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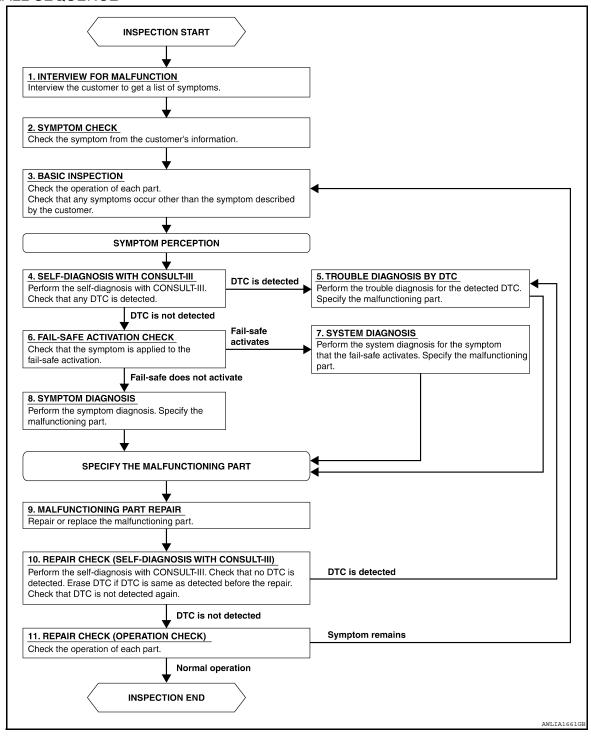
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# **BASIC INSPECTION**

### 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-III Perform the self diagnosis with CONSULT-III. Check that any DTC is detected. Is any DTC detected? YES >> GO TO 5. NO >> GO TO 6. 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. **.**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 10. 10. REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III) Perform the self diagnosis with CONSULT-III. Verfied that no DTCs are detected. Erase all DTCs detected prior to the repair. Verify that DTC is not detected again.

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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?

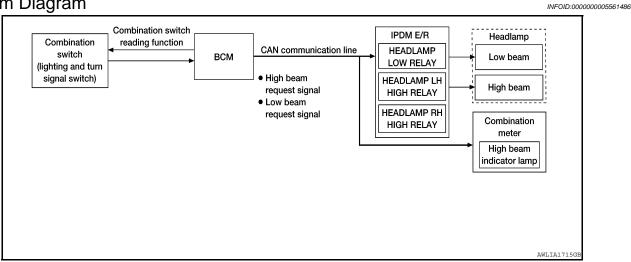
YES >> Inspection End.

NO >> GO TO 3.

# **FUNCTION DIAGNOSIS**

### **HEADLAMP**

System Diagram



# System Description

INFOID:0000000005561487

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 LH high, headlamp RH high and headlamp low relay coils. When energized, these relays direct power to the respective headlamps, which then illuminate.

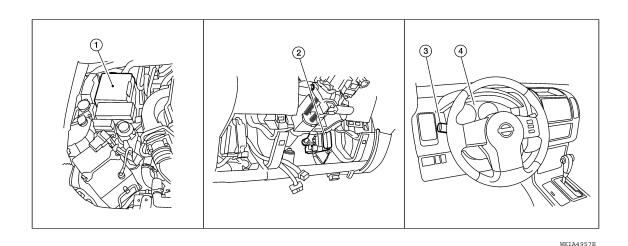
#### HIGH BEAM OPERATION/FLASH-TO-PASS OPERATION

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:0000000005274702



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### **HEADLAMP**

#### < FUNCTION DIAGNOSIS >

- 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:0000000005274703

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**

#### < FUNCTION DIAGNOSIS >

### DAYTIME RUNNING LIGHT SYSTEM

### System Diagram

INFOID:0000000005561488 Combination switch reading function \_\_ Headlamp high Combination CAN communication line RH switch (lighting IPDM E/R Daytime light request signal and turn signal Headlamp high switch) LH Daytime CAN communication line **FCM** light Engine status signal всм relay Parking brake switch Combination meter Parking brake switch signal AWI-TA17510

# System Description

INFOID:0000000005274705

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 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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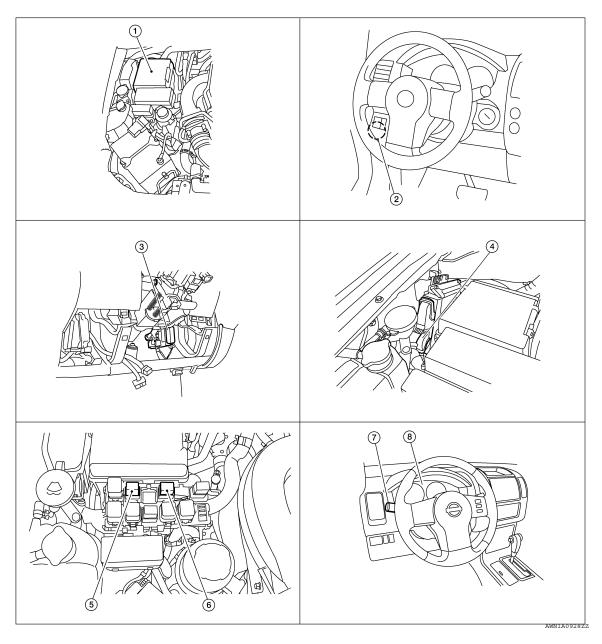
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# **Component Parts Location**

INFOID:0000000005274706



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

# Component Description

INFOID:0000000005274707

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>

### **DAYTIME RUNNING LIGHT SYSTEM**

### < FUNCTION DIAGNOSIS >

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.
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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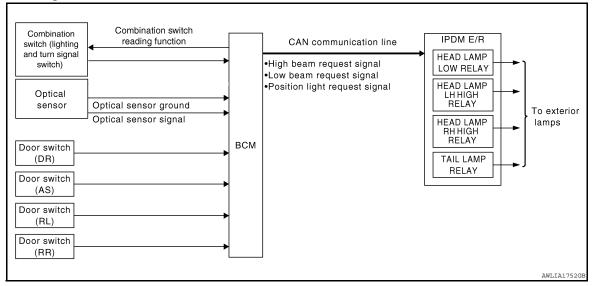
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#### **AUTO LIGHT SYSTEM**

#### System Diagram

INFOID:0000000005561489



# System Description

INFOID:0000000005561490

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="EXL-27">EXL-27</a>, "HEADLAMP: CONSULT-III Function (BCM - HEADLAMP)".

#### **AUTO LIGHT OPERATION**

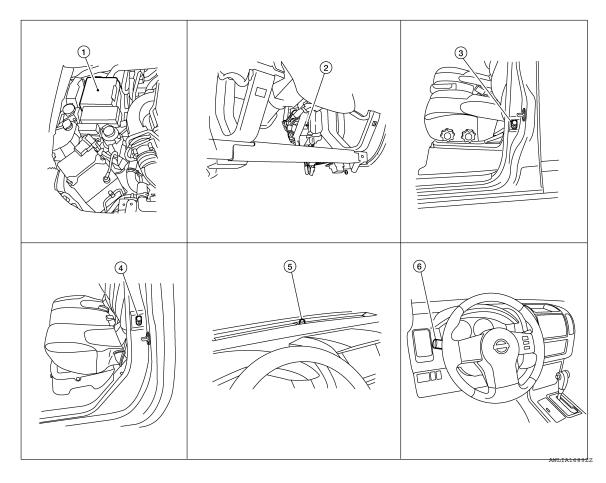
The auto light system operates the low beam and high beam headlamps, parking lamps, tail lamps and license plate lamps. The BCM monitors the combination switch (lighting and turn signal switch) position as a part of the BCM combination switch reading function. When the combination switch (lighting and 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 function setting of CONSULT-III. Refer to <a href="EXL-27">EXL-27</a>, <a href="#">"HEADLAMP: CONSULT-III Function (BCM - HEAD LAMP)"</a>.

# **Component Parts Location**

INFOID:0000000005274710



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

- BCM M18, M19, M20 (view with lower 3. instrument panel LH removed)
- 5. Optical sensor M14
- 3. Front door switch LH B8 RH B108
- 6. Combination switch (lighting and turn signal switch) M28

# **Component Description**

INFOID:0000000005274711

Part name	Description
ВСМ	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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### FRONT FOG LAMP

System Diagram

Combination switch (lighting and turn signal switch)

Combination switch (lighting and turn signal switch)

BCM

CAN communication line Front fog lamp request signal

Front fog lamp request signal

# System Description

INFOID:0000000005561492

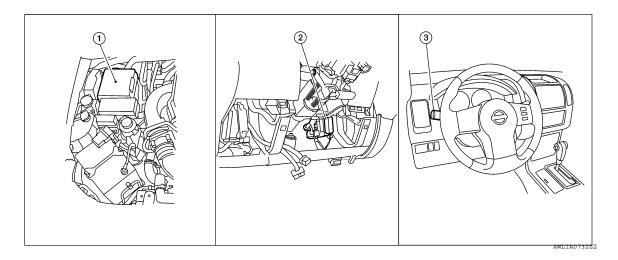
The front fog lamps are activated with the combination switch (lighting and turn signal switch). The combination switch (lighting and turn signal switch) signal to the BCM is monitored with the BCM combination switch reading function. When the fog lamps are turned ON with the combination switch (lighting 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:0000000005274714



- 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

### **FRONT FOG LAMP**

# < FUNCTION DIAGNOSIS >

# **Component Description**

INFOID:0000000005274715

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>
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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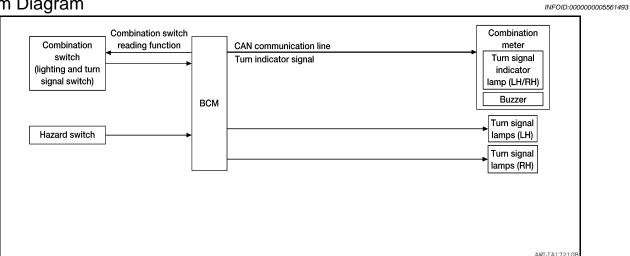
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### TURN SIGNAL AND HAZARD WARNING LAMPS

#### System Diagram



### System Description

INFOID:0000000005561494

#### TURN SIGNAL OPERATION

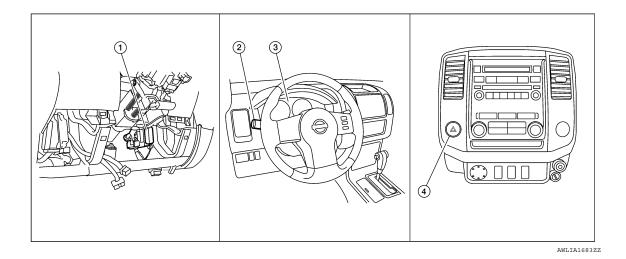
When the combination switch (lighting and turn signal switch) is in LH or RH position with the ignition switch in ON position, the BCM detects the TURN RH or TURN LH ON request. The BCM outputs the flasher signal to the respective turn signal lamp. The BCM also sends a turn indicator signal ON request 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.

# Component Parts Location

INFOID:0000000005274718



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

Hazard switch M55

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### TURN SIGNAL AND HAZARD WARNING LAMPS

# < FUNCTION DIAGNOSIS >

# **Component Description**

INFOID:0000000005274719

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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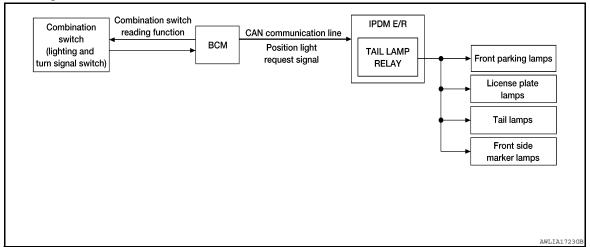
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# PARKING, LICENSE PLATE AND TAIL LAMPS

System Diagram

INFOID:0000000005274720



# System Description

INFOID:0000000005561495

#### 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

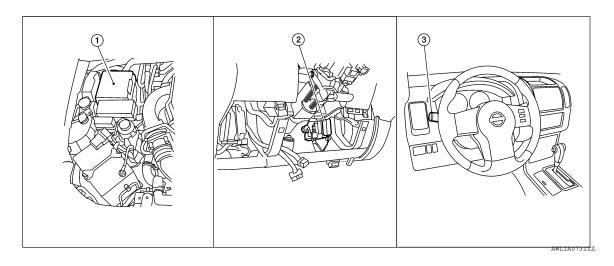
With the combination switch (lighting and turn signal switch) in the 2nd position and the ignition switch is turned from ON or ACC to OFF, the battery saver feature is activated.

Under this condition, the headlamps remain illuminated for 5 minutes 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-III. Refer to <u>BCS-22</u>, "BATTERY SAVER : CONSULT-III Function (BCM - BATTERY SAVER)".

# Component Parts Location

INFOID:0000000005274722



- 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

# < FUNCTION DIAGNOSIS >

# **Component Description**

INFOID:0000000005274723

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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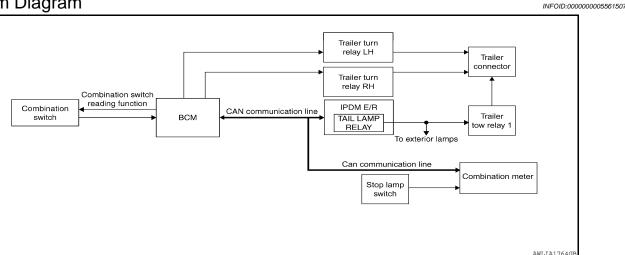
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#### TRAILER TOW

System Diagram



# System Description

INFOID:0000000005561508

#### TRAILER TAIL LAMP OPERATION

The trailer tail lamps are controlled by the trailer tow relay 1 located in 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

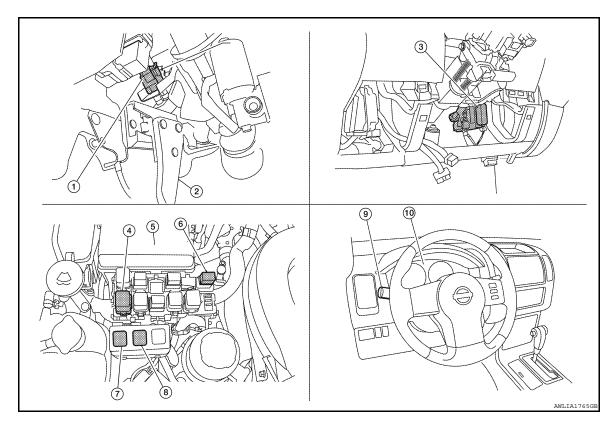
The trailer hazard lamps are controlled by the BCM. When the hazard switch is pressed, the BCM detects the the hazard ON request. The BCM then sends a control signal to both trailer turn relays which sends power to the trailer connector.

#### TRAILER BRAKE LAMP OPERATION

The trailer brake lamps are controlled by the BCM. When the brake pedal is depressed, the combination meter receives a stop lamp switch signal from the stop lamp switch. The combination meter then sends the brake signal to the BCM via the CAN communication lines. The BCM then sends a control signal to both trailer turn relays which sends power to the trailer connector.

# **Component Parts Location**

INFOID:0000000005561509



- Stop lamp switch E38 (manual transmission) or E39 (automatic transmission) (view with lower instrument panel LH removed)
- Trailer turn relay LH E164
- Trailer tow relay 2 E228 7.
- 10. Combination meter M24

- 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 E165
- 9. Combination switch (lighting and turn signal switch) M28

# Component Description

INFOID:0000000005561510

Part name	Description
BCM	<ul> <li>Receives lighting and turn signal requests from combination switch (lighting and turn signal switch).</li> <li>Receives stop lamp signal requests from combination meter via CAN communication.</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 meter	<ul> <li>Receives stop lamp switch signal from stop lamp switch.</li> <li>Sends stop lamp signal request to the BCM via CAN communication.</li> </ul>
Combination switch (lighting and turn signal switch)	Outputs lighting and turn signal requests to the BCM.

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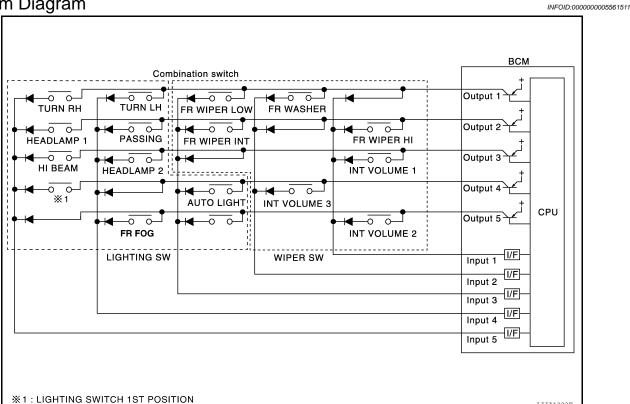
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### COMBINATION SWITCH READING SYSTEM

# System Diagram



### System Description

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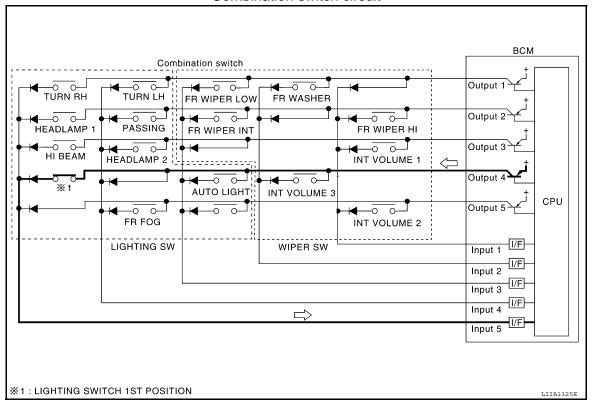
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#### **OUTLINE**

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

#### **COMBINATION SWITCH MATRIX**

#### Combination switch circuit



Combination switch INPUT-OUTPUT system list

Combination switch ha	or oon or system list				
System	OUTPUT 1	OUTPUT 2	OUTPUT 3	OUTPUT 4	OUTPUT 5
INPUT 1	_	FR WASHER	FR WIPER LOW	TURN LH	TURN RH
INPUT 2	FR WIPER HI	_	FR WIPER INT	PASSING	HEADLAMP 1
INPUT 3	INT VOLUME 1	_	_	HEADLAMP 2	HI BEAM
INPUT 4	_	INT VOLUME 3	AUTO LIGHT	_	TAIL LAMP
INPUT 5	INT VOLUME 2	_	_	FR FOG	_

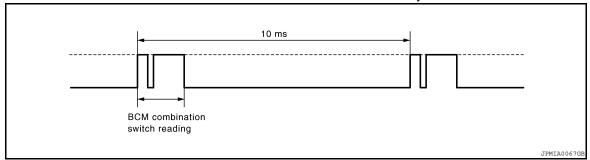
#### NOTE:

Headlamp has a dual system switch.

#### COMBINATION SWITCH READING FUNCTION

#### Description

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



#### NOTE:

BCM reads the status of the combination switch at 20ms interval when BCM is controlled at low power consumption control mode.

- BCM operates as follows and judges the status of the combination switch.
- INPUT 1 5 outputs the voltage waveforms of 5 systems simultaneously.
- It operates the transistor on OUTPUT side in the following order: OUTPUT  $5 \rightarrow 4 \rightarrow 3 \rightarrow 2 \rightarrow 1$ .

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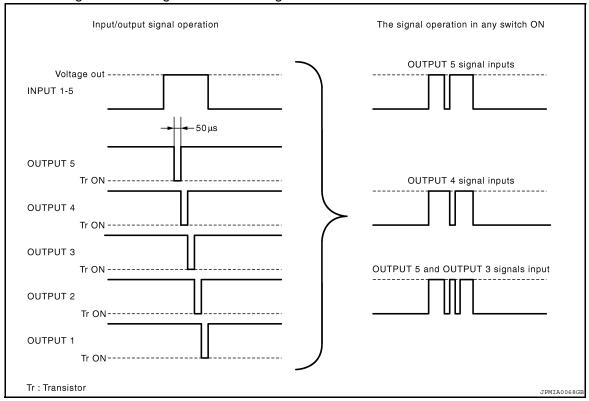
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#### < FUNCTION DIAGNOSIS >

- The voltage waveform of INPUT corresponding to the formed circuit changes according to the operation of the transistor on OUTPUT side if any (1 or more) switches are ON.
- It reads this change of the voltage as the status signal of the combination switch.

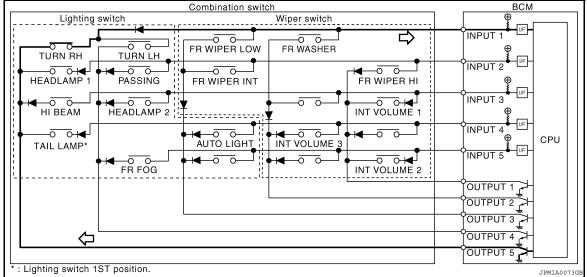


#### Operation Example

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 (TURN RH switch) is turned ON

The circuit between INPUT 1 and OUTPUT 5 is formed when the TURN RH switch is turned ON.

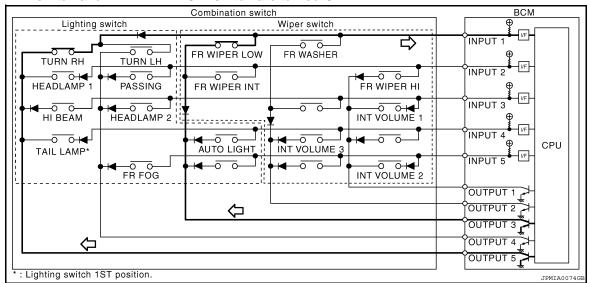


- BCM detects the combination switch status signal "1E" when the signal of OUTPUT 5 is input to INPUT 1.
- BCM judges that the TURN RH switch is ON when the signal "1E" is detected.

Example 2: When some switches (turn RH switch, front wiper LO switch) are turned ON

#### < FUNCTION DIAGNOSIS >

• The circuits between INPUT 1 and OUTPUT 5 and between INPUT 1 and OUTPUT 3 are formed when the TURN RH switch and FR WIPER LOW switch are turned ON.

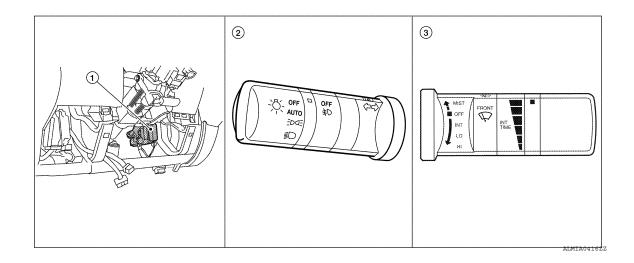


- BCM detects the combination switch status signal "1CE" when the signals of OUTPUT 3 and OUTPUT 5 are input to INPUT 1.
- BCM judges that the TURN RH switch and FR WIPER LOW switch are ON when the signal "1CE" is detected.

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.

