 8 9	72 27 78 78	Color of Wire	۵	SB
Connector No.	Connector Name	Connector Color	原 H.S.	2 3 4 5	21 22 23 24 25	Terminal No.	2	ဗ

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Revision: January 2013 **EXL-101** 2013 Xterra

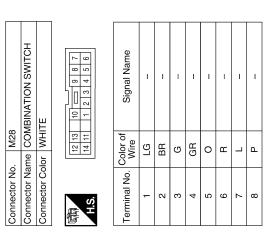
### FRONT FOG LAMP SYSTEM

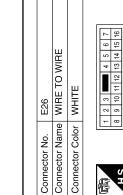
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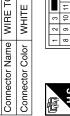
Connector No.	M91
Connector Name WIRE TO WIRE	WIRE TO WIRE
Connector Color WHITE	WHITE
H.S.	7 6 5 4 5 14 5 12 11 10 9 8

Signal Name	ı	-
Color of Wire	۵	Г
Terminal No.	10	11

Signal Name	I	_	
Color of Wire	SB	^	
Terminal No.	6	10	

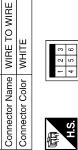








Signal Name	ı	1
Color of Wire	۵	Γ
Terminal No.	10	11





Connector No.

Color of Wire	<b>X</b>	
Terminal No.	9	

Signal Name

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	띵			-	=	
	Ĕ			7	12	
	E			က	13	
	Z			4	14	
	Ŏ			5	15	
	)			9	20 19 18 17 16 15 14 13 12 11	
M167	Z	3		7	17	
Ξ	잌	В		∞	18	
	Ф	_		6	19	
Š.	Nam	Colo	L	$\Box$	8	
Connector No.	Connector Name JOINT CONNECTOR-M02	Connector Color BLUE			H.S.	



Signal Name	1	1	1	1
Color of Wire	Ь	Ь	٦	٦
Terminal No. Wire	1	2	10	11

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### FRONT FOG LAMP SYSTEM

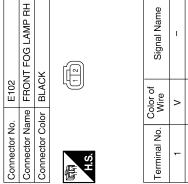
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Connector No.	E122
Connector Name	Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color WHITE	WHITE

42 41 40 39 38 37	Signal Name	GND (SIGNAL)	CAN-H	CAN-L
42 41	Color of Wire	В	Т	۵
明.S.	Ferminal No.	38	39	40

Connector Name Connector Color	POW MOD	MHII	42 41 46
	Connector Name		

Signal Name	ı	1
Color of Wire	۸	В
No.		



FRONT FOG LAMP LH	×		Signal Name	ı	1
	lor BLACK	1	Color of Wire	8	α
Connector Name	Connector Color	訊 H.S.	Terminal No.	-	٥

Connector No. E101

Connector No.	E124	4
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	or BLACK	CK
所S.	92 9	25 65 57 58 57 58 57 58 57 58 57 58 57 58 57 58 58 57 58 58 58 58 58 58 58 58 58 58 58 58 58
Terminal No.	Color of Wire	Signal Name
69	В	GND (POWER)

IPDM E/R POWER I MODULE	BLACK	58 57 61 60		
	BL/	29	Color of Wire	В
ıme	olor		     	
Connector Name	Connector Color	H.S.	Terminal No.	59
		·		

Connector No.	. E123	
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	lor BROWN	Z
H.S.	56 55	54 53 52
Terminal No.	Color of Wire	Signal Name
20	W	FR FOG LAMP LH
51	^	FR FOG LAMP RH

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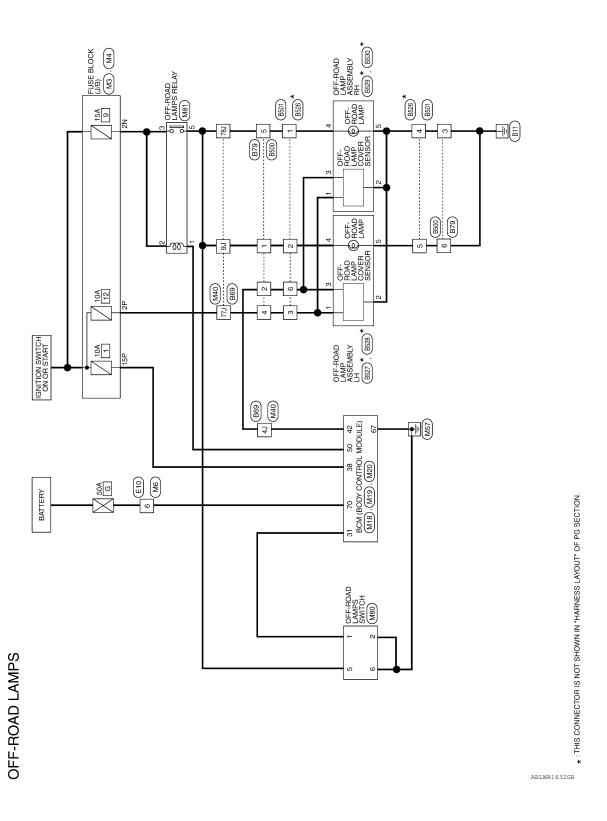
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### **OFF-ROAD LAMPS**

Wiring Diagram



Connector Name WIRE TO WIRE

Connector No. M6

Connector Color WHITE

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000	
MPS	
DLA	
ROA	
FF.	
0	

M4	FUSE BLOCK (J/B)	WHITE
Connector No.	Connector Name FUSE BLOCK	Connector Color
M3	r Name FUSE BLOCK (J/B)	WHITE
Connector No.	Connector Name	Connector Color





Signal Name	1
Color of Wire	W/R
Terminal No.	NZ

Signal Name	-	
Color of Wire	Μ	
Terminal No.	9	

Signal Name	ı	1	
Color of Wire	M/G	W/R	
erminal No.	2P	15P	

Signal Ne	-	ı	
Color of Wire	M/G	W/R	
Terminal No.	2P	15P	

Sig		
Color of Wire	M/G	W/R
Terminal No.	3P	15P

Signal Name	_	
Color of Wire	W/R	
Terminal No.	2N	

o. M20	or Name   BCM (BODY CONTROL   MODULE)	olor BLACK	166   57   58   59   00   61   62   63   64   70   64   65   65   65   65   65   65   65
or No.	or Name	or Color	

Connector No.	M20
Connector Name BCM (BOD) MODULE)	BCM (BOD MODULE)
Connector Color BLACK	BLACK

MODULE)	CK	(S6 [57] [58] [58] [68] [64] [65] [64] [65] [64] [65] [64] [65] [64] [65] [64] [65] [65] [65] [65] [65] [65] [65] [65	Signal Name	GND (POWER)	BAT (F/L)
MO	lor BLACK	56 57	Color of Wire	В	Μ
	Connector Color	fis.	Terminal No.	29	70

	BCM (BODY CONTROL MODULE)	TE	42  42  43  44  45  46  47  48  49      50   51   52   53   54   55	Signal Name	PCA OUTPUT	OFF BOAD LAMP OUTPUT
- M19		lor WHITE	50	Color of Wire	L	W
Connector No.	Connector Name	Connector Color	南 H.S.	Terminal No.	42	50

Connector Name | BCM (BODY CONTROL MODULE)

M18

Connector No.

WHITE

Connector Color

WHITE	41 42 43 50 51	<u>-</u>		
≶	200	Color of Wire		>
olo		Col V		
Sonnector Color		ė.		
necto	S. S.	Terminal No.	42	50
Con	E T	Tern		
	· <del></del>			

H.S.		Terminal	42	20
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 25 27 28 29 30 31 32 23 34 35 36 37 38 39 40	Signal Name	OFF ROAD LAMP SW	IGN SW
	6 7 8 26 27 28	Color of Wire	æ	W/R
H.S.	1 2 3 4 5 21 22 23 24 25	Terminal No. Wire	31	38

Signal Name	OFF ROAD LAMP SW	IGN SW	
Color of Wire	ж	W/R	
Terminal No.	31	38	

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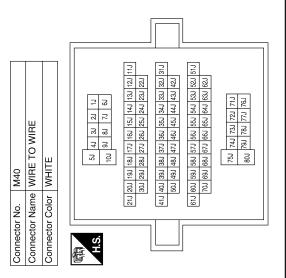
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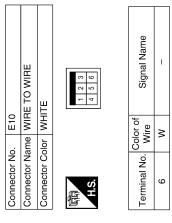
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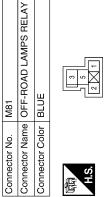
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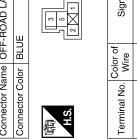
Connector No.	). M80	
Connector Na	ıme OFF	Connector Name OFF-ROAD LAMPS SWITCH
Connector Color	olor GRAY	\t
原 H.S.		6 5 4 3 2 1
Terminal No.	Color of Wire	Signal Name
-	В	ı
2	В	ı
2	W/R	ı
9	В	1

of Signal Name	1	1	1	ı
Color of Wire	_	W/R	W/G	W/R
Terminal No. Wire	4)	93	L77	787









Signal Name	1	1	I	1
Color of Wire	8	W/R	W/R	M/R
Terminal No.	-	2	3	5

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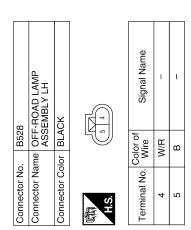
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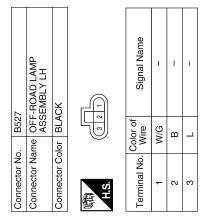
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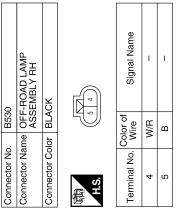
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Revision: January 2013 **EXL-107** 2013 Xterra

Connector No.	). B529	6
Connector Name		OFF-ROAD LAMP ASSEMBLY RH
Connector Color	olor BLACK	CK
原.H.S.		
Terminal No.	Color of Wire	Signal Name
-	W/G	I
2	В	ı
3	7	-



