# SECTION EXTERIOR LIGHTING SYSTEM

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# < PRECAUTION > PRECAUTION PRECAUTIONS

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

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

#### WARNING:

- 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 "SRS AIR BAG".
- 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 Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Service Procedure Precautions for Models with a Pop-up Roll Bar

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#### WARNING:

- Risk of passenger injury or death may increase if the pop-up roll bar does not deploy during a roll over collision. In order to reduce the chance of an incident where the pop-up roll bar is inoperative, all maintenance must be performed by a NISSAN or INFINITI dealer.
- Before removing and installing the pop-up roll bar component parts and harness, always turn the ignition switch OFF, disconnect the battery negative terminal, and wait for 3 minutes or more. (The purpose of this operation is to discharge electricity that is accumulated in the auxiliary power supply circuit in the air bag diagnosis sensor unit.)
- When repairing, removing, and installing a pop-up roll bar, always refer to SRS AIR BAG and SRS AIR BAG CONTROL warnings in the Service Manual.

#### [XENON TYPE]

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#### < SYSTEM DESCRIPTION > SYSTEM DESCRIPTION **COMPONENT PARTS HEADLAMP SYSTEM**

**HEADLAMP SYSTEM : Component Parts Location** 



- IPDM E/R 4.
- A. Dash side lower (passenger side)
- Unified meter and A/C amp. 5.
- D. On the combination meter
- B. Engine room dash panel (RH)
- 6. High beam indicator lamp
- C. Behind the cluster lid C

#### < SYSTEM DESCRIPTION >

#### HEADLAMP SYSTEM : Component Description

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[XENON TYPE]

Р	art	Description
ВСМ		<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges that the headlamp is turned ON according to the vehicle condition.</li> <li>Requests the headlamp relay (HI/LO) ON to IPDM E/R (with CAN communication).</li> <li>Requests the high beam indicator lamp ON to the combination meter [with CAN communication (through unified meter and A/C amp.)].</li> </ul>
IPDM E/R		Controls the integrated relay, and supplies voltage to the load according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signa	al switch)	Refer to <u>BCS-6, "System Diagram"</u> .
Combination meter (High beam indicator	lamp)	Turns the high beam indicator lamp ON according to the request from BCM [(with CAN communication (through unified meter and A/C amp.)].
Headlamp assembly	<ul><li>HID control unit</li><li>Xenon bulb</li></ul>	Refer to <u>EXL-82, "Description"</u> .
	High beam solenoid	Refer to EXL-78, "Description".

#### AUTO LIGHT SYSTEM

#### AUTO LIGHT SYSTEM : Component Parts Location

INFOID:000000005631773



1. Door switch

2. Optical sensor

3. BCM

Refer to <u>BCS-5, "Component Parts</u> <u>Location"</u>.

- 4. IPDM E/R Refer to <u>PCS-4, "Component Parts</u> Location".
- 5. Unified meter and A/C amp. Refer to <u>HAC-26, "Component Part</u> <u>Location"</u>.
- 6. Combination switch

< SYSTEM DESCRIPTION >

#### AUTO LIGHT SYSTEM : Component Description

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[XENON TYPE]

Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the outside brightness from the optical sensor signal.</li> <li>Judges the OFF timing according to the vehicle condition.</li> <li>Judges the ON/OFF status of the exterior lamp and each illumination according to the outside brightness and the vehicle condition.</li> <li>Requests ON/OFF of each relay to IPDM E/R (with CAN communication).</li> </ul>
IPDM E/R	Controls the integrated relay, and supplies voltage to the load according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-6, "System Diagram"</u> .
Optical sensor	Refer to EXL-91, "Description".

#### DAYTIME RUNNING LIGHT SYSTEM

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#### < SYSTEM DESCRIPTION >

#### DAYTIME RUNNING LIGHT SYSTEM : Component Parts Location

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[XENON TYPE]



- 4. ECM
- A. Dash side lower (passenger side)
- D. Behind the cluster lid C

#### DAYTIME RUNNING LIGHT SYSTEM : Component Description

IPDM E/R

B. Behind the glove box

5.

INFOID:000000005631778

6. Unified meter and A/C amp.

C. Engine room dash panel (RH)

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



#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

Part	Description	,
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-6, "System Diagram"</u> .	- /-
ECM	Transmits the engine status signal to BCM with CAN communication.	-
Unified meter and A/C amp.	Transmits the parking brake switch signal to BCM with CAN communication.	- 0
	N 4	-

#### FRONT FOG LAMP SYSTEM

#### FRONT FOG LAMP SYSTEM : Component Parts Location

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1. Front fog lamp

2. Combination switch

- 4. IPDM E/R
- Dash side lower (Passenger side) Α.
- On the combination meter D.
- Unified meter and A/C amp. 5.
- B. Engine room dash panel (RH)
- 3. BCM
- 6. Front fog lamp indicator lamp

C. Behind the cluster lid C

#### < SYSTEM DESCRIPTION >

#### FRONT FOG LAMP SYSTEM : Component Description

INFOID:000000005807887

[XENON TYPE]

Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the front fog lamp ON/OFF status according to the vehicle condition.</li> <li>Requests the front fog lamp relay ON to IPDM E/R (with CAN communication).</li> <li>Requests the front fog lamp indicator lamp ON to the combination meter [with CAN communication (through unified meter and A/C amp.)].</li> </ul>
IPDM E/R	Controls the integrated relay and supplies voltage to the load according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-6, "System Diagram"</u> .
Combination meter (Front fog lamp indicator lamp)	Turns the front fog lamp indicator lamp ON according to the request from BCM [with CAN communication (through unified meter and A/C amp.)].

#### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

#### TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : Component Parts Location INFOID:000000005631789



- 7. Turn signal indicator lamp
- A. Dash side lower (passenger side)
  - B. Behind the cluster lid C
- C. On the combination meter

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#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

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

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Part	Description
ВСМ	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the blinks of the turn signal lamp and the hazard warning lamp from each switch status. The applicable turn signal lamp blinks.</li> <li>Requests the turn signal indicator lamp blink to the combination meter (with CAN communication).</li> </ul>
Combination switch (Lighting & turn signal switch)	Refer to BCS-6, "System Diagram".
Hazard switch	Refer to EXL-94, "Description".
Combination meter (Turn signal indicator lamp & buzzer)	Blinks the turn signal indicator lamp and outputs the turn signal operating sound with integrated buzzer according to the request from BCM [with CAN communication (through unified meter and A/C amp.)].

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

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#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

PARKING, LICENSE PLATE AND TAIL LAMP SYSTEM : Component Parts Location

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- 1. Parking lamp • Front side marker lamp
- 4. License plate lamp
- 7. Unified meter and A/C amp.
- A. Dash side lower (passenger side)
- D. On the combination meter
- 2. Combination switch
- 5. BCM
- 8. Tail lamp indicator lamp
- B. Engine room dash panel (RH)
- 3. Tail lamp
  - Rear side marker lamp
- 6. IPDM E/R
- C. Behind the cluster lid C

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

#### PARKING, LICENSE PLATE AND TAIL LAMP SYSTEM : Component Description

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Part	Description		
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the ON/OFF status of the parking, license plate, tail and side marker lamps according to the vehicle condition.</li> <li>Requests the tail lamp relay ON to IPDM E/R (with CAN communication).</li> <li>Requests the tail lamp indicator lamp ON to the combination meter (with CAN communication).</li> </ul>		
IPDM E/R	Controls the integrated relay and supplies voltage to the load according to the request from BCM (with CAN communication).		
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-6, "System Diagram"</u> .		
Combination meter (Tail lamp indicator lamp)	Turns the tail lamp indicator lamp ON according to the request from BCM [with CAN communication (through unified meter and A/C amp.)].		

#### EXTERIOR LAMP BATTERY SAVER SYSTEM

#### EXTERIOR LAMP BATTERY SAVER SYSTEM : Component Parts Location

INFOID:000000005631797



#### < SYSTEM DESCRIPTION >

#### EXTERIOR LAMP BATTERY SAVER SYSTEM : Component Description INFOLD.00000005631798

Part	Description
BCM	<ul> <li>Detects each switch condition by the combination switch reading function.</li> <li>Judges the exterior lamp OFF according to the vehicle condition. Requests each relay OFF to IPDM E/R (with CAN communication).</li> </ul>
IPDM E/R	Controls the integrated relay according to the request from BCM (with CAN communication).
Combination switch (Lighting & turn signal switch)	Refer to <u>BCS-6, "System Diagram"</u> .

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#### SYSTEM HEADLAMP SYSTEM



#### HEADLAMP SYSTEM : System Description

#### OUTLINE

~		
•	Mobile valve shade type is adopted. Xenon headlamp switches the high beam and the low beam with one	
	xenon bulb each on right and left.	

• Headlamp is controlled by combination switch reading function and headlamp control function of BCM, and relay control function of IPDM E/R.

#### HEADLAMP BASIC OPERATION

- BCM detects the combination switch condition with the combination switch reading function.
- BCM transmits the low beam request signal to IPDM E/R with CAN communication according to the headlamp ON condition.

Headlamp ON condition

- Lighting switch 2ND
- Lighting switch PASS
- Lighting switch AUTO, and the auto light function ON judgment
- IPDM E/R turns the integrated headlamp low relay ÓN, and turns the headlamp ON according to the low EXL beam request signal.

#### HEADLAMP HI/LO SWITCHING OPERATION

 BCM transmits the high beam request signal to IPDM E/R and the combination meter (through unified meter and A/C amp.) with CAN communication according to the high beam switching condition.

#### High beam switching condition

- Lighting switch HI with the headlamp ON
- Lighting switch PASS
- Combination meter turns the high beam indicator lamp ON according to the high beam request signal.
- IPDM E/R turns the integrated headlamp high relay ON, and turns the headlamp ON according to the high C beam request signal.