Wiper intermittent	Intermittent	INT VOLUME switch ON/OFF status			
dial position	operation delay interval	INT VOLUME 1 switch	INT VOLUME 2 switch	INT VOLUME 3 switch	
1	Short	ON	ON	ON	
2	<b>↑</b>	ON	ON	OFF	
3		ON	OFF	OFF	
4		OFF	OFF	OFF	
5		OFF	OFF	ON	
6	$\downarrow$	OFF	ON	ON	
7	Long	OFF	ON	OFF	

# Component Parts Location



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### < FUNCTION DIAGNOSIS >

- 1. 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

# **DIAGNOSIS SYSTEM (BCM)**

### < FUNCTION DIAGNOSIS >

# **DIAGNOSIS SYSTEM (BCM)**

**HEADLAMP** 

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

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#### **WORK SUPPORT**

Work Item	Setting item	Setting	
BATTERY SAVER SET	ON* With the exterior la	With the exterior lamp battery saver function	
DATTERT SAVER SET	OFF	Without the exterior lamp battery saver function	

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

#### **DATA MONITOR**

Monitor Item [Unit]	Description	
IGN ON SW [ON/OFF]	Ignition switch (ON) status judged from IGN signal (ignition power supply)	
ACC ON SW [ON/OFF]	Ignition switch (ACC) status judged from ACC signal (accessory power supply)	
HI BEAM SW [ON/OFF]		
HEAD LAMP SW 1 [ON/OFF]		
HEAD LAMP SW 2 [ON/OFF]		
LIGHT SW 1ST [ON/OFF]		
AUTO LIGHT SW [ON/OFF]	Each switch status that BCM judges from the combination switch reading function	
PASSING SW [ON/OFF]		
FR FOG SW [ON/OFF]		
TURN SIGNAL R [ON/OFF]		
TURN SIGNAL L [ON/OFF]		
DOOR SW-DR [ON/OFF]	The switch status input from front door switch LH	
DOOR SW-AS [ON/OFF]	The switch status input from front door switch RH	
DOOR SW-RR [ON/OFF]	The switch status input from rear door switch RH	
DOOR SW-RL [ON/OFF]	The switch status input from rear door switch LH	
CARGO LAMP SW [ON/OFF]	Cargo lamp status that BCM judges from the vehicle condition	
OPTICAL SENSOR [ON/OFF]	The value of exterior brightness voltage input from the optical sensor	

#### **ACTIVE TEST**

Test Item	Operation	Description
TAIL LAMP	ON	Transmits the position light request signal to IPDM E/R with CAN communication to turn the tail lamp ON.
	OFF	Stops the tail lamp request signal transmission.
	Н	Transmits the high beam request signal with CAN communication to turn the headlamp (HI).
HEAD LAMP	LO	Transmits the low beam request signal with CAN communication to turn the headlamp (LO).
	OFF	Stops the high & low beam request signal transmission.
FR FOG LAMP	ON	Transmits the front fog lights request signal to IPDM E/R with CAN communication to turn the front fog lamp ON.
	OFF	Stops the front fog lights request signal transmission.

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# **DIAGNOSIS SYSTEM (BCM)**

#### < FUNCTION DIAGNOSIS >

Test Item	Operation	Description
CARGO LAMP	ON	Transmits the cargo lamp request signal to IPDM E/R with CAN communication to turn the each lamp ON.
	OFF	Stops the cargo lamp request signal transmission.

# FLASHER

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

INFOID:0000000005561515

#### **DATA MONITOR**

Monitor Item [Unit]	Description	
IGN ON SW [ON/OFF]	Ignition switch (ON) status judged from IGN signal (ignition power supply)	
HAZARD SW [ON/OFF]	The switch status input from the hazard switch	
TURN SIGNAL R [ON/OFF]	Each switch condition that BCM judges from the combination switch reading function	
TURN SIGNAL L [ON/OFF]	— Lach switch condition that bowl judges from the combination switch reading to	
BRAKE SW [ON/OFF]	The switch status input from the brake switch	

#### **ACTIVE TEST**

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

# **COMB SW**

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

INFOID:0000000005561516

### **DATA MONITOR**

Monitor Item [Unit]	Description
TURN SIGNAL R [OFF/ON]	Displays the status of the TURN RH switch in combination switch judged by BCM with the combination switch reading function
TURN SIGNAL L [OFF/ON]	Displays the status of the TURN LH switch in combination switch judged by BCM with the combination switch reading function
HI BEAM SW [OFF/ON]	Displays the status of the HI BEAM switch in combination switch judged by BCM with the combination switch reading function
HEAD LAMP SW 1 [OFF/ON]	Displays the status of the HEADLAMP switch in combination switch judged by BCM with the combination switch reading function
HEAD LAMP SW 2 [OFF/ON]	Displays the status of the HEADLAMP switch in combination switch judged by BCM with the combination switch reading function
LIGHT SW 1ST [OFF/ON]	Displays the status of the HEADLAMP switch in combination switch judged by BCM with the combination switch reading function
PASSING SW [OFF/ON]	Displays the status of the PASSING switch in combination switch judged by BCM with the combination switch reading function
AUTO LIGHT SW [OFF/ON]	Displays the status of the AUTO LIGHT switch in combination switch judged by BCM with the combination switch reading function
FR FOG SW [OFF/ON]	Displays the status of the FR FOG switch in combination switch judged by BCM with the combination switch reading function
FR WIPER HI [OFF/ON]	Displays the status of the FR WIPER HI switch in combination switch judged by BCM with the combination switch reading function

# **DIAGNOSIS SYSTEM (BCM)**

### < FUNCTION DIAGNOSIS >

Monitor Item [Unit]	Description
FR WIPER LOW [OFF/ON]	Displays the status of the FR WIPER LOW switch in combination switch judged by BCM with the combination switch reading function
FR WIPER INT [OFF/ON]	Displays the status of the FR WIPER INT switch in combination switch judged by BCM with the combination switch reading function
FR WASHER SW [OFF/ON]	Displays the status of the FR WASHER switch in combination switch judged by BCM with the combination switch reading function
INT VOLUME [1 - 7]	Displays the status of wiper intermittent dial position judged by BCM with the combination switch reading function

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#### < FUNCTION DIAGNOSIS >

# DIAGNOSIS SYSTEM (IPDM E/R)

### **Diagnosis Description**

#### INFOID:0000000005561517

#### **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 (if equipped)
- Rear window defogger
- Front wipers
- · Tail, license and parking lamps
- Front fog lamps (if equipped)
- Headlamps (Hi, Lo)
- A/C compressor (magnetic clutch) (if equipped)
- 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.

- 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

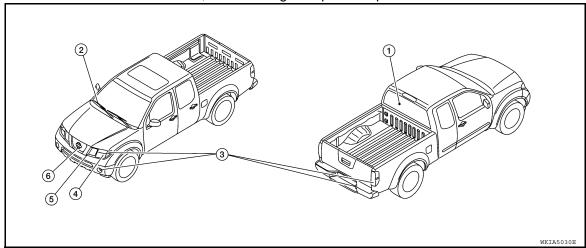
When auto active test mode has to be cancelled halfway through test, turn ignition switch OFF.

#### **CAUTION:**

- If auto active test mode cannot be actuated, check door switch system. Refer to <u>DLK-27</u>, "<u>KING CAB</u> : <u>Description</u>" or <u>DLK-29</u>, "<u>CREW CAB</u> : <u>Description</u>".
- · 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.

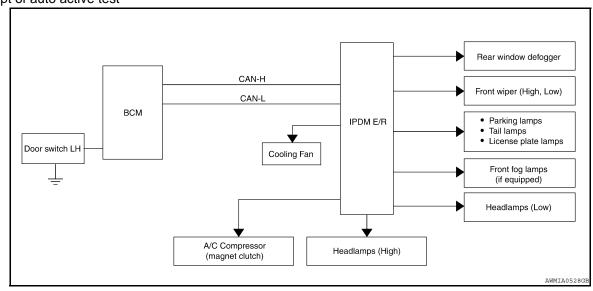


Item Number	Test Item	Operation Time/Frequency
1	Rear window defogger (Crew cab only)	10 seconds
2	Front wipers	LOW 5 seconds then HIGH 5 seconds
3	Tail, license plate, front fog and parking lamps	10 seconds

#### < FUNCTION DIAGNOSIS >

Item Number	Test Item	Operation Time/Frequency	
4	Headlamps	Low ON for 10 seconds, then High ON-OFF five times.	
5	A/C compressor (magnet clutch) (if equipped)  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	Inspection contents	
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
		NO	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?	NO	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 A/C and AV switch assembly and AV control unit     CAN communication signal between BCM and IPDM E/R

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#### < FUNCTION DIAGNOSIS >

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)
A/C compressed does not oppose	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?	NO	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 - III Function (IPDM E/R)

INFOID:0000000005561518

### **APPLICATION ITEM**

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

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

#### **SELF DIAGNOSTIC**

Refer to PCS-31, "DTC Index".

#### **DATA MONITOR**

Monitor item

Monitor Item [Unit]	MAIN SIG- NALS	Description
MOTOR FAN REQ [1/2/3/4]	×	Displays the status of the cooling fan speed request signal received from ECM via CAN communication.
A/C COMP REQ [OFF/ON]	×	Displays the status of the A/C request signal received from BCM via CAN communication.

### < FUNCTION DIAGNOSIS >

Monitor Item [Unit]	MAIN SIG- NALS	Description
TAIL&CLR REQ [OFF/ON]	×	Displays the status of the position light request signal received from BCM via CAN communication.
HL LO REQ [OFF/ON]	×	Displays the status of the low beam request signal received from BCM via CAN communication.
HL HI REQ [OFF/ON]	×	Displays the status of the high beam request signal received from BCM via CAN communication.
FR FOG REQ [OFF/ON]	×	Displays the status of the front fog lamp request signal received from BCM via CAN communication.
FR WIP REQ [STOP/1LOW/LOW/HI]	×	Displays the status of the front wiper request signal received from BCM via CAN communication.
WIP AUTO STOP [STOP P/ACT P]	×	Displays the status of the front wiper auto stop signal judged by IPDM E/R.
WIP PROT [OFF/Block]	×	Displays the status of the front wiper fail-safe operation judged by IPDM E/R.
ST RLY REQ [OFF/ON]		Displays the status of the starter request signal received from ECM via CAN communication.
IGN RLY [OFF/ON]	×	Displays the status of the ignition relay judged by IPDM E/R.
RR DEF REQ [OFF/ON]	×	Displays the status of the rear defogger request signal received from AV control unit via CAN communication.
OIL P SW [OPEN/CLOSE]		Displays the status of the oil pressure switch judged by IPDM E/R.
DTRL REQ [OFF]		Displays the status of the daytime light request signal received from BCM via CAN communication.
THFT HRN REQ [OFF/ON]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [OFF/ON]		Displays the status of the horn reminder signal received from BCM via CAN communication.

# ACTIVE TEST

Test item

Test item	Operation	Description		
REAR DEFOGGER	OFF	OFF		
	ON	Operates rear window defogger relay.		
	OFF	OFF		
FRONT WIPER	LO	Operates the front wiper relay.		
	Н	Operates the front wiper relay and front wiper high relay.		
	1	OFF		
MOTOR FAN	2	OFF		
MOTOR FAIN	3	Operates the cooling fan relay.		
	4	Operates the cooling fan relay.		
	OFF	OFF		
	TAIL	Operates the tail lamp relay.		
EXTERNAL LAMPS	LO	Operates the headlamp low relay.		
EXTERNAL DAMES	Н	Operates the headlamp low relay and the headlamp (LH/RH) high relays alternately at 1 second intervals.		
	FOG	Operates the front fog lamp relay		
HORN	ON	Operates horn relay for 20 ms.		

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#### POWER SUPPLY AND GROUND CIRCUIT

#### < COMPONENT DIAGNOSIS >

# **COMPONENT DIAGNOSIS**

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

BCM (BODY CONTROL MODULE): Diagnosis Procedure

INFOID:0000000005561519

Regarding Wiring Diagram information, refer to BCS-46, "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 newer cumply	18 (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?

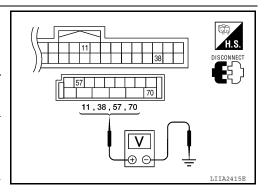
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2

# 2. CHECK POWER SUPPLY CIRCUIT

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

Connector	Terminals		Power	Condition	Voltage (V) (Ap-
Connector	(+)	(-)	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
IVIZO	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**

#### < COMPONENT DIAGNOSIS >

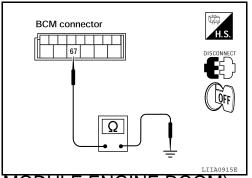
Check continuity between BCM harness connector and ground.

В	СМ		Continuity	
Connector	Terminal	Ground	Continuity	
M20	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-25, "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
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#### Is the fusible link blown?

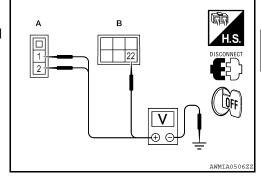
YES >> Replace the blown fusible link after repairing the affected circuit.

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	( 44)
E118 (A)	1		OFF	Battery voltage
LIIO (A)	2	Ground		
E120 (B)	22			



Is there voltage on all pins?

YES >> GO TO 3

NO >> Repair or replace harness.

# 3. CHECK GROUND CIRCUIT

Turn ignition switch OFF.

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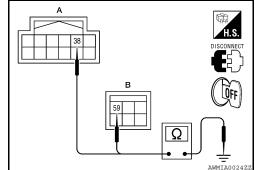
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### **POWER SUPPLY AND GROUND CIRCUIT**

### < COMPONENT DIAGNOSIS >

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

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



#### Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.

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

### < COMPONENT DIAGNOSIS >

### HEADLAMP (HI) CIRCUIT

Description INFOID:0000000005561521

The IPDM E/R (intelligent power distribution module engine room) controls the headlamp LH high and headlamp RH high relays based on inputs from the BCM via the CAN communication lines. When the headlamp LH high and headlamp RH high relays are 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-III

Start IPDM E/R auto active test. Refer to <u>PCS-13, "Diagnosis Description"</u>.

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.

### **©CONSULT-III**

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-37, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:0000000005274737

Regarding Wiring Diagram information, refer to <u>EXL-51, "Wiring Diagram"</u> (without DTRL) or <u>EXL-55, "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 >> Repair the harness and replace the fuse.

NO >> GO TO 2

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

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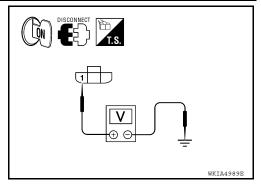
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### **HEADLAMP (HI) CIRCUIT**

### < COMPONENT 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				



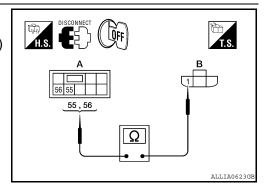
### Is battery voltage present?

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

### $3. \mathsf{CHECK}$ 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	33	E11 (without DTRL)	1	Yes
RH		56	E107		



### Does continuity exist?

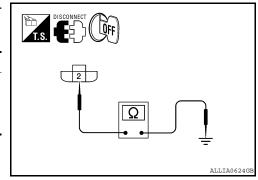
YES >> GO TO 4

NO >> Repair the harnesses or connectors.

### $\stackrel{\cdot}{4}$ .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 >> Repair the harness.

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

### < COMPONENT DIAGNOSIS >

### HEADLAMP (LO) CIRCUIT

Description INFOID:0000000005274738

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:0000000005274739

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### 1. CHECK HEADLAMP (LO) OPERATION

### WITHOUT CONSULT-III

1. Start IPDM E/R auto active test. Refer to PCS-13, "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.

### (E)CONSULT-III

1. 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-39, "Diagnosis Procedure".

### Diagnosis Procedure

INFOID:0000000005274740

Regarding Wiring Diagram information, refer to <u>EXL-51, "Wiring Diagram"</u> (without DTRL) or <u>EXL-55, "Wiring Diagram"</u> (with DTRL).

### 1. CHECK HEADLAMP (LO) 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 LO (LH)	IPDM E/R	40	15A
Headlamp LO (RH)	IPDM E/R	41	15A

### Is the fuse open?

YES >> Repair the harness and replace the fuse.

NO >> GO TO 2

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

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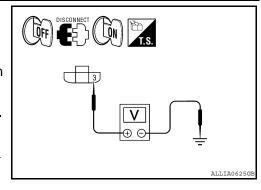
Revision: October 2009 EXL-39 2010 Frontier

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

### < COMPONENT 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				



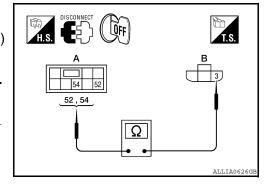
### Is battery voltage present?

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

### $3.\mathsf{CHECK}$ HEADLAMP (LO) CIRCUIT FOR OPEN

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector.
- 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		52	E7 (with DTRL)		
LII	E123	32	E11 (without DTRL)	3	Yes
RH		54	E107		



### Does continuity exist?

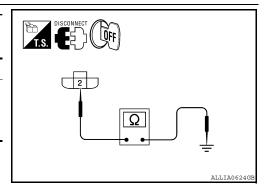
YES >> GO TO 4

NO >> Repair the harnesses or connectors.

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

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

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



### Does continuity exist?

YES >> Inspect the headlamp bulb.

NO >> Repair the harness.

### FRONT FOG LAMP CIRCUIT

### < COMPONENT DIAGNOSIS >

### FRONT FOG LAMP CIRCUIT

Description INFOID:0000000005274741

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

### 1. CHECK FRONT FOG LAMP OPERATION

### ®WITHOUT CONSULT-III

- 1. Activate IPDM E/R auto active test. Refer to <a href="PCS-13">PCS-13</a>, "Diagnosis Description".
- 2. Check that the front fog lamp is turned ON.

### (P)CONSULT-III

- 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-41, "Diagnosis Procedure".

### Diagnosis Procedure

Regarding Wiring Diagram information, refer to EXL-68, "Wiring Diagram".

### 1. CHECK FRONT FOG LAMP FUSE

1. Turn the ignition switch OFF.

Check that the following fuses are not open.

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

### Is the fuse open?

YES >> Repair the harness and replace the fuse.

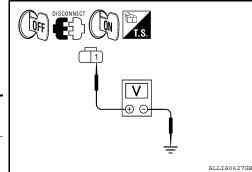
NO >> GO TO 2

### 2.CHECK FRONT FOG LAMP OUTPUT VOLTAGE

1. 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	Battery voltage
RH	E102	1	Ground	Battery voltage



### Is battery voltage present?

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

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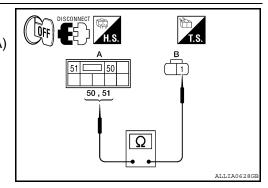
### FRONT FOG LAMP CIRCUIT

### < COMPONENT DIAGNOSIS >

### $\overline{3}$ .check front fog LAMP open circuit

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

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



### Does continuity exist?

YES >> GO TO 4

NO >> Repair the harnesses or connectors.

### 4. CHECK FRONT FOG LAMP GROUND CIRCUIT

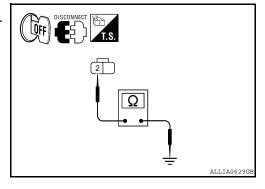
- 1. Disconnect the front fog lamp connector.
- 2. Check continuity between the front fog lamp harness connector terminal and ground.

Connector		Terminal	_	Continuity
LH	E101	2	Ground	Yes
RH	E102	2	Giodila	

### Does continuity exist?

YES >> Inspect the fog lamp bulb.

NO >> Repair the harness.



### < COMPONENT DIAGNOSIS >

### PARKING LAMP CIRCUIT

Description INFOID:0000000005274744

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 37, located in the IPDM E/R. Power then flows to the front and rear combination lamps.

### Component Function Check

### 1. CHECK PARKING LAMP OPERATION

### ®WITHOUT CONSULT-III

- Activate IPDM E/R auto active test. Refer to PCS-13, "Diagnosis Description".
- 2. Check that the parking lamp is turned ON.

### (E)CONSULT-III

- 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-43, "Diagnosis Procedure".

### Diagnosis Procedure

Regarding Wiring Diagram information, refer to EXL-77, "Wiring Diagram".

### 1. CHECK PARKING LAMP FUSES

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

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

### Is the fuse open?

YES >> Repair the harness and replace the fuse.

NO >> GO TO 2

### 2.CHECK TAIL LAMP RELAY OUTPUT (VOLTAGE)

- Turn the ignition switch OFF.
- 2. Disconnect the front combination lamp connectors, front side marker lamp connectors, rear combination lamp connectors and license plate lamp connectors.
- 3. Turn the ignition switch ON.
- Turn the parking lamps ON.

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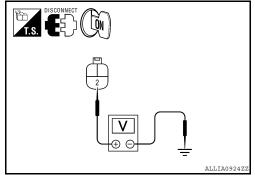
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### < COMPONENT DIAGNOSIS >

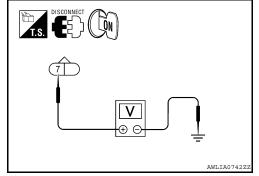
5. With the parking lamps ON, check voltage between the front combination lamp connectors and ground.

(+)			(-)	Voltage	
Connector		Terminal	(-)	voltage	
LH	E27	2	Ground	Pattory voltage	
RH	E111	2	Giouna	Battery voltage	



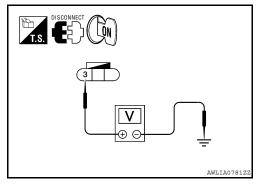
6. With the parking lamps ON, check voltage between the front side marker lamp connectors and ground.

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



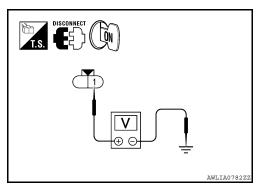
7. With the parking lamps ON, check voltage between the rear combination lamp connectors and ground.

	(+)	(-)	Voltage		
Connector		Terminal			(-)
LH	C201	3	Ground	Pattonyvoltago	
RH	C202	3	Giouna	Battery voltage	



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

	(+)	(-)	Voltage		
Connector		Terminal	(-)	voltage	
LH	C203	1	Ground	Pattory voltage	
RH	C204	'	Giouna	Battery voltage	



Are voltage readings as specified?

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

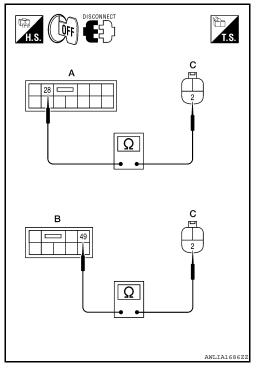
 ${f 3.}$ CHECK PARKING, LICENSE PLATE AND TAIL LAMP CIRCUIT (OPEN)

- 1. Turn the ignition switch OFF.
- 2. Disconnect IPDM E/R connector.