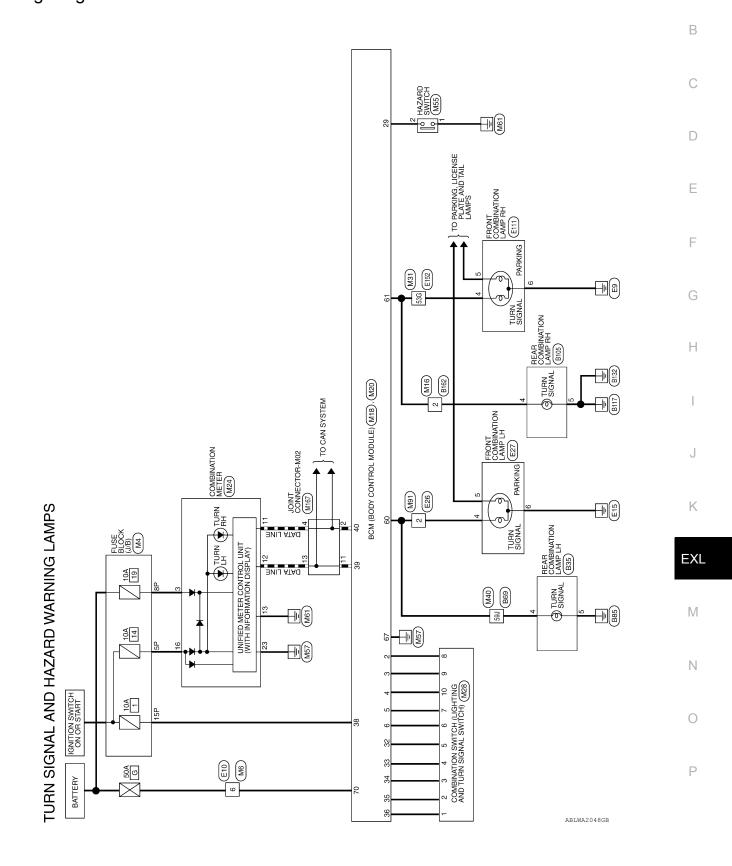




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Wiring Diagram

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Connector Name | WIRE TO WIRE

M16

Connector No.

# TURN SIGNAL AND HAZARD WARNING LAMPS CONNECTORS

M4	Connector Name FUSE BLOCK (J/B)	WHITE	
Connector No.	Connector Name	Connector Color WHITE	

Connector Name WIRE TO WIRE

M6

Connector No.

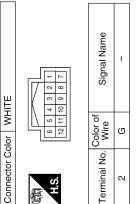
Connector Color WHITE

E

			<del>                                      </del>
M4	tor Name FUSE BLOCK (J/B)	WHITE	7P 6P 5P 4P (
tor No.	tor Name	tor Color WHITE	4 <u>7</u>





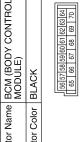


Signal Name

Color of Wire ≥

Terminal No. 9





Signal Name	FLASHER OUTPUT (LEFT)	FLASHER OUTPUT (RIGHT)	GND (POWER)	BAT (F/L)
Color of Wire	ГG	g	В	Μ
Terminal No. Wire	09	61	29	20

Signal Name	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	0	GR	Э	BR	ГG	W/R	Τ	۵
Terminal No.	32	33	34	35	36	38	68	40

Signe	TUO	TUO	TUO	TUO	TUO	ī	7)	Ó
Color of Wire	0	GR	ŋ	BR	P.G	W/R	_	۵
Terminal No.	32	33	34	35	36	38	39	40
						ſF	o le	ה

Signal Name	INPUT 5	INPUT 4	INPUT 3	INPUT 2	INPUT 1	HAZARD SW
Color of Wire	۵	SB	>	٦	В	ŋ
Terminal No. Wire	2	က	4	5	9	29

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BCM (BODY CONTROL MODULE)

Connector Name

M18

Connector No.

WHITE

Connector Color

#### < WIRING DIAGRAM >

1 1									
SB >	-								
9 10									
9 10									
Connector Name   COMBINATION SWITCH   Connector Color   WHITE	10 0 9 8 7	Signal Name	1 1	1	1	1	_	_	1
ne COMB	12 13	Color of Wire	PB RB	5 0	GR	0	В	Т	۵
Connector Name COMBII	H.S.	Terminal No.	- 0	ı e	4	5	9	7	8
			·						
Connector Name   COMBINATION METER   Connector Color   WHITE	<u> </u>	8 7 6 5 4 3 2 28 27 26 25 24 23 22	Signal Name	BATTERY	CAN-L	CAN-H	GROUND	RUN START	POWER GND
me COMBIN		15 14 13 12 35 34 33 32	Color of Wire	R/Y	۵	7	GR	M/G	В
Connector Name	H.S.	20 19 18 17 16 15 14 13 12 11 10 9 40 39 38 37 36 35 34 33 32 31 30 29	Terminal No.	8	=	12	13	16	23

#### < WIRING DIAGRAM >

Connector No. M55 Connector Name HAZARD SWITCH Connector Color WHITE  Terminal No. Wire Signal Name  1 B - 2 G -	Connector No. E10 Connector Name WIRE TO WIRE Connector Color WHITE  Terminal No. Wire  6 W -
Signal Name	Connector No.   M167   Connector Name   JOINT CONNECTOR-M02   Connector Color   BLUE
Color of Girls (Girls of Girls	No. M167 Name JOINT C Color of Wire  Color of P P L L L L L L L L L L L L L L L L L L
Terminal No. 59J	Connector No. Connector Name Connector Color  A.S.  Terminal No.  2  4  11  11
M40   WIRE TO WIRE   Su   4u   3u   2u   1u   1u   3u   2u   1u   3u   2u   1u   3u   2u   1u   3u   2u   3u   2u   3u   3u   7u   6u   3u   3u   7u   6u   3u   3u   7u   6u   3u   3u   7u   6u   6u   6u   6u   6u   6u   6	M91   WIRE TO WIRE   WHITE     WHITE
Connector No. M40  Connector Color WHITE  Su 44 33  100 30 88 81  E1J 200 130 130 170 160 150 150 150 150 150 150 150 150 150 15	Connector No.   M91

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#### < WIRING DIAGRAM >

			А
FRONT COMBINATION GRAY  (4 6 5)	Signal Name	B35  REAR COMBINATION LAMP LH WHITE  or of Signal Name G B - B - B	В
	Color of Wire G G GR		С
Connector No. Connector Color Connector Color	Terminal No. 4 4 5	nector No.  minal No.	D
	ie L		Е
			F
E27 FRONT COMBINATION GRAY  A 6 5	Signal Name	Signal Name	G H
LAMPI GRAY	Color of Wire LG R	Color of Wire	
Connector No. Connector Color Connector Color	Terminal No. 4 5 6	Terminal No.	1
			J
		3 200 G 21 G G G G G G G G G G G G G G G G G	K
VIRE 4 5 6 7 13 14 15 16	Signal Name	E152   WIRE TO WIRE   WIRE TO WIRE   16	EXI
Connector No.   E26  Connector Name   WIRE TO WIRE  Connector Color   WHITE  T 2 3   1   2   5   1   1   1   1   1   1   1   1   1	Color of Wire LG	E152 WHITE WHITE  WHITE  16 26 36 46 66 76 86 97 226 236 246 256 266 77 226 236 246 256 266 27 236 236 246 256 266 27 236 236 246 256 266 27 236 236 246 256 266 27 236 236 246 256 266 27 236 236 246 256 266 27 236 236 246 256 266 27 236 236 246 256 266 67 236 236 246 256 266 67 237 27 27 27 27 28 28 28 28 28 28 28 28 28 28 28 28 28	M
Connector No. E26 Connector Name WIRE T Connector Color WHITE  T 2 3   H.S.	Terminal No. Co	ctor No.	Ν
Conne Conne Conne H.S.	Termir 2		0
		ABLIA3392GB	Р

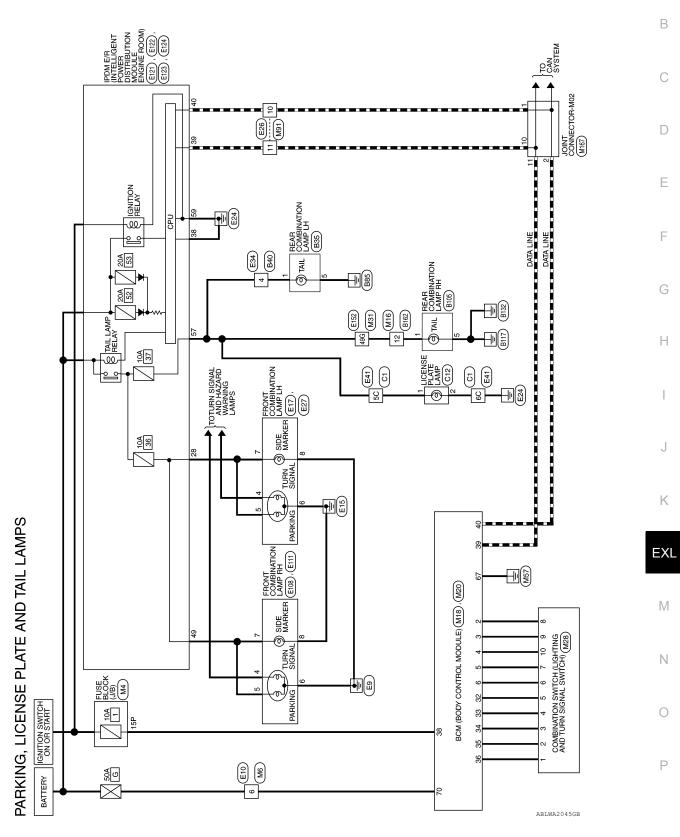
Revision: January 2013 **EXL-113** 2013 Xterra

Connector No. B105 Connector Name REAR COMBINATION LAMP	nector Col	Terminal No. Wire Signal Name  4 G 5 B				
Signal Name Cor	S T	ē				
Terminal No. Wire 59J G						
B69 WIRE TO WIRE	21 33 44 54 75 10 10 10 10 10 10 10 10 10 10 10 10 10	(22) (23) (24) (25) (25) (27) (28) (27) (28) (39) (40) (41) (42) (43) (44) (45) (45) (46) (49) (50) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (50) (61) (51) (52) (53) (54) (55) (56) (57) (58) (59) (59) (70)	74J 75J 75J 75J 80J	B162 WIRE TO WIRE WHITE	6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	of Signal Name
Connector No. B69 Connector Name WIRE TO WIRE		33.17 (227)		Connector No. B162 Connector Name WIRE TO WIRE Connector Color WHITE	H.S.	Terminal No. Wire

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Wiring Diagram

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# PARKING, LICENSE PLATE AND TAIL LAMPS CONNECTORS

M4	Connector Name FUSE BLOCK (J/B)	WHITE	
Connector No.	Connector Name	Connector Color WHITE	