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#### < SYSTEM DESCRIPTION >

- When the headlamp high relay is turned ON, magnetic force is applied to the high beam solenoid (1) by a current. The mobile valve shade (2) is switched to the high beam position.
- When the headlamp high relay is turned OFF, the current stops. The mobile valve shade returns to the low beam position automatically.



#### HEADLAMP SYSTEM : Fail-safe

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#### CAN COMMUNICATION CONTROL

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

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

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

#### AUTO LIGHT SYSTEM

#### AUTO LIGHT SYSTEM : System Diagram



<ul><li>OUTLINE</li><li>Auto light system is controlled by each function of BCM and IPDM E/R.</li></ul>
Control by BCM - Combination switch reading function - Headlamp control function - Auto light function - Delay timer function
<ul> <li>Control by IPDM E/R</li> <li>Relay control function</li> <li>Auto light system has the auto light function and the delay timer function.</li> <li>Auto light function turns the exterior lamps* and each illumination ON/OFF automatically according to the outside brightness.</li> <li>When auto light system turns the exterior lamps ON with the ignition switch OFF, delay timer function turns the exterior lamps OFF depending on the vehicle condition with the auto light function after a certain period of time.</li> <li>*: Headlamp (LO/HI), parking lamp, side marker lamp, tail lamp, and front fog lamp (Headlamp HI and front fog lamp depend on the combination switch condition.)</li> </ul>
<ul> <li>AUTO LIGHT FUNCTION</li> <li>BCM detects the combination switch condition with the combination switch reading function.</li> <li>BCM supplies voltage to optical sensor when the ignition switch is turned ON or ACC.</li> <li>Optical sensor converts outside brightness (lux) to voltage and transmits the optical sensor signal to BCM.</li> <li>BCM judges outside brightness from the optical sensor signal and judges ON/OFF condition of the exterior lamp and each illumination according to the outside brightness.</li> <li>BCM transmits each request signal to IPDM E/R with CAN communication according to ON/OFF condition by the auto light function.</li> <li>NOTE:</li> <li>ON/OFF timing differs based on the sensitivity from the setting. The setting can be set by CONSULT-III. Refer to EXL-23, "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)".</li> </ul>
<ul> <li>DELAY TIMER FUNCTION</li> <li>BCM turns the exterior lamp OFF depending on the vehicle condition with the auto light function when the ignition switch is turned OFF.</li> <li>Turns the exterior lamp OFF 5 minutes after detecting that any door opens (Door switch ON).</li> <li>Turns the exterior lamp OFF a certain period of time* after closing all doors (Door switch ON→OFF).</li> <li>Turns the exterior lamp OFF with the ignition switch ACC or the light switch OFF.</li> <li>*: The preset time is 45 seconds. The timer operating time can be set by CONSULT-III. Refer to EXL-23, "HEADLAMP : CONSULT-III Function (BCM - HEAD LAMP)".</li> <li>NOTE:</li> <li>When any position other than the light switch AUTO is set, the auto light system function switches to the exterior lamp battery saver function.</li> <li>DAYTIME RUNNING LIGHT SYSTEM</li> </ul>

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[XENON TYPE]

< SYSTEM DESCRIPTION >

AUTO LIGHT SYSTEM : System Description

#### SYSTEM

#### < SYSTEM DESCRIPTION >

#### DAYTIME RUNNING LIGHT SYSTEM : System Diagram



#### DAYTIME RUNNING LIGHT SYSTEM : System Description



INFOID:000000005631783

[XENON TYPE]

INFOID:000000005631775

#### OUTLINE

- Turns the front fog lamp ON as the daytime running light.
- Daytime running light is controlled by daytime running light control function and combination switch reading function of BCM, and relay control function of IPDM E/R.

#### DAYTIME RUNNING LIGHT OPERATION

- BCM detects the combination switch condition by the combination switch reading function.
- BCM detects the vehicle condition depending on the following signals.
- Engine status signal (received from ECM with CAN communication)
- Parking brake switch signal (received from unified meter and A/C amp. with CAN communication)
- BCM transmits the front fog light request signal to IPDM E/R with CAN communication according to the daytime running light ON condition.

#### Daytime running light ON condition

- While the engine running with the parking brake released

#### Daytime running light OFF condition

- Engine stopped
- Headlamp ON (passing included)
- IPDM E/R turns the integrated front fog lamp relay ON and turns the front fog lamp ON according to the front fog light request signal.

#### FRONT FOG LAMP SYSTEM

#### FRONT FOG LAMP SYSTEM : System Diagram



#### < SYSTEM DESCRIPTION > FRONT FOG LAMP SYSTEM : System Description INFOID:000000005631784 А OUTLINE Front fog lamp is integrated into the front combination lamp. Front fog lamp is controlled by combination switch reading function and front fog lamp control function of BCM, and relay control function of IPDM E/R. NOTE: For Canada models, the front fog lamp is turned ON as the daytime running light. Refer to EXL-18, "DAYTIME RUNNING LIGHT SYSTEM : System Diagram" for the detail. FRONT FOG LAMP OPERATION BCM detects the combination switch condition by the combination switch reading function. D BCM transmits the front fog light request signal to IPDM E/R and the combination meter (through unified meter and A/C amp.) with CAN communication according to the front fog lamp ON condition. Е Front fog lamp ON condition - Front fog lamp switch ON with the headlamp ON (except for the high beam ON) IPDM E/R turns the integrated front fog lamp relay ON, and turns the front fog lamp ON according to the front fog light request signal. F TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM : System Diagram INFOID:000000005631787 Combination switch Unified meter Н CAN communication line Combination Communication line reading function Combination and meter Turn indicator signal Turn indicator status switch A/C amp Turn signal signal indicator

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

#### -INFOID:000000005631788

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lamp (L/R) Buzzer

Turn signal lamps (LH) Turn signal lamps (RH)

#### OUTLINE

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

#### TURN SIGNAL LAMP OPERATION

Hazard switch

BCM detects the combination switch condition by the combination switch reading function.

BCM

 BCM supplies voltage to the right (left) turn signal lamp circuit when the ignition switch is turned ON and the turn signal switch is in the right (left) position. BCM blinks the turn signal lamp.

#### HAZARD WARNING LAMP OPERATION

Ρ BCM supplies voltage to both turn signal lamp circuit when the hazard switch is turned ON. BCM blinks the hazard warning lamp.

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

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

#### SYSTEM

#### < SYSTEM DESCRIPTION >

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

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

#### NOTE:

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

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

#### PARKING, LICENSE PLATE AND TAIL LAMP SYSTEM : System Diagram INFOLD:00000005631791



#### PARKING, LICENSE PLATE AND TAIL LAMP SYSTEM : System Description

INFOID:000000005631792

#### OUTLINE

Parking, license plate, tail and side marker lamps are controlled by combination switch reading function and headlamp control function of BCM, and relay control function of IPDM E/R.

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

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

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

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

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

#### INFOID:000000005808819

#### CAN COMMUNICATION CONTROL

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

If No CAN Communication Is Available With BCM

< SYSTEM DESCRIPTION >	01012	[XENON TYPE]
Control part	Fail-safe operation	
<ul> <li>Parking lamps</li> <li>Side maker lamp</li> <li>License plate lamps</li> <li>Illuminations</li> <li>Tail lamps</li> </ul>	<ul> <li>Turns ON the tail lamp relay when the ignition switch is to</li> <li>Turns OFF the tail lamp relay when the ignition switch is</li> </ul>	urned ON turned OFF
EXTERIOR LAMP BATTER	RY SAVER SYSTEM	
EXTERIOR LAMP BATTER	Y SAVER SYSTEM : System Diagram	INFOID:000000005631795
Combination switch Combination switch		
	BCM BCM	To exterior lamps
	Power position A/C amp.	
EXTERIOR LAMP BATTER OUTLINE • Exterior lamp battery saver system	Y SAVER SYSTEM : System Description is controlled by each function of BCM and IPDM	DN INFOID:00000005631796 E/R.
Control by BCM Combination switch reading function Headlamp control function Exterior lamp battery saver functic	on n	
Control by IPDM E/R Relay control function BCM turns the exterior lamp* OFF ignition switch is turned OFF with t *: Headlamp (LO/HI), parking lamp,	after a period of time to prevent the battery from othe exterior lamp ON. tail lamp, license plate lamp, side marker lamp an	over-discharge when the d front fog lamp.
NOTE: When the lighting switch is turned /	AUTO, the exterior lamp battery saver switches t	to the auto light system.
EXTERIOR LAMP BATTERY SA'	VER ACTIVATION ne exterior lamp OFF 5 minutes after the ignition s	switch is turned from ON
$\rightarrow$ OFF with the exterior lamps ON. <b>NOTE:</b>	be exterior lamps ON permally when the ignition	switch is turned ACC or
<ul> <li>Headlamp control function turns the angine started (beth before an</li> </ul>	d after the exterior lamp bettery sever is turned O	

#### DIAGNOSIS SYSTEM (BCM) COMMON ITEM

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

INFOID:000000005897703

#### APPLICATION ITEM

CONSULT-III performs the following functions via CAN communication with BCM.

Diagnosis mode	Function Description		
Work Support	Changes the setting for each system function.		
Self Diagnostic Result	Displays the diagnosis results judged by BCM.		
CAN Diag Support Monitor	Monitors the reception status of CAN communication viewed from BCM. Refer to CONSULT-III opera- tion manual.		
Data Monitor	The BCM input/output signals are displayed.		
Active Test	The signals used to activate each device are forcibly supplied from BCM.		
Ecu Identification	The BCM part number is displayed.		
Configuration	This function is not used even though it is displayed.		

#### SYSTEM APPLICATION

BCM can perform the following functions for each system. **NOTE:** 

It can perform the diagnosis modes except the following for all sub system selection items.