### < COMPONENT DIAGNOSIS >

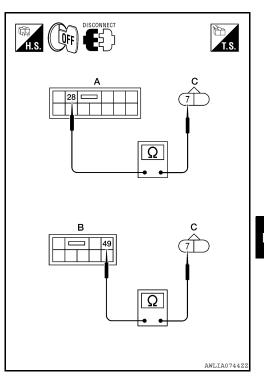
3. Check continuity between the IPDM E/R harness connector (A)(B) and the front combination lamp harness connector (C).

Co	onnector	Terminal	Connector	Terminal	Continuity
LH	A: E121	28	C: E27	2	Yes
RH	B: E123	49	C: E111	2	163



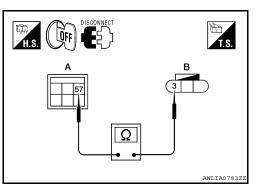
4. Check continuity between the IPDM E/R harness connector (A)(B) and the front side marker lamp harness connector (C).

Co	onnector	Terminal	Connector	Terminal	Continuity
LH	A: E121	28	C: E17	7	Yes
RH	B: E123	49	C: E108	7	163



5. Check continuity between the IPDM E/R harness connector (A) and the rear combination lamp harness connector (B).

A			Continuity		
Co	onnector	Terminal	Connector	Terminal	Continuity
LH	E124	57	C201	2	Yes
RH E124	57	C202	3	res	



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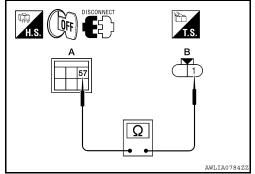
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### < COMPONENT DIAGNOSIS >

6. Check continuity between the IPDM E/R harness connector (A) and license plate lamp connector (B).

А			Continuity		
Co	onnector	Terminal	Connector	Terminal	Continuity
LH	E124	57	C203	1	Yes
RH	E124	57	C204	ı	



### Are continuity results as specified?

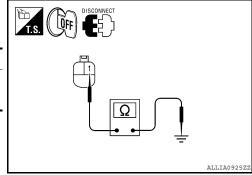
YES >> GO TO 4

NO >> Repair the harnesses or connectors.

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

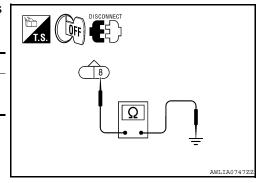
1. Check continuity between the front combination lamp harness connectors and ground.

Connector		Terminal	_	Continuity
LH	E27	1	Ground	Yes
RH	E111	<b>1</b>	Ground	



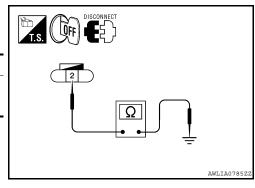
2. Check continuity between the front side marker lamp harness connectors and ground.

Со	nnector	Terminal	_	Continuity
LH	E17	Q	Ground	Yes
RH	E108	0	Giodila	163



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

Co	nnector	Terminal	_	Continuity
LH	C201	2	Ground	Yes
RH	C202	2	Giouna	



### < COMPONENT DIAGNOSIS >

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

Connector		Terminal	_	Continuity
LH	C203	2	Ground	Yes
RH	C204	2		

### 

### Are continuity results as specified?

YES >> Inspect the parking lamp bulb.

NO >> Repair the harness.

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### **TURN SIGNAL LAMP CIRCUIT**

### < COMPONENT DIAGNOSIS >

### TURN SIGNAL LAMP CIRCUIT

**Description** 

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 open.

### NOTE:

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

### Component Function Check

INFOID:0000000005274748

### 1. CHECK TURN SIGNAL LAMP

### **©CONSULT-III**

- 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.

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

### **Diagnosis Procedure**

INFOID:0000000005274749

Regarding Wiring Diagram information, refer to EXL-72, "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?

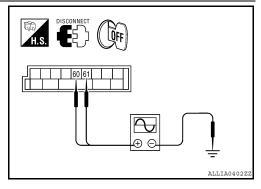
YES >> GO TO 2

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.
- 3. Turn the ignition switch ON.
- 4. With turn signal switch operating, check the voltage between the BCM harness connector M20 and ground.

(+)		(-)	Voltage
Connector	Terminal		voltage



### **TURN SIGNAL LAMP CIRCUIT**

### < COMPONENT DIAGNOSIS >

	LH	60		
M20	RH	61	Ground	(V) 15 10 5 0

### Is voltage reading as specified?

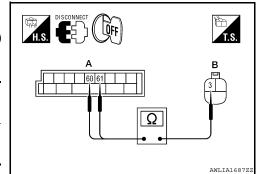
YES >> GO TO 3

NO >> Replace BCM. Refer to BCS-54, "Removal and Installation".

### 3.CHECK TURN SIGNAL LAMP CIRCUIT FOR OPEN

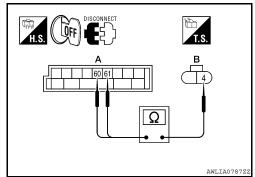
- 1. Turn the ignition switch OFF.
- 2. Disconnect BCM connector M20.
- 3. Check continuity between the BCM harness connector M20 (A) and the front combination lamps (B).

А			I	В	Continuity
Con	nector	Terminal	Connector	Terminal	Continuity
Front LH	M20	60	E27	3	Yes
Front RH		61	E111	3	163



4. Check continuity between the BCM harness connector M20 (A) and the rear combination lamp connectors (B).

А			i i	3	Continuity
Cor	nector	Terminal	Connector	Terminal	Continuity
Rear LH	M20	60	C207	4	Yes
Rear RH	IVIZU	61	C208	4	165



### 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.

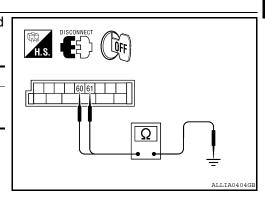
С	onnector	Terminal	_	Continuity
LH	M20	60	Ground	No
RH	IVIZU	61	Giodila	140

### Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> GO TO 5

### 5. CHECK TURN SIGNAL LAMP GROUND CIRCUIT



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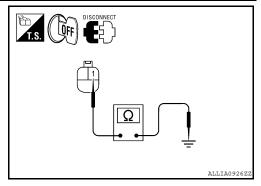
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### **TURN SIGNAL LAMP CIRCUIT**

### < COMPONENT DIAGNOSIS >

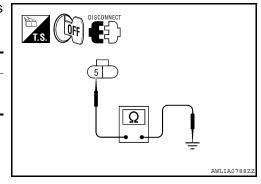
1. Check continuity between the front combination lamp harness connectors and ground.

Connector		Terminal	_	Continuity
Front LH	E27	1	Ground	Yes
Front RH	E111		Giodila	103



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

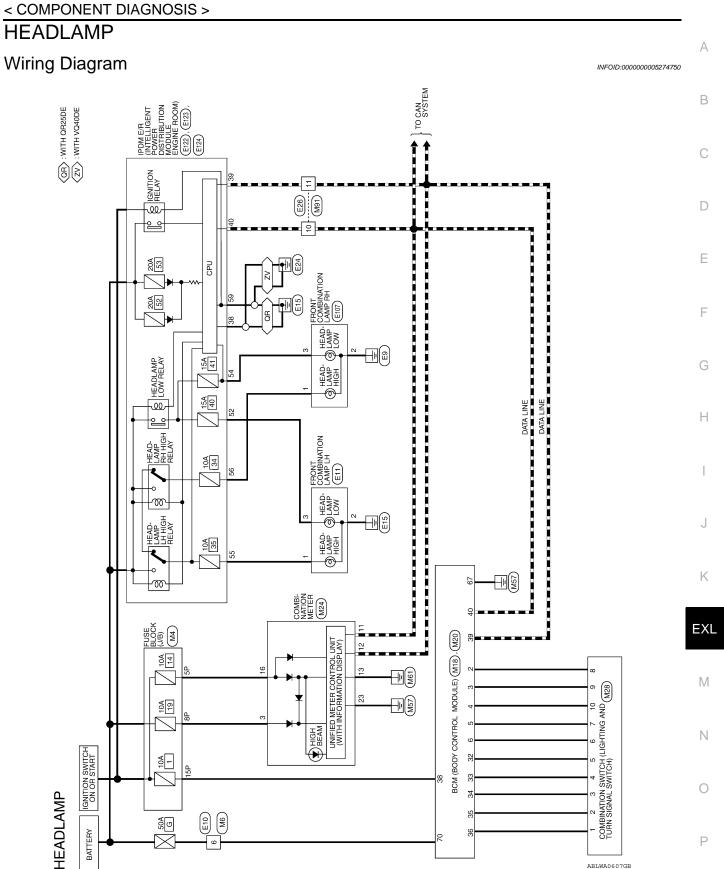
Conne	ector	Terminal	_	Continuity
Rear LH	C207	5	Ground	Yes
Rear RH	C208	5	Ground	163



### Are continuity results as specified?

YES >> Replace the malfunctioning lamp.

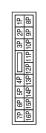
NO >> Repair the harnesses or connectors.



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### HEADLAMP CONNECTORS

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

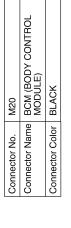




Signal Name	1	-	1
Color of Wire	M/G	R/Υ	W/R
Terminal No.	<b>d</b> 9	48	15P

M6	Connector Name WIRE TO WIRE	WHITE	8 0 2 0 1 4
Connector No.	Connector Name	Connector Color WHITE	(京) H.S.
			<u>⊕</u> <u>₩</u>

Signal Name	_
Color of Wire	W
Terminal No.	9







Signal Name	INPUT 2	INPUT 1	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	٦	ш	0	GR	ŋ	BR	LG	W/R	٦	Ь
Ferminal No.	5	9	32	33	34	35	36	38	39	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
). M18			7 7 8 9 9 9 8 2 2 8 2 8 9	Color of Wire	Ъ	SB	>
Connector No.	Connector Name	Connector Color	H.S. 1 2 3 4 5 6 6 2 12 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Terminal No.	2	ဗ	4

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Signal Name	INPUT 4	INPUT 5	OUTPUT 1	OUTPUT 2	OUTPUT 5	OUTPUT 4	OUTPUT 3
Color of Wire	GR	0	В	٦	Ь	SB	>
Terminal No.	4	5	9	2	8	6	10

Terminal No.	3   1
5	о ш
7	٦
8	Ь
6	ВS
10	۸

Signal Name

Wire ГG BB

Terminal No.

INPUT 2 INPUT 3

മ

0 0

INPUT 1

7	9
8	2
6	4
牨	3
儿	2
10	-
12 13	14 11

Connector Name | COMBINATION SWITCH

Connector Name COMBINATION METER

Connector No. | M24

Connector Color WHITE

Connector No. M28

Connector Color WHITE



	-			_						
		1 10 9 8 7 6 5 4 3 2 1	1 30 29 28 27 26 25 24 23 22 21		Signal Name	BATTERY	CAN-L	CAN-H	GROUND	RUN START
		14 13 12 1	34 33 32 3		Color of Wire	R/Υ	А	_	GR	M/G
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		Ferminal No.	3	#	12	13	16

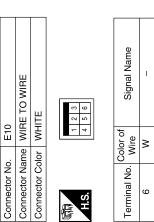
,	E11	FRONT COMBINATION	Connector Name   LAMP LH (WITHOUT	DAYTIME LIGHT SYSTEM)	LACK	
	Connector No.	<u> </u>	Connector Name L	Δ_	Connector Color BLACK	

Signal Name

Color of Wire മ В Ф

Terminal No.

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	16	15 14 13	14	13	12 11	11	10	9	8
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inal No.	Color of	5			زن.	5	Signal Nam	=	E

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ī	11		Signal		
	12		S		
t	13				
2	14				
0	16 15 14 13 12 11 10		e of		
_	16		Color of Wire	₽	-
_			0		
			No.		
•		<u>ડ</u>	erminal No.	우	=
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POWER GND **RUN START** 

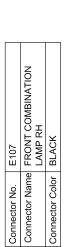
23

W/G ш Connector Name WIRE TO WIRE

Connector No.

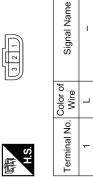
Connector Color WHITE

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



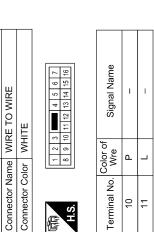
E26

Connector No.

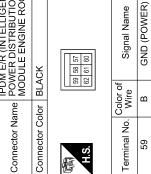


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Connector No.	E123
Connector Name	Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color BROWN	BROWN
而 S.H	51 50 49 56 55 54 53 52

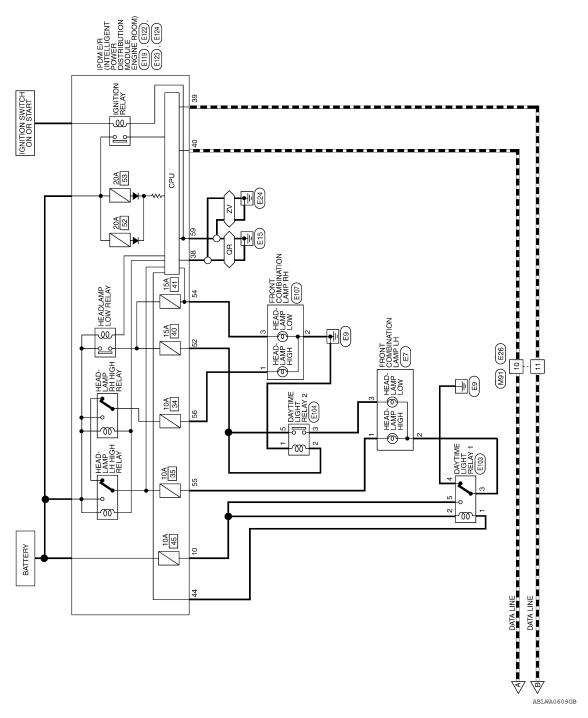
Signal Name	H/LAMP LO LH	H/LAMP LO RH	H/LAMP HI LH	H/LAMP HI RH
Color of Wire	Ь	R	9	7
Terminal No.	52	54	22	56

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### DAYTIME LIGHT SYSTEM Α Wiring Diagram INFOID:0000000005274751 COMBINATION METER (M24) В GENERATOR (E205), (E209) C CHARGE D BRAKE PARKING BRAKE SWITCH (B84) Е F M40 68J FUSE BLOCK (J/B) (M4) G UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY) Н 10A 10A J Κ BCM (BODY CONTROL MODULE) (M18), (M20) EXL COMBINATION SWITCH (LIGHTING (M28) AND TURN SIGNAL SWITCH) IGNITION SWITCH ON OR START M DAYTIME LIGHT SYSTEM Ν M6 E10 BATTERY 0 Ρ

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QB⟩:WITH QR25DE ⟨ZV⟩:WITH VQ40DE



# DAYTIME LIGHT SYSTEM CONNECTORS

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

Connector Name WIRE TO WIRE

Connector No. M6

Connector Color WHITE





Signal Name	I	I	1	
Color of Wire	M/G	R/Υ	W/R	
Terminal No.	5P	8P	15P	

Signal Name

Color of Wire W

Terminal No.

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

Signal Name	INPUT 2	INPUT 1	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	_	æ	0	GR	G	BR	LG	W/R	٦	۵
Terminal No.	5	9	32	33	34	35	36	38	39	40

| 56|57|58|59|60|61|62|63|64 | 65|66|67|68|69|70 Signal Name GND (POWER)

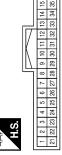
Color of Wire

Terminal No. 67 70

BAT (F/L)

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	ODY CONTRO E)		
M18	BCM (BOD MODULE)	WHITE	
Connector No.	Connector Name   BCM (BODY CONTROL MODULE)	Connector Color WHITE	



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

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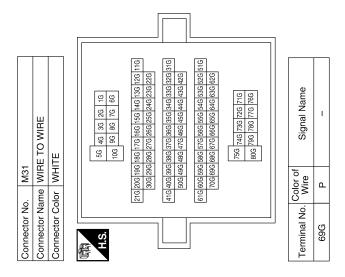
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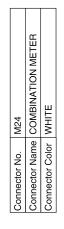
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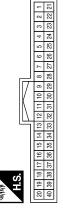


Connector No. M28 Connector Name COMBI Connector Color WHITE	Connector No. M28 Connector Name COMBINATION SWITCH Connector Color WHITE
H.S.	12 13 10 0 9 8 7 14 11 1 2 3 4 5 6



Signal Name	INPUT 1	INPUT 2	INPUT 3	INPUT 4	INPUT 5	OUTPUT 1	OUTPUT 2	OUTPUT 5	OUTPUT 4	OUTPUT 3
Color of Wire	FG	BB	ŋ	GR	0	œ	٦	Ь	SB	>
Terminal No.		2	ဇ	4	5	9	7	8	6	10





Signal Name	CHARGE (ALT) INPUT	BATTERY	CAN-L	CAN-H	GROUND	RUN START	POWER GND	PARK BRAKE SW
Color of Wire	<u>-</u>	R/Υ	Ь	٦	GR	W/G	В	В
Terminal No.	2	ဗ	#	12	13	16	23	31

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### **DAYTIME LIGHT SYSTEM**

### < COMPONENT DIAGNOSIS >

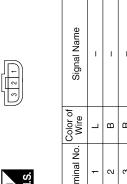
Connector No. E7 Connector Name LAMP LH (WITH DAYTIME LIGHT SYSTEM) Connector Color BLACK  Terminal No. Wire Signal Name 1 G - 2 B - 3 SB - 3 SB -	Connector No. E40 Connector Name WIRE TO WIRE Connector Color GRAY  H.S.  Terminal No. Color of Signal Name  8 P	A B C D
Connector No.   M91   Connector Name   WIRE TO WIRE	Connector Name   WIRE TO WIRE	F G H
Connector No.   M40	Connector No. E10 Connector Name WIRE TO WIRE Connector Color WHITE  Lerminal No. Wire  Signal Name  6 W -	K EXL M N O

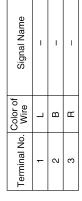
Revision: October 2009 EXL-59 2010 Frontier

### **DAYTIME LIGHT SYSTEM**

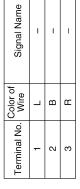
### < COMPONENT DIAGNOSIS >

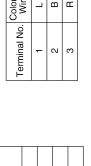


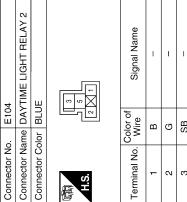


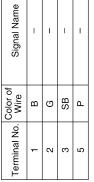


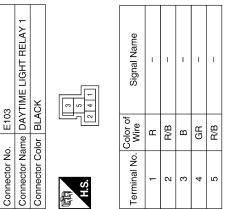
Signal Name	I	ı	-
Color of Wire	٦	В	В
Terminal No. Wire	1	2	ε



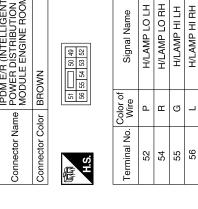




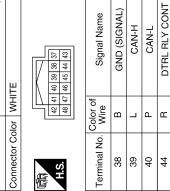








Connector No. E122 Connector Name POWEI Connector Color WHITE		E122 IPDM POWE MODU WHIT		%;;;;       /	€8₽     ∐	E122 IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) WHITE
Ę	42	42 41 40 39 38	9	33	æ	37
Ó	48	48 47 46 45 44 43	46	45	44	43



Connector No.	. E119	6
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color WHITE	lor WHI	TE
H.S.	0 8 1	9 8 7 6 5 4 3 18 17 16 15 14 13 12 11 10
Terminal No. Wire	Color of Wire	Signal Name
10	B/B	DTRL RLY SUPPLY

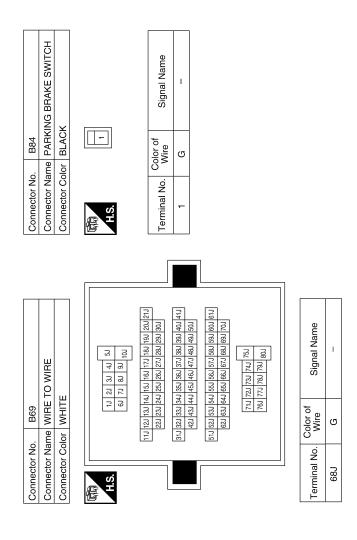
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### **DAYTIME LIGHT SYSTEM**

### < COMPONENT DIAGNOSIS >

Connector No. E201 Connector Color GRAY  Terminal No. Color of Signal Name  8 P — —		A B C D
Connector No.   E152   Connector Name   WIRE TO WIRE	Connector No. E209 Connector Name GENERATOR Connector Color	F G H I
Connector No. E124  Connector Name   IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROCM)  Connector Color   BLACK   Signal Name   Sig	Connector No. E205 Connector Name GENERATOR Connector Color of Signal Name  2 P L  Signal Name	M N O

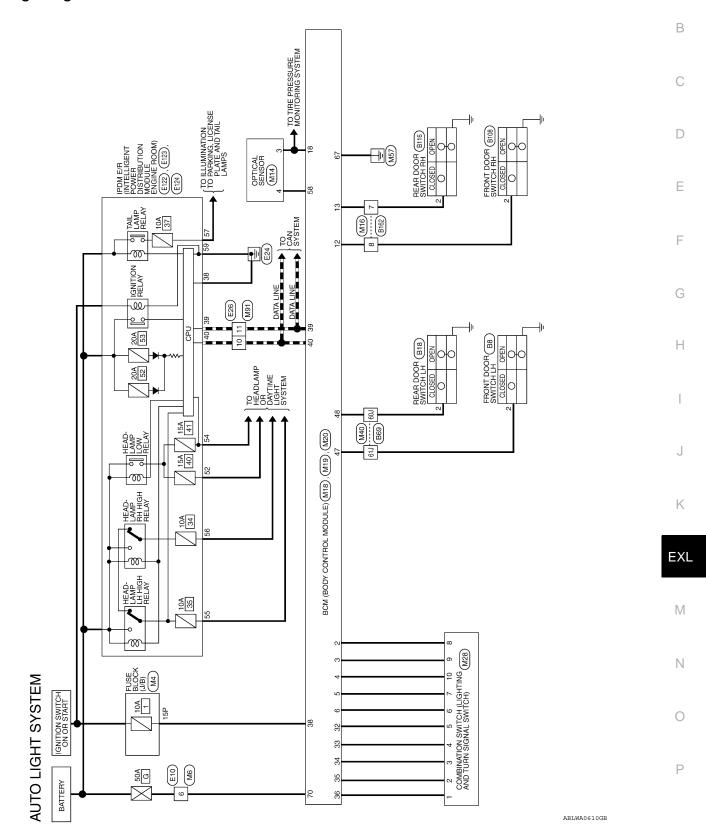
Revision: October 2009 EXL-61 2010 Frontier



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Wiring Diagram

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Connector Name | OPTICAL SENSOR

M14

Connector No.