Connector No. M6
Connector Name WIRE TO WIRE

Connector Color WHITE

or No.	M4
or Name	or Name FUSE BLOCK (J/B)
or Color WHITE	WHITE
7P	7P 6P 5P 4P 3P 2P 1P
16P	15P 14P 13P 12P 11P 10P 9P 8P

4P (	Signal Name	
7P 6P 5P 4P 16P 15P 14P 13P	Color of Wire	0/4/
٥.	minal No.	ני

9	RE TO WIRE	WHITE	10 9 8 7 7	Signal Name	-
M16	me WI		6 5 11 11	Color of Wire	^
Connector No.	Connector Name WIRE TO WIRE	Connector Color	赋 H.S.	Terminal No.	12

Signal Name	I	
Color of Wire	W	
Terminal No. Wire	9	

M20	Connector Name   BCM (BODY CONTROL   MODULE)	BLACK	
Connector No.	Connector Name	Connector Color BLACK	

Connector Name BCM (BODY CONTROL MODULE)	CK CK	56   57   58   59   60   61   62   63   64   65   65   65   65   65   65   65	Signal Name	GND (POWER)	BAT (F/L)
me BCN MOE	lor BLA	99	Color of Wire	В	M
Connector Na	Connector Color BLACK	H.S.	Terminal No.	29	70

Signal Name	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	0	GR	G	BB	LG	W/R	7	Ь
Terminal No.	32	33	34	35	36	38	68	40

8	BCM (BODY CONTROL MODULE)	WHITE		9     10     11     12     13     14     15     16     17     18     19     20       29     30     31     32     33     34     35     36     37     38     39     40	Signal Name	INPUT 5	INPUT 4	INPUT 3	INPUT 2	FIGN
. M18		<u> </u>		6 7 8	Color of Wire	۵	SB	^	_	۵
Connector No.	Connector Name	Connector Color	H.S.	1 2 3 4 5 21 22 23 24 25	Terminal No.	2	က	4	5	ď

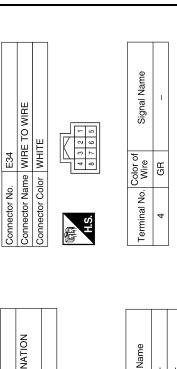
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#### < WIRING DIAGRAM >

Connector No. M91  Connector Name WIRE TO WIRE  Connector Color WHITE	T 6 5 4 3 2 1 T6 15 14 19 12 11 10 9 8	Terminal No.   Color of   Signal Name   Wire	10 P –	11 L -									Connector No   F17	Connector Name FBONT COMBINATION	LAMPLH	Connector Color GRAY	H.S.	Terminal No. Color of Signal Name				
		110	340	2		5 51G																
O WIRE	5G 4G 3G 2G 1G 10G 9G 8G 7G 6G	21G 20G 19G 18G 17G 16G 15G 14G 13G 12G 11G 30G 29G 28G 27G 26G 25G 24G 23G 22G	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	506 496 486 476 466 456 446 436 426		70G 60G 59G 58G 57G 56G 55G 54G 53G 52G 51G		75G 74G 73G 72G 71G	80G 79G 78G 77G 76G			Signal Name		WIBE TO WIBE	1			Signal Name	ı			
Connector Color WHITE	H.S.	216 206 190	410 400 30	500 49		616 606 59						Terminal No. Color of Wire	Connector No E10	٩			H.S.	Terminal No. Color of Mire	M 9			
HO	<u></u>	ıme										<u> </u>					101					1
Connector Color WHITE	12 13 10 0 8 8 14 5 15 10 10 10 10 10 10 10 10 10 10 10 10 10	r of Signal Nam		١	1		-	I	ı	ı	1	1	M167	Connector Name   IONIT CONNECTOR-MO3	BLUE		9 8 7 6 5 4 3 2 1	r of Signal Nam		ı	1	
Connector Name Connector Color	H.S.	Terminal No. Wire			3	4 GR	5 0	6 R	7 Z	8	as 6	10 V	oly votocomo	connector Name	Connector Color E		H.S.	Terminal No. Color of	1	10 L	11 L	

Revision: January 2013 **EXL-117** 2013 Xterra

#### < WIRING DIAGRAM >



-	FRONT COMBINATION LAMP RH	٩٧	9	Signal Name	1	I	ı
, E111	me FRC	lor GRAY	4	Color of Wire	g	GR	a
Connector No.	Connector Name	Connector Color	是 H.S.	Terminal No.	4	വ	9
			<del></del>				

Connector No.	E27
Connector Name	Connector Name FRONT COMBINATION LAMP LH
Connector Color GRAY	GRAY
赋 H.S.	(9 9 9)

Signal Name	1	1	ı
Color of Wire	LG	В	В
Terminal No.	4	5	9

E108	Sonnector Name   FRONT COMBINATION   LAMP RH	GRAY	
Connector No.	Connector Name	Connector Color GRAY	

Connector Name   FRONT COMBINATIC   LAMP RH	λk	8 7	Signal Name	_	1
ne FRC LAN	or GRAY		Color of Wire	Я	α
Connector Nar	Connector Color	原 H.S.	Terminal No.	2	α

Connector No.	E26
Connector Name	Connector Name WIRE TO WIRE
Connector Color WHITE	WHITE
暗	1 2 3 4 5 6 7
H.S.	8 9 10 11 12 13 14 15 16

Signal Name	ı	I
Color of Wire	Ь	٦
Terminal No.	10	11

Signal Name	ı	I	
Color of Wire	۸	В	
Terminal No.	2C	29	

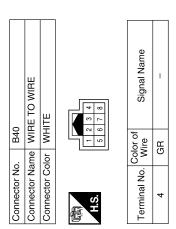
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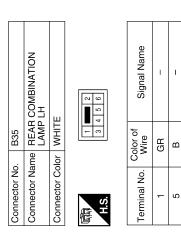
#### < WIRING DIAGRAM >

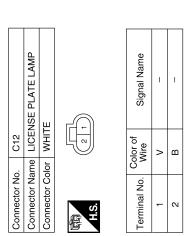
Connector No. E123  Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM) Connector Color   BROWN   Signal Name   Signal Name	Connector No.   C1   Connector Name   WIRE TO WIRE   Connector Color   BLACK   HC 200   200	B C D
Connector No. E122  IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)  Connector Color WHITE  Terminal No. Wire Signal Name  38 B GND (SIGNAL)  39 L CAN-H  40 P CAN-L	Connector No.   E152   Connector Name   WIRE TO WIRE   Connector Color   WHITE   Connector Color   WHITE   See   36   36   46   56   36   46   56   36   46   56   36   36   36   36   36   36   3	F G H
Connector No.   E121   IPDM E/R (INTELLIGENT Connector Name   POWER DISTRIBUTION   MODULE ENGINE ROOM)   Connector Color   BROWN	Connector No. E124  Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM)  Connector Color BLACK  Signal Name Signal Name S7 GR TAIL LAMP  57 GR TAIL LAMP  59 B GND (POWER)	EX M

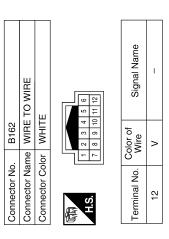
Revision: January 2013 **EXL-119** 2013 Xterra

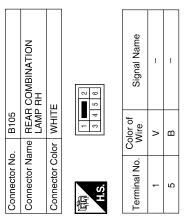
#### < WIRING DIAGRAM >











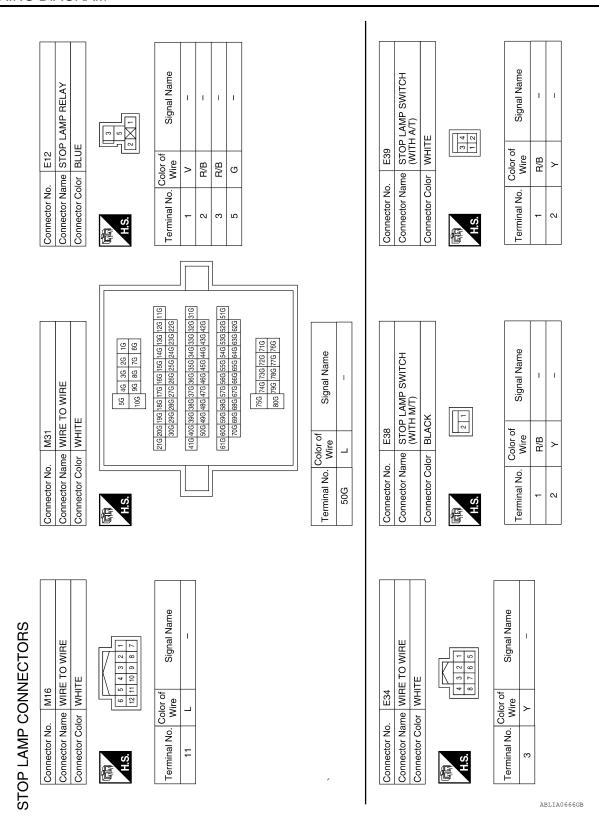
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# < WIRING DIAGRAM > STOP LAMP Α Wiring Diagram INFOID:0000000008798129 В ⟨A⟩:WITH AT ⟨DC⟩:WITH HILL DESCENT CONTROL AND HILL START ASSIST ⟨M⟩:WITH MT С $\mathsf{D}$ Е ABS/TCS/VDC CONTROL UNIT F G TO BCM (BODY CONTROL MODULE) Н BATTERY **ф** sтор J Κ E34 STOP EXL $\mathbb{N}$ Ν 0

STOP LAMP

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Connector No. E160 Connector Same FUSE BLOCK (J/B) Connector Color WHITE  Solor of Signal Name  RQ R/B  Signal Name		Connector No.   B48   Connector Name   WIRE TO WIRE   Connector Color   WHITE   Same   4   5   6   7	E C C E
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			F
E152   WIRE TO WIRE   16 26 36 46 56 106   56 76 86 96 106   226 236 246 256 286 286 306   376 326 336 376 386 336 336 346 416   426 436 446 456 566 576 586 586 686 616   516 526 536 546 556 566 576 586 586 686 616   526 536 546 556 566 576 586 586 686 616   526 536 546 556 566 576 586 586 686 616   526 536 546 556 566 576 586 586 686 616   526 536 546 556 566 576 586 586 686 616   526 536 546 556 566 576 586 586 686 616	Signal Name	WHE TO WIRE WHITE  WHITE  Tof Signal Name  Tof Signal Name	G
Connector No. E152 Connector Color WHITE Connector Color WHITE  H.S. 16 226 236 24  316 326 336 34  316 326 336 34  316 326 336 34  317 326 336 34  317 326 336 34  317 326 336 34  317 326 336 34  317 326 336 34  317 326 336 34  318 326 336 34  319 326 336 34  310 326 326 34  310 326 326 38  310 326 32	Terminal No. Color of Wire 50G L	Connector No. B40 Connector Name WIRE T Connector Color WHITE  H.S.   1 2 3   5 6 7 7   1 2 3 3	J
9 17			K
TUATOR AND RIC UNIT (CONTROL 2)   2   10   11   12   13   14   45   16   14   45   14		B35  REAR COMBINATION LAMP LH WHITE  or of Signal Name re 7 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 4 5 6 3 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	EX
Connector No.   E125		Connector No. B35 Connector Name REAR Connector Color WHITE  Terminal No. Color of Wire  2	N
		ABLIA4553GB	F