		-		$\times$ : Applicable item
Suctor	Sub system selection item	Diagnosis mode		
System	Sub system selection tem	Work Support	Data Monitor	Active Test
Door lock	DOOR LOCK	×	×	×
Rear window defogger	REAR DEFOGGER		×	×
Warning chime	BUZZER		×	×
Interior room lamp timer	INT LAMP	×	×	×
_	MULTI REMOTE ENT*1			
Exterior lamp	HEAD LAMP	×	×	×
Wiper and washer	WIPER	×* <sup>2</sup>	×	×
Turn signal and hazard warning lamps	FLASHER	×	×	×
_	AIR CONDITONER*1			
<ul><li>Intelligent Key system</li><li>Engine start system</li></ul>	INTELLIGENT KEY	×	×	×
Combination switch	COMB SW		×	
Body control system	BCM	×		
IVIS - NATS	IMMU		×	×
Interior room lamp battery saver	BATTERY SAVER	×	×	×
Trunk lid open	TRUNK		×	×
Vehicle security system	THEFT ALM	×	×	×
RAP system	RETAINED PWR		×	
Signal buffer system	SIGNAL BUFFER		×	×
TPMS	TPMS (AIR PRESSURE MONITOR)	×	×	×

#### NOTE:

• \*1: This item is displayed, but is not used.

• \*2: At models with rain sensor this mode is displayed, but is not used.

FREEZE FRAME DATA (FFD)

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

А

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

CONSULT screen item	Indication/Unit	Description			
Vehicle Speed	km/h	Vehicle speed of the moment a particular DTC is detected B			
Odo/Trip Meter	km	Total mileage (Odometer value) of the moment a particular DTC is detected			
	SLEEP>LOCK	-	While turning BCM status from low power consumption mode to normal mode (Power supply position is "LOCK".)	С	
	SLEEP>OFF		While turning BCM status from low power consumption mode to normal mode (Power supply position is "OFF".)		
	LOCK>ACC		While turning power supply position from "LOCK" to "ACC"	D	
	ACC>ON		While turning power supply position from "ACC" to "IGN"		
	RUN>ACC		While turning power supply position from "RUN" to "ACC" (Vehicle is stopping and selector lever is except P position.)	E	
	CRANK>RUN		While turning power supply position from "CRANKING" to "RUN" (From cranking up the engine to run it)	_	
	RUN>URGENT		While turning power supply position from "RUN" to "ACC" (Emer- gency stop operation)	-	
	ACC>OFF	Power position status of the moment a particular DTC is detected	While turning power supply position from "ACC" to "OFF"	~	
	OFF>LOCK		While turning power supply position from "OFF" to "LOCK"	G	
Vehicle Condition	OFF>ACC		While turning power supply position from "OFF" to "ACC"	_	
	ON>CRANK		While turning power supply position from "IGN" to "CRANKING"	Н	
	OFF>SLEEP		While turning BCM status from normal mode (Power supply position is "OFF".) to low power consumption mode		
	LOCK>SLEEP		While turning BCM status from normal mode (Power supply position is "LOCK".) to low power consumption mode		
	LOCK		F	Power supply position is "LOCK" (Ignition switch OFF with steer- ing is locked.)	J
	OFF		Power supply position is "OFF" (Ignition switch OFF with steering is unlocked.)		
	ACC		Power supply position is "ACC" (Ignition switch ACC)	Κ	
	ON		Power supply position is "IGN" (Ignition switch ON with engine stopped)		
	ENGINE RUN		Power supply position is "RUN" (Ignition switch ON with engine running)	EXI	
	CRANKING		Power supply position is "CRANKING" (At engine cranking)		
IGN Counter	0 - 39	The number of times that The number is 0 wher The number increases	ti ignition switch is turned ON after DTC is detected a malfunction is detected now. S like $1 \rightarrow 2 \rightarrow 3$ , $38 \rightarrow 39$ after returning to the normal condition	Μ	
		whenever ignition switch OFF $\rightarrow$ ON. • The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.			

#### HEADLAMP

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

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#### WORK SUPPORT

Service item Setting item Se		Setting
BATTERY SAVER SET	On*	With the exterior lamp battery saver function
	Off	Without the exterior lamp battery saver function

Revision: 2009 Novemver

#### < SYSTEM DESCRIPTION >

[XENON TYPE]

Service item	Setting item	Setting		
	MODE 1*	45 sec.		
	MODE 2	Without the func- tion		
	MODE 3	30 sec.		
ILL DELAY SET	MODE 4	60 sec.	Sets delay timer function timer operation time.	
	MODE 5	90 sec.		
	MODE 6	120 sec.		
	MODE 7	150 sec.		
	MODE 8	180 sec.		
	MODE 1*	Normal		
CUSTOM A/LIGHT SET- TING	MODE 2	More sensitive setting than normal setting (Turns ON earlier than normal operation.)		
	MODE 3	More sensitive setting than MODE 2 (Turns ON earlier than MODE 2.)		
	MODE 4	Less sensitive set	ting than normal setting (Turns ON later than normal operation.)	

\*: Factory setting

#### DATA MONITOR

Monitor item [Unit]	Description
PUSH SW [On/Off]	The switch status input from push-button ignition switch
ENGINE STATE [Stop/Stall/Crank/Run]	The engine status received from ECM with CAN communication
VEH SPEED 1 [km/h]	The value of the vehicle speed received from unified meter and A/C amp. with CAN communication
KEY SW-SLOT [On/Off]	Key switch status input from key slot
TURN SIGNAL R [On/Off]	
TURN SIGNAL L [On/Off]	
TAIL LAMP SW [On/Off]	Each switch status that BCM judges from the combination switch reading function
HI BEAM SW [On/Off]	
HEAD LAMP SW1 [On/Off]	
HEAD LAMP SW2 [On/Off]	
PASSING SW [On/Off]	
AUTO LIGHT SW [On/Off]	
FR FOG SW [On/Off]	
DOOR SW-DR [On/Off]	The switch status input from driver side door switch
DOOR SW-AS [On/Off]	The switch status input from passenger side door switch
DOOR SW-RR [On/Off]	NOTE: The item is indicated, but not monitored.

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

Monitor item [Unit]	Description	A
DOOR SW- RL [On/Off]	NOTE: The item is indicated, but not monitored.	
DOOR SW-BK [On/Off]	NOTE: The item is indicated, but not monitored.	В
OPTICAL SENSOR [V]	The value of exterior brightness voltage input from the optical sensor	С

#### ACTIVE TEST

Test item	Operation	Description	
TAIL LAMP	On	Transmits the position light request signal to IPDM E/R with CAN com- munication to turn the tail lamp ON.	
	Off	Stops the position light request signal transmission.	
	Hi	Transmits the high beam request signal with CAN communication to turn the headlamp (HI).	
HEAD LAMP	Low	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 light request signal to IPDM E/R with CAN com- munication to turn the front fog lamp ON.	
	Off	Stops the front fog light request signal transmission.	
	On	NOTE:	
	Off	The item is indicated, but cannot be tested.	
	RH		
CORNERING LAMP	LH	NOTE: The item is indicated, but cannot be tested	
	Off		
	On	NOTE:	
ILL DIW SIGNAL	Off	The item is indicated, but cannot be tested.	

#### FLASHER

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

#### WORK SUPPORT

Service item	Setting item		Setting	M
	Lock Only*	With locking only		
HAZARD ANSWER BACK	Unlk Only	With unlocking only	Sets the hazard warning lamp answer back function	N
BACK	Lock/Unlk	With locking/unlocking	the key fob.	IN
	Off	Without the function	-	

\*: Factory setting

#### DATA MONITOR

Monitor item [Unit]	Description
REQ SW-DR [On/Off]	The switch status input from the request switch (driver side)
REQ SW-AS [On/Off]	The switch status input from the request switch (passenger side)

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INFOID:000000005631801

#### < SYSTEM DESCRIPTION >

Monitor item [Unit]	Description		
PUSH SW [On/Off]	The switch status input from the push-button ignition switch		
TURN SIGNAL R [On/Off]	Each switch condition that BCM judges from the combination switch reading function		
TURN SIGNAL L [On/Off]			
HAZARD SW [On/Off]	The switch status input from the hazard switch		
RKE-LOCK [On/Off]	Lock signal status received from the remote keyless entry receiver		
RKE-UNLOCK [On/Off]	Unlock signal status received from the remote keyless entry receiver		
RKE-PANIC [On/Off]	Panic alarm signal status received from the remote keyless entry receiver		

#### ACTIVE TEST

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

	Δ.
Diagnosis Description	A
AUTO ACTIVE TEST	В
Description In auto active test mode, the IPDM E/R sends a drive signal to the following systems to check their operation. • Oil pressure warning lamp • Front wiper (LO, HI) • Parking lamps	С
<ul> <li>License plate lamps</li> <li>Side maker lamps</li> <li>Tail lamps</li> </ul>	D
<ul> <li>Front tog lamps</li> <li>Headlamps (LO, HI)</li> <li>A/C compressor (magnet clutch)</li> <li>Cooling fan (cooling fan control module)</li> </ul>	E
Operation Procedure	F
<ol> <li>Close the hood and lift the wiper arms from the windshield. (Prevent windshield damage due to wiper operation)         NOTE:         When auto active test is performed with hood opened, sprinkle water on windshield beforehand     </li> </ol>	G
2. Turn the ignition switch OFF.	
<ol> <li>Turn the ignition switch ON, and within 20 seconds, press the front door switch (driver side) 10 times. Then turn the ignition switch OFF.</li> <li>CAUTION:</li> </ol>	Η
Close passenger door.	1
starts.	
5. The oil pressure warning lamp starts blinking when the auto active test starts.	J
6. After a series of the following operations is repeated 3 times, auto active test is completed.	
<b>NOTE:</b> When auto active test mode has to be cancelled halfway through test, turn the ignition switch OFF. CAUTION:	K
<ul> <li>If auto active test mode cannot be actuated, check door switch system. Refer to <u>DLK-70,</u> <u>"Component Function Check"</u>.</li> <li>Do not start the engine.</li> </ul>	EXL
Inspection in Auto Active Test Mode	
When auto active test mode is actuated, the following 6 steps are repeated 3 times.	M

Operation sequence	Inspection location	Operation	N
1	Oil pressure warning lamp	Blinks continuously during operation of auto active test	IN
2	Front wiper	LO for 5 seconds $\rightarrow$ HI for 5 seconds	
3	<ul> <li>Parking lamps</li> <li>License plate lamps</li> <li>Side maker lamps</li> <li>Tail lamps</li> <li>Front fog lamps</li> </ul>	10 seconds	0 P
4	Headlamps	$LO \Leftrightarrow HI 5 times$	
5	A/C compressor (magnet clutch)	$ON \Leftrightarrow OFF 5 times$	
6*	Cooling fan	MID for 5 seconds $\rightarrow$ HI for 5 seconds	

\*: Outputs duty ratio of 50% for 5 seconds  $\rightarrow$  duty ratio of 100% for 5 seconds on the cooling fan control module.