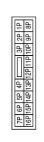
Connector Color BLACK

## AUTO LIGHT SYSTEM CONNECTORS

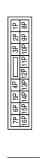
Connector No.	M4
Connector Name	Connector Name FUSE BLOCK (J/B)
Connector Color WHITE	WHITE

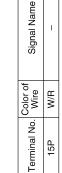
Connector Name WIRE TO WIRE Connector Color WHITE

Connector No. M6



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Signal Name SIGNAL GND	SIGNAL
Color of Wire P	>

Signal Name SIGNAL GND SIGNAL	
Color of Wire W	
Terminal No.	

Signal Name

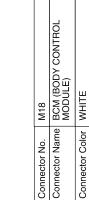
Color of Wire

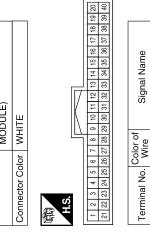
Terminal No.

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Terminal No. Wire of 6 R R 112 LG 113 L LG 113 R BR 32 O 33 GR 34 G G 35 BR 35 BR 36 LG 36 R 36	Signal Name	INPUT 2	INPUT 1	DOOR SW (AS)	DOOR SW (RR)	KEYLESS&AOTO LIGH SENSOR GND	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Terminal No.  5 6 12 13 13 32 33 33 33 34 34 36 36 38	Color of Wire	_	Œ	LG	٦	BR	0	GR	ŋ	BB	ГG	W/R	_	Ь
	Terminal No.	5	9	12	13	18	32	33	34	35	36	38	39	40





INPUT 5 INPUT 4

INPUT 3

SB

က 4

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tor No. M16	tor Name WIRE TO WIRE	tor Color WHITE	6 5 4 3 2 1 1 10 9 8 2 7	Terminal No. Wire Signal Name	-	- PT
Connector No.	Connector Name	Connector Color	原本 H.S.	Terminal No.	7	8

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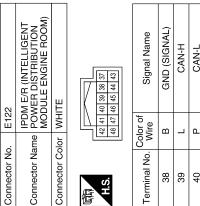
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### < COMPONENT DIAGNOSIS >

Connector Name COMBINATION SWITCH Connector Color WHITE	12 13 10 9 8 7 14 11 1 2 3 4 5 6	of Signal Name	INPUT 1	INPUT 2			INPUT 5	OUTPUT 1	OUTPUT 2	OUTPUT 5	OUTPUT 4	OUTPUT 3	M91	WIRE TO WIRE	WHITE		7 6 5 4 7 3 2 1 16 15 14 13 12 11 10 9 8	of Signal Name	ı	ı		
Connector Name COMBII	H.S.	Terminal No. Wire	1 LG	2 BR	ъ В		2	6 R	7 L	8 P	6 SB	10 V	Connector No.	Connector Name WIRE TO WIRE	Connector Color V		H.S.	Terminal No. Wire	10 P	11 L		
BCM (BODY CONTROL MODULE) BLACK	[65   66   67   68   69   70		Signal Name		AUTO LIGHT SENSOB INPLIT 2	GND (POWER)	BAT (E/I)	(3/1)					Signal Name	Ogliai ivallie	ı	1						
Connector Name BCM (B MODUI	(4) (8) (8) (8) (8) (8) (8) (8) (8) (8) (8		Terminal No	Wire	28 W	67 B							Terminal No Color of	>		61J GR				1		
Connector Name BCM (BODY CONTROL MODULE) Connector Color WHITE		Color of		GR	48 P DOOR SW (RL)								Connector No. M40	Connector Name WIRE TO WIRE	Connector Color WHITE		H.S.	300 250 220 280 270 280 250 244 250 220 241 250 250 250 250 250 250 250 250 250 250	501 491 481 473 481 431 431	611 600 590 580 570 580 550 540 530 520 510	750 (854) (852) (852) (854) (853) (823) (754) (7	

Revision: October 2009 EXL-65 2010 Frontier

### < COMPONENT DIAGNOSIS >

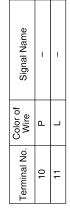


Signal Name	GND (SIGNAL)	CAN-H	CAN-L	
Color of Wire	В	٦	Ь	
Terminal No.	88	68	40	

	FRONT DOOR SWITCH LH (CREW CAB)	ПЕ		Signal Name	
. B8		lor WH	0 - 0 6	Color of Wire	
Connector No.	Connector Name	Connector Color WHITE	航 H.S.	Terminal No.	

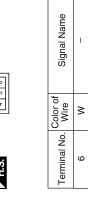
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t.	IPDM E/R (INTELLIGEN POWER DISTRIBUTION MODULE ENGINE ROO	ICK	61 60	Signal Name	TAIL LAMP	(ROWER)
† 7		or BLA	62 29	Color of Wire	GR	В
COLLIECTO NO.	Connector Name	Connector Color BLACK	嘶 H.S.	Terminal No.	25	29

E10	Connector Name WIRE TO WIRE	WHITE	1 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Connector No.	Connector Nam	Connector Color	on H.S.



Connector No.	. E123	3
Na	Connector Name POV	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
႘	Connector Color BR0	BROWN
	56	55 54 53 52
Terminal No.	Color of Wire	Signal Name
	۵	H/LAMP LO LH
	Ж	H/LAMP LO RH
	В	H/LAMP HI LH
	_	H/LAMP HI RH

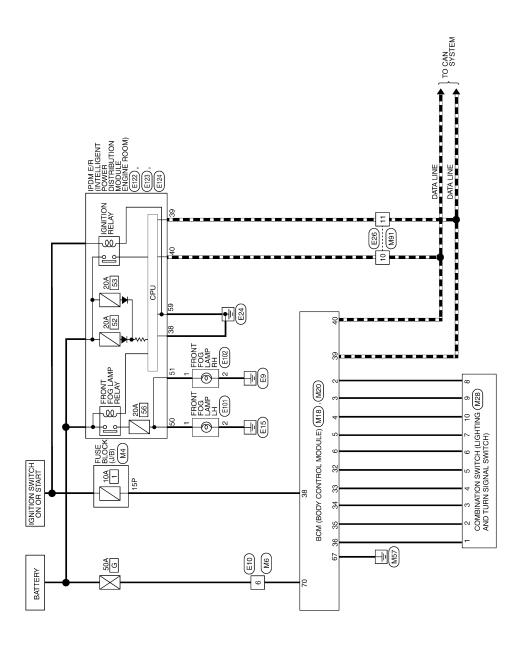
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Connector No. B108 Connector Name FRONT DOOR SWITCH RH (CREW CAB) Connector Color WHITE  Line In No. Wire Signal Name  2 LG -				A B C D
Connector No. B69  Connector Name WIRE TO WIRE  Connector Color WHITE  10 20 30 40 50 100  11 20 30 40 50 100  11 121 131 144 150 160 170 181 130 20/210  221 230 240 250 260 170 183 130 400 410  221 230 240 250 260 170 183 130 400 410  221 230 240 250 260 170 183 180 180 170  210 321 330 340 450 450 170 180 180 170  210 321 330 340 450 450 170 180 180 170  210 321 330 340 450 180 180 170 180 180 170  210 321 330 340 450 180 180 180 170  210 321 330 340 450 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 170  210 321 330 340 180 180 180 180 170  210 321 330 340 180 180 180 180 180 170  210 321 321 321 321 321 321 321 321 321 321	Terminal No.         Color of Wire         Signal Name           60J         P         -           61J         GR         -	Connector No. B162 Connector Name WIRE TO WIRE Connector Color WHITE	Terminal No. Color of Wire Signal Name 7 L – 8 8 LG –	F G H
Connector No. B18 Connector Name REAR DOOR SWITCH LH Connector Color WHITE  Terminal No. Wire  2 P	F	Connector No. B116 Connector Name REAR DOOR SWITCH RH Connector Color WHITE  The state of the st	Terminal No. Wire Signal Name  2 L	K EXL M O

Revision: October 2009 EXL-67 2010 Frontier

### FRONT FOG LAMP SYSTEM

Wiring Diagram



FRONT FOG LAMP

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Connector Name WIRE TO WIRE

Connector No. M6

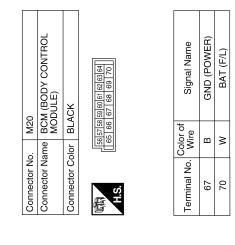
Connector Color WHITE

Connector No.	. M4	
Connector Na	ıme FUS	Connector Name   FUSE BLOCK (J/B)
Connector Color WHITE	lor WHI	TE
H.S.	7P 6P 5P 4P	7P 68 5P 4P (
Terminal No. Wire	Color of Wire	Signal Name
15P	W/R	ı

Signal Name

Color of Wire W

Terminal No.



Signal Name	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	0	GR	g	BR	FG	W/R	_	Ь
Terminal No.	32	33	34	32	98	38	39	40

Connector No.	. M18	8	
Connector Name		BCM (BODY CONTROL MODULE)	
Connector Color	_	WHITE	
H.S.			
2 3 4 5	8 2 2	14 15 16 17 18	
7   77   79   79   79   79   79   79	7 07 707	26   30   31   32   33   34   33   36   37   38   3	85 40
Terminal No.	Color of Wire	Signal Name	
2	۵	INPUT 5	
3	SB	INPUT 4	
4	^	INPUT 3	
5		INPUT 2	
9	æ	INPUT 1	

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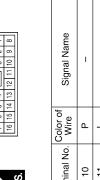
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### FRONT FOG LAMP SYSTEM

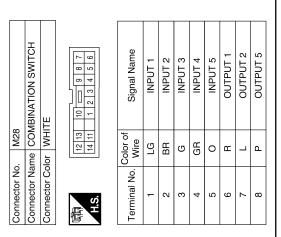
### < COMPONENT DIAGNOSIS >

Connector No.	M91
Connector Name WIRE TO WIRE	WIRE TO WIRE
Connector Color WHITE	WHITE

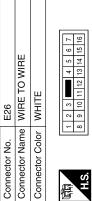


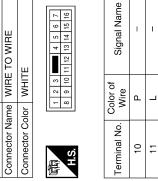
i - 0	TE	5   4     3   2   1	Signal Name	-	=
2	lor WHI	7 6 1	Color of Wire	Ь	7
	Connector Color WHITE	崎 H.S.	Terminal No.	10	11
_					_

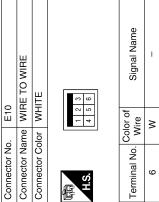
Signal Name	OUTPUT 4	OUTPUT 3	
Color of Wire	SB	۸	
Terminal No.	6	10	



	FRONT FOG LAMP LH	Ж		Signal Name	ı	-
E101		or BLACK		Color of Wire	>	В
Connector No.	Connector Name	Connector Color	原 H.S.	Terminal No.	-	2







Terminal No.

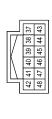
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### FRONT FOG LAMP SYSTEM

### < COMPONENT DIAGNOSIS >

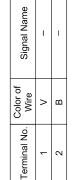
Connector No.	. E123	
Connector Name		IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	lor BROWN	N
说: S:T	51 56 55	66   55   54   53   52
Terminal No.	Color of Wire	Signal Name
50	×	FR FOG LAMP LH
51	>	FR FOG I AMP RH

	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)		
E122	IPDM E/R (I POWER DIS MODULE EI	WHITE	
Connector No.	Connector Name	Connector Color WHITE	





E102	FRONT FOG LAMP RH	BLACK	
Connector No.	Connector Name	Connector Color	H.S.



E124	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	BLACK	
Connector No.	Connector Name	Connector Color BLACK	

62 61 60	of Signal Name	GND (POWE	
161	Color of Wire	В	
H.S.	Terminal No.	69	

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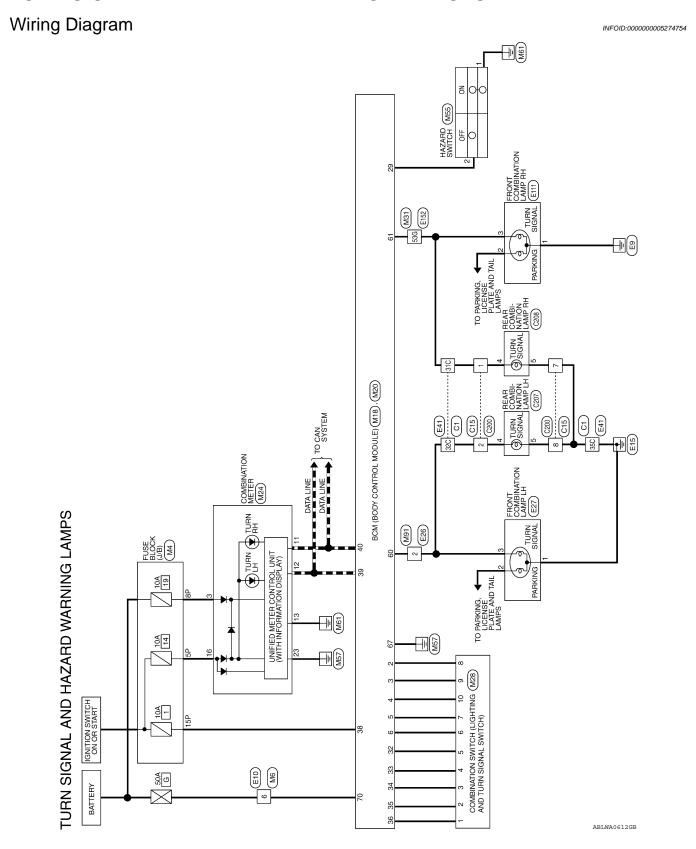
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### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM



Connector Name BCM (BODY CONTROL MODULE)

M20

Connector No.

BLACK

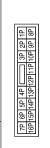
Connector Color

# TURN SIGNAL AND HAZARD WARNING LAMPS CONNECTORS

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

Connector No. M6
Connector Name WIRE TO WIRE

Connector Color WHITE





Signal Name	1	ı	1	
Color of	M/G	Ρ/Υ	W/R	
Terminal No.	5P	8P	15P	

Signal Name	-	I	I	
Color of Wire	M/G	Ρ/Υ	W/R	
Terminal No.	5P	8P	15P	

Connector Name BCM (BODY CONTROL MODULE)

M18

Connector No.

WHITE

Connector Color

Signal Name	ı	
Color of Wire	*	
Terminal No. Wire	9	

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	FG	W/R	_	Ь
Terminal No.	32	33	34	32	98	38	39	40

OUTPUT OUTPUT IGN SW CAN-H	LG W/R	38 39 40
OUTPUT	FG	36
TUATUO	88	32
OUTPUT		34
TUATUO	H5	33
TUATUO	0	32
Signal Na	Wire	Terminal No.

	19 20	39 40							
	18	88							
	17	37							
	16	8		_ <u>_</u>					
	15	32		au	Γ5	7	3	7	Ξ
	4	33		<u>Z</u>	≻	≻	ļΣ	5	5
닏	5	83		l au	INPUT 5	INPUT 4	INPUT 3	INPUT 2	INPUT 1
11/	12	32		Signal Name	-	_	_	_	_
W	10 11	30 31							
IN.		8							
	6	28 29		-					
$\Box$	80	88		ုင္က စ					
	^	26 27		응≶	Д.	SB	>	_	Œ
	9			O					
	S	53		9					
	4	22 23 24 25		<u>=</u>					
ஏⅡ	e	8		.≘	2	3	4	2	9
Ŧ.S.	2	22		Terminal No. Wire					
7	_	2		≝					

FLASHER OUTPUT (LEFT)

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Signal Name

Color of Wire

Terminal No.

FLASHER OUTPUT (RIGHT) GND (POWER)

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BAT (F/L)

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HAZARD SW

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### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

### < COMPONENT DIAGNOSIS >

10000		70								Г
onnector No.	_	COMBINATION METER		Connector Name		COMBINATION SWITCH	Terminal No.	Color of Wire	Signal Name	
onnector Color	_			Connector Color			6	SB	OUTPUT 4	1
	_						10	>	OUTPUT 3	I
€ Z				E S	12 13	10 9 8 7				1
10 10 12 1	1 2 2	10001								
39 38 37 3	3 2 3	27 26 25 24 23		Terminal No.	Color of Wire	Signal Name				
	000			-	P	INPUT 1				
erminal No.	Jo.	Wire Signal Name		2	BB	INPUT 2				
3	- A	R/Y BATTERY		ဇ	ŋ	INPUT 3				
7	_	P CAN-L		4	GR	INPUT 4				
12		L CAN-H		5	0	INPUT 5				
13	g	GR GROUND		9	æ	OUTPUT 1				
16	×	W/G RUN START		7	٦	OUTPUT 2				
23		B POWER GND		80	۵	OUTPUT 5				
onnector No.		M31			Color of	N Committee	Connector No.	o. M55		
onnector	Name	onnector Name WIRE TO WIRE		ו פו		Olyriai Ivalile	Connector Name HAZARD SWITCH	ame HAZA	RD SWITCH	
onnector Color		WHITE		53G	5	1	Connector Color	olor WHITE	Ш	
毛毛										
E.S.							H.S.	3 1 2	2 4	
		10G 9G 8G 7G 6G								
	216	216 206 196 186 176 166 156 146 136 126 116								
		30G 29G 28G 27G 26G 25G 24G 23G 22G					Terminal No.	Color of	Signal Name	
	416	416 406 396 386 376 366 356 346 336 326 316					•	D a		
		50G 49G 48G 47G 46G 45G 44G 43G 42G					-	۵	ı	
	616	616 606 596 586 576 566 556 546 536 526 516					5	5	1	$\neg$
	<u> </u>	70G 69G 68G 67G 66G 65G 64G 63G 62G								
		756 746 736 726 716								
		80G 79G 78G 77G 76G								
			7]							

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### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

### < COMPONENT DIAGNOSIS >

RE TO WIRE	H.S.	Terminal No. Wire Signal Name	Connector No. E111		Connector Color   GRAY	H.S.	Terminal No.   Color of   Signal Name		2 GR –	ا ق ت						
Connector Name WIRE TO WIRE  Connector Color WHITE	H.S. 4 5 6	Terminal No.   Color of   Signal Name   6   W   -	Connector No. E41	Connector Name WIRE TO WIRE Connector Color BLACK		H.S.  10 100 190 320,110 201,120 30,120 30,120 30,120	21C 27C 22C 28C	6C 15C 23C 29C 36C45C	24C 30C	25C	Terminal No.   Color of   Signal Name   Signal Name	31C L –	32C G –	35C B –		
RE TO WIRE	S.	Terminal No. Color of Signal Name  2 LG -	Connector No.   E27	_	Connector Color GRAY	H.S.	Terminal No.   Color of   Signal Name	В	2 R –	3   LG   -						

Revision: October 2009 EXL-75 2010 Frontier

### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

### < COMPONENT DIAGNOSIS >

Connector No. C15 Connector Name WIRE TO WIRE Connector Color GRAY	Terminal No. Color of Signal Name  1		Connector No. C208 Connector Name REAR COMBINATION LAMP Connector Color GRAY  H.S.	Terminal No. Color of Signal Name 4 L 5 BR
Connector No. C1 Connector Name WIRE TO WIRE Connector Color BLACK	400 31C	Terminal No.         Color of Wire         Signal Name           31C         L         -           32C         G         -           35C         B         -	Connector No. C207 Connector Name REAR COMBINATION LAMP LH Connector Color GRAY	Terminal No. Color of Wire Signal Name 4 G – 5 B/Y –
Vo. E152  Rame WIRE TO WIRE	16   26   36   46   56   105	716   726   736   746   756	Connector No. C200 Connector Name WIRE TO WIRE Connector Color GRAY    1 2 3 4	Color of Signal Name L G - G BR BR
Connector No. Connector Name Connector Color	H.S.	Terminal No.	Connector No. Connector Color M.S.	Terminal No.

### < COMPONENT DIAGNOSIS > PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM Α Wiring Diagram INFOID:0000000005274755 IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) (E121), (E122) (E123), (E122) В QB⟩:WITH QR25DE ZV⟩:WITH VQ40DE C (FEX) D LICENSE PLATE LAMP RH 6 IGNITION RELAY [2] Е TO STOP LAMP 20A **■** TO ILLUMINATION F 20A TAIL LAMP RELAY C15 10A 37 w Н FRONT COMBINATION LAMP LH (E17), (E27) **→** TO STOP LAMP SIDE 10A <u></u> J TURN SIGNAL PARKING, LICENSE PLATE AND TAIL LAMPS Κ FRONT COMBINATION LAMP RH E108), E111) EXL - TI (29) (M20) SIDE BCM (BODY CONTROL MODULE) (M18), COMBINATION SWITCH (LIGHTING M28) AND TURN SIGNAL SWITCH) M TURN SIGNAL M4) Ν IGNITION SWITCH ON OR START 10A 0 (Mg @g Q

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BATTERY

GND (POWER) Signal Name

Color of Wire

Terminal No. 67

BAT (F/L)

≥ В

> INPUT 5 Signal Name

Color of Wire

Terminal No.

INPUT 3 INPUT 4

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SB Δ

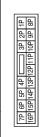
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INPUT 2 INPUT 1

## PARKING, LICENSE PLATE AND TAIL LAMPS CONNECTORS

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

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	2P 9P
	3P 10P
	12P 11P
ш	4P 13P
WHITE	5P
≥	6P 15P
or Color	7P 16P

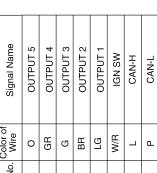




	W/R	15P
Signal	Color of Wire	Terminal No.

Signal Name

	Connector Name WIRE TO WIRE	TE	2 G C 7 T 7 T 7 T 7 T 7 T 7 T 7 T 7 T 7 T 7	Signal N	I
). M6	ame WIF	olor WH	<u> </u>	Color of Wire	Ν
Connector No.	Connector Na	Connector Color WHITE	原和 H.S.	Terminal No. Wire	9
	USE BLOCK (J/B)	VHITE	P  4P  (2P  1P  10P  3P  2P  1P  P  4P  (2P  11P  10P  3P  3P  P  P  P  P  P  P  P  P  P  P  P  P  P	Signal Name	1
4	i)	¥	1 1 2 4	o o	



Signal Name	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	IGN SW	CAN-H	CAN-L
Color of Wire	0	GR	5	BR	ГG	W/R	_	Ь
Terminal No. Wire	32	33	34	35	98	38	39	40

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Connector Name BCM (BODY CONTROL MODULE)

M18

Connector No.

WHITE

Connector Color

Signal Name

Color of Wire ۵

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### < COMPONENT DIAGNOSIS >

Connector No. M91 Connector Name WIRE TO WIRE			H.S.	Terminal No. Wire Signal Na	10 P		Connector No. E26	Connector Name WIRE TO WIRE	_	H.S.	Terminal No. Wire Signal N
Signal Name	OUTPUT 4	OUTPUT 3						FRONT COMBINATION LAMP LH	>		Signal Name
Color of Wire	SB	>					). E17		olor GRAY	8	Color of Wire
Terminal No.	6	10					Connector No.	Connector Name	Connector Color	师 H.S.	Terminal No.