Revision: January 2013 **EXL-123** 2013 Xterra

Stor Color of Mine         Nem of Mine         Mine         Mine         Mine         Color of Wire         Mine         Color of Wire         Signal Name         Terminal No. Wire         Color of Wire         Signal Name         Terminal No. Wire         Will         Mine         Mine <t< th=""><th>Connector No.</th><th>B105</th><th>Connector No.</th><th>B162</th><th></th><th>Connector No.</th><th>D402</th><th></th></t<>	Connector No.	B105	Connector No.	B162		Connector No.	D402	
TE	Connector Nam	ne REAR COMBINATION	Connector Nar	ne WIRE T	O WIRE	Connector Nam	ne WIRE	ro wire
Terminal No.   Wire   Signal Name		LAMP RH	Connector Col	or WHITE		Connector Colc	WHITE	
Terminal No.   Color of   Signal Name   Terminal No.   Wire   Signal Name   Terminal No.   Wire   Signal Name   Terminal No.   Wile   Signal Name   Terminal No.   Signal Name   Terminal No.   Wile   Signal Name   Terminal No.   Wile   Signal Name   Terminal No.   Signal Name   Terminal Nam	Connector Colo	vr WHITE						
	南	1	E	8 4			7 6 5 16 15 14	4 3 2 1 13 12 11 10 9 8
Signal Name  Terminal No. Color of Signal Name  - 11 L	H.S.	4		8	112	ПЭ		
Signal Name Terminal No. Color of Wire - 11 L	,	,						
L	Terminal No.		Terminal No.	Color of Wire	Signal Name	Terminal No.	Solor of Wire	Signal Name
<u> </u>	2		11		ı	11	ж	1
Δ	5	- Р						

Connector No.	). D650	20
Connector Name	ame WII	WIRE TO WIRE
Connector Color	olor WHITE	IITE
ffile H.S.		
Terminal No.	Color of Wire	Signal Name
7	В	ı

60	WIRE TO WIRE	ITE		Signal Name	_
). D409		olor WHITE		Color of Wire	В
Connector No.	Connector Name	Connector Color	訊 H.S.	Terminal No. Wire	2

Connector No.	o. D403	33
Connector Name		HIGH-MOUNTED STOP LAMP
Connector Color WHITE	olor WH	ПТЕ
H.S.	2	
Terminal No. Wire	Color of Wire	Signal Name
-	Œ	I
2	В	ı

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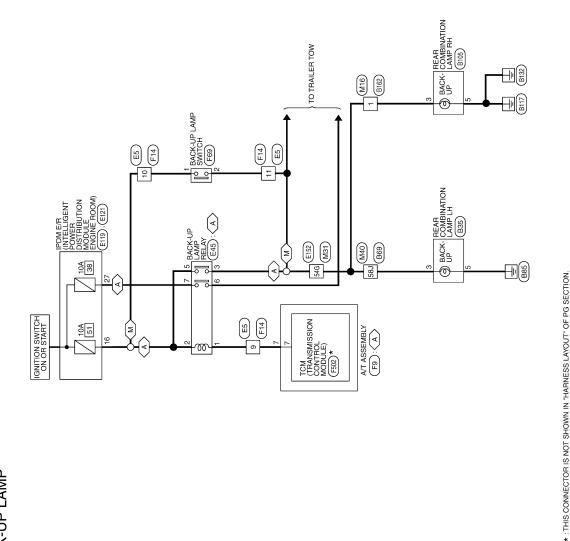
# **BACK-UP LAMP**

Wiring Diagram

NFOID:000000008798130

A S : WITH A∕T

M S : WITH M∕T



**BACK-UP LAMP** 

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Revision: January 2013 **EXL-125** 2013 Xterra

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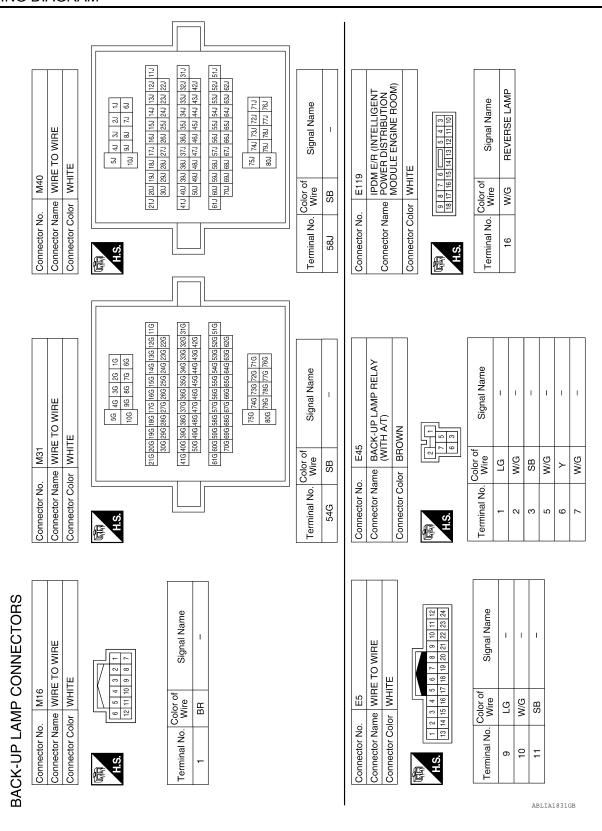
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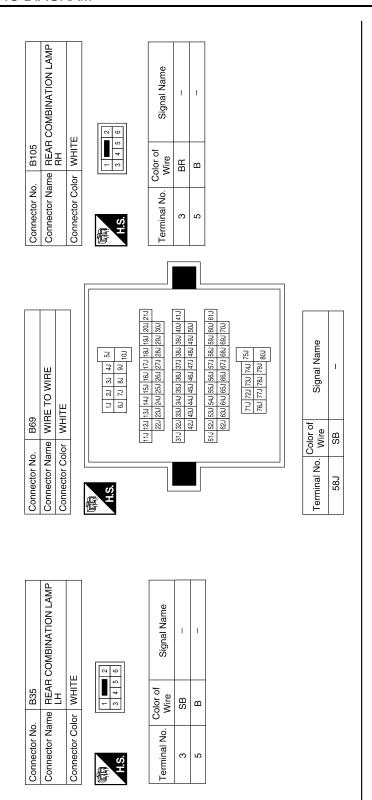
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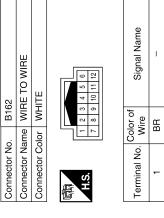
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Connector Name A/T ASSEMBLY Connector Color of GREEN  Terminal No. Wire Signal Name  7 LG -		Connector No. F502 Connector Name TCM (TRANSMISSION CONTROL MODULE) Connector Color GRAY  Lio 9 8 7 6 5 4 3 2 1	Terminal No. Wire Signal Name 7 O REV LAMP RLY
Connector Name WIRE TO WIRE  Connector Color WHITE  Tig 26 36 46 56  116 26 376 86 96 106  226 236 246 256 86 276 86 976 386 386 406 416  226 236 246 256 86 276 86 976 886 806 616  226 236 246 256 86 876 886 806 616  226 236 246 856 866 876 886 806 616  226 236 246 856 866 876 886 806 616  226 236 246 856 866 876 886 806 616  226 236 246 856 866 876 886 806 616  226 236 246 856 866 876 886 806 706  216 226 836 846 856 866 876 886 806 706  2176 726 776 786 786 806 806 706	Terminal No. Wire Signal Name 54G SB –	Connector No. F69 Connector Name BACK-UP LAMP SWITCH Connector Color WHITE	Terminal No. Wire Signal Name  1 W/G -
Connector Name   POWER DISTRIBUTION   POWER DISTRIBUTION   MODULE ENGINE ROOM)   Connector Color   BROWN   Signal Name   Signal	<del> </del>	Connector No. F14  Connector Name WIRE TO WIRE  Connector Color WHITE  Connector Color WHITE	Terminal No. Wire Signal Name 77 9 LG - 10 W/G - 11 SB - 11

Revision: January 2013 **EXL-127** 2013 Xterra

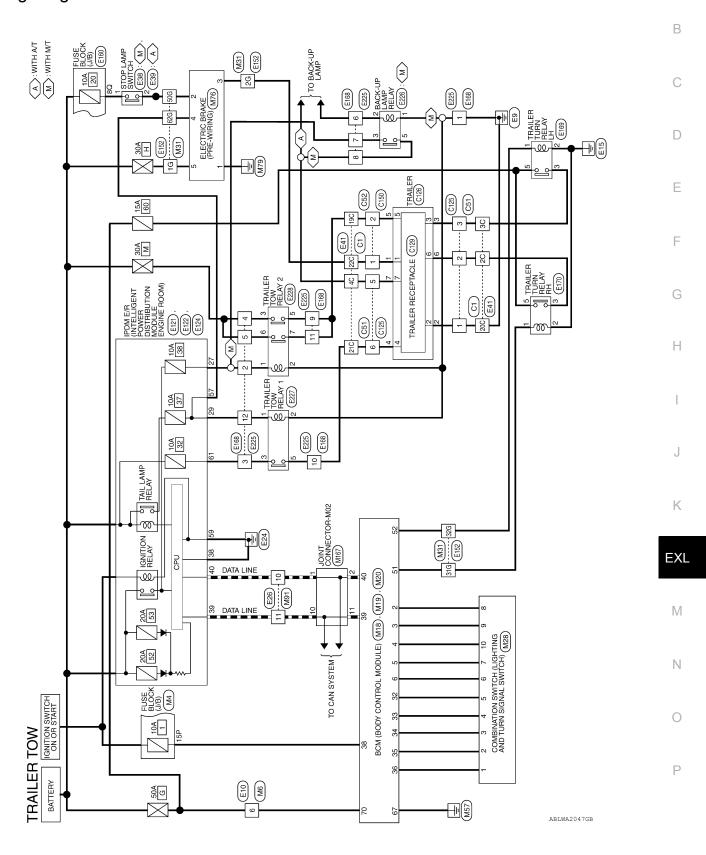




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#### TRAILER TOW

Wiring Diagram



Connector Name BCM (BODY CONTROL MODULE) WHITE

Connector Color

M19

Connector No.