#### < SYSTEM DESCRIPTION >

#### Concept of auto active test





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

Diagnosis chart in auto active test mode

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

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

Symptom	Inspection contents		Possible cause	٥
		YES	<ul> <li>ECM signal input circuit</li> <li>CAN communication signal between ECM and IPDM E/ R</li> </ul>	B
Cooling fan does not operate	Perform auto active test. Does the cooling fan operate?	NO	<ul> <li>Cooling fan</li> <li>Harness or connector be- tween cooling fan and cool- ing fan control module</li> <li>Cooling fan control module</li> <li>Harness or connector be- tween IPDM E/R and cool- ing fan control module</li> <li>Cooling fan relay</li> <li>Harness or connector be- tween IPDM E/R and cool- ing fan relay</li> <li>IPDM E/R</li> </ul>	C D E

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

#### APPLICATION ITEM

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

Description	
Allows confirmation of IPDM E/R part number.	-
Displays the diagnosis results judged by IPDM E/R.	-
Displays the real-time input/output data from IPDM E/R input/output data.	-
IPDM E/R can provide a drive signal to electronic components to check their operations.	-
The results of transmit/receive diagnosis of CAN communication can be read.	-
	Description         Allows confirmation of IPDM E/R part number.         Displays the diagnosis results judged by IPDM E/R.         Displays the real-time input/output data from IPDM E/R input/output data.         IPDM E/R can provide a drive signal to electronic components to check their operations.         The results of transmit/receive diagnosis of CAN communication can be read.

#### SELF DIAGNOSTIC RESULT Refer to <u>PCS-30, "DTC Index"</u>.

#### DATA MONITOR Monitor item

Monitor Item [Unit]	MAIN SIG- NALS	Description	EXI
RAD FAN REQ [%]	×	Displays the value of the cooling fan speed signal received from ECM via CAN communication.	NЛ
AC COMP REQ [Off/On]	×	Displays the status of the A/C compressor request signal received from ECM via CAN communication.	IVI
TAIL&CLR REQ [Off/On]	×	Displays the status of the position light request signal received from BCM via CAN communication.	Ν
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.	0
FR FOG REQ [Off/On]	×	Displays the status of the front fog light request signal received from BCM via CAN communication.	Ρ
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.	

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INFOID:000000005897706

#### < SYSTEM DESCRIPTION >

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[XENON TYPE]

Monitor Item [Unit]	MAIN SIG- NALS	Description
IGN RLY1 -REQ [Off/On]		Displays the status of the ignition switch ON signal received from BCM via CAN communication.
IGN RLY [Off/On]	×	Displays the status of the ignition relay judged by IPDM E/R.
PUSH SW [Off/On]		Displays the status of the push-button ignition switch judged by IPDM E/R.
INTER/NP SW [Off/On]		Displays the status of the clutch interlock switch (M/T models) or shift position (A/T models) judged by IPDM E/R.
ST RLY CONT [Off/On]		Displays the status of the starter relay status signal received from BCM via CAN communication.
IHBT RLY -REQ [Off/On]		Displays the status of the starter control relay signal received from BCM via CAN communication.
ST/INHI RLY [Off/ ST ON/INHI ON/UNKWN]		Displays the status of the starter relay and starter control relay judged by IPDM E/R.
DETENT SW [Off/On]		Displays the status of the A/T shift selector (detention switch) judged by IPDM E/R.
S/L RLY -REQ [Off/On]		Displays the status of the steering lock relay request received from BCM via CAN communication.
S/L STATE [LOCK/UNLOCK/UNKWN]		Displays the status of the steering lock judged by IPDM E/R.
DTRL REQ [Off/On]		NOTE: The item is indicated, but not monitored.
OIL P SW [Open/Close]		Displays the status of the oil pressure switch judged by IPDM E/R.
HOOD SW [Off/On]		Displays the status of the hood switch judged by IPDM E/R.
HL WASHER REQ [Off/On]		NOTE: The item is indicated, but not monitored.
THFT HRN REQ [Off/On]		Displays the status of the theft warning horn request signal received from BCM via CAN communication.
HORN CHIRP [Off/On]		Displays the status of the horn reminder signal received from BCM via CAN com- munication.
CRNRNG LMP REQ [Off/On]		NOTE: The item is indicated, but not monitored.

#### ACTIVE TEST Test item

Test item	Operation	Description
CORNERING LAMP	Off	NOTE: The item is indicated, but cannot be tested.
	LH	
	RH	
HORN	On	Operates horn relay 1 and horn relay 2 for 20 ms.
FRONT WIPER	Off	OFF
	Lo	Operates the front wiper relay.
	Hi	Operates the front wiper relay and front wiper high relay.
MOTOR FAN	1	OFF
	2	Outputs 50% pulse duty signal (PWM signal) to the cooling fan control module.
	3	Outputs 80% pulse duty signal (PWM signal) to the cooling fan control module.
	4	Outputs 100% pulse duty signal (PWM signal) to the cooling fan control module.

#### < SYSTEM DESCRIPTION >

#### [XENON TYPE]

Test item	Operation	Description
HEAD LAMP WASHER	On	NOTE: The item is indicated, but cannot be tested.
EXTERNAL LAMPS	Off	OFF
	TAIL	Operates the tail lamp relay.
	Lo	Operates the headlamp low relay.
	Hi	Operates the headlamp low relay and ON/OFF the headlamp high relay at 1 sec- ond intervals.
	Fog	Operates the front fog lamp relay.
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## **ECU DIAGNOSIS INFORMATION**

#### BCM, IPDM E/R

#### List of ECU Reference

INFOID:000000005808802

[XENON TYPE]

ECU	Reference
	BCS-43, "Reference Value"
PCM	BCS-71, "Fail-safe"
	BCS-73, "DTC Inspection Priority Chart"
	BCS-74, "DTC Index"
	PCS-18, "Reference Value"
IPDM E/R	PCS-28, "Fail-safe"
	PCS-30, "DTC Index"



[XENON TYPE]



#### HEADLAMP SYSTEM

#### < WIRING DIAGRAM >

[XENON TYPE]



JCLWM4841GE

#### < WIRING DIAGRAM >

#### **HEADLAMP SYSTEM**

#### [XENON TYPE]



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#### **HEADLAMP SYSTEM**

#### < WIRING DIAGRAM >

[XENON TYPE]



JCLWM4843GE
# HEADLAMP SYSTEM

## [XENON TYPE]



BCM (BODY CONTROL MODULE)

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HEADLAMP



**EXL-38** 

JCLWM4845GE

Wiring Diagram - AUTO LIGHT SYSTEM -



[XENON TYPE]

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### < WIRING DIAGRAM >

### [XENON TYPE]



JCLWM4853GE

#### < WIRING DIAGRAM >

[XENON TYPE]



### < WIRING DIAGRAM >

[XENON TYPE]



JCLWM4855GE



JCLWM4856GE

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# AUTO LIGHT SYSTEM

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# DAYTIME RUNNING LIGHT SYSTEM

Wiring Diagram - DAYTIME LIGHT SYSTEM -



## DAYTIME RUNNING LIGHT SYSTEM

< WIRING DIAGRAM >

[XENON TYPE]



JCLWM4847GE

## DAYTIME RUNNING LIGHT SYSTEM

< WIRING DIAGRAM >

[XENON TYPE]



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### < WIRING DIAGRAM >

## DAYTIME RUNNING LIGHT SYSTEM

[XENON TYPE]



JCLWM4849GE

## DAYTIME RUNNING LIGHT SYSTEM

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[XENON TYPE]



JCLWM4850GE

## DAYTIME RUNNING LIGHT SYSTEM

< WIRING DIAGRAM >

[XENON TYPE]



JCLWM4851GE

INFOID:000000005631872

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# FRONT FOG LAMP SYSTEM

Wiring Diagram - FRONT FOG LAMP -



## FRONT FOG LAMP SYSTEM

[XENON TYPE]



JCLWM4859GE



### < WIRING DIAGRAM >

[XENON TYPE]



JCLWM4861GE



# **FRONT FOG LAMP SYSTEM**

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FRONT FOG LAMP

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[XENON TYPE]

# TURN SIGNAL AND HAZARD WARNING LAMP SYSTEM

Wiring Diagram - TURN AND HAZARD WARNING LAMPS -

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#### < WIRING DIAGRAM >



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[XENON TYPE]

### < WIRING DIAGRAM >

[XENON TYPE]



JCLWM4865GE

### < WIRING DIAGRAM >

[XENON TYPE]

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JCLWM4866GE

< WIRING DIAGRAM >

TURN SIGNAL RH (REAR) TRUNK LID OPEN OUTPUT TURN SIGNAL LH (REAR) Signal Name [Specification] BCM (BODY CONTROL MODULE) Color of Wire nector Name H.S. Terminal No. 3 22 33 50 30 52 53 傄 Signal Name [Specification] Signal Name [Specification] BCM (BODY CONTROL MODULE) BCM (BODY CONTROL MODULE) 18 б 17 8 ŝ 41 4 5 6 11 12 13 BG Color of Wire B ≥ 28 B Connector Name Connector Name 5 8 Terminal No. H.S. H.S. Terminal No. E Æ Go Signal Name [Specification] MULTIFUNCTION SWITCH SW GNI DISK EJECT S 6 9 ß 4 M M79 nnector Name Color of Wire BG > 89 년 88 8 비망 Шш Type nnector No. LAMPS H.S. erminal No. E TURN SIGNAL AND HAZARD WARNING 38 40 Signal Name [Specification] Signal Name [Specification UNIFIED METER AND A/C AMP. UNIFIED METER AND A/C AMP. 40 4/ 62 63 65 66 Ν ΗŅ Color of Wire BR BR Color of Wire Name nnector Name Zne 1 10 BG H.S. erminal No. erminal H.S đ E