	COMBINATION SWITCH	ITE	8 6	1 2 3 4 5 6	Signal Name	INPUT 1	INPUT 2	INPUT 3	INPUT 4	S TUANI	OUTPUT 1	OUTPUT 2	OUTPUT 5	
. M28		lor WH	12 13	14 11	Color of Wire	ച	BR	ဟ	GR	0	ď	J	۵	
Connector No.	Connector Name	Connector Color WHITE	唇	H.S.	Terminal No.	-	2	က	4	9	9	2	8	

(	WIRE TO WIRE	ITE	<b>■</b> ∞ ω	Signal Name	1
. E10	me WIF	lor WHITE	4 5 6	Color of Wire	≯
Connector No.	Connector Name	Connector Color	刷 H.S.	Terminal No.	9
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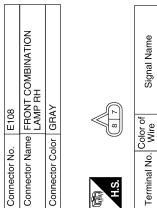
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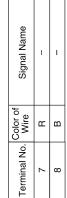
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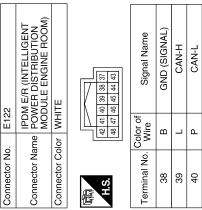
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### < COMPONENT DIAGNOSIS >





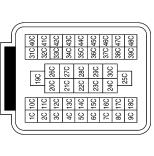






CA	Ы	40
CA	٦	39
GND (8	В	38
Signa	Color of Wire	Terminal No.

Connector No.	E41
Connector Name WIRE TO WIRE	WIRE TO WIRE
Connector Color	BLACK

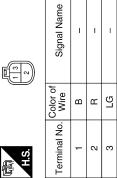


Signal Name	ı	_	
Color of Wire	GR	В	
Terminal No.	34C	32C	

36   35   34   33   32   31   30	Color of Signal Name	R CLEARANCE FRONT LH
98		_
H.S.	erminal No.	28

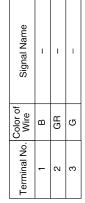
E27	Connector Name FRONT COMBINATION LAMP LH	3RAY
Connector No.	Connector Name	Connector Color GRAY

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### < COMPONENT DIAGNOSIS >

			1						
WIRE TO WIRE BLACK	400 310 410 320 420 330 420 330 430 340 430 340 430 430 430 430 430 430 430 430 430	28C 22C 29C 23C 30C 24C	Color of Signal Name Wire GR - B	C201 REAR COMBINATION LAMP LH BROWN		Signa	I I	GR -	
Connector Name	[4444	14141414141		Connector No. Connector Name Connector Color		l No. Wire		<u>0</u>	
Connect	H.S.		Terminal No. 34C 35C	Connector No. Connector Nar Connector Col	(中)	Terminal No.	-   2	e e	
	٦				ſ				
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) BLACK	00 00 00 00 00	Signal Name TAIL LAMP GND (POWER)		C200 WIRE TO WIRE GRAY	9 8	Signal Name -			
	_	Color of Wire GR			2 9 9 4 9	Color of Wire GR	В В		
Connector Name	H.S.	Terminal No. 57		Connector No. Connector Name Connector Color	H.S.	Terminal No.	4		
- පී   පී		<u> </u>		888	管王	<u> </u>			
	7				[				
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	121 201 403 201 101 101 101 101 101 101 101 101 101	Signal Name ILLUMINATION		C15 WIRE TO WIRE GRAY	(2) T	Signal Name -			
	_	Color of Wire GR			8 7 6 5	Color of Wire GR	В		
Connector Name	H.S.	Terminal No. 49		Connector No. Connector Name	H.S.	Terminal No.	4		
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Revision: October 2009 EXL-81 2010 Frontier

### < COMPONENT DIAGNOSIS >

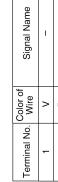
Connector No.	C204
Connector Name	Connector Name LICENSE PLATE LAMP RH
Connector Color   GRAY	GRAY













Connector No.	C202
Connector Name	Connector Name REAR COMBINATION LAMP
Connector Color BROWN	BROWN





Signal Nam	I	ı	ı
Color of Wire	В	В	^
Terminal No.	1	2	3

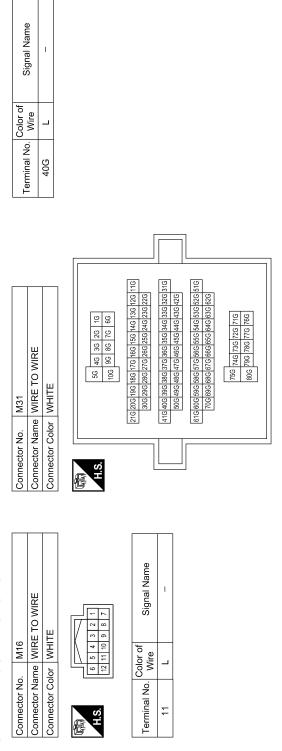
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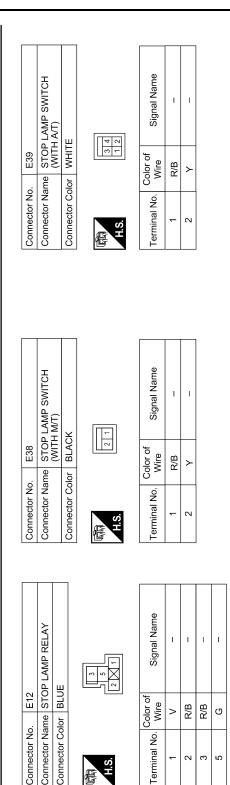
### STOP LAMP Α Wiring Diagram INFOID:0000000005274756 (AB): WITH ABS (AB): WITH ABS (DC): WITH HILL DESCENT CONTROL AND HILL START ASSIST (MY): WITH WT (WV): WITH VDC (AB): 41 (WV): 39 В C D Е F STOP LAMP E39 : < G RELEASED Н J Κ [H] [C] EXL $\mathbb{N}$ Ν 0 STOP LAMP Ρ

**EXL-83 Revision: October 2009** 2010 Frontier

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### STOP LAMP CONNECTORS





Color of Wire

Terminal No.

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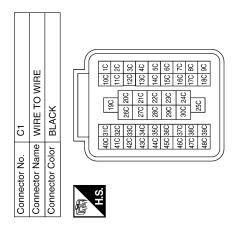
R/B R/B ტ

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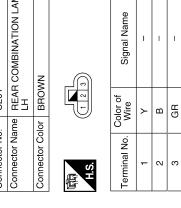
Connector No.

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		А
	e	В
Signal Na STOP LAMP	E160  FUSE BLOCK (J/B)  WHITE    Signal Name   Signal Name   B	С
		D
Connector No. E1:  Connector Name ELI  Connector Color BL.  H.S.  T.7   18   19   20   21   2   2    Terminal No. Wire  35 V  39 SB	Connector No. Connector Color H.S.  Terminal No. W 8Q R	Е
		F
Signal Name	Signal Name	G
Color of Wire B A	Color of Wire	Н
30C 35C 35C	Terminal No. Co	I
Tem 1	Tem Tem	J
	[10] [10] [10] [10] [10] [10] [10] [10]	K
	46 56 406 200 210 270 886 886 886 700 810 800 810 800 810 800 810 810 810 8	EXL
Connector No. E41  Connector Name WIRE TO WIRE  Connector Color BLACK  Lic 100 190 200 200 200 200 200 200 200 200 200 2	TO WIRI E 26 36 146 156 166 246 256 266 246 256 266 246 256 266 246 256 266 246 256 266 246 256 266 2476 776 776	M
No. Name WIR Color BLA (1900)   10   10   10   10   10   10   10	100. E152 Name WIRE Color WHIT 116 126 136 226 236 1316 226 336 1516 526 536 1516 526 536 1516 526 536 1516 526 536	N
Connector No.  Connector Name Connector Color H.S.	Connector No. Connector Name Connector Color H.S.	0
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Signal Name	ı	ı	
Color of Wire	Υ	В	
Terminal No.	30C	35C	

Connector No.	C201
Connector Name	Connector Name REAR COMBINATION LAMP
Connector Color BROWN	BROWN
E SH	



B162	WIRE TO WIRE	HITE	9 3 4 5 6 9 10 11 12	of Signal Name	ı
	me M	lor	1 2 8	Color of Wire	_
Connector No.	Connector Name	Connector Color WHITE	H.S.	Terminal No.	11

	8 9 10 11 12	Signal Name	-	
ŀ	5	Jc		
ŀ	œ	lor ( /ire	_	
ŀ	_	Color of Wire		
6.		Terminal No.	11	

	WIRE TO WIRE	>	8 7 8 P	Signal Name	-	-
. C200		or GRAY	9 1 2 9 1	Color of Wire	В	У
Connector No.	Connector Name	Connector Color	咸利 H.S.	Terminal No.	4	2

	STOP			Vame
	HIGH MOUNTED STOP LAMP ASSEMBLY	<u>щ</u>		Signal Name
. B161		lor WHITE		Color of Wire
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.

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C15 WIRE TO WIRE		<u>[1</u> ]	Signal Name	ı	1
Je Je	or GRAY	4 8 7 2 9	Color of Wire	В	>
Connector No.	Connector Color	H.S.	Terminal No.	4	5

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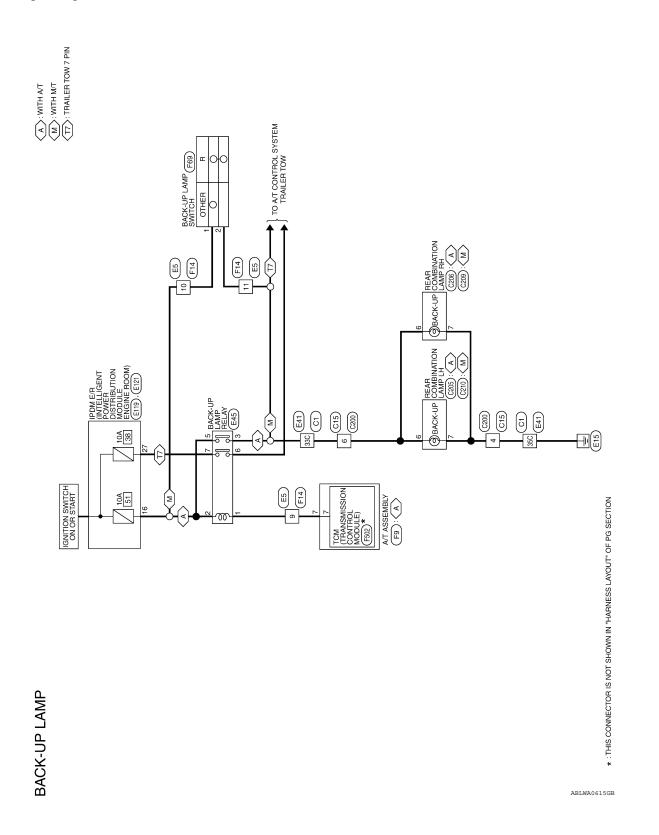
Connector No.	C202
Connector Name	Connector Name REAR COMBINATION LAMP RH
Connector Color BROWN	BROWN

	Signal Nam	1	1	1
2 3	Color of Wire	В	В	۸
H.S.	Terminal No.	1	2	3

Revision: October 2009

### **BACK-UP LAMP**

Wiring Diagram



## BACK-UP LAMP CONNECTORS

E41	WIRE TO WIRE	BLACK
Connector No.	Connector Name	Connector Color
E5	WIRE TO WIRE	WHITE
Connector No.	Connector Name	Connector Color



Signal Name	1	_	I
Color of Wire	ГG	M/G	SB
Terminal No. Wire	6	10	11

	BACK-UP LAMP RELAY (WITH A/T)	BROWN		Signal Name	1	I	ı	-	1	ı
E45			9 4	Color of Wire	re	M/G	SB	W/G	>	W/G
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	-	2	က	5	9	7

Signal Name	-	1
Color of Wire	SB	В
Terminal No.	33C	35C



IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	NWC	27 26 25 33 32 31 30	Signal Name	T TOW REV LAMP
	lor BRC	29 28 27 36 35 34 33 32	Color of Wire	W/G
Connector Name	Connector Color BROWN	南 H.S.	Terminal No.	22
		·		

Signal Name

Color of Wire P

Terminal No.

IPDM E/R (INTE POWER DISTRII MODULE ENGIN	NMC	28 <u>77 26 25</u> 35 34 33 32 31 30	Signal	H WOT T
	r BRC	36 35 34	Color of Wire	M/G
Connector Name	Connector Color BROWN	H.S.	Terminal No.	27

	Connector No.	Z L	_
. 9	Connector Name	PDM POWE MODU	
	Connector Color BROW	BRC	∣≶∣
	<u>[</u>		
	The control of the	29 28 C	
	Col Terminal No. W	Color of Wire	
	27 W	W/G	
		1	l

Connector Color WHITE

Connector Name

E119

Connector No.

	Signal Name	REVERSE LAMP	
	Color of Wire	M/G	
E S	erminal No.	16	

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**EXL-89** 2010 Frontier **Revision: October 2009** 

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Connector No.	). F502	2
Connector Name		TCM (TRANSMISSION CONTROL MODULE)
Connector Color GRAY	olor GR	٨٧
H.S.	10 9 8 7	6 5 4 3 2 1
Terminal No.	Color of Wire	Signal Name
7	С	REV LAMP RLY

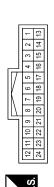
	WIRE TO WIRE		4 8	Signal Name	ı	-
C200		r GRAY	6 2 3	Color of Wire	В	SB
Connector No.	Connector Name	Connector Color	H.S.	Terminal No.	4	9

F69	Connector Name BACK-UP LAMP SWITCH	WHITE	
Connector No.	Connector Name	Connector Color WHITE	H.S.

Signal Name	_	_
Color of Wire	M/G	SB
Terminal No.	1	2

				e.		
	WIRE TO WIRE		(ol -1	Signal Name	1	İ
. C15		lor GRAY	8 7 6	Color of Wire	В	SB
Connector No.	Connector Name	Connector Color	原 H.S.	Terminal No.	4	9

Connector No.	F14
Connector Name WIRE TO WIRE	WIRE TO WIRE
Connector Color WHITE	WHITE



Signal Name	ı	I	I
Color of Wire	FG	M/G	SB
Terminal No.	6	10	11

		1		_	
	WIRE TO WIRE BLACK	19C 10C 10C 10C 10C 10C 10C 10C 10C 10C 10	Signal Name	ı	ı
2	_	400 300 000 000 000 000 000 000 000 000	Color of Wire	SB	ш
Connector No.	Connector Name Connector Color	H.S.	Terminal No.	33C	35C

ABLIA0615GB

Connector No.	C209
onnector Name	Connector Name REAR COMBINATION LAMP RH (WITH M/T)
Connector Color GRAY	GRAY

Signal Name	-	_
Color of Wire	0	В
erminal No.	9	7

Connector No.	C206
Connector Name	Connector Name REAR COMBINATION LAMP RH (WITH A/T)
Connector Color GRAY	GRAY



Connector No.	C205
Connector Name	Connector Name BEAB COMBINATION I AMP
	LH (WITH A/T)
Connector Color GRAY	GRAY

Signal Nar	ľ	ſ	
Color of Wire	SB	В	
erminal No.	9	7	

Connector No.	C210
Connector Name	Connector Name REAR COMBINATION LAMP LH (WITH M/T)
Connector Color GRAY	GRAY

REAR COMBINATION LH (WITH M/T)	>		Signal Nam	ı	
	GRAY	67	Color of Wire	SB	١
Sonnector Name	Connector Color	H.S.	erminal No.	9	,

E	3	)
(		
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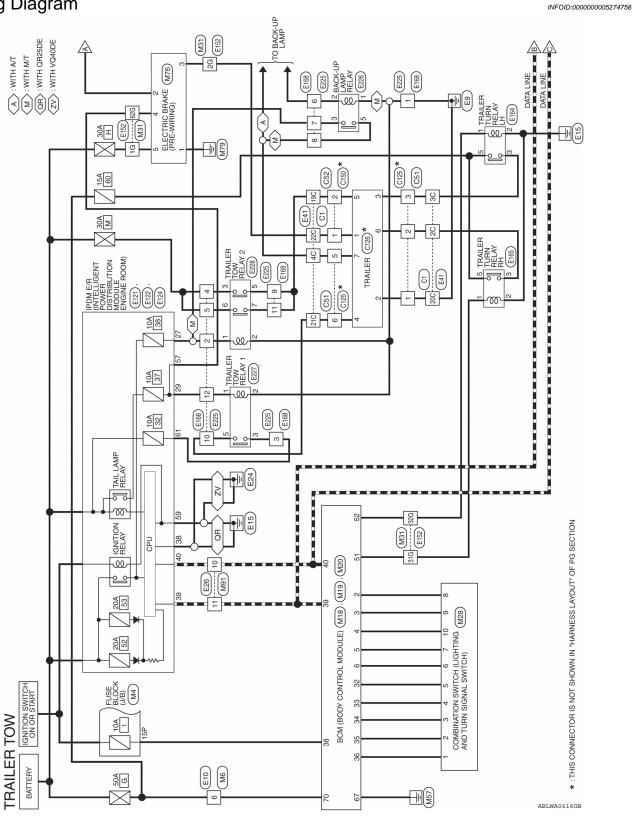
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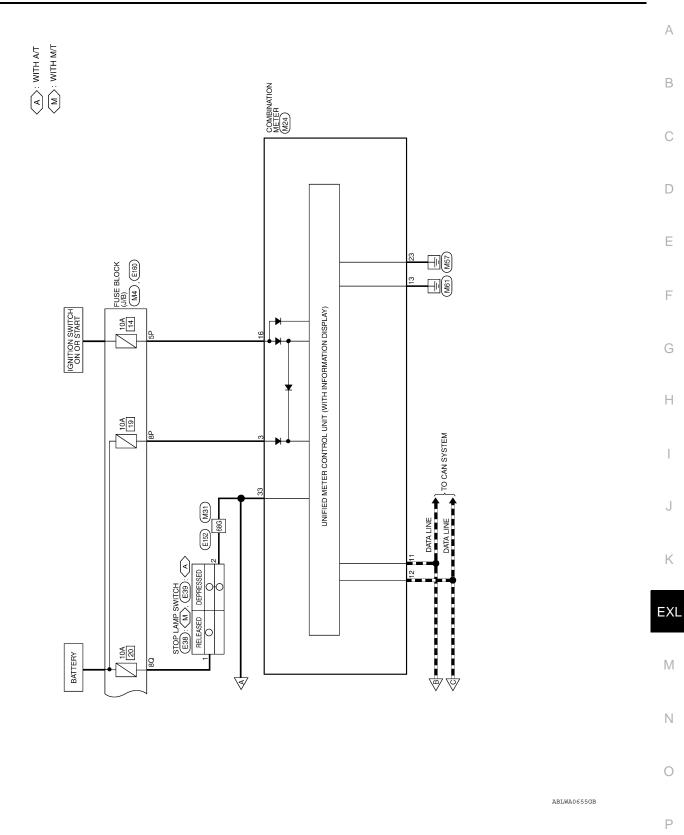
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### TRAILER TOW

### Wiring Diagram





Revision: October 2009 EXL-93 2010 Frontier

Connector Name Connector Color

M19

WHITE

### TRAILER TOW CONNECTORS

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







	RE TO WIRE	里	1 4	Signal Name	-
We	me WIF	lor WHITE	9 2 2	Color of Wire	*
Connector No.	Connector Name WIRE TO WIRE	Connector Color	原 H.S.	Terminal No.	ď

ı		Signal Name	OUTPUT 5	OUTPUT 4	
Μ		Color of Wire	0	GR	
9		rminal No. Wire	32	33	

				19 20 39 40						
8	BCM (BODY CONTROL MODULE)	WHITE		9 10 11 12 13 14 15 16 17 18 29 30 31 32 33 34 35 36 37 38	Signal Name	INPUT 5	NPUT 4	INPUT 3	INPUT 2	INPUT 1
. M18				6 7 8 26 27 28	Color of Wire	Д	SB	>	٦	œ
Connector No.	Connector Name	Connector Color	H.S.	1 2 3 4 5 21 22 23 24 25 :	Terminal No.	5	3	4	5	9

TRAILER FLASHER OUTPUT(RIGHT)

0

21

Signal Name

Color of Wire

Terminal No.