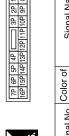
# TRAILER TOW CONNECTORS

Connector Name WIRE TO WIRE Connector Color WHITE

Connector No. M6







Signal Name	_	
Color of Wire	W/R	
Terminal No.	15P	



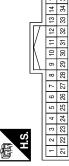
Signal Name

Color of Wire ≥

Terminal No. 9

Signal Name	I	
Color of Wire	W/R	
Terminal No.	15P	

M18	Connector Name   BCM (BODY CONTROL MODULE)	WHITE	
Connector No.	Connector Name	Connector Color WHITE	





Signal Name

Terminal No. α က 4 2 9

INPUT 5

INPUT 3 INPUT 2

INPUT 4

SB ۵

|>  $\neg$ ш

INPUT 1

Signal Name	TRAILER FLASHER OUTPUT (RIGHT)	TRAILER FLASHER OUTPUT (LEFT)
Color of Wire	0	LG
Terminal No. Wire	51	25

Signal Name	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	0	GR	В	BR	LG	W/R	٦	Р
Terminal No.	35	33	34	35	98	38	39	40

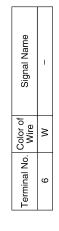
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Terminal No.   Color of   Signal Name   Terminal No.   Color of   Color of
---

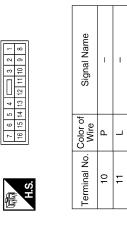
Revision: January 2013 **EXL-131** 2013 Xterra

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Connector No. M167	Connector No. E10	E10
Connector Name JOINT CONNECTOR-M02	Connector Name	onnector Name   WIRE TO WIRE
Connector Color BLUE	Connector Color WHITE	WHITE
9 8 7 6 5 4 3 2 1	H.S.	2 2 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0



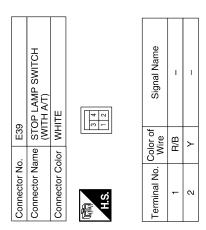


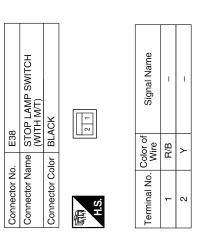


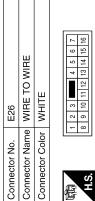
Connector Name WIRE TO WIRE

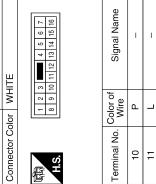
Connector No. M91

Connector Color WHITE









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Connector No.	. E121	1
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	lor BROWN	NWO
H.S.	29 28 27 36 35 34 33 32	27 26 25 33 32 31 30
Terminal No. Color of Wire	Color of Wire	Signal Name
27	W/G	TTOW REV LAMP

TRAILER RLY CONT

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29

Signal Name	ı	ı	ı	I	I	ı	_
Color of Wire	ŋ	>	Υ	>	В	В	BR
Terminal No. Wire	2C	30	4C	19C	20C	21C	22C

onnecte onnect	Connector No. E41	Connector Name WIRE TO WIRE	Connector Color BLACK	10 100 20 110 30 120 40 130 50 140 50 140
--	-------------------	-----------------------------	-----------------------	--

Connector No.	E124	4
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	lor BLACK	CK
H.S.	29 8	198 (30 28 (21 198 (30)
Terminal No.	Color of Wire	Signal Name
57	GR	TAIL LAMP
59	В	GND (POWER)
61	B/B	TRAIL RLY SUPPLY

Connector No.	. E122	2
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	lor WHITE	11
H.S.	42 41	41 40 39 38 37 47 46 45 44 43
Terminal No.	Color of Wire	Signal Name
38	В	(SIGNAL)
39	٦	H-NYO
40	۵	CAN-L

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Connector No.	E152			Connector No.	o. E160			Connector No.	lo. E168		
Connector Name WIRE TO WIRE	e WIRE	TO WIRE	1	Connector Na	ame FUS	Connector Name FUSE BLOCK (J/B)		Connector Name WIRE TO WIRE	ame WIRE	E TO WIRE	
Connector Color WHITE	r WHITE		1-1	Connector Color WHITE	olor WHI	TE		Connector Color WHITE	olor WHIT	E E	
Ġ.Ŧ		16 26 36 46 56 66 76 86 96 106		H.S.	30 20 10 80 70 60 50 40	2010 150140		原动 H.S.	5 4 11 10 9	9 8 7 6	
	11G 12G 13G 22G 23G	11G 12G 13G 14G 15G 16G 17G 18G 19G 20G 21G 22G 23G 24G 25G 28G 27G 28G 29G 30G		Terminal No.	Color of Wire	Signal Name		Terminal No.	Color of Wire	Signal Name	
	216 226 236	21 22 22 24 24 25 25 27 28 27 28 24 24 24 24 24 24 24 24 24 24 24 24 24		80	B/B	ı		-	В	1	
	426 436		5]					2	W/G	Ī	
	516 526 536	516 526 536 546 556 566 576 586 596 606 616						က	B/B	1	
_	62G 63G						•	4	GR	1	
	_	756 746 746 756					•	س س	> a	1 1	
	_	76G 77G 78G 79G						2	. M/G	1	
								8	>	1	
S	olor of							6	>	1	
erminal No.	Wire	Signal Name						10	œ	ı	1
1G	0	-						1	>	I	
5G	BR	1						12	5	1	
31G	0	ı					•				1
	LG	I									
50G		1									
62G	В	ı									
Connector No.	E169			Connector No.	o. E170						
ector Name	e TRAIL	Connector Name TRAILER TURN RELAY LH	, -	Connector Na	ame TRA	Connector Name TRAILER TURN RELAY RH					
Connector Color	r BLUE			Connector Color	olor BLUE	ш					
H.S.	2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3		<u> </u>	(国) H.S.							
Terminal No.	Color of Wire	Signal Name		Terminal No.	Color of Wire	Signal Name					
-	re P	1		-	0	1					
2	В	ı		2	В	ı					
က	>	1		3	5	1					
2	_	I		2	_	1					

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Connector No.   E225   Connector Name   Color of WHTE TO WHEE   Connector Name   WIRE TO WHEE   Connector Name   Color of WHTE TO WHEE   Color of WHTE TO WHIP TO WHIP   Color of WHTE TO WHIP TO WH	Connector No. E226	(WITH M/T)	Connector Color BLUE			H.S.			leffillia No. Wire Signal Name	1 B -	2 BR –	3 W/G –	5 SB -	Ιħ	Connector No. C1	Connector Name WIRE TO WIRE	-	H.S. 400 310 190 100 10 110 20	27C 21C 13C	29C 23C 15C	30C 24C	_	30		Terminal No. Color of Signal Name Wire	2C G -	3C V –	4C Y –	19C V –	20C B –	21C R –	22C BR –	
Terminal No. Color   Connector No. Color   Connector No. Color   Connector No. Color   Connector Col	Signal Name	I	1	I	I	I	I	1	ı										Signal Name	ı	ı	ı	1	ı	1								
Terminal No.	Color of Wire	8	BR	D/M	SB		ш	0	g					ΙT	). E228	ame I HAI		N N N N N N N N N N N N N N N N N N N	Color of Wire	W/G	В	GR		>	0								
	Terminal No.	2	9	7	8	6	10	F	12						Connector No	Connector N		所 H.S.	Terminal No.	-	0	က	5	9	7								
No. E225 Name WIRE TO WIR Color WHITE  Color Wire Sign  W/G R/B								ial Name	ı	ı	ı	ı							al Name	ı	ı	1	1	ï									
Name	:225 JIRE TO WIRE	WHITE		4	9 10 11										22./	HAILER IOW		2 2 3															
			_		7		Color	o. Wire	В	M/G	R/B	GR			1 E	Name II			Color Wire	U	ω	B/B	Œ										

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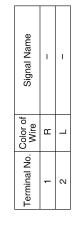
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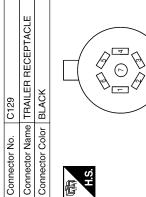
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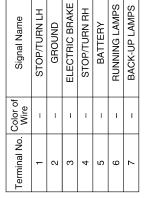
5	IE TO WIRE	\( \text{\text{\$\infty\$}} \\ \text{\$\i	Signal Name	ı	ı	ı	ı	I
	ne WIF or GR/		Solor of Wire	*	g	>	В	BB
Connector No.	Connector Nar Connector Col	是 H.S.	Terminal No.	-	2	ဇ	5	9
Connector No. C125	Connector Name WIRE TO WIRE Connector Color GRAY	ψ j	Terminal No. Wire	M L		> E		



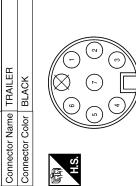


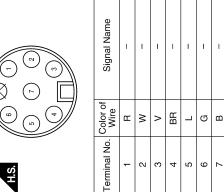
-	WIRE TO WIRE	BLACK		Signal Name	ı	1
. C52		-		Color of Wire	BR	^
Connector No.	Connector Name	Connector Color	所.S.	Terminal No.	-	2





Slor Colc Williams	WIRE TO WIRE GRAY
Colc	
nal No.	2 5
	)
	of Signal Name
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5 G	ı
3 ^	ı
>	ı
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Connector No. C126

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

< SYMPTOM DIAGNOSIS >

# SYMPTOM DIAGNOSIS

# EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table INFOID:0000000008798132

#### **CAUTION:**

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

Symp	otom	Possible cause	Inspection item
Headlamp does not switch to the high beam.	One side	Fuse     Harness between IPDM E/R and the front combination lamp     Front combination lamp     IPDM E/R	Headlamp (HI) circuit Refer to EXL-39, "Description".
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS DO N Refer to EXL-141, "Diagnosis Proc	
High beam indicator lamp (Headlamp switches to the		Combination meter     BCM	Combination meter.     Data monitor "HI-BEAM IND"     BCM (HEAD LAMP)     Active test "HEADLAMP"
	One side	<ul> <li>Daytime light relay 2</li> <li>Harness between IPDM, daytime light relay 2 and front combination lamp LH.</li> <li>Front combination lamp (Low beam)</li> </ul>	Headlamp (LO) circuit Refer to EXL-42, "Description".
Headlamp does not switch to the low beam.	Both sides	Combination switch (lighting and turn signal switch)     Harness between the combination switch (lighting and turn signal switch) and BCM     BCM	Combination switch (lighting and turn signal switch) Refer to BCS-8.
		High beam request signal  BCM IPDM E/R  IPDM E/R	IPDM E/R Data monitor "HL HI REQ"
Headlamp does not turn ON.	One side	Fuse Bulb Harness between IPDM E/R and the front combination lamp Front combination lamp IPDM E/R	Headlamp (LO) circuit Refer to EXL-42, "Description".
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) A Refer to EXL-143, "Diagnosis Proc	RE NOT TURNED ON"
Headlamp does not turn OFF.	When the ignition switch is turned ON	BCM     Combination switch (lighting and turn signal switch)	Combination switch (lighting and turn signal switch) Refer to BCS-8.