JCLWM4867GE

	TURN SIGNAL A	ND HAZARD WARNIN	G LAMP SYSTE	E <b>M</b>
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## PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM GRAM > [XENON TYPE]

### < WIRING DIAGRAM >

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	or No. Bo4 or Name WIRE TO WIRE	or Type RK02FGY		4			Color Signal Name [Specification] of Wire		- 8		or No. B67	or Name REAR COMBINATION LAMP RH	pr Type NS06MW-CS			1 6	234		-	Color Signal Name [Specification] of Wire		R -		BG -																			B
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JCLWM4875GE

# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

### < WIRING DIAGRAM >



JCLWM4876GE

# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

#### < WIRING DIAGRAM >

[XENON TYPE]



# PARKING, LICENSE PLATE AND TAIL LAMPS SYSTEM

### < WIRING DIAGRAM >

[XENON TYPE]



JCLWM4878GE

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# STOP LAMP

Wiring Diagram - STOP LAMP -

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0. B84 ame RETRACTABL VPe NS16FW-C5 63 62 61 6 72 71 70 6		С
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ar comenuation and comenuation 2 3 4 4	Signal Name	J
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<sup>/B)</sup> <u> </u> <u> </u>	Nume (Specification Nume (Spe	M
MP B6 FUSE BLOCK (J NS12FBR-CS 126 116 100 94	B27     B27       WIRE TO WIRE     NSIGMM-CS       Signal     1       1     2       Signal     1	Ν
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**STOP LAMP** 

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[XENON TYPE]



JCLWM4870GE

## < WIRING DIAGRAM >

# BACK-UP LAMP

Wiring Diagram - BACK-UP LAMP -



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# **BACK-UP LAMP**



JCLWM4871GE
## **BACK-UP LAMP**

### < WIRING DIAGRAM >

### [XENON TYPE]



BACK-UP LAMP

< WIRING DIAGRAM >



 Minulation
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 Signal Name (Specification)

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 of Wire
 Signal Name (Specification)

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 Signal Name (Specification)

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JCLWM4873GE

# BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

## Work Flow

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**1.**INTERVIEW FOR MALFUNCTION

Interview the symptom to the customer.

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### DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

>> GO TO 2.

### 2.SYMPTOM CHECK

Check the symptom from the customer's information.

>> GO TO 3.

**3.**BASIC INSPECTION

Check the operation of each part. Check that any symptom occurs other than the interviewed symptom.

>> GO TO 4.

**4.**SELF-DIAGNOSIS WITH CONSULT-III

Perform the self-diagnosis with CONSULT-III. Check that any DTC is detected.

Is any DTC detected?

YES >> GO TO 5. NO >> GO TO 6.

5. TROUBLE DIAGNOSIS BY DTC

Perform the trouble diagnosis for the detected DTC. Specify the malfunctioning part.

>> GO TO 9. 6.FAIL-SAFE ACTIVATION CHECK

Check that the symptom is applied to the fail-safe activation.

Does the fail-safe activate?

YES >> GO TO 7. NO >> GO TO 8.

**7.**SYSTEM DIAGNOSIS

Perform the system diagnosis for the system that the fail-safe activates. Specify the malfunctioning part.

>> GO TO 9.

8.SYMPTOM DIAGNOSIS

Perform the symptom diagnosis. Specify the malfunctioning part.

>> GO TO 9.

**9.**MALFUNCTION PART REPAIR

Repair or replace the malfunctioning part.

#### >> GO TO 10.

**10.**REPAIR CHECK (SELF-DIAGNOSIS WITH CONSULT-III)

Perform the self-diagnosis with CONSULT-III. Check that any DTC is not detected. Erase DTC if DTC is detected before the repair. Check that DTC is not detected again.

Is any DTC detected?

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

**11.**REPAIR CHECK (OPERATION CHECK)

Check the operation of each part.

Does it operate normally?

YES >> INSPECTION END NO >> GO TO 3.

# DTC/CIRCUIT DIAGNOSIS EXTERIOR LAMP FUSE

## Description

Fuse list

Unit	Location	Fuse No.	Capacity	C
Headlamp HI (LH)	IPDM E/R	#54	10 A	- 0
Headlamp HI (RH)	IPDM E/R	#55	10 A	-
Headlamp LO (LH)	IPDM E/R	#56	15 A	D
Headlamp LO (RH)	IPDM E/R	#57	15 A	-
Front fog lamp	IPDM E/R	#58	15 A	
<ul><li>Parking lamp</li><li>Front side marker lamp</li></ul>	IPDM E/R	#52	10 A	
<ul> <li>Tail lamp</li> <li>Rear side marker lamp</li> <li>License plate lamp</li> <li>Each illumination</li> </ul>	IPDM E/R	#53	10 A	F
Stop lamp	FUSE BLOCK (J/B)	#7	10 A	G
Back-up lamp	FUSE BLOCK (J/B)	#4	10 A	-

## **Diagnosis Procedure**

## 1.CHECK FUSE

Check that the following fuses are not fusing.

Unit	Location	Fuse No.	Capacity
Headlamp HI (LH)	IPDM E/R	#54	10 A
Headlamp HI (RH)	IPDM E/R	#55	10 A
Headlamp LO (LH)	IPDM E/R	#56	15 A
Headlamp LO (RH)	IPDM E/R	#57	15 A
Front fog lamp	IPDM E/R	#58	15 A
<ul><li>Parking lamp</li><li>Front side marker lamp</li></ul>	IPDM E/R	#52	10 A
<ul> <li>Tail lamp</li> <li>Rear side marker lamp</li> <li>License plate lamp</li> <li>Each illumination</li> </ul>	IPDM E/R	#53	10 A
Stop lamp	FUSE BLOCK (J/B)	#7	10 A
Back-up lamp	FUSE BLOCK (J/B)	#4	10 A

### Is the fuse fusing?

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

NO >> The fuse is normal.

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## HEADLAMP (HI) CIRCUIT

## Description

The high beam solenoid drives the mobile valve shade. And the mobile valve shade switches the high beam and low beam of headlamp.

- When the headlamp high relay is turned ON, magnetic force is applied to the high beam solenoid (1) by a current. The mobile valve shade (2) is switched to the high beam position.
- When the headlamp high relay is turned OFF, the current stops. The mobile valve shade returns to the low beam position automatically.

## **Component Function Check**

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

### 

- 1. Start IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".
- 2. Check that the headlamp switches to the high beam.
- CONSULT-III ACTIVE TEST
- 1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
- 2. With operating the test items, check that the headlamp switches to the high beam.
  - Hi : Headlamp switches to the high beam.

#### Off : Headlamp OFF

#### NOTE:

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

Does the headlamp switch to the high beam?

- YES >> Headlamp (HI) circuit is normal.
- NO >> Refer to EXL-78, "Diagnosis Procedure".

### Diagnosis Procedure

## 1.CHECK HEADLAMP (HI) OUTPUT VOLTAGE

### ONSULT-III ACTIVE TEST

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

## EXL-78

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## **HEADLAMP (HI) CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

	Т	erminals		Test item		
	(+)		(–)	iest lieni	Voltage	
	IPDM E	/R		EXTERNAL	(Approx.)	
Co	nnector	Terminal		LAMPS		
RH		89	Ground	Hi	Battery voltage	
	EQ	G		Ground	Off	0 V
LH	20	90		Hi	Battery voltage	
				Off	0 V	

Is the measurement value normal?

2. CHECK HEADLAMP (HI) OPEN CIRCUIT

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

Continuit	ation lamp	Front combin	/R	IPDM E	
Continuity	Terminal	Connector	Terminal	nector	Conr
Existed	7	E28	89	EΩ	RH
	7	E58	90	LO	LH

Does continuity exist?

- YES >> Replace the front combination lamp.
- NO >> Repair the harnesses or connectors.

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

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

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

Is the fuse fusing?

YES >> GO TO 4.

NO >> Replace IPDM E/R.

## **4.**CHECK FRONT COMBINATION LAMP (HI) SHORT CIRCUIT

1. Disconnect IPDM E/R connector.

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

	IPDM E/	′R		Continuity
Conr	nector	Terminal	Ground	Continuity
RH	EQ	89	Ground	Not oxisted
LH	LO	90		NUL EXISIEU

#### Does continuity exist?

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

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

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## **HEADLAMP (LO) CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

## HEADLAMP (LO) CIRCUIT

## Description

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

For the details of HID control unit and the xenon headlamp, refer to EXL-82, "Description".

## **Component Function Check**

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

### **®**IPDM E/R AUTO ACTIVE TEST

- 1. Start IPDM E/R auto active test. Refer to PCS-9, "Diagnosis Description".
- 2. Check that the headlamp is turned ON.
- (E)CONSULT-III ACTIVE TEST
- 1. Select "EXTERNAL LAMPS" of IPDM E/R active test item.
- 2. With operating the test items, check that the headlamp is turned ON.
  - Lo : Headlamp ON

### Off : Headlamp OFF

Is the headlamp turned ON?

- YES >> Headlamp (LO) is normal.
- NO >> Refer to EXL-80, "Diagnosis Procedure".

### **Diagnosis Procedure**

## 1.CHECK HEADLAMP (LO) OUTPUT VOLTAGE

### CONSULT-III ACTIVE TEST

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

	Т	erminals		Tost itom	
	(+)		(-)	iest item	Voltage
	IPDM E	/R		EXTERNAL	(Approx.)
Cor	nnector	Terminal		LAMPS	
RH		83	Ground	Lo	Battery voltage
	F8		Cround	Off	0 V
LH	LO	84		Lo	Battery voltage
				Off	0 V

Is the measurement value normal?