TRAILER FLASHER OUTPUT(LEFT)

ГG

52

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Connector No.		0		Connector No.	o. M24			Connector No.	o. M28	,	
Connector Name		BCM (BODY CONTROL MODULE)		Connector N	ame CON	Connector Name COMBINATION METER		Connector Name	ame COMBI	Connector Name   COMBINATION SWITCH	
Connector Color	_	BLACK		Connector Color   WHITE	Olor WHI	Щ				<u></u>	
		[56] 57] 58  59  60  61  62  63  64						臣	12 13	10 9 8 7	
H.S.	65 66	[67   68   69   70 ]]	_	H.S.				H.S.			
Teriminal No	Color of	Signal Nama		20 19 18 17 16 15 14 13 12 40 39 38 37 36 35 34 33 32	35 34 33 32	11 10 9 8 7 6 5 31 30 29 28 27 26 25	4 3 2 1 24 23 22 21	Terminal No.	Color of Wire	Signal Name	
	Wire							-	P	INPUT 1	
/9	ກ ≥	GND (POWEH)		Terminal No.	Color of	Signal Name		2	BR	INPUT 2	
2	\$	BAI (F/E)		,		,		က	G	INPUT 3	
				က :	M	BATTERY		4	GR	INPUT 4	
				=	_	CAN-L		5	0	INPUT 5	
				12	_	CAN-H		9	œ	OUTPUT 1	
				13	GR	GROUND		7	_	OUTPUT 2	
				16	M/G	RUN START		. α	۵	OUTPUTS	
				23	В	POWER GND		o o	- 8%	OUTPUT 4	
				33	PT	BRAKE PEDAL SW	MS.		3 ;		
Connector No.	No. M31	TGIMI OF		Terminal No.	Color of Wire	Signal Name		Connector No.	Jo. M76		
Connector Name	Connector Name WIRE I	WIKE 10 WIKE		16	0	1		Connector N	lame ELE( PRE	Connector Name   ELECTRIC BRAKE   (PRE-WIRING)	
				2G	BR	1		Connector Color	color WHITE	1	
				31G	0	1					
0		56 46 36 26 16		32G	9	ı		僵	2	2 6	
į		96 86 76		62G	æ	1		H.S.	=]	3 4 5	
				989	LG	1					
	21G 20G 19G	21G   20G   19G   17G   16G   15G   14G   13G   12G   11G     30G   29G   28G   27G   26G   25G   24G   23G   22G	ı				]	Terminal No.	Color of Wire	Signal Name	
	416 406 396	1980 370 380 350 340	F					-	В	GND	
	50G 49G	506 496 486 476 466 456 446 436 426						2	9	STOP	
	616 606 596	589 579 589 559 549 539 529 519						က	BB	1	
	70G 69G	700 690 680 670 660 650 640 630 620						4	Œ	ILL (TAIL)	
								5	0	<del>P</del>	
		756 746 736 726 716 806 796 776 776									
	1	E			1	G	F	Е			F
<u> </u>	V	XL VI		J	I	G H	F	E	O	С	В

Revision: October 2009 EXL-95 2010 Frontier

### **TRAILER TOW**

### < COMPONENT DIAGNOSIS >

ABLIA1801GB

### **TRAILER TOW**

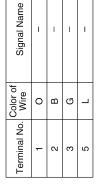
### < COMPONENT DIAGNOSIS >

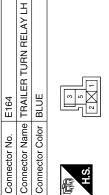
			А
E124 IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) BLACK  SS	Signal Name TAIL LAMP GND (POWER) TRAILER RLY SUPPLY	E160  FUSE BLOCK (J/B)  WHITE  Signal Name  B	В
or ne	Color of Wire GR B B		C
Connector No. Connector Col	Terminal No. 57 59 61	Connector No. Connector Cold Connector Cold H.S.  RA  BQ	Е
			F
E122 IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) WHITE	Signal Name GND (SIGNAL) CAN-H CAN-L	Signal Name	G
	Color of Wire Sig	Color of Wire O O O D BR R R R R R R R R R R R R R R R R R	
Connector No. Connector Name Connector Color	Terminal No. 38 39 40	16 16 26 32G 68G 68G	J
15 2 NO	e AMP CONT	196 200 21G 296 30G 396 40G 41G 496 50G 896 70G	K
E121 IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) BROWN    Record   Record	Signal Nam T TOW REV L TRAILER RLY	100 100 100 100 100 100 100 100 100 100	EXI M
	No. Wire Wire G	Connector No. E152  Connector Name WIRE TO WIRE  Connector Color WHITE  16 26 36 46  116 126 136 146 176 186 177  220 230 240 256 260 277  210 250 230 240 256 260 277  210 250 230 240 256 260 277  210 250 230 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 240 256 260 277  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250  210 250 250 250 250 250 250 250  210 250 250 250 250 250 250  210 250 250 250 250 250 250  210 250 250 250 250 250 250  210 250 250 250 250 250  210 250 250 250 250 250  210 250 250 250 250 250  210 250 250 250 250  210 250 250 250 250  210 250 250 250 250  210 250 250 250  210 250 250 250  210 250 250 250  210 250 250 250  210 250 250 250  210 250 250 250  210	N
Connector No. Connector Name Connector Color	Terminal No. 27 29	Connector No. Connector Color Connector Color Single	0
		ABLIA1802GB	D

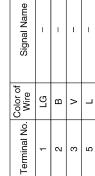
Revision: October 2009 EXL-97 2010 Frontier

	Connector Name TRAILER TURN RELAY RH	
E165	TRAILE	BLUE
Connector No.	Connector Name	Connector Color BLUE





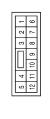




Signal Name	1	1	1	1	1	ı	-	ı	1
Color of Wire	GR	>	۵	M/G	>	>	н	>	В
Terminal No.	4	5	9	7	8	6	10	11	12

Connector Name WIRE TO WIRE Connector Color WHITE		윤   두			₹		ll l	
	2 2	4 =	5 4 3 3 12 11 10 9 8	По	က ထ	2 2	- 6	
	1	11	11	11	11	11	11	

Connector No. E168



Signal Nam	I	I	_
Color of Wire	В	W/G	B/B
Terminal No.	-	2	3

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Connector No.	. E226	3
Sonnector Na	me BAC (WIT	Connector Name BACK-UP LAMP RELAY (WITH M/T)
Connector Color	lor BLUE	E
鼒 H.S.		
Terminal No.	Color of Wire	Signal Name
-	В	I
2	BR	ı
3	M/G	ı
5	SB	I

Signal Name	I	ı	ı	ı	ı	ı	I
Color of Wire	BR	M/G	SB	_	ш	0	В
Terminal No.	9	7	8	6	10	11	12

Connector No.	). E225	2
Connector Name		WIRE TO WIRE
Connector Color WHITE	olor WHI	TE
H.S.	6 7 8	9 10 11 12
Terminal No.	Color of Wire	Signal Name
1	В	I
2	5/M	1
3	R/B	_
4	GR	_
5	Μ	1

3	TRAILER TOW RELAY 2	NW	7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		Signal Name	I	I	ı	ı	ı	I
. E228		lor BROWN		<u>.</u>	Color of Wire	M/G	В	GR	٦	×	0
Connector No.	Connector Name	Connector Color	所 H.S.		Terminal No.	-	2	ဇ	5	9	7

	TRAILER TOW RELAY 1	E	- - - -		Signal Name	-	I	Ι	_
. E227		lor BLUE		]]	Color of Wire	5	В	B/B	В
Connector No.	Connector Name	Connector Color	H.S.		Terminal No.	1	2	က	5

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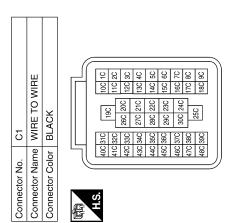
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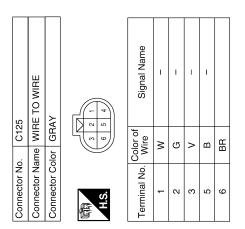
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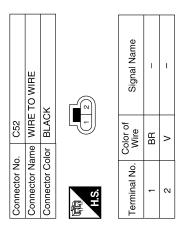
	t	
Connector No.	. 52	_
Connector Name		WIRE TO WIRE
Connector Color	olor GRAY	AY
	7(-)	
i i	<b>"</b>	0 0
Terminal No.	Color of Wire	Signal Name
-	В	ı
2	g	ı
3	۸	1
5	λ	Î
9	Н	Î

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



				Signal Name	ı	1	1	ı	ı	ı	1
C126	TRAILER	BLACK		Color of Wire	В	×	^	BR	_	5	В
o.	ame	olor									
Connector No.	Connector Name	Connector Color	(南) H.S.	Terminal No.	1	2	3	4	5	9	7





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В

С

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Р

or No.   C150	Connector Name WIRE TO WIRE	Connector Color BLACK	
Connector No.	Connector N	Connector C	

	Signal Name	I	I
2	Color of Wire	æ	_
H.S.	Terminal No.	1	0

### < ECU DIAGNOSIS >

### **ECU DIAGNOSIS**

### BCM (BODY CONTROL MODULE)

Reference Value

### VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
IGN ON SW	Ignition switch OFF or ACC	OFF
IGN ON SW	Ignition switch ON	ON
KEY ON SW	Mechanical key is removed from key cylinder	OFF
KET ON SW	Mechanical key is inserted to key cylinder	ON
CDL LOCK SW	Door lock/unlock switch does not operate	OFF
CDL LOCK SVV	Press door lock/unlock switch to the lock side	ON
CDL LINI OCK SW	Door lock/unlock switch does not operate	OFF
CDL UNLOCK SW	Press door lock/unlock switch to the unlock side	ON
DOOR SW DR	Driver's door closed	OFF
DOOR SW-DR	Driver's door opened	ON
DOOR SW-AS	Passenger door closed	OFF
DOOK SW-AS	Passenger door opened	ON
DOOR SW-RR	Rear RH door closed	OFF
DOOR SW-RR	Rear RH door opened	ON
DOOR SW-RL	Rear LH door closed	OFF
DOOK SW-KL	Rear LH door opened	ON
KEY CYL LK-SW	Other than driver door key cylinder LOCK position	OFF
RET CTL LN-SW	Driver door key cylinder LOCK position	ON
KEY CYL UN-SW	Other than driver door key cylinder UNLOCK position	OFF
RET CTL UN-SW	Driver door key cylinder UNLOCK position	ON
KEYLESS LOCK	"LOCK" button of key fob is not pressed	OFF
RETLESS LOCK	"LOCK" button of key fob is pressed	ON
KEYLESS UNLOCK	"UNLOCK" button of key fob is not pressed	OFF
RETLESS UNLOCK	"UNLOCK" button of key fob is pressed	ON
ACC ON SW	Ignition switch OFF	OFF
ACC ON SW	Ignition switch ACC or ON	ON
REAR DEF SW	Rear window defogger switch OFF	OFF
REAR DEF SW	Rear window defogger switch ON	ON
LIGHT SW 1ST	Lighting switch OFF	OFF
LIGHT SW 131	Lighting switch 1ST	ON
BUCKLE SW	The seat belt (driver side) is unfastened. [Seat belt switch (driver side) OFF]	OFF
DOUNCE SW	The seat belt (driver side) is fastened. [Seat belt switch (driver side) ON]	ON
KEYLESS PANIC	PANIC button of key fob is not pressed	OFF
RETELOO FAINIO	PANIC button of key fob is pressed	ON

### < ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status
	LOCK/UNLOCK button of key fob is not pressed and held simultaneously	OFF
RKE LCK-UNLCK	LOCK/UNLOCK button of key fob is pressed and held simultaneously	ON
	UNLOCK button of key fob is not pressed	OFF
RKE KEEP UNLK	UNLOCK button of key fob is pressed and held	ON
II DE AM CVA	Lighting switch OFF	OFF
HI BEAM SW	Lighting switch HI	ON
IEAD LAMD CV// 4	Lighting switch OFF	OFF
HEAD LAMP SW 1	Lighting switch 2ND	ON
HEAD LAMP SW 2	Lighting switch OFF	OFF
TEAD LAIVIP SVV 2	Lighting switch 2ND	ON
NUTO LICUT SW	Lighting switch OFF	OFF
AUTO LIGHT SW	Lighting switch AUTO	ON
PASSING SW	Other than lighting switch PASS	OFF
AUGING OW	Lighting switch PASS	ON
R FOG SW	Front fog lamp switch OFF	OFF
KTOG SW	Front fog lamp switch ON	ON
TURN SIGNAL R	Turn signal switch OFF	OFF
TORN SIGNAL IX	Turn signal switch RH	ON
TURN SIGNAL L	Turn signal switch OFF	OFF
IONN SIGNAL L	Turn signal switch LH	ON
CARGO LAMP SW	Cargo lamp switch OFF	OFF
DANGO LAWIF SW	Cargo lamp switch ON	ON
OPTICAL SENSOR	Bright outside vehicle	5V
OF HOAL GLINGON	Dark outside vehicle	0V
GN SW CAN	Ignition switch OFF or ACC	OFF
ON OW CAN	Ignition switch ON	ON
R WIPER HI	Front wiper switch OFF	OFF
IX WIF LIX I II	Front wiper switch HI	ON
FR WIPER LOW	Front wiper switch OFF	OFF
K WIF LK LOW	Front wiper switch LO	ON
R WIPER INT	Front wiper switch OFF	OFF
K WII LIX IIVI	Front wiper switch INT	ON
FR WASHER SW	Front washer switch OFF	OFF
	Front washer switch ON	ON
NT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
R WIPER STOP	Any position other than front wiper stop position	OFF
N WII EN STOP	Front wiper stop position	ON
/EHICLE SPEED	While driving	Equivalent to speedometer reading
HAZARD SW	Hazard switch OFF	OFF
	Hazard switch ON	ON
BDVKE 6/V	Brake pedal is not depressed	OFF
BRAKE SW	Brake pedal is depressed	ON

### < ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status		
FAN ON SIG	Blower fan motor switch OFF	OFF		
FAN ON SIG	Blower fan motor switch ON (other than OFF)	ON		
AIR COND SW	Compressor ON is not requested from auto amp. (A/C indicator OFF, blower fan motor switch OFF or etc.)	OFF		
	Compressor ON is requested from auto amp. (A/C indicator ON and blower fan motor switch ON).	ON		
OIL PRESS SW	Ignition switch OFF or ACC     Engine running	OFF		
	Ignition switch ON	ON		
AIR PRESS FL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front LH tire		
AIR PRESS FR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of front RH tire		
AIR PRESS RR	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear RH tire		
AIR PRESS RL	Ignition switch ON (Only when the signal from the transmitter is received)	Air pressure of rear LH tire		
ID REGST FL1	ID of front LH tire transmitter is registered	DONE		
	ID of front LH tire transmitter is not registered	YET		
ID REGST FR1	ID of front RH tire transmitter is registered	DONE		
	ID of front RH tire transmitter is not registered	YET		
ID REGST RR1	ID of rear RH tire transmitter is registered	DONE		
	ID of rear RH tire transmitter is not registered	YET		
ID REGST RL1	ID of rear LH tire transmitter is registered	DONE		
	ID of rear LH tire transmitter is not registered	YET		
WARNING LAMP	Tire pressure indicator OFF	OFF		
WARNING LAWF	Tire pressure indicator ON	ON		
BUZZER	Tire pressure warning alarm is not sounding	OFF		
JULLEN	Tire pressure warning alarm is sounding	ON		

< ECU DIAGNOSIS > Terminal Layout INFOID:0000000005561473 Α В C (M18) D 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 Е  $\bigcirc$ F G Н \_\_\_\_\_ \_\_\_\_\_ K **EXL** (M20) M Ν 0 Р

**Physical Values** 

**EXL-105** 2010 Frontier **Revision: October 2009** 

LIIA2443E

INFOID:0000000005561474

	10/:	Item	Signal	Measuring condition		Defense
Terminal	Wire color		input/ output	Ignition switch	Operation or condition	Reference value or waveform (Approx.)
1	BR	Ignition keyhole illumi-	Output	OFF	Door is locked (SW OFF)	Battery voltage
ı Bi	DIX	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 2 0 +-5ms SKIA5291E
3	SB	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 **5ms
4	V	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 64 20 ++5ms SKIA5291E
6	L R	Combination switch input 2  Combination switch input 1	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 ***5ms
		Front door lock as-			ON (open, 2nd turn)	Momentary 1.5V
7	GR	sembly LH (key cylin- der switch) unlock	Input		OFF (closed)	0V
-		Front door lock as-		OFF	On (open)	Momentary 1.5V
8	SB	sembly LH (key cylin- der switch) lock	Input		OFF (closed)	0V
9	Y	Rear window defogger	Input	ON	Rear window defogger switch ON	0V
3	•	switch	πραι	OIN	Rear window defogger switch OFF	5V
11	G/B	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage
		Front door switch RH (All)			ON (open)	0V
12	LG	Rear door switch upper RH (King Cab)  Rear door switch lower RH (King Cab)	Input	OFF	OFF (closed)	Battery voltage

### < ECU DIAGNOSIS >

Terminal Wire color	١٨/: ٣٠		Signal	Measuring condition		Reference value or waveform (Approx.)
	Item	input/ output	Ignition switch	Operation or condition		
13 L	Rear door switch RH (Crew Cab)	Input	OFF	ON (open)	0V	
				OFF (closed)	Battery voltage	
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 
	Remote keyless entry	Input	OFF	Stand-by (keyfob buttons released)	(V) 6 4 2 0 	
	receiver signal (Signal)			When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	(V) 64 2 0 **50 ms	
21	GR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move.
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 $\rightarrow$ ON)	Just after turning ignition switch ON: Pointer of tester should move.
27 W	Compressor ON sig-	lmerit	ON	A/C switch OFF	5V	
	٧٧	nal	Input	ON	A/C switch ON	0V
28 R	P	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
	IX				Front blower motor ON	0V
29 G	G	G Hazard switch	Input	OFF	ON	0V
					OFF	5V
31 GF	GR	Cargo lamp switch	Input	OFF	ON	0V
	٥.,	Sargo lamp switch			OFF	Battery voltage

Revision: October 2009 EXL-107 2010 Frontier

### < ECU DIAGNOSIS >

	Wire	Item	Signal input/ output		Measuring condition	Reference value or waveform (Approx.)
	color			Ignition switch	Operation or condition	
32	0	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 **5ms SKIA5291E
33	GR	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 **5ms SKIA5292E
34	G	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 → • 5 ms
35	BR	Combination switch output 2				
36	LG	Combination switch output 1	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	(V) 6 4 2 0 ***5ms
37	37 B Key switch	Key switch	Input	OFF	Key inserted	Battery voltage
00			011	Key removed	0V	
38	W/R	Ignition switch (ON)	Input	ON	_	Battery voltage
39 40	L P	CAN-H CAN-L		_		_
45	V	Lock switch	Input	OFF	ON (lock)	0V
					OFF	Battery voltage
46	LG	Unlock switch	Input	OFF	ON (unlock) OFF	0V  Battery voltage
47	GR	Front door switch LH (All)	Input	OFF	ON (open)	0V
		Rear door switch up- per LH (King Cab)			OFF (closed)	D
		Rear door switch low- er LH (King Cab)				Battery voltage
48	Р	Rear door switch LH	Input	OFF	ON (open)	0V
	•	(Crew Cab)			OFF (closed)	Battery voltage
50	Р	Cargo lamp	Output	OFF	Any door open (ON) All doors closed (OFF)	0V Battery voltage

# **BCM (BODY CONTROL MODULE)**

# < ECU DIAGNOSIS >

	Wire		Signal		Measuring condition	<ul> <li>Reference value or waveform</li> </ul>
Terminal	color	Item	input/ output	Ignition switch	Operation or condition	(Approx.)
51	0	Trailer turn signal (right)	Output	ON	Turn right ON	(V) 15 10 500 ms
52	LG	Trailer turn signal (left)	Output	ON	Turn left ON	(V) 15 10 5 5 0 SKIA3009J
56	R/Y	Battery saver output	Output	OFF	30 minutes after ignition switch is turned OFF	0V
			2.04.00	ON	_	Battery voltage
57	R/Y	Battery power supply	Input	_	_	Battery voltage
58	W	Optical sensor	Input	ON	When optical sensor is illuminated	3.1V or more
30	VV	Optical serisor	mpat	ON	When optical sensor is not illuminated	0.6V or less
59	GR	Front door lock as- sembly LH (unlock)	Output	OFF	OFF (neutral) ON (unlock)	0V Battery voltage
60	LG	Turn signal (left)	Output	ON	Turn left ON	(V) 15 10 500 ms SKIA30093
61	G	Turn signal (right)	Output	ON	Turn right ON	(V) 15 10 500 ms
63	BR	Interior room/map lamp	Output	OFF	Any door Switch ON (open) OFF (closed)	0V Battery voltage
65	V	All door lock actuators (lock)	Output	OFF	OFF (neutral) ON (lock)	0V Battery voltage
66	L	Front door lock actuator RH, rear door lock	Output	OFF	OFF (neutral)	oV
20	_	actuators LH/RH (un- lock)	- 4.644	·	ON (unlock)	Battery voltage
67	В	Ground	Input	ON	_	0V

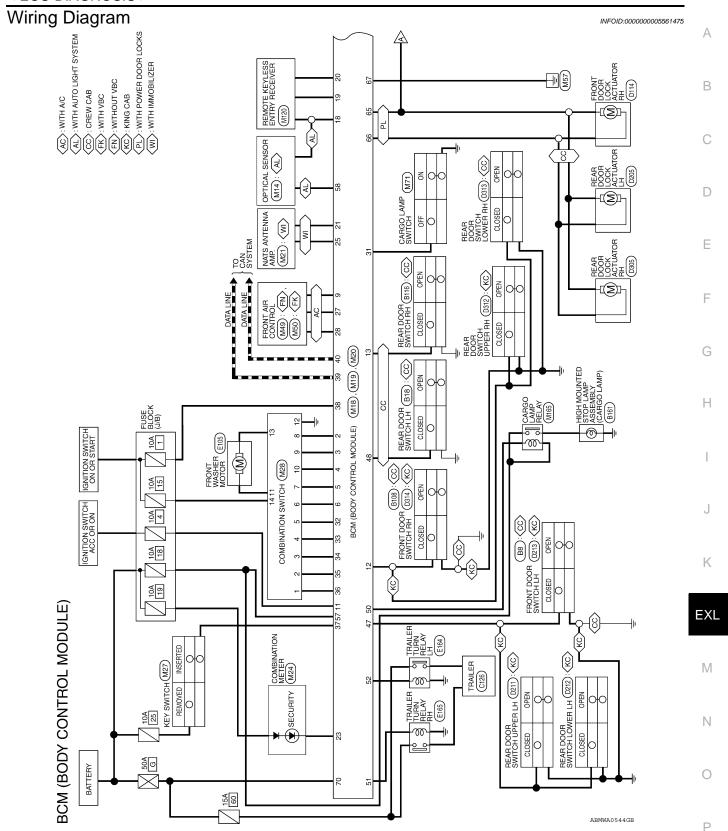
# **BCM (BODY CONTROL MODULE)**

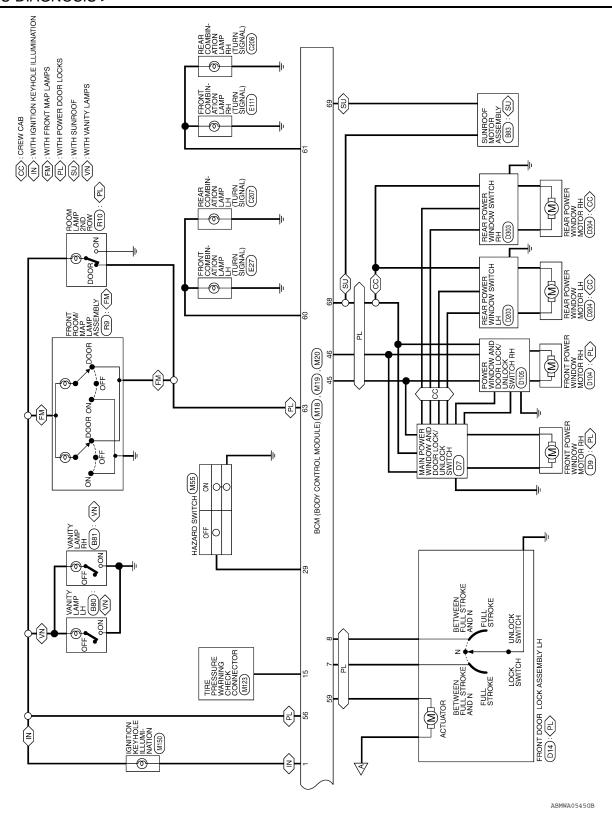
# < ECU DIAGNOSIS >

	Wire		Signal		Measuring condition	Reference value or waveform
Terminal	color	Item	input/ output	Ignition switch	Operation or condition	(Approx.)
					Ignition switch ON	Battery voltage
					Within 45 seconds after ignition switch OFF	Battery voltage
68 <sup>1</sup>	0	Power window power supply (RAP)	Output	_	More than 45 seconds after ignition switch OFF	0V
					When front door LH or RH is open or power window timer operates	0V
					Ignition switch ON	Battery voltage
					Within 45 seconds after ignition switch OFF	Battery voltage
68 <sup>2</sup>	SB	Power window power supply (RAP)	Output	_	More than 45 seconds after ignition switch OFF	0V
					When front door LH or RH is open or power window timer operates	0V
69	Р	Power window power supply (BAT)	Output	OFF	_	Battery voltage
70	W	Battery power supply	Input	OFF	_	Battery voltage

<sup>1:</sup> King cab (with power door lock system)