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

# < SYMPTOM DIAGNOSIS >

Symp	otom	Possible cause	Inspection item	
Headlamp is not turned Of switch AUTO.	N/OFF with the lighting	BCM     Combination switch (lighting and turn signal switch)     Harness between IPDM E/R and the front combination lamp     IPDM E/R	Combination switch (lighting and turn signal switch) Refer to BCS-8.	
		Optical sensor     Harness between the optical sensor and BCM     BCM	Optical sensor Refer to <u>EXL-64</u> .	
Daytime light system does	not activate.	Either high beam bulb Parking brake switch Combination switch (lighting and turn signal switch) BCM IPDM E/R Daytime light relay 1 Harness between IPDM E/R and daytime light relay 1.	Daytime light system description. Refer to EXL-9, "System Description".	
	One side	Off-road lamps bulb     Harness between Off-road lamps relay and the Off-road lamp assembly	Off-road lamps circuit Refer to EXL-53.	
Off-road lamps are not turned ON.	Both side	Off-road lamps switch Fuse Off-road lamps relay Off-road lamp cover sensor BCM Harness between fuse block (J/B) and the Off-road lamp assembly	Off-road lamps switch circuit Refer to EXL-48. Off-road lamp cover sensor circuit Refer to EXL-50. Off-road lamps circuit Refer to EXL-53.	
Off-road lamps are not turned OFF	Both side	Off-road lamps relay     BCM     Harness between Off-road lamps relay and the BCM	Off-road lamps circuit Refer to EXL-53	
Front fog lamp is not turned ON.	One side	Front fog lamp bulb     Harness between IPDM E/R     and the front combination lamp     Front combination lamp     IPDM E/R	Front fog lamp circuit Refer to <u>EXL-56</u> .	
	Both side	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS Refer to EXL-145, "Diagnosis Proc		
Parking lamp is not turned ON.	One side	Fuse     Parking lamp bulb     Harness between IPDM E/R and the front/rear combination lamp     Front/rear combination lamp     IPDM E/R	Parking lamp circuit Refer to EXL-58.	
	Both sides	Symptom diagnosis "PARKING, LICENSE PLATE AND ON" Refer to EXL-144, "Diagnosis Proc		
Turn signal lamp does not blink.	Indicator lamp is normal. (The applicable side performs the high flasher activation).	Harness between BCM and each turn signal lamp     Turn signal lamp bulb	Turn signal lamp circuit Refer to EXL-61.	

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

#### < SYMPTOM DIAGNOSIS >

Symp	tom	Possible cause	Inspection item
	One side	Combination meter	_
Turn signal indicator lamp	Both sides (Always)	<ul><li>Turn signal indicator lamp signal</li><li>Combination meter</li><li>BCM</li></ul>	Combination meter.     Data monitor "TURN IND"     BCM (FLASHER)     Active test "FLASHER"
does not blink.	Both sides (Does blink when activating the hazard warning lamp with the ignition switch OFF)	The combination meter power supply and the ground circuit Combination meter	Combination meter Power supply and the ground circuit Refer to MWI-30.

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#### **NORMAL OPERATING CONDITION**

#### < SYMPTOM DIAGNOSIS >

#### NORMAL OPERATING CONDITION

Description INFOID:000000009279155

#### **AUTO LIGHT SYSTEM**

The auto light system may not turn the headlamp ON/OFF immediately after passing a dark area or a bright area (short tunnel, sky bridge, shadowed area etc.). This is normal.

#### BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

< SYMPTOM DIAGNOSIS >

#### BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

Description INFOID:0000000008798133

The headlamps (both sides) do not switch to high beam when the combination switch (lighting and turn signal switch) is in the HI or PASS setting.

#### Diagnosis Procedure

INFOID:0000000008798134

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# 1.combination switch (Lighting and turn signal switch) inspection

Check the combination switch (lighting and turn signal switch). Refer to <u>BCS-48</u>, "Symptom Table".

Is the combination switch (lighting and turn signal switch) normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

#### (P)CONSULT DATA MONITOR

- 1. Select "HL HI REQ" of IPDM E/R DATA MONITOR item.
- 2. With operating the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition		Monitor status
	Combination switch (lighting	HI or PASS	ON
HL HI REQ	and turn signal switch) (2ND position)	Except for HI or PASS	OFF

#### Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-50, "Removal and Installation".

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

Check the headlamp (HI) circuit. Refer to EXL-39. "Description".

#### Is the headlamp (HI) circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair or replace the malfunctioning part.

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Revision: January 2013 EXL-141 2013 Xterra

#### **DAYTIME LIGHT SYSTEM INOPERATIVE**

#### < SYMPTOM DIAGNOSIS >

#### DAYTIME LIGHT SYSTEM INOPERATIVE

Description INFOID.000000008798135

The daytime light system is inoperative even though the combination switch (lighting and turn signal switch) and parking brake switch are in the normal setting, also whenever engine is operating.

#### Diagnosis Procedure

INFOID:0000000008798136

#### NOTE:

Before performing the diagnosis, check that the following is normal.

- High beam lamp function
- · Parking brake warning lamp
- Engine operation status

# 1. COMBINATION SWITCH (LIGHTING AND TURN SIGNAL SWITCH) INSPECTION

Check the combination switch (lighting and turn signal switch). Refer to BCS-48, "Symptom Table".

Is the combination switch (lighting and turn signal switch) normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

#### 2.CHECK DAYTIME LIGHT REQUEST SIGNAL INPUT

#### (P)CONSULT DATA MONITOR

- 1. Parking brake switch is released.
- Start engine.
- Select "DTRL REQ" of IPDM E/R DATA MONITOR item.
- 4. While operating the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition		Monitor status
	combination switch (lighting and turn	1ST or OFF	ON
DTRL REQ	signal switch)	Except for 1ST or OFF	OFF

#### Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-50, "Removal and Installation".

# 3.DAYTIME LIGHT RELAY CIRCUIT INSPECTION

Check the daytime light relay circuit. Refer to EXL-46, "Diagnosis Procedure".

#### Is the daytime light relay circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair or replace the malfunctioning part.

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

#### < SYMPTOM DIAGNOSIS >

# BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description INFOID:0000000008798137

The headlamps (both sides) do not turn ON in any combination switch (lighting and turn signal switch) setting.

### Diagnosis Procedure

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# 1. COMBINATION SWITCH (LIGHTING AND TURN SIGNAL SWITCH) INSPECTION

Check the combination switch (lighting and turn signal switch). Refer to BCS-48, "Symptom Table".

Is the combination switch (lighting and turn signal switch) normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

# 2.CHECK HEADLAMP (LO) REQUEST SIGNAL INPUT

#### (P)CONSULT DATA MONITOR

1. Select "HL LO REQ" of IPDM E/R DATA MONITOR item.

2. With operating the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition		Monitor status
HL LO REQ	Combination switch (lighting	2ND	ON
TIE EO NEQ	and turn signal switch)	OFF	OFF

#### Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-50, "Removal and Installation".

# 3.HEADLAMP (LO) CIRCUIT INSPECTION

Check the headlamp (LO) circuit. Refer to EXL-42, "Description".

#### Is the headlamp (LO) circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair or replace the malfunctioning part.

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Revision: January 2013 EXL-143 2013 Xterra

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

< SYMPTOM DIAGNOSIS >

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

Description INFOID:000000008798139

The parking, license plate and tail lamps do not turn ON in with any combination switch (lighting and turn signal switch) setting.

#### Diagnosis Procedure

INFOID:0000000008798140

# 1.combination switch (lighting and turn signal switch) inspection

Check the combination switch (lighting and turn signal switch). Refer to <u>BCS-48</u>, "Symptom Table". <u>Is the combination switch (lighting and turn signal switch) normal?</u>

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

#### (P)CONSULT DATA MONITOR

- 1. Select "TAIL & CLR REQ" of IPDM E/R DATA MONITOR item.
- 2. With operating the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition		Monitor status
TAIL & CLR REQ	Combination switch (lighting and turn signal switch)	1ST	ON
		OFF	OFF

#### Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to <u>BCS-50, "Removal and Installation"</u>.

#### 3.PARK LAMP CIRCUIT INSPECTION

Check the parking lamp circuit. Refer to EXL-58, "Description".

#### Is the tail lamp circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

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

Description INFOID:0000000008798141

The front fog lamps do not turn ON in any combination switch (lighting and turn signal switch) setting.

Diagnosis Procedure

1. COMBINATION SWITCH (LIGHTING AND TURN SIGNAL SWITCH) INSPECTION

Check the combination switch (lighting and turn signal switch). Refer to BCS-48, "Symptom Table"

Is the combination switch (lighting and turn signal switch) normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK FRONT FOG LAMP REQUEST SIGNAL INPUT

(P)CONSULT DATA MONITOR

1. Select "FR FOG REQ" of IPDM E/R DATA MONITOR item.

2. With operating the combination switch (lighting and turn signal switch), check the monitor status.

Monitor item	Condition		Monitor status
FR FOG REQ	Combination switch (lighting and turn signal switch) (2ND)	ON	ON
		OFF	OFF

#### Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-50, "Removal and Installation".

# 3.FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to EXL-56, "Description".

Is the front fog lamp circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-28, "Removal and Installation".

NO >> Repair or replace the malfunctioning part.