YES >> GO TO 2.

NO >> GO TO 3.

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

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

### **EXL-80**

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## **HEADLAMP (LO) CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

	IPDM E	′R	Front combin	nation lamp	Continuity	
Con	nector	Terminal	Connector	Terminal	Continuity	
RH	Eo	83	E28	5	Evicted	
LH		84	E58	5	LAISteu	
Does co	ontinuity	exist?				
YES	ES >> GO TO 5.					
NO	O >> Repair the harnesses or connectors.					
<b>5.</b> CHE	ECK HEA	DLAMP (	LO) FUSE			
1. Tur 2. Ch	n the ign eck that	ition swite the followi	ch OFF. ing fuses are i	not fusing.		
	Unit		Lotion	Fuse No.	Capacity	
Headlar	mp LO (RH	) I	PDM E/R	#57	15 A	
Headlar	mp LO (LH	)	PDM E/R	#56	15 A	
s the fu	use fusin	g?				
YES	>> GO	TO 4.	/_			
NO	>> Rep	lace IPDI	ME/R.			
I.CHE	CK HEA	DLAMP (	LO) SHORT (	CIRCUIT		
1. Dis	I. Disconnect IPDM E/R connector.					
2. Ch	eck conti	nuity betv	veen the IPDN	I E/R harn	ess connec	r and the ground.
	IPDM	E/R				
Co	nnoctor	Tormir			Continuity	
RH CO	Intector	83	Gro	bund		
	E8	84			Not existed	
	ontinuity	oviet?				
YES	>> Rer	air the ha	rnesses or co	nnectors	And then re	ace the fuse
NO	>> Rep	lace the f	use. (Replace	IPDM E/F	R if the fuse	fusing again.)
5.сне		DLAMP C		EN CIRCU	IT	-
Check	continuity	, between	the front com	bination la	mn harnese	connector and the ground
Oncon	neck continuity between the front combination lan					sonnootor and the ground.
F	Front comb	ination lamp	)			
C	onnector	Teri	minal		Continuity	
RH	E28	3		round –		
LH	E58	3	3		Existed	
		evist?	-			
YES	>> Per	form the v	enon headlan	nn diagnos	sis Referto	XI -82 "Description"
NO	>> Rep	air the ha	rnesses or co	nnectors.		
	I.					

# XENON HEADLAMP

## Description

### OUTLINE

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

### ILLUMINATION PRINCIPLE

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

#### NOTE:

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

### PRECAUTIONS FOR TROUBLE DIAGNOSIS

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

### WARNING:

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

### CAUTION:

- Never perform HID control unit circuit diagnosis with a circuit tester or an equivalent.
- Temporarily install the headlamp on the vehicle. Connect the battery to the connector (vehicle side) when checking ON/OFF status.
- Disconnect the battery negative terminal before disconnecting the lamp socket connector or the harness connector.
- Check for fusing of the fusible link(s), open around connector, short, disconnection if the symptom is caused by electric error.
- When water infiltrated by the damage of the headlamp housing in the lamp inside, and then water is stuck in the HID control unit connector part, HID control unit detect a power supply short circuit and stop the headlamp function. therefore inspect outside of headlamp for cracks, serious damage or install the resin cap and the bulb socket securely.

#### NOTE:

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

### **Diagnosis** Procedure

### **1.**CHECK XENON BULB

Install the normal bulb to the applicable headlamp. Check that the xenon bulb is turned ON. Is the headlamp turned ON?

YES >> Replace the xenon bulb.

NO >> GO TO 2.



[XENON TYPE]

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## **XENON HEADLAMP**

< DTC/CIRCUIT DIAGNOSIS > [XENON TYPE]
2. CHECK INSIDE OF XENON HEADLAMP HOUSING
Check the inside of applicable headlamp (upper surface of HID control unit) for exist the water or trace of the water intrusion.
Are there trace of the water intrusion in the headlamp?
YES >> GO TO 3. NO >> When headlamp control system is normal, Replace the front combination lamp assembly.
3. CHECK OUTSIDE OF XENON HEADLAMP HOUSING
Check the outside of applicable headlamp for cracks, serious damage or install the resin cap and the bulb socket securely.
Is the outside of headlamp housing abnormality?
<ul> <li>YES &gt;&gt; Replace the front combination lamp assembly.</li> <li>NO &gt;&gt; Dry water fully and then check that the lighting switch is turned ON. Refer to <u>EXL-115</u>, "Inspection <u>After Installation"</u>.</li> </ul>

## FRONT FOG LAMP CIRCUIT

Component Function Check

**1.**CHECK FRONT FOG LAMP OPERATION

**®**IPDM E/R AUTO ACTIVE TEST

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

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

CONSULT-III ACTIVE TEST

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

Fog : Front fog lamp ON

### Off : Front fog lamp OFF

Is the front fog lamp turned ON?

YES >> Front fog lamp circuit is normal.

NO >> Refer to EXL-84, "Diagnosis Procedure".

### Diagnosis Procedure

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

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

Unit	Location	Fuse No.	Capacity
Front fog lamp	IPDM E/R	#58	15 A

Is the fuse fusing?

YES >> GO TO 2.

NO >> GO TO 3.

### 2.CHECK FRONT FOG LAMP SHORT CIRCUIT

1. Disconnect IPDM E/R connector and the front combination lamp connector.

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

	IPDM E	/R		Continuity
Conr	nector	Terminal	Ground	Continuity
RH	Eo	86	Giouna	Not ovisted
LH	Εo	87		NUL EXISTED

### Does continuity exist?

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

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

### 3.CHECK FRONT FOG LAMP BULB

Check the applicable lamp bulb.

### Is the bulb normal?

YES >> GO TO 4.

NO >> Replace the bulb.

CHECK FRONT FOG LAMP OUTPUT VOLTAGE

### CONSULT-III ACTIVE TEST

T. Disconnect the front combination lamp connector.

2. Turn the ignition switch ON.

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

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## FRONT FOG LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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

Terminals				Test item	
	(+)		(–)		Voltage
IPDM E/R		/R		EXTERNAL	(Approx.)
Co	nnector	Terminal		LAMPS	
RH	86	86 Gro	Orevend	Fog	Battery voltage
				Ground	Off
LH	LO	87	_	Fog	Battery voltage
				Off	0 V

#### Is the measurement value normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

## **5.**CHECK FRONT FOG LAMP OPEN CIRCUIT

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

IPDM E/R		Front combin	Continuity		
Conr	nector	Terminal	Connector	Terminal	Continuity
RH	F8	86	E28	1	Existed
LH		87	E58	1	LAISICU

Does continuity exist?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

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

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

Front combination lamp		Continuity		
Connector		Terminal	Crowned	Continuity
RH	E28	4	Ground	Evictod
LH	E58	4		LAISIEU

Does continuity exist?

YES >> Replace the front combination lamp.

NO >> Repair the harnesses or connectors.

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## PARKING LAMP CIRCUIT

## **Component Function Check**

**1**.CHECK PARKING LAMP OPERATION

**©IPDM E/R AUTO ACTIVE TEST** 

Activate IPDM E/R auto active test. Refer to <u>PCS-9, "Diagnosis Description".</u>

2. Check that the parking lamp is turned ON.

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

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

TAIL : Parking lamp ON

#### Off : Parking lamp OFF

Is the parking lamp turned ON?

YES >> Parking lamp circuit is normal.

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

### Diagnosis Procedure

### 1.CHECK PARKING LAMP FUSE

1. Turn the ignition switch OFF.

Check that the following fuse is not fusing. 2.

Unit	Location	Fuse No.	Capacity
<ul><li>Parking lamp</li><li>Front side marker lamp</li></ul>	IPDM E/R	#52	10 A

Is the fuse fusing?

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

## 2. CHECK PARKING LAMP SHORT CIRCUIT

Disconnect IPDM E/R connector and the front combination lamp connector. 1.

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

IPDM E/R				Continuity
Connector		Terminal	Ground	Continuity
RH	FO	91	Ground	Not ovisted
LH	E9	92		NUL EXISTED

Does continuity exist?

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

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

 ${
m 3.}$  CHECK PARKING LAMP BULB AND FRONT SIDE MARKER LAMP

Check the applicable lamp bulb.

### Is the bulb normal?

YES >> GO TO 4.

>> Replace the bulb. NO

**4.**CHECK PARKING LAMP OUTPUT VOLTAGE

### **©CONSULT-III ACTIVE TEST**

Disconnect the front combination lamp connector. 1.

Turn the ignition switch ON. 2.

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

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## PARKING LAMP CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

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

_	Т	erminals		Test item	
	(+)		(-)	i cot nom	Voltage
IPDM E/R			EXTERNAL	(Approx.)	
Cor	nnector	Terminal		LAMPS	
RH		91	Ground	TAIL	Battery voltage
	FO		50	Ground	Off
E9	92		TAIL	Battery voltage	
				Off	0 V

#### Is the measurement value normal?

YES >> GO TO 5.

NO >> Replace IPDM E/R.

### 5. CHECK PARKING LAMP OPEN CIRCUIT

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

IPDM E/R			Front combin	Continuitu	
Conr	nector	Terminal	Connector Terminal		Continuity
RH	FQ	91	E28	8	Existed
LH	L3	92	E58	8	LAISIEU

Does continuity exist?

YES >> GO TO 6.

NO >> Repair the harnesses or connectors.

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

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

Front combination lamp				Continuity
Con	Connector Terminal		Ground	Continuity
RH	E28	4	Ground	Existed
LH	E58	4		LAISLEU

Does continuity exist?

YES >> Replace the front combination lamp.

NO >> Repair the harnesses or connectors.