<sup>2:</sup> Crew cab (with power door lock system)





Connector No.	M19	
Connector Name	ae L	BCM (BODY CONTROL MODULE)
Connector Color		WHITE
H.S.	4114	42 43 44 45 46 47 48 49      51   52   53   54   55
Terminal No.	Color of Wire	Signal Name
41	-	1
42	1	1
43	1	1
44	ı	1
45	>	CDL LOCK SW
46	LG	CDL UNLOCK SW
47	GR	DOOR SW (DR)
48	Ь	DOOR SW (RL)
49	_	_
50	Ь	CARGO LAMP OUTPUT
51	0	TRAILER FLASHER OUTPUT (RIGHT)
52	LG	TRAILER FLASHER OUTPUT (LEFT)
53	-	ı
54	_	1
55	ı	1

Signal Name	KEYLESS TUNER SIGNAL	IMMOBILIZER ANTENNA SIGNAL (CLOCK)	1	SECURITY INDICATOR OUTPUT	ı	IMMOBILIZER ANTENNA SIGNAL (RX,TX)	I	AIRCON SW	BLOWER FAN SW	HAZARD SW	ı	CARGO LAMP SW	OUTPUT 5	OUTPUT 4	OUTPUT 3	OUTPUT 2	OUTPUT 1	KEY SW	IGN SW	CAN-H	CAN-L
Color of Wire	g	GR	ı	g	ı	BR	1	8	Œ	9	ı	GR	0	GR	9	BR	LG	В	W/R	٦	Д
Terminal No.	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

	ROL				18 19 20 38 39 40		ıme	OUTPUT	5	4	8	2	_	DER SW	M W	ER SW		~	SW (AS)	SW (RR)		TRIGGER			AUTO OR GND	INEB
8	BCM (BODY CONTROI MODULE)	WHITE			11 12 13 14 15 16 17 31 32 33 34 35 36 37		ignal I	KEY RING O	INPUT	INPUT	INPUT	INPUT	INPUT	KEY CYLINDER UNLOCK SW	KEY CYLINDER LOCK SW	RR DEFOGGER	I	ACC SW	DOOR SW	DOOR SW	I	TPMS MODE T SW	I	I	KEYLESS & AUTO LIGHT SENSOR GND	KEYLESS TUNER
). M18		Color WH			7 8 9 10 27 28 29 30	Color of	Wire	BR	Ь	SB	>	_	ш	GR	SB	>	ı	G/B	ГG	L	1	>	1	1	BR	
Connector No	Connector Name	Connector Co		H.S.	1 2 3 4 5 6 21 22 23 24 25 26		l erminal No.	1	2	က	4	5	9	2	ω	6	10	11	12	13	14	15	16	17	18	

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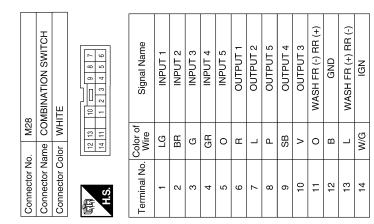
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BCM (BODY CONTROL MODULE) CONNECTORS

Revision: October 2009



Signal Name	DOOR LOCK OUTPUT (ALL)	DOOR UNLOCK OUTPUT (OTHER)	GND (POWER)	POWER WINDOW POWER SUPPLY OUTPUT (LINKED TO BAP) (WITH POWER DOOR LOCK SYSTEM)	POWER WINDOW POWER SUPPLY OUTPUT (LINKED TO RAP) (CREW CAB WITHOUT POWER DOOR LOCK SYSTEM)	POWER WINDOW POWER SUPPLY OUTPUT (BAT)	BAT (F/L)
Color of Wire	>	Г	В	0	SB	Д	W
Terminal No.	65	99	29	89	89	69	20

0	BCM (BODY CONTROL MODULE)	BLACK	65   66   67   68   69   70   68   69   70	Signal Name	BATTERY SAVER OUTPUT	BAT (FUSE)	AUTO LIGHT SENSOR INPUT 2	DOOR UNLOCK OUTPUT (DR)	FLASHER OUTPUT (LEFT)	FLASHER OUTPUT (RIGHT)	1	ROOM LAMP OUTPUT	_
. M20		Ш	565758	Color of Wire	Ϋ́	₽⁄	>	GR	re	ŋ	ı	BR	I
Connector No.	Connector Name	Connector Color	呵引 H.S.	Terminal No.	56	22	28	69	09	61	62	69	64

ABMIA1432GB

INFOID:0000000005561476

Fail-safe index

Fail Safe

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

Revision: October 2009 EXL-114 2010 Frontier

# **BCM (BODY CONTROL MODULE)**

### < ECU DIAGNOSIS >

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

INFOID:0000000005561477

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

Priority	DTC	
1	U1000: CAN COMM CIRCUIT	D
2	B2190: NATS ANTENNA AMP     B2191: DIFFERENCE OF KEY     B2192: ID DISCORD BCM-ECM     B2193: CHAIN OF BCM-ECM	E
3	C1729: VHCL SPEED SIG ERR     C1735: IGNITION SIGNAL	F
	C1704: LOW PRESSURE FL C1705: LOW PRESSURE FR C1706: LOW PRESSURE RR C1707: LOW PRESSURE RL C1708: [NO DATA] FL C1709: [NO DATA] FR	G
	C1710: [NO DATA] RR     C1711: [NO DATA] RL     C1712: [CHECKSUM ERR] FL     C1713: [CHECKSUM ERR] FR	Н
4	C1714: [CHECKSUM ERR] RR C1715: [CHECKSUM ERR] RL C1716: [PRESSDATA ERR] FL C1717: [PRESSDATA ERR] FR	I
	<ul> <li>C1718: [PRESSDATA ERR] RR</li> <li>C1719: [PRESSDATA ERR] RL</li> <li>C1720: [CODE ERR] FL</li> </ul>	J
	<ul> <li>C1721: [CODE ERR] FR</li> <li>C1722: [CODE ERR] RR</li> <li>C1723: [CODE ERR] RL</li> <li>C1724: [BATT VOLT LOW] FL</li> </ul>	K
	C1725: [BATT VOLT LOW] FR C1726: [BATT VOLT LOW] RR C1727: [BATT VOLT LOW] RL	EXL

DTC Index INFOID:0000000005561478

### 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  $\rightarrow$  ON again.

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

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	_	_	_
U1000: CAN COMM CIRCUIT	_	_	BCS-28

**EXL-115** 2010 Frontier **Revision: October 2009** 

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# **BCM (BODY CONTROL MODULE)**

# < ECU DIAGNOSIS >

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
B2190: NATS ANTTENA AMP	_	_	SEC-18
B2191: DIFFERENCE OF KEY	_	_	SEC-21
B2192: ID DISCORD BCM-ECM	_	_	SEC-22
B2193: CHAIN OF BCM-ECM	_	_	SEC-24
C1708: [NO DATA] FL	_	_	<u>WT-14</u>
C1709: [NO DATA] FR	_	_	<u>WT-14</u>
C1710: [NO DATA] RR	_	_	<u>WT-14</u>
C1711: [NO DATA] RL	_	_	<u>WT-14</u>
C1712: [CHECKSUM ERR] FL	_	_	<u>WT-16</u>
C1713: [CHECKSUM ERR] FR	_	_	<u>WT-16</u>
C1714: [CHECKSUM ERR] RR	_	_	<u>WT-16</u>
C1715: [CHECKSUM ERR] RL	_	_	<u>WT-16</u>
C1716: [PRESSDATA ERR] FL	_	_	<u>WT-18</u>
C1717: [PRESSDATA ERR] FR	_	_	<u>WT-18</u>
C1718: [PRESSDATA ERR] RR	_	_	<u>WT-18</u>
C1719: [PRESSDATA ERR] RL	_	_	<u>WT-18</u>
C1720: [CODE ERR] FL	_	_	<u>WT-16</u>
C1721: [CODE ERR] FR	_	_	<u>WT-16</u>
C1722: [CODE ERR] RR	_	_	<u>WT-16</u>
C1723: [CODE ERR] RL	_	_	<u>WT-16</u>
C1724: [BATT VOLT LOW] FL	_	_	<u>WT-16</u>
C1725: [BATT VOLT LOW] FR	_	_	<u>WT-16</u>
C1726: [BATT VOLT LOW] RR	_	_	<u>WT-16</u>
C1727: [BATT VOLT LOW] RL	_	_	<u>WT-16</u>
C1729: VHCL SPEED SIG ERR	_	_	<u>WT-19</u>
C1735: IGNITION SIGNAL	_	_	_

< ECU DIAGNOSIS >

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

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Reference Value

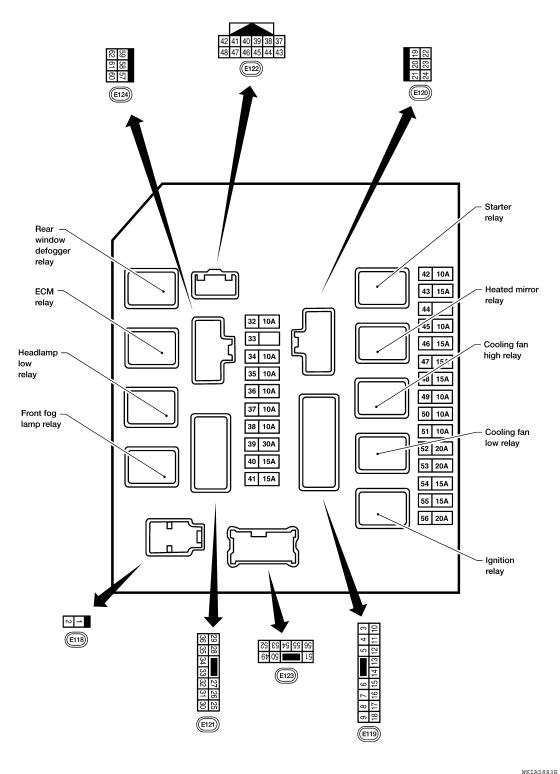
### VALUES ON THE DIAGNOSIS TOOL

Monitor Item		Condition	Value/Status			
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 - 100 %			
A/C COMP DEC	A/C switch OFF		OFF			
A/C COMP REQ	A/C switch ON		ON			
TAIL OCLD DEO	Lighting switch OFF		OFF			
TAIL&CLR REQ	Lighting switch 1ST, 2ND, HI of	or AUTO (Light is illuminated)	ON			
HL LO REQ	Lighting switch OFF		OFF			
nl lo req	Lighting switch 2ND HI or AUT	O (Light is illuminated)	ON			
HI HIBEO	Lighting switch OFF		OFF			
HL HI REQ	Lighting switch HI		ON			
	Limbin a positale 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			
SI KLI KEQ	Ignition switch START		ON			
CNDLV	Ignition switch OFF or ACC		OFF			
IGN RLY	Ignition switch ON		ON			
	Rear defogger switch OFF		OFF			
RR DEF REQ	Rear defogger switch ON		ON			
OIL D OM	Ignition switch OFF, ACC or en	ngine running	OPEN			
OIL P SW	Ignition switch ON		CLOSE			
DTDL DEO	Daytime light system requeste	d OFF with CONSULT-III.	OFF			
DTRL REQ	Daytime light system requeste	d ON with CONSULT-III.	ON			
	Not operated		OFF			
THFT HRN REQ	<ul> <li>Panic alarm is activated</li> <li>Horn is activated with VEHIOTEM</li> </ul>	Panic alarm is activated     Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYS-				
LIODNI CLIIDD	Not operated		OFF			
HORN CHIRP	Door locking with keyfob (horn	chirp mode)	ON			

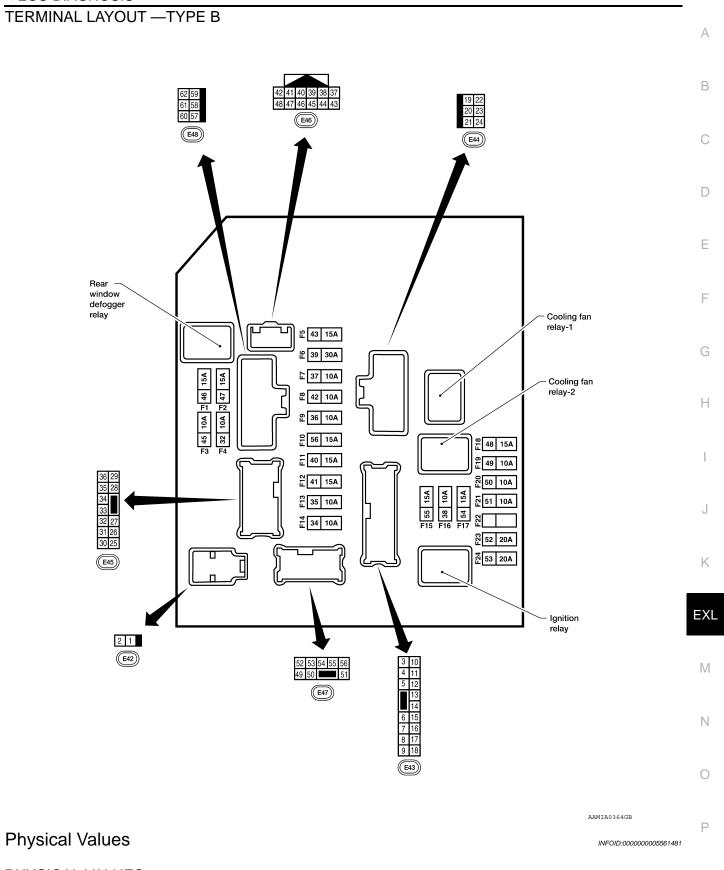
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Terminal Layout

### TERMINAL LAYOUT —TYPE A



ACOOCALAW



PHYSICAL VALUES

< ECU DIAGNOSIS >

					Measuring condition	
Terminal	Wire color	Signal name	Signal 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	0	Low relay	Output		Ignition switch OFF or ACC	0V
4	Р	ECM relay	Output		Ignition switch ON or START	Battery voltage
•	·	20m rolay	Catput		Ignition switch OFF or ACC	0V
6	V	Throttle control motor	Output		Ignition switch ON or START	Battery voltage
ŭ		relay	Catput		Ignition switch OFF or ACC	0V
7	BR	ECM relay control	Input		Ignition switch ON or START	0V
-	2				Ignition switch OFF or ACC	Battery voltage
8	W/R	Fuse 54	Output	_	Ignition switch ON or START	Battery voltage
ŭ		. 400 0 .			Ignition switch OFF or ACC	0V
10	R/B	Fuse 45	Output	ON	Daytime light system active	0V
					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
	•	7 V C 66111p166661	Output	START	A/C switch OFF or defrost A/C switch	OV
12	W/G	Ignition switch sup-	Input		OFF or ACC	0V
12	VV/O	plied power	mpat		ON or START	Battery voltage
13	R	Fuel pump relay	Output		Ignition switch ON or START	Battery voltage
13	IX.	r der pump relay	Output		Ignition switch OFF or ACC	0V
14	W/G	Fuse 49	Output		Ignition switch ON or START	Battery voltage
17	VV/O	1 430 43	Output		Ignition switch OFF or ACC	0V
15	W/R	Fuse 50 (ABS)	Output		Ignition switch ON or START	Battery voltage
10	**/1	1 400 00 (7120)	Output		Ignition switch OFF or ACC	0V
16	W/G	Fuse 51	Output		Ignition switch ON or START	Battery voltage
10		1 400 0 1	Catput		Ignition switch OFF or ACC	0V
17	W/G	Fuse 55	Output		Ignition switch ON or START	Battery voltage
.,	****	1 400 00	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
21	GR	Ignition switch sup-	Input		OFF or ACC	0V
۲۱		plied power	при		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
20	20	output signal	Gaipui		When raker defogger switch is OFF	0V

< ECU DIAGNOSIS >

			Cianal		Measuring con	dition	
Terminal	Wire color	Signal name	Signal input/ output	Igni- tion switch	Operation	or condition	Reference value (Approx.)
0.4	-	Cooling fan motor	0.1.1		Conditions cor fan operation	rect for cooling	Battery voltage
24	Р	(high)	Output	_	Conditions not cooling fan op		0V
27	W	Fuse 38	Output		Ignition switch	ON or START	Battery voltage
21	VV	ruse so	Output	_	Ignition switch	OFF or ACC	0V
20	R	LH front parking and	Output	OFF	Lighting	OFF	0V
28	ĸ	front side marker lamp	Output	OFF	switch 1st po- sition	ON	Battery voltage
					Lighting	OFF	0V
29	G	Trailer tow relay	Output	ON	switch 1st po- sition	ON	Battery voltage
00	D/D	F. 100 F.2	O4		Ignition switch	ON or START	Battery voltage
30	R/B	Fuse 53	Output	_	Ignition switch	OFF or ACC	0V
32	GR	Wiper low speed sig-	Output	ON or	Wiper switch	OFF	Battery voltage
J <u>Z</u>	GIX	nal	Juipui	START	ANIHOI SMITCH	LO or INT	0V
35	L	Wiper high speed sig-	Output	ON or	Wiper switch	OFF, LO, INT	Battery voltage
		nal		START		HI	0V
37		Power generation command signal			Ignition switch	ON	(V) 6 4 2 0 → 2ms JpmIA0001GB
	Y		Output		40% is set on "ALTERNATOI "ENGINE"		6.3 V  (V) 6 4 2 0  JPMIA0002GB  3.8 V
					40% is set on "ALTERNATOI" "ENGINE"		(V) 6 4 2 0 → 2ms JPMIA0003GB
38	В	Ground	Input	_	-	_	0V
39	L	CAN-H	_	ON	-	_	_
40	Р	CAN-L	_	ON	-	_	_
42	GR	Oil pressure switch	Input	_	Engine running		Battery voltage
		•	•		Engine stoppe	d	0V

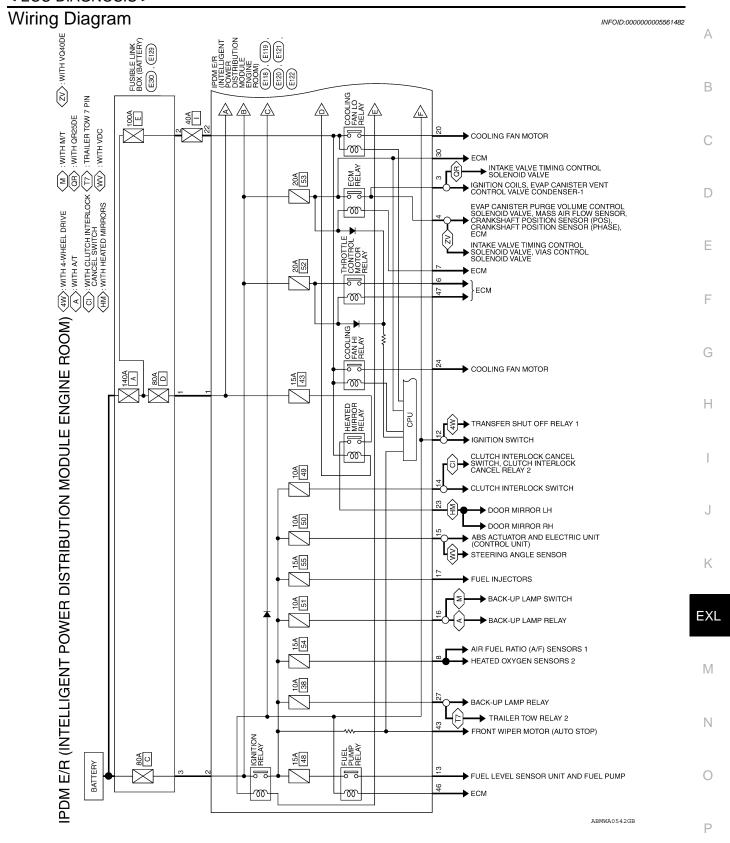
< ECU DIAGNOSIS >

			0:		Measuring con	ndition	
Terminal	Wire color	Signal name	Signal input/ output	Igni- 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 control (Canada only)	Input	ON	Daytime light s		0V
		control (Canada only)			, ,	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	iriput	_	Ignition switch	OFF or ACC	Battery voltage
47	0	Throttle control motor	lanut		Ignition switch	ON or START	0V
47	0	relay control	Input	_	Ignition switch	OFF or ACC	Battery voltage
					Selector lever	in "P" or "N"	0V
48	R	Starter relay (inhibit switch)	Input	ON or START	Selector lever	any other posi-	Battery voltage
40	0.0	Front RH parking and	0.4.4	055	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
F-7	65	Parking, license, and	0	611	Lighting	OFF	0V
57	GR	tail lamp	Output	ON	switch 1st po- sition	ON	Battery voltage
59	В	Ground	Input	_	_	_	0V
60	GR	Rear window defog-	Output	ON or	Rear defogger		Battery voltage
_		ger relay	·	START	Rear defogger	switch OFF	0V
61	R/B	Fuse 32	Output	OFF		<u> </u>	Battery voltage

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

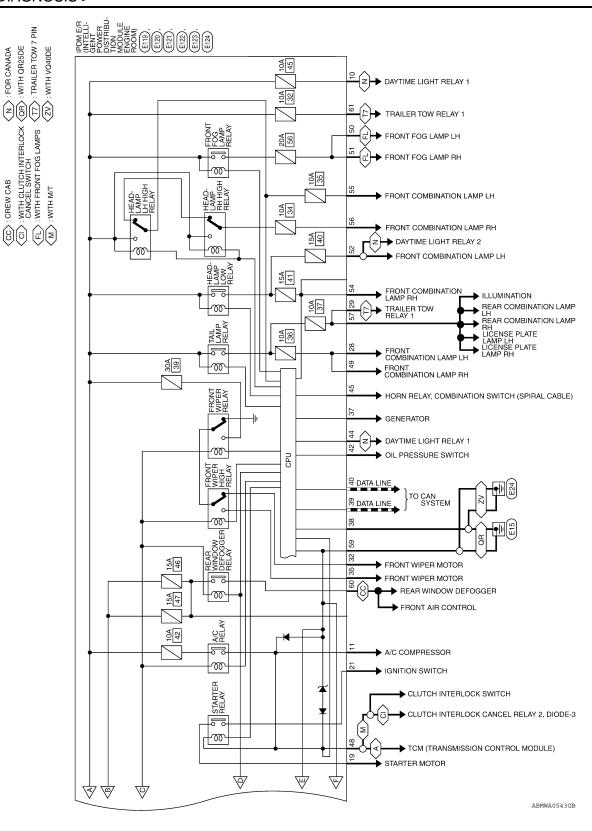
Revision: October 2009 EXL-122 2010 Frontier

< ECU DIAGNOSIS >



FOR CANADA

CREW CAB



Connector No.	E118
Connector Name	Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color BLACK	BLACK

Connector No.	E118
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color BLACK	BLACK

	Connector Name FUSIBLE LINK BOX (BATTERY)			Signal Name	ı
). E30	ime FUS (BA	lor –		Color of Wire	α
Connector No.	Connector Na	Connector Color	画 H.S.	Terminal No.	œ

Signal Name

Color of Wire ≥ œ

Terminal No.