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Revision: January 2013 EXL-145 2013 Xterra

# **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 SR and SB section of this Service Manual.

#### **WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

#### **WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT 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.

Precaution for Work

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with a new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components:
- Water soluble dirt:
- Dip a soft cloth into lukewarm water, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, dry cloth.
- Oily dirt:
- Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%) and wipe the dirty area.
- Then dip a cloth into fresh water, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

# **PREPARATION**

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# **PREPARATION**

# **PREPARATION**

Special Service Tool

INFOID:0000000008798145

The actual shapes of Kent-Moore tools ma	ly differ from those of special service tools illustrated he	ere.

Tool number (Kent-Moore No.) Tool name	Description	
— (J-46534) Trim Tool Set	Removing trim compon	ents

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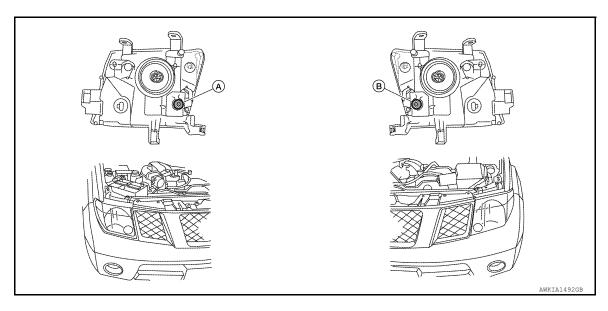
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# PERIODIC MAINTENANCE

# ADJUSTMENT AND INSPECTION HEADLAMP

**HEADLAMP**: Aiming Adjustment

INFOID:0000000008798146



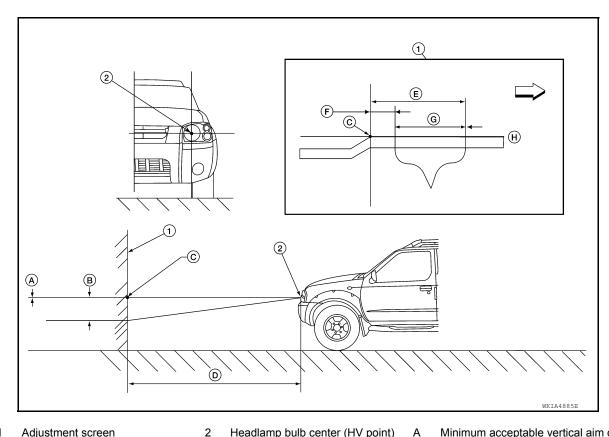
A. Headlamp (RH) adjustment screw

B. Headlamp (LH) adjustment screw

# NOTE:

- For headlamp aiming details, refer to the regulations in your area.
- If vehicle front body has been reprired and/or the front combination lamp has been replaced, check headlamp aiming.
- Before performing aiming adjustment, check the following:
- Ensure all tires are inflated to correct pressure.
- Place vehicle and screen on level surface.
- Ensure there is no load in vehicle other than the driver (or equivalent weight placed in driver's position). Coolant and engine oil filled to correct level and fuel tank full.
- Confirm spare tire, jack and tools are properly stowed.
- Aim each headlamp individually and ensure other headlamp beam pattern is blocked from screen.
- Use adjusting screw to perform aiming adjustment

### LOW BEAM AND HIGH BEAM



- Adjustment screen
- Maximum acceptable vertical aim dimension (see aiming chart)
- Maximum aim evaluation distance F from vertical center on aiming screen 399mm (3° R).
- Horizontal aiming evaluation line.
- Headlamp bulb center (HV point)
- С H-V point
  - Minimum aim evaluation distance from vertical center on aiming screen 133 mm (1°R)
- < ☐ Right

- Minimum acceptable vertical aim dimension (see aiming chart)
- Distance of headlamp aiming screen D from vehicle 7.62 m (25 ft.)
- G Aim evaluation area

Aiming Chart

A (Minimum acceptable vertical aim dimension) -3.3 mm (0.13 in) 0.025° up B (Maximum acceptable vertical aim dimension) 36.6 mm (1.44 in) 0.275° down

#### NOTE:

- By regulation, no means for horizontal aim adjustment is provided from the factory; only vertical aim is adjustable.
- Basic illuminating area for evaluation and/or adjustment should be within range shown on aiming chart.
- Use adjustment screw to perform aiming adjustment.
  - Cover the opposite lamp and ensure fog lamps (if equipped) are turned off. **CAUTION:**

Do not tighten adjustment screw beyond specified torque or damage may occur.

Adjustment torque 1.67 N·m (0.17 kg·m, 15 in·lb)

Adjust beam pattern until cut-off line (top edge of illumination area) is positioned at the specified height off ground. Measure cut-off line within distance J on H-line. See aiming chart.

### FRONT FOG LAMP

# FRONT FOG LAMP: Aiming Adjustment

The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb. Before performing aiming adjustment, make sure of the following.

Keep all tires inflated to correct pressure.

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## **ADJUSTMENT AND INSPECTION**

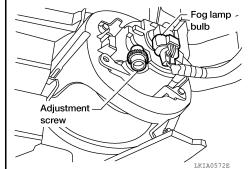
### < PERIODIC MAINTENANCE >

- · Place vehicle on level ground.
- See that vehicle is unloaded (except for full levels of coolant, engine oil and fuel, and spare tire, jack, and tools). Have the driver or equivalent weight placed in driver seat.

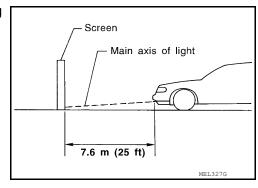
Adjust aiming in the vertical direction by turning the adjustment screw.

#### NOTE:

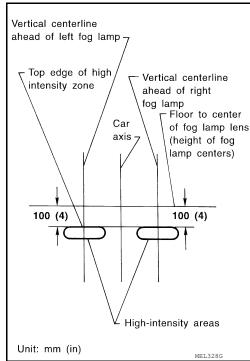
Use a Phillips screwdriver to adjust. Turn screw clockwise to raise pattern and counterclockwise to lower pattern.



1. Set the distance between the screen and the center of the fog lamp lens as shown.



- 2. Turn front fog lamps ON.
- Remove front portion of fender protector(s) for adjustment screw access. Refer to <u>EXT-22</u>, "Removal and Installation"
- 4. Adjust front fog lamps using adjustment screw so that the top edge of the high intensity zone is 100 mm (4 in) below the height of the fog lamp centers as shown.
- When performing adjustment, if necessary, cover the headlamps and opposite fog lamp.



# REMOVAL AND INSTALLATION

# **HEADLAMP**

Bulb Replacement

#### INFOID:0000000008798148

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#### WARNING:

Do not touch bulb with your hand while it is on or right after being turned off. Burning may result. **CAUTION:** 

Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb.Do not 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

**HEADLAMP** 

Removal

#### NOTE:

Reach through engine room for bulb replacement access.

- 1. Turn front headlamp switch OFF.
- Disconnect the harness connector from the headlamp.
- Rotate the headlamp bulb retaining ring counterclockwise and remove.
- Pull the headlamp bulb straight out of the front combination lamp assembly. **CAUTION:**

Grasp only the plastic base when handling headlamp bulb. Do not touch the glass envelope.

#### Installation

Installation is in the reverse order of removal.

#### **CAUTION:**

After installing bulb, be sure to install the bulb socket and plastic cap securely to ensure watertight-

#### FRONT TURN SIGNAL/PARKING LAMP

Removal

### NOTE:

Reach through engine room for bulb replacement access.

- Turn the bulb socket counterclockwise and remove.
- Pull the bulb to remove it from the socket.

#### Installation

Installation is in the reverse order of removal.

#### **CAUTION:**

After installing the bulb, be sure to install the bulb socket securely for watertightness.

### FRONT SIDE MARKER LAMP

### Removal NOTE:

Reach through engine room for bulb replacement access.

- Turn the bulb socket counterclockwise and remove.
- Pull the bulb to remove it from the socket.

Installation

Installation is in the reverse order of removal.

#### **CAUTION:**

After installing the bulb, be sure to install the bulb socket securely for watertightness.

Removal and Installation

#### INFOID:0000000008798149

### FRONT COMBINATION LAMP

Removal

**EXL-151** 2013 Xterra Revision: January 2013

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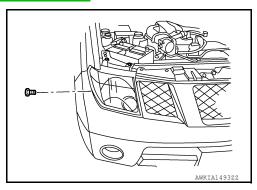
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## **HEADLAMP**

#### < REMOVAL AND INSTALLATION >

- 1. Remove the engine under cover. Refer to EXT-15, "Removal and Installation".
- 2. Remove the front fascia assembly. Refer to EXT-15, "Removal and Installation".
- 3. Remove the front combination lamp bolts.



Disconnect the harness connector from the front combination lamp and remove.

Installation

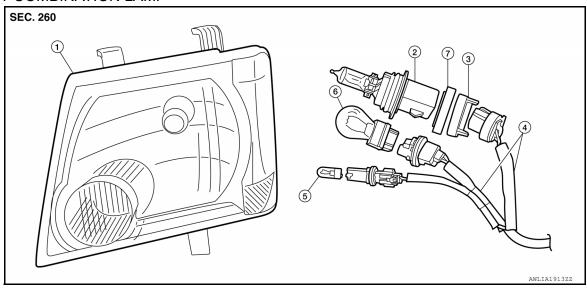
Installation is in the reverse order of removal.

Front combination lamp bolts : 6.0 Nm (0.60 kg-m, 53 in-lb)

# Disassembly and Assembly

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#### FRONT COMBINATION LAMP



- 1. Front combination lamp
- 4. Wiring harness assembly
- 7. Headlamp bulb sealing ring
- 2. Headlamp bulb
- 5. Front side marker lamp bulb
- 3. Headlamp bulb retaining ring
- 6. Front turn signal/parking lamp bulb

#### DISASSEMBLY

#### **WARNING:**

Do not touch bulb with your hand while it is on or right after being turned off. Burning may result. CAUTION:

Do not touch the glass surface of the bulb with bare hands or allow oil or grease to get on it to prevent damage to the bulb. Do not 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.

1. Rotate headlamp bulb retaining ring counterclockwise and remove. **CAUTION:** 

Grasp only the plastic base when handling headlamp bulb. Do not touch the glass envelope.

2. Turn front turn signal/parking lamp bulb socket counterclockwise and remove.

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# **HEADLAMP**

# < REMOVAL AND INSTALLATION >

3. Turn front side marker lamp bulb socket counterclockwise and remove.

### **ASSEMBLY**

Installation is in the reverse order of removal.

### **CAUTION:**

After installing bulb, be sure to install the bulb socket and plastic cap securely to ensure watertightness.