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## **TURN SIGNAL LAMP CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

## TURN SIGNAL LAMP CIRCUIT

### Description

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

NOTE:

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

### Component Function Check

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

(E)CONSULT-III ACTIVE TEST

- 1. Select "FLASHER" of BCM (FLASHER) active test item.
- 2. With operating the test items, check that the turn signal lamp 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-88. "Diagnosis Procedure".

### Diagnosis Procedure

**1.**CHECK TURN SIGNAL LAMP BULB

Check the applicable lamp bulb.

### Is the bulb normal?

YES >> GO TO 2.

NO >> Replace the bulb.

2.CHECK TURN SIGNAL LAMP OUTPUT VOLTAGE

#### CONSULT-III ACTIVE TEST

- 1. Turn the ignition switch OFF.
- 2. Disconnect the front combination lamp connector or the rear combination lamp connector.
- 3. Turn the ignition switch ON.
- 4. Select "FLASHER" of BCM (FLASHER) active test item.
- 5. With operating the turn signal switch, check the voltage between the BCM harness connector and the ground.

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## **TURN SIGNAL LAMP CIRCUIT**

< DTC/CIRCUIT DIAGNOSIS >

Front

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Is the measurement value normal?

YES >> GO TO 3.

NO >> Replace BCM.

**3.**CHECK TURN SIGNAL LAMP OPEN CIRCUIT

1. Turn the ignition switch OFF.

2. Disconnect BCM connector.

3. Check the continuity between the BCM harness connector and the front combination lamp or the rear combination lamp harness connector.

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## TURN SIGNAL LAMP CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

Fror	Front combination lamp						
BCM Front combination lamp					Continuity		
Connector		Terminal	Connector	Terminal	Continuity		
RH	M110	17	E28	6	Evisted		
LH	WIT13	18	E58	6	LAISteu		

Rear combination lamp

BCM			Rear comb	Continuity	
Co	Connector		Connector	Terminal	Continuity
RH	M120	20	B67	4	Evisted
LH	101120	25	B60	4	LAISIEU

Does continuity exist?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

## 4. CHECK TURN SIGNAL LAMP SHORT CIRCUIT

Check continuity between the BCM harness connector and the ground.

#### Front

	BCM			Continuity	
	Connector	Terminal	Ground	Continuity	
RH	M110	17	Ground	Not existed	
LH	- WIT9	18			
Rear					
	BCM			Continuity	
	Connector	Terminal	Ground		
RH	M120	20	Ground	Not ovisted	
LH	101120	25		NUL EXISIEU	

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> GO TO 5.

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

Check the voltage between the BCM harness connector and the front combination lamp or the rear combination lamp and the ground.

Front combination lamp

Front combination lamp				Continuity
Connector Terminal		Ground	Continuity	
RH	E28	4	Giodila	Existed
LH	E58	4		

Rear combination lamp

R	ear comb	ination lamp		Continuity
Connector		Terminal	Ground	Continuity
RH	B67	3	Giouna	Existed
LH	B60	3		LAISTED

Does continuity exist?

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

NO >> Repair the harnesses or connectors.

## **OPTICAL SENSOR**

## < DTC/CIRCUIT DIAGNOSIS >

# OPTICAL SENSOR

## Description

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

Component Function Check	INFOID:000000005631860
1. CHECK OPTICAL SENSOR SIGNAL BY CONSULT-III	

CONSULT-III DATA MONITOR

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

Monitor item	Condition		Voltage (Approx.)
OPTICAL SEN- SOR	Ontical sensor	When illuminat- ing	3.1 V or more *
	Optical sensor	When shutting off light	0.6 V or less

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

#### Is the item status normal?

- YES >> Optical sensor is normal.
- NO >> Refer to EXL-91, "Diagnosis Procedure".

### Diagnosis Procedure

### **1.**CHECK OPTICAL SENSOR POWER SUPPLY INPUT

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

(+) (–)			Voltage
Optical sensor			(Approx.)
Connector Terminal		Ground	
M94	1		5 V

### Is the measurement value normal?

YES >> GO TO 2.

NO >> GO TO 4.

### 2.CHECK OPTICAL SENSOR GROUND INPUT

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

(1	+)	(-)	Voltage
Optical sensor			(Approx.)
Connector Terminal		Ground	
M94	3		0 V

Is the measurement value normal?

YES >> GO TO 3. NO >> GO TO 6. INFOID:000000005631859

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# 3. CHECK OPTICAL SENSOR SIGNAL OUTPUT

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

Terminals			Condition	
(+)		(-)	Condition	Voltage
Optical	sensor		Optical sen-	(Approx.)
Connector	Terminal		sor	
Μολ	M94 2 Ground	When illumi- nating	3.1 V or more *	
10134			When shut- ting off light	0.6 V or less

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

Is the measurement value normal?

NO >> Replace the optical sensor.

**4.**CHECK OPTICAL SENSOR OPEN CIRCUIT

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

Optical	Optical sensor BCM		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
M94	1	M123	138	Existed

Does continuity exist?

YES >> GO TO 5.

NO >> Repair the harnesses or connectors.

#### 5.CHECK OPTICAL SENSOR SHORT CIRCUIT

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

Optical sensor			Continuity
Connector	Terminal	Ground	Continuity
M94	1		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> Replace BCM.

### 6.CHECK OPTICAL SENSOR GROUND OPEN CIRCUIT

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

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M94	3	M123	137	Existed

Does continuity exist?

YES >> Replace BCM.

NO >> Repair the harnesses or connectors.

**1**.CHECK OPTICAL SENSOR SIGNAL OPEN CIRCUIT

## **OPTICAL SENSOR**

### < DTC/CIRCUIT DIAGNOSIS >

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

Optical sensor		BCM		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M94	2	M123	113	Existed

Does continuity exist?

YES >> GO TO 8.

NO >> Repair the harnesses or connectors.

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

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

Optical sensor			Continuity
Connector Terr	minal	Ground	Continuity
M94	2		Not existed

Does continuity exist?

YES >> Repair the harnesses or connectors.

NO >> Replace BCM.

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## HAZARD SWITCH

# < DTC/CIRCUIT DIAGNOSIS >

## HAZARD SWITCH

## Description

Hazard switch is integrated in the multifunction switch. Hazard switch inputs the signals to BCM when pressing the switch.

## **Component Function Check**

## 1.CHECK HAZARD SWITCH SIGNAL BY CONSULT-III

CONSULT-III DATA MONITOR

- T. Turn the ignition switch ON.
- 2. Select "HĂZARD SW" of BCM (FLASHER) data monitor item.
- 3. With operating the hazard switch, check the monitor status.

Monitor item	C	Monitor status		
HAZARD SW	Hazard switch	While pressing the switch	On	
		While not pressing the switch	Off	

Is the item status normal?

YES >> Hazard switch circuit is normal.

NO >> Refer to EXL-94, "Diagnosis Procedure".

## Diagnosis Procedure

1. CHECK HAZARD SWITCH SIGNAL INPUT

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

Terminals		Condition			
(	+)	(-)	Condition	Voltage (Approx.)	
BCM				vollage (Approx.)	
Connector	Terminal	*	Tiazaru Switch		
		Ť	While pressing the switch	0 V	
M122	110	Ground	While not press- ing the switch	(V) 15 10 5 10 10 10 ms JPMIA0012GB	

Is the measurement value normal?

YES >> Replace BCM.

2. CHECK HAZARD SWITCH SIGNAL OPEN CIRCUIT

1. Turn the ignition switch OFF.

2. Disconnect the multifunction switch connector and BCM connector.

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

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## HAZARD SWITCH

### < DTC/CIRCUIT DIAGNOSIS >

Multifunct	tion switch	BC	M	Continuity
Connector	Terminal	Connector	Terminal	
M72	16	M122	110	Existed
Does continu	uity exist?			
YES >>	GO TO 3.			
J.CHECK H	HAZARD SW	ITCH SIGN/	AL SHORT	CIRCUIT
Check contir	nuity betwee	n the multifu	nction swite	ch harness co
Multifu	inction switch			Continuity
Connector	Termina	al Gr	ound	
M72	16			Not existed
Does continu	uity exist?			
YES >>	Repair the ha	arnesses or	connectors	
4.CHECK	HAZARD SW	ITCH GROU	JND OPEN	ICIRCUIT
Check contir	nuity betwee	n the multifu	nction swite	ch harness co
Multifu	nction switch			Continuity
Connector	Termina	l Gr	ound	Continuity
M72	9			Existed
Does continu	uity exist?			
YES >>	Replace the	hazard swite	h (multifun	ction switch).
NO >>	Repair the h	arnesses or	connectors	i.

## TAIL LAMP CIRCUIT

### Component Function Check

**1.**CHECK TAIL LAMP OPERATION

**®**IPDM E/R AUTO ACTIVE TEST

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

2. Check that the tail lamp is turned ON.

CONSULT-III ACTIVE TEST

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

### TAIL : Tail lamp ON

### Off : Tail lamp OFF

#### Is the tail lamp turned ON?

YES >> Tail lamp circuit is normal.

NO >> Refer to EXL-96, "Diagnosis Procedure".

### **Diagnosis** Procedure

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

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

Unit	Location	Fuse No.	Capacity
<ul><li>Tail lamp</li><li>Rear side marker lamp</li><li>License plate lamp</li></ul>	IPDM E/R	#53	10 A

#### Is the fuse fusing?

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

NO >> GO TO 2.

### 2.CHECK TAIL LAMP OUTPUT VOLTAGE

### CONSULT-III ACTIVE TEST

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

	Terminals	Tost itom			
(+	-)	(-)	iest item	Voltage	
IPDM E/R			EXTERNAL	(Approx.)	
Connector	Terminal		LAMPS		
E5	7	Ground	TAIL	Battery voltage	
			Off	0 V	

### Is the measurement value normal?

YES >> GO TO 3.

NO >> Replace IPDM E/R.