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F/L MAIN F/L USM

		Connector No. E120	Connector Name POWER DISTRIBUTION MODULE ENGINE ROOM)	Connector Color WHITE	(2) (20 19) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2
--	--	--------------------	---	-----------------------	--

Signal Name	ECM RLY CONT	O2 SENSOR	1	DTRL RLY SUPPLY	A/C COMPRESSOR	IGN SW (IG)	FUEL PUMP	A/T ECU IGN SUPPLY	ABS IGN SUPPLY	REVERSE LAMP	INJECTOR	ı
Color of Wire	BR	W/R	ı	B/B	<b>\</b>	M/G	æ	M/G	W/R	M/G	M/G	ı
rminal No.	7	8	6	10	11	12	13	14	15	16	17	18

E119	POWER DISTRIBUTION MODULE ENGINE ROOM)	WHITE	9 8 7 6 5 4 3	Color of Signal Name	G IGN COIL	P ECM	1	V FTC
9	lame	Solor	91					
Connector No.	Sonnector Name	Sonnector Color WHITE	明.S.	Ferminal No.	က	4	5	9

	ENT OOM)			ле				
	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	ш	14 13 12 11 10	Signal Name	IGN COIL	ECM	1	ETC
2	POWE MODU	WHITE	8 7 6 17 16 15	Color of Wire	G	Ь	1	۸
;	ame	olor	9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ပ္ပံ >				

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BB GR **MOTOR FAN 2** 

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STARTER MTR **MOTOR FAN 1** 

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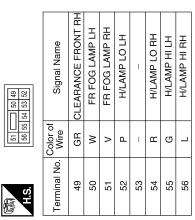
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Signal Name

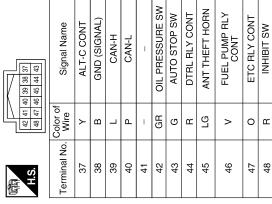
Terminal No.

**EXL-125** 2010 Frontier **Revision: October 2009** 

Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color BROWN	BROWN















Signal Name	-	ı	T TOW REV LAMP	CLEARANCE FRONT LH	TRAILER RLY CONT	ECM BAT	-	FR WIPER LO	ı	-	FR WIPER HI	ı
Color of Wire	_	ı	8	В	5	B/B	1	GR	ı	_	Γ	-
Terminal No.	52	26	27	58	29	30	31	32	33	34	35	36

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< ECU DIAGNOSIS >

	FUSIBLE LINK BOX (BATTERY) BLACK		Signal Name	_		
E129		r BLACK		Color of Wire	M	
Connector No.	Connector Name	Connector Color	斯 H.S.	Terminal No.	1	

Connector No.		E124	4
Connector Name		MON MO	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color		BLACK	CK
H.S.		62 6	09 27
Terminal No.	Color of Wire	r of	Signal Name
57	GR	_	TAIL LAMP
58	1		1
29	В		GND (POWER)
09	GR	~	RR DEF
61	B/B	В	TRAIL RLY SUPPLY
62	1		1
		1	

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

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### < ECU DIAGNOSIS >

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 (LH/RH) high relays 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 (if equipped)	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 second activation and 20 second 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

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

< ECU DIAGNOSIS >

DTC Index

CONSULT-III display	Fail-safe	TIME	NOTE	Refer to
No DTC is detected. further testing may be required.	_	_	_	_
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-17

### 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.

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### **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

< SYMPTOM DIAGNOSIS >

# SYMPTOM DIAGNOSIS

# EXTERIOR LIGHTING SYSTEM SYMPTOMS

Symptom Table INFOID:000000005274772

### **CAUTION:**

Perform the self-diagnosis with CONSULT-III 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 (High beam relay)     IPDM E/R	Headlamp (HI) circuit Refer to EXL-37, "Diagnosis Procedure".
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM" Refer to EXL-133, "Diagnosis Procedure".	
High beam indicator lamp is not turned ON. (Headlamp switches to the high beam.)		Combination meter     BCM	Combination meter.     Data monitor "HI-BEAM IND"     BCM (HEAD LAMP)     Active test "HEADLAMP"
	One side	Front combination lamp (Low beam relay)	_
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-35.
		High beam request signal  BCM IPDM E/R	IPDM E/R Data monitor "HL HI REQ"
		IPDM E/R	_
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-39.
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to EXL-134, "Diagnosis Procedure".	
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-35.	
Daytime light system does not activate.		<ul> <li>Either high beam bulb</li> <li>Parking brake switch</li> <li>Combination switch (lighting and turn signal switch)</li> <li>BCM</li> <li>IPDM E/R</li> <li>Daytime light relay</li> <li>Harness between IPDM E/R and daytime light relay.</li> </ul>	Daytime light system description. Refer to EXL-9, "System Description".

# **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

### < SYMPTOM DIAGNOSIS >

Symp	otom	Possible cause	Inspection item
Front fog lamp is not turned ON.	One side	<ul> <li>Front fog lamp bulb</li> <li>Harness between IPDM E/R and the front combination lamp</li> <li>Front combination lamp</li> <li>IPDM E/R</li> </ul>	Front fog lamp circuit Refer to EXL-41.
	Both side	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to EXL-136, "Diagnosis Procedure".	
Parking lamp is not turned ON.	One side	<ul> <li>Fuse</li> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and the front/rear combination lamp</li> <li>Front/rear combination lamp</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to EXL-43.
	Both sides	Symptom diagnosis "PARKING, LICENSE PLATE AND ON" Refer to EXL-135, "Diagnosis Proc	
Turn signal lamp does not blink.	Indicator lamp is normal. (The applicable side performs the high flasher activation).	<ul> <li>Harness between BCM and each turn signal lamp</li> <li>Turn signal lamp bulb</li> <li>Door mirror (if equipped with turn signals in the door mirrors)</li> </ul>	Turn signal lamp circuit Refer to EXL-48.
	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	Power supply and the ground circuit Refer to MWI-29.

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### **NORMAL OPERATING CONDITION**

# < SYMPTOM DIAGNOSIS >

# NORMAL OPERATING CONDITION

Description INFOID:0000000005274773

### **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:0000000005561496

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

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

Check the combination switch (lighting and turn signal switch). Refer to <u>BCS-35, "Diagnosis Procedure"</u>. 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-III DATA MONITOR

- I. 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-54, "Removal and Installation".

# 3.HEADLAMP (HI) CIRCUIT INSPECTION

Check the headlamp (HI) circuit. Refer to EXL-37, "Description".

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

YES >> Replace IPDM E/R. Refer to PCS-33, "Removal and Installation of IPDM E/R".

NO >> Repair or replace the malfunctioning part.

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

### < SYMPTOM DIAGNOSIS >

# BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON

Description INFOID:000000005561498

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

## Diagnosis Procedure

INFOID:0000000005561499

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

Check the combination switch (lighting and turn signal switch). Refer to <u>BCS-35, "Diagnosis Procedure"</u>. <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 HEADLAMP (LO) REQUEST SIGNAL INPUT

### **(E)**CONSULT-III 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
TIL LO NEQ	and turn signal switch)	OFF	OFF

### Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-54, "Removal and Installation".

3.HEADLAMP (LO) CIRCUIT INSPECTION

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

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

YES >> Replace IPDM E/R. Refer to PCS-33, "Removal and Installation of IPDM E/R".

NO >> Repair or replace the malfunctioning part.

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

< SYMPTOM DIAGNOSIS >

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

Description INFOID:0000000005561500

The parking, license plate and tail lamps do not turn ON in with any combination switch (lighting and turn signnal 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-35, "Diagnosis Procedure". Is the combination switch (lighting and turn signal switch) normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

# 2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

### PCONSULT-III DATA MONITOR

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

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

### Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM. Refer to BCS-54, "Removal and Installation".

### 3.PARK LAMP CIRCUIT INSPECTION

Check the parking lamp circuit. Refer to EXL-43, "Description".

### Is the tail lamp circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-33, "Removal and Installation of IPDM E/R".

NO >> Repair or replace the malfunctioning part.

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### BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

< SYMPTOM DIAGNOSIS >

### BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

Description INFOID.000000005561502

INFOID:0000000005561503

2010 Frontier

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 <u>BCS-35</u>, "<u>Diagnosis Procedure</u>". <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 FRONT FOG LAMP REQUEST SIGNAL INPUT

### (P)CONSULT-III 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-54, "Removal and Installation".

# 3.FRONT FOG LAMP CIRCUIT INSPECTION

Check the front fog lamp circuit. Refer to EXL-41, "Description".

### Is the front fog lamp circuit normal?

YES >> Replace IPDM E/R. Refer to PCS-33, "Removal and Installation of IPDM E/R".

NO >> Repair or replace the malfunctioning part.

# **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
- 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.

# General precautions for service operations

INFOID:0000000005274783

- · Never work with wet hands.
- Turn the lighting switch OFF before disconnecting and connecting the connector.
- When checking the headlamp on/off operation, check it on vehicle and with the power connected to the vehicle-side connector.
- Do not touch the headlamp bulb glass surface with bare hands or allow oil or grease to get on it. Do not touch the headlamp bulb just after the headlamp is turned off, because it is very hot.
- When the bulb has burned out, wrap it in a thick vinyl bag and discard. Do not break the bulb.
- Leaving the bulb removed from the headlamp housing for a long period of time can deteriorate the performance of the lens and reflector (dirt, clouding). Always prepare a new bulb and have it on hand when replac-
- Do not use organic solvent (paint thinner or gasoline) to clean lamps and to remove old sealant.

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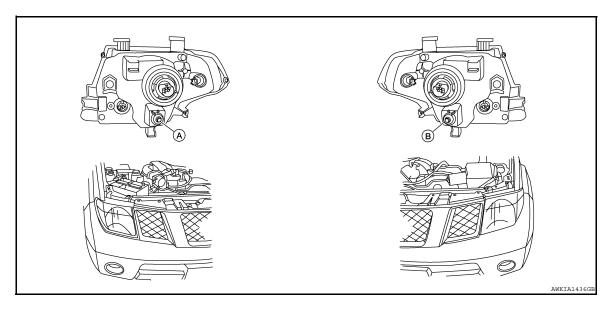
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# **ON-VEHICLE MAINTENANCE**

### **HEADLAMP**

## Aiming Adjustment

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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 repaired or the headlamp assembly has been replaced, check headlamp aiming.
- Before performing aiming adjustment, check the following:
- Confirm headlamp aiming switch is set to "0" (zero) position.
- 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

### **CAUTION:**

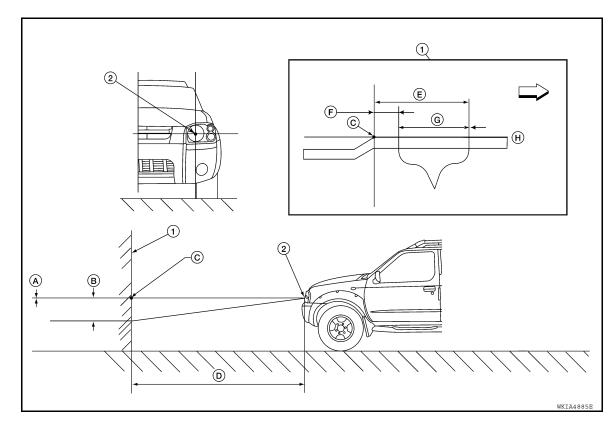
Do not tighten adjustment screw beyond a torque of 1.67 N·m (17 kg-cm, 14.8 in-lb) or damage may occur.

### NOTE:

By regulation, no means for horizontal aim adjustment is provided from the factory; only vertical aim is adjustable.

- 1. Turn headlamp low beam on.
- 2. Use adjustment screw to perform aiming adjustment.
- 3. Adjust beam pattern until cut-off line (top edge of illumination area) is positioned at same height off ground as bulb center (on H-line). Measure cut-off line within distance A on H-line. See aiming chart below.
  - Basic illuminating area for adjustment should be within the range shown on the aiming chart. Adjust headlamps accordingly.

### **Headlamp Aiming**



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

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

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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

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### FRONT FOG LAMP

# Aiming Adjustment

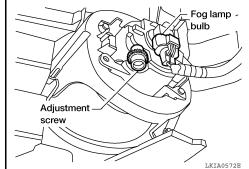
The fog lamp is a semi-sealed beam type which uses a replaceable halogen bulb. Before performing aiming adjustment, make sure of the following.

- Keep all tires inflated to correct pressure.
- 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.

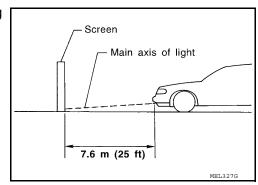
### NOTE:

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



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

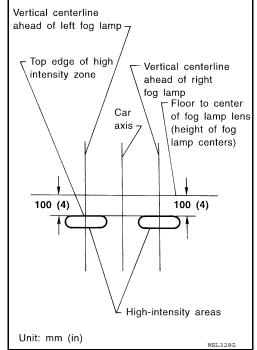


- 2. Turn front fog lamps ON.
- 3. Remove front portion of fender protector(s) for adjustment screw access. Refer to <u>EXT-20</u>, "Removal and Installation".

### FRONT FOG LAMP

### < ON-VEHICLE MAINTENANCE >

- 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.



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# ON-VEHICLE REPAIR

### **HEADLAMP**

### **Bulb Replacement**

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### **CAUTION:**

Leaving bulb removed from the headlamp housing for a long period of time can deteriorate the performance of the lens and reflector (dirt, clouding). Always prepare a new bulb and have it on hand when replacing a bulb.

### **HEADLAMP**

### Removal

- Turn front headlamp switch OFF.
- 2. Disconnect the electrical connector.
- 3. Rotate the headlamp bulb retaining ring counterclockwise and remove.
- 4. Pull the headlamp bulb straight out from the headlamp assembly.

### CAUTION:

Grasp only the plastic base when handling headlamp bulb. Never 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 watertightness.

### FRONT TURN SIGNAL/PARKING LAMP

### Removal

- 1. Turn the bulb socket counterclockwise to unlock it.
- 2. Pull the bulb to remove it from the socket.

### 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 watertightness.

### FRONT SIDE MARKER LAMP

### Removal

- 1. Turn the bulb socket counterclockwise to unlock it.
- 2. Pull the bulb to remove it from the socket.

### Installation

Installation is in the reverse order of removal.

### **CAUTION:**

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

### Removal and Installation

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### FRONT COMBINATION LAMP

### Removal

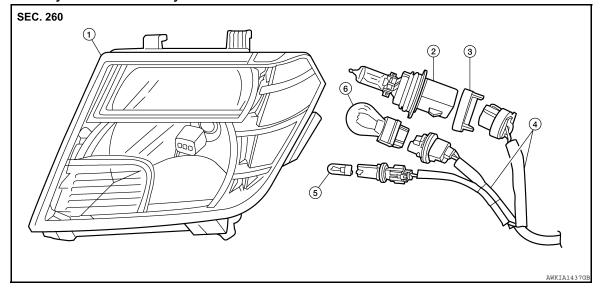
- Position front fender protector aside. Refer to <u>EXT-22</u>, "Removal and Installation of Front Fender Protector".
- 2. For steel bumper, remove the front bumper upper valance. Refer to EXT-13, "Removal and Installation".
- For plastic bumper, remove the front bumper assembly. Refer to <u>EXT-13, "Removal and Installation"</u>.
- 4. Remove the front combination lamp bolts.
- 5. Disconnect the front combination lamp connector and remove front combination lamp.

Installation

Installation is in the reverse order of removal.

### : 6.0 N·m (0.61 kg-m, 53 in-lb)

# Disassembly and Assembly



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

### DISASSEMBLY

### **CAUTION:**

Leaving bulb removed from the headlamp housing for a long period of time can deteriorate the performance of the lens and reflector (dirt, clouding). Always prepare a new bulb and have it on hand when replacing a bulb.

Rotate headlamp bulb retaining ring counterclockwise and remove.

### CAUTION:

Grasp only the plastic base when handling headlamp bulb. Never touch the glass envelope.

- Turn front turn signal/parking lamp bulb socket counterclockwise to unlock and remove socket.
- 3. Turn front side marker lamp bulb socket counterclockwise to unlock and remove socket.

### **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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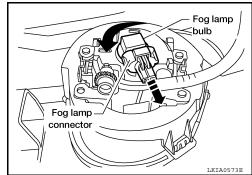
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### FRONT FOG LAMP

## **Bulb Replacement**

### **REMOVAL**

- Position front fender protector aside. Refer to <u>EXT-22</u>, "Removal and Installation of Front Fender Protector".
- 2. Disconnect fog lamp connector.
- Turn the bulb counterclockwise to remove it. 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.



### **INSTALLATION**

Installation is in the reverse order of removal.

### Removal and Installation

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### **FOG LAMP**

### Removal

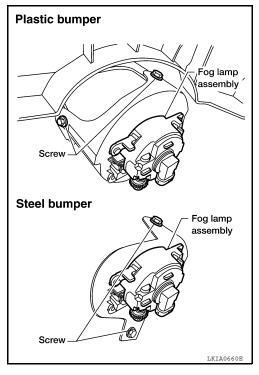
### Note:

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

- Position front fender protector aside. Refer to <u>EXT-22</u>, "Removal and Installation of Front Fender Protector"
- 2. Disconnect fog lamp connector.
- 3. Remove fog lamp screws and pull fog lamp rearward out of front bumper.

### **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.
   Never touch the glass envelope. Touching the glass could significantly affect the bulb life and/or fog lamp performance.



### Installation

Installation is in the reverse order of removal.

# STOP LAMP

# **Bulb Replacement**

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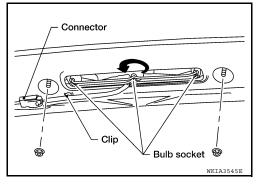
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### HIGH-MOUNTED STOP LAMP

### Removal

- Remove high-mounted stop lamp. Refer to <u>EXL-145</u>. "Removal and Installation".
- 2. Rotate the center bulb socket counterclockwise to release from high-mounted stop lamp assembly.
- 3. Pull bulb straight out from bulb socket.



### Installation

Installation is in the reverse order of removal.

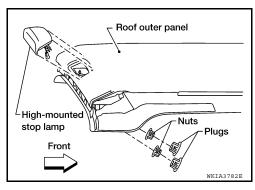
### Removal and Installation

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### HIGH-MOUNTED STOP LAMP

### Removal

- Remove plugs on headlining.
- Remove the nuts and remove high-mounted stop lamp from outside of roof outer panel.
- Rotate the bulb sockets counterclockwise and remove the highmounted stop lamp assembly.



### Installation

Installation is in the reverse order of removal.

High-mounted stop lamp nuts : 3.38 N·m (0.34 kg-m, 30 in-lb)

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Revision: October 2009 EXL-145 2010 Frontier

### LICENSE PLATE LAMP

### < ON-VEHICLE REPAIR >

# LICENSE PLATE LAMP

# **Bulb Replacement**

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### **REMOVAL**

- 1. Turn bulb socket counterclockwise to unlock bulb socket.
- 2. Pull bulb to remove from bulb socket.

### **INSTALLATION**

Installation is in the reverse order of removal.

### Removal and Installation

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### **REMOVAL**

- 1. Disconnect license plate lamp harness.
- 2. Depress tab to remove license plate lamp from rear bumper.

### **INSTALLATION**

Installation is in the reverse order of removal.

### **REAR COMBINATION LAMP**

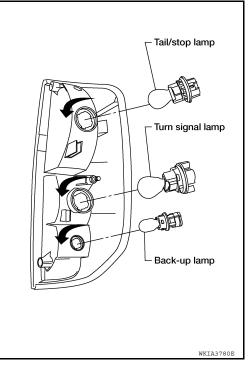
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# REAR COMBINATION LAMP

# Bulb Replacement

### **REMOVAL**

- Remove rear combination lamp. Refer to <u>EXL-147</u>, "<u>Removal and Installation</u>".
- 2. Turn bulb counterclockwise to remove bulb socket.
- 3. Pull bulb straight out away from socket to release.



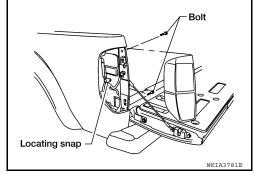
### **INSTALLATION**

Installation is in the reverse order of removal.

### Removal and Installation

### **REMOVAL**

- 1. Open tailgate and remove rear combination lamp bolts.
- Pull combination lamp housing rearward to release locating snap.
- 3. Rotate each bulb socket counterclockwise to unlock it from lamp housing and remove from vehicle.



### **INSTALLATION**

Installation is in the reverse order of removal.

### NOTE:

During installation, align locating snap on body prior to installing bolts.

Rear combination lamp bolts : 2.4 Nm (0.24 kg-m, 21 in-lb)

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### **LIGHTING & TURN SIGNAL SWITCH**

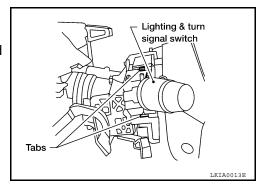
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# **LIGHTING & TURN SIGNAL SWITCH**

### Removal and Installation

### **REMOVAL**

- 1. Remove lower instrument panel LH. Refer to IP-10, "Exploded View".
- 2. Remove knee protector brace.
- 3. Remove steering column cover.
- 4. Disconnect the lighting and turn signal switch connector.
- 5. While pressing tabs, pull lighting and turn signal switch toward driver door and release from the steering column.



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### **INSTALLATION**

Installation is in the reverse order of removal.

### **HAZARD SWITCH**

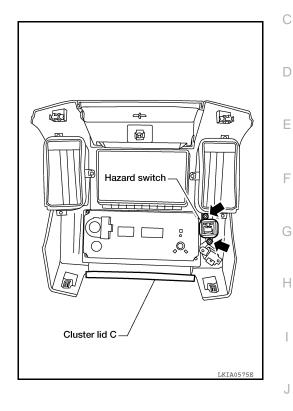
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# **HAZARD SWITCH**

# Removal and Installation

### **REMOVAL**

- 1. Remove cluster lid C. Refer to IP-10, "Exploded View".
- 2. Disconnect the hazard switch connector.
- 3. Remove the screws and remove the hazard switch.



### **INSTALLATION**

Installation is in the reverse order of removal.

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# SERVICE DATA AND SPECIFICATIONS (SDS)

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# SERVICE DATA AND SPECIFICATIONS (SDS)

Headlamp INFOID:0000000005274799

Item	Wattage (W)*	
Low/High	65/55	

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

Exterior Lamp

Item		Wattage (W)*	
Front combination lamp	Turn signal lamp/parking lamp	28/8	
	Side marker	3.8	
Rear combination lamp	Stop/Tail lamp	27/8	
	Turn signal lamp	27	
	Back-up lamp	18	
Fog lamp		55	
License plate lamp		5	
High-mounted stop lamp		16	
Cargo lamp (in high-mounted stop lamp)		16	

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