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# FRONT FOG LAMP

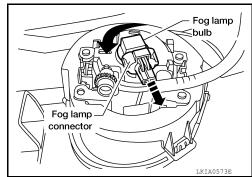
# **Bulb Replacement**

INFOID:000000008798151

- 1. Remove front portion of fender protector. Refer to EXT-22, "Removal and Installation"
- 2. Disconnect the harness connector from the fog lamp.
- 3. Turn the bulb counterclockwise and remove.

#### **CAUTION:**

- Do not touch the glass of bulb directly by hand. Keep grease and other oily substances away from it. Do not touch bulb by hand while it is lit or right after being turned off. Burning may result.
- Do not leave bulb out of fog lamp reflector for a long time because dust, moisture smoke, etc. may affect the performance of fog lamp. When replacing bulb, be sure to replace it with new one.



# Removal and Installation

#### INFOID:0000000008798152

### FRONT FOG LAMP

#### **CAUTION:**

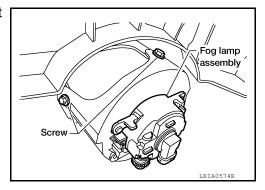
- Do not leave fog lamp assembly without bulb for a long period of time. Dust, moisture, smoke, etc.
  entering the fog lamp body may affect the performance. Remove the bulb from the headlamp assembly just before replacement bulb is installed.
- Grasp only the plastic base when handling the bulb. Do not touch the glass envelope. Touching the glass could significantly affect the bulb life and/or fog lamp performance.

#### NOTE:

The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb.

#### Removal

- 1. Remove front portion of fender protector. Refer to EXT-22, "Removal and Installation"
- 2. Disconnect the harness connector from the fog lamp.
- 3. Remove fog lamp screws and pull fog lamp rearward out of front bumper.



#### Installation

# **LIGHTING & TURN SIGNAL SWITCH**

## < REMOVAL AND INSTALLATION >

# LIGHTING & TURN SIGNAL SWITCH

# Removal and Installation

#### INFOID:0000000008798153

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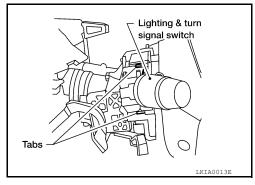
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### **REMOVAL**

- 1. Remove instrument lower panel LH. Refer to <a href="IP-14">IP-14</a>, "Removal and Installation".
- 2. Remove steering column covers. Refer to <u>IP-12, "Removal and Installation"</u>.
- Disconnect the harness connector from the lighting and turn signal switch.
- 4. While pressing tabs, pull lighting and turn signal switch toward driver door and release from the steering column.



## **INSTALLATION**

Installation is in the reverse order of removal.

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# **HAZARD SWITCH**

# < REMOVAL AND INSTALLATION >

# **HAZARD SWITCH**

# Removal and Installation

#### INFOID:0000000008798154

# **REMOVAL**

- 1. Remove cluster lid C. Refer to IP-15, "Removal and Installation".
- 2. Remove the screws and the hazard switch.

## **INSTALLATION**

# **OPTICAL SENSOR**

# < REMOVAL AND INSTALLATION >

# **OPTICAL SENSOR**

# Removal and Installation

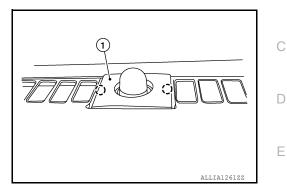
#### INFOID:0000000009290869

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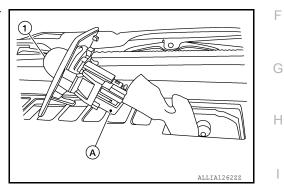
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# **REMOVAL**

Release the sensor cover (1) pawls using a suitable tool.
 Pawl



2. Disconnect the harness connector (A) from the optical sensor (1) and remove.



# **INSTALLATION**

Installation is in the reverse order of removal.

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# **HIGH-MOUNTED STOP LAMP**

## < REMOVAL AND INSTALLATION >

# HIGH-MOUNTED STOP LAMP

# High-Mounted Stop Lamp

INFOID:0000000008798155

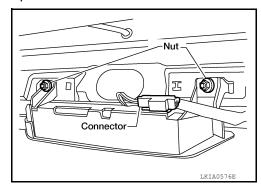
# **BULB REPLACEMENT**

The high-mounted stop lamp bulbs are not serviceable.

# REMOVAL AND INSTALLATION

#### Removal

- 1. Remove back door upper finisher. Refer to <a href="INT-26">INT-26</a>, "Removal and Installation".
- 2. Disconnect the harness connector from the high-mounted stop lamp.
- 3. Remove nuts and the high-mounted stop lamp.



#### Installation

## LICENSE PLATE LAMP

# < REMOVAL AND INSTALLATION > LICENSE PLATE LAMP Α **Bulb Replacement** INFOID:0000000008798156 **REMOVAL** В 1. Turn bulb socket counterclockwise and remove. 2. Remove license plate lamp bulb. **IINSTALLATION** Installation is in the reverse order of removal. D Removal and Installation INFOID:0000000008798157 **REMOVAL** Е 1. Remove license lamp finisher. 2. Disconnect the harness connector from the license plate lamp. F 3. Remove license plate lamp screw and license plate lamp. **INSTALLATION** Installation is in the reverse order of removal. Н K

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# **REAR COMBINATION LAMP**

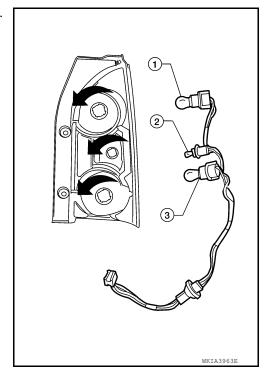
## < REMOVAL AND INSTALLATION >

# **REAR COMBINATION LAMP**

# Bulb Replacement

## **REMOVAL**

- 1. Remove rear combination lamp. Refer to EXL-160, "Removal and Installation".
- 2. Rotate each bulb socket (1, 2, 3) counterclockwise and remove.
- 3. Pull bulb straight out away from socket to release.



## **INSTALLATION**

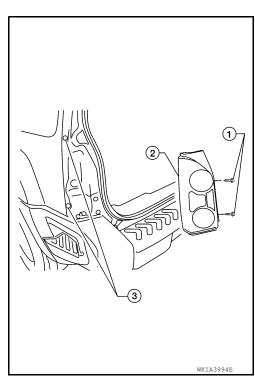
Installation is in the reverse order of removal.

## Removal and Installation

INFOID:0000000008798159

### **REMOVAL**

- 1. Remove rear combination lamp bolts (1).
  - Rear combination lamp locator (3)
- 2. Pull the lamp assembly (2) rearward to remove from the vehicle.
- 3. Disconnect the harness connector from the rear combination lamp and remove.



# **REAR COMBINATION LAMP**

# < REMOVAL AND INSTALLATION >

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Installation is in the reverse order of removal.

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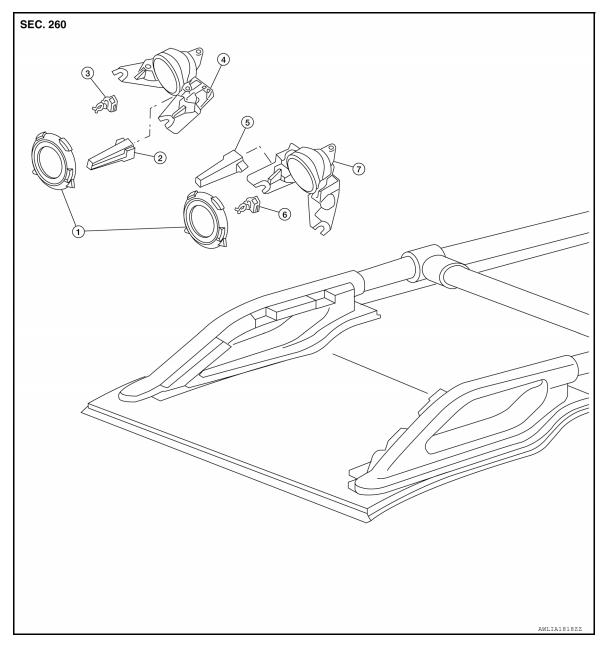
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# **OFF-ROAD LAMPS**

# Removal and Installation

INFOID:0000000008798160



- 1. Off road lamp covers
- 4. Off road lamp assembly (RH)
- 7. Off road lamp assembly (LH)
- 2. Sensor cover (RH)
- 5. Sensor cover (LH)
- 3. Off road lamp bulb (RH)
- 6. Off road lamp bulb (LH)

## OFF ROAD LAMPS

## Removal

- 1. Remove the screws.
- 2. Remove the off road lamp cover.
- 3. Disconnect the harness connector from the off road lamp assembly and remove.

### Installation

## **OFF-ROAD LAMPS**

## < REMOVAL AND INSTALLATION >

# Disassembly and Assembly

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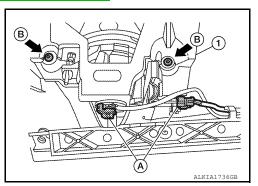
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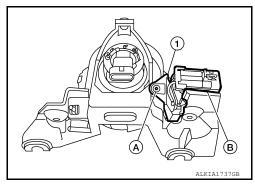
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# Disassembly

- 1. Remove the off road lamp assembly. Refer to EXL-162, "Removal and Installation"
- 2. Disconnect the harness connectors (A).
- 3. Remove the screws (B) and the lamp assembly (1).



- 4. Remove the harness bracket.
- 5. Remove the screw (A). Unclip the connector from the lamp assembly (B) and remove the lamp cover sensor (1).
- 6. Remove the off road lamp bulb.



# Assembly

Assembly is in the reverse order of disassembly.

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# **BULB SPECIFICATIONS**

< SERVICE DATA AND SPECIFICATIONS (SDS)

# SERVICE DATA AND SPECIFICATIONS (SDS)

# **BULB SPECIFICATIONS**

# **Bulb Specifications**

INFOID:0000000008798163

Item		Wattage (W)*	
Front combination lamp	Headlamp (Halogen low beam)	55	
	Headlamp (Halogen high beam)	65	
	Park/Turn lamp	28/8	
	Front side marker lamp	3.8	
Rear combination lamp	Stop/Tail lamp	27/8	
	Rear turn signal lamp	27	
	Back-up lamp	18	
Frong fog lamp		55	
License plate lamp		5	
High-mounted stop lamp		-	
Off road lights		60	

<sup>\*:</sup> Always check with the Parts Department for the latest parts information.