**3.**CHECK TAIL LAMP OPEN CIRCUIT

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

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## TAIL LAMP CIRCUIT

#### < DTC/CIRCUIT DIAGNOSIS >

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

IPDM E/R		Rear comb	ination lamp	Continuity	
C	Connector	Terminal	Connector	Terminal	Continuity
RH	E5	7	B67	2	Existed
LH	25		B60	2	LAISLEU

Does continuity exist?

YES >> GO TO 4.

NO >> Repair the harnesses or connectors.

## 4. CHECK TAIL LAMP GROUND OPEN CIRCUIT

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

	Rear combination lamp			Continuity
	Connector Terminal		Ground	und
RH	B67	3	Ground	Evictod
LH	B60	3		Existed

Does continuity exist?

YES >> Replace the rear combination lamp.

NO >> Repair the harnesses or connectors.

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## LICENSE PLATE LAMP CIRCUIT

### Component Function Check

### NOTE:

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

**1.**CHECK LICENSE PLATE LAMP OPERATION

IPDM E/R AUTO ACTIVE TEST

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

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

CONSULT-III ACTIVE TEST

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

### TAIL : License plate lamp ON

### Off : License plate lamp OFF

#### Is the license plate lamp turned ON?

YES >> License plate lamp circuit is normal.

NO >> Refer to EXL-98. "Diagnosis Procedure".

Diagnosis Procedure

**1.**CHECK LICENSE PLATE LAMP BULB

Check the applicable lamp bulb.

Is the bulb normal?

YES >> GO TO 2.

NO >> Replace the bulb.

2. CHECK LICENSE PLATE LAMP OPEN CIRCUIT

1. Turn the ignition switch OFF.

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

IPDM E/R			License p	late lamp	Continuity
С	onnector	Terminal	Connector	Terminal	Continuity
RH	E5	7	B93	1	Existed
LH	LJ	1	B92	1	LAISIEU

Does continuity exist?

YES >> GO TO 3.

NO >> Repair the harnesses or connectors.

## **3.**CHECK LICENSE PLATE LAMP GROUND OPEN CIRCUIT

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

	License plate	e lamp		Continuity
	Connector	Terminal	Ground	Continuity
RH	B93	2	Giodila	Evisted
LH	B92	2		LAISted

Does continuity exist?

YES >> Replace the license plate lamp.

NO >> Repair the harnesses or connectors.

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## **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

# < SYMPTOM DIAGNOSIS > SYMPTOM DIAGNOSIS

# EXTERIOR LIGHTING SYSTEM SYMPTOMS

## Symptom Table

### INFOID:000000005631891

#### **CAUTION:**

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

Sym	otom	Possible cause	Inspection item
Headlamp does not switch to the high beam.	One side	<ul> <li>Fuse</li> <li>Harness between IPDM E/R and the front combination lamp</li> <li>Front combination lamp (High beam solenoid)</li> <li>IPDM E/R</li> </ul>	Headlamp (HI) circuit Refer to <u>EXL-78</u> .
	Both sides	Symptom diagnosis "BOTH SIDE HEADLAMPS DO N Refer to <u>EXL-102</u> .	OT SWITCH TO HIGH BEAM"
High beam indicator lamp is not turned ON. (Headlamp switches to the high beam.)		<ul><li>Combination meter</li><li>Unified meter and A/C amp.</li></ul>	<ul> <li>Unified meter and A/C amp. Data monitor "HI-BEAM IND"</li> <li>BCM (HEAD LAMP) Active test "HEADLAMP"</li> </ul>
	One side	Front combination lamp (High beam solenoid)	_
Headlamp does not switch to the low beam.	Both sides	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-77</u> .
		High beam request signal • BCM • IPDM E/R	IPDM E/R Data monitor "HL HI REQ"
		IPDM E/R	_
Headlamp is not turned ON.	One side	<ul> <li>Fuse</li> <li>Xenon bulb</li> <li>Harness between IPDM E/R and the front combination lamp</li> <li>Front combination lamp (xenon headlamp)</li> <li>IPDM E/R</li> </ul>	Headlamp (LO) circuit Refer to <u>EXL-80</u> .
	Both sides	Symptom diagnosis	
	When the ignition switch is turned ON	"BOTH SIDE HEADLAMPS (LO) ARE NOT TURNED ON" Refer to <u>EXL-103</u> .	
Headlamp is not turned OFF.	The ignition switch is turned OFF (After acti- vating the battery sav- er).	IPDM E/R	_
Headlamp is not turned ON/OFF with the lighting switch AUTO.		<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-77</u> .
		<ul> <li>Optical sensor</li> <li>Harness between the optical sensor and BCM</li> <li>BCM</li> </ul>	Optical sensor Refer to <u>EXL-91</u> .

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## **EXTERIOR LIGHTING SYSTEM SYMPTOMS**

### < SYMPTOM DIAGNOSIS >

### [XENON TYPE]

Symptom		Possible cause	Inspection item	
Front fog lamp is not turned ON.	One side	<ul> <li>Front fog lamp bulb</li> <li>Harness between IPDM E/R and the front combination lamp</li> <li>Front combination lamp</li> <li>IPDM E/R</li> </ul>		
	Both side	Symptom diagnosis "BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON" Refer to <u>EXL-105</u> .		
Front fog lamp indicator is not turned ON. (Front fog lamp is turned ON.)		Combination meter	<ul> <li>Combination meter Data monitor "HI-BEAM IND"</li> <li>BCM (HEAD LAMP) Active test "FR FOG LAMP"</li> </ul>	
Parking lamp is not turned	ON.	<ul> <li>Fuse</li> <li>Parking lamp bulb</li> <li>Harness between IPDM E/R and the front combination lamp</li> <li>Front combination lamp</li> <li>IPDM E/R</li> </ul>	Parking lamp circuit Refer to <u>EXL-86</u> .	
Tail lamp is not turned ON.		<ul> <li>Harness between IPDM E/R and the rear combination lamp</li> <li>Rear combination lamp</li> </ul>	Tail lamp circuit Refer to <u>EXL-96</u> .	
License plate lamp is not to	urned ON.	<ul> <li>Harness between IPDM E/R and the license plate lamp</li> <li>License plate lamp</li> </ul>	License plate lamp circuit Refer to <u>EXL-98</u> .	
Tail lamp and the license plate lamp are not turned ON.		<ul> <li>Fuse</li> <li>Harness between IPDM E/R and the rear combination lamp</li> <li>IPDM E/R</li> </ul>	Tail lamp circuit Refer to <u>EXL-96</u> .	
<ul> <li>Parking lamp, the tail lamp and the license plate lamp are not turned ON.</li> <li>Parking lamp, the tail lamp and the license plate lamp are not turned OFF.</li> <li>(Fach illumination is turned ON/OFF.)</li> </ul>		<b>Symptom diagnosis</b> "PARKING, LICENSE PLATE AND TAIL LAMPS ARE NOT TURNED ON" Refer to <u>EXL-104</u> .		
Turn signal lamp does not		<ul> <li>Harness between BCM and each turn signal lamp</li> <li>Turn signal lamp bulb</li> </ul>	Turn signal lamp circuit Refer to <u>EXL-88</u> .	
DIINK.	Indicator lamp is includ- ed	<ul> <li>Combination switch</li> <li>Harness between the combination switch and BCM</li> <li>BCM</li> </ul>	Combination switch Refer to <u>BCS-77</u> .	
	One side	Combination meter	—	
Turn signal indicator lamp does not blink. (The turn signal indicator	Both sides (Always)	<ul> <li>Turn signal indicator lamp signal</li> <li>Unified meter and A/C amp.</li> <li>BCM</li> <li>Combination meter</li> </ul>	<ul> <li>Unified meter and A/C amp. Data monitor "TURN IND"</li> <li>BCM (FLASHER) Active test "FLASHER"</li> </ul>	
lamp is normal.)	Both sides (Only when activating the hazard warning lamp with the ignition switch OFF)	<ul><li>The combination meter power supply and the ground circuit</li><li>Combination meter</li></ul>	Combination meter Power supply and the ground circuit Refer to <u>MWI-48</u> .	
<ul> <li>Hazard warning lamp do</li> <li>Hazard warning lamp co</li> <li>(Turn signal is normal.)</li> </ul>	es not activate. ntinues activating.	<ul> <li>Hazard switch</li> <li>Harness between the hazard switch and BCM</li> <li>BCM</li> </ul>	Hazard switch Refer to <u>EXL-94</u> .	

## NORMAL OPERATING CONDITION

### Description

### XENON HEADLAMP

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

#### AUTO LIGHT SYSTEM

The headlamp may not be turned ON/OFF immediately after passing dark area or bright area (short tunnel, sky bridge, shadowed area etc.) while using the auto light system. This causes for the control difference. This is normal.

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## BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

### < SYMPTOM DIAGNOSIS >

# BOTH SIDE HEADLAMPS DO NOT SWITCH TO HIGH BEAM

### Description

The headlamp (both sides) does not switch to the high beam when setting to the lighting switch HI or PASS.

### **Diagnosis Procedure**

INFOID:000000005631894

INFOID:000000005631893

[XENON TYPE]

**1**.COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to <u>BCS-77, "Symptom Table"</u>.

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK HEADLAMP (HI) REQUEST SIGNAL INPUT

### ©CONSULT-III DATA MONITOR

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

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

Monitor item	Con	Monitor status	
HL HI REQ	Lighting switch (2ND)	HI or PASS	On
		Except for HI or PASS	Off

Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM.

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

Check the headlamp (HI) circuit. Refer to EXL-78.

Is the headlamp (HI) circuit normal?

YES >> Replace IPDM E/R.

NO >> Repair or replace the malfunctioning part.

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

< SYMPTOM I	DIAGNOSIS >	, . ) _ ,		[XENON TYPE]
BOTH SID	E HEADLA	MPS (LO)	ARE NOT TURNED	ON
Description				INFOID:000000005631895
The headlamps	s (both sides) are	e not turned Ol	N in any condition.	
Diagnosis P	rocedure			INFOID:000000005631896
1.COMBINAT	ION SWITCH IN	SPECTION		
Check the com	bination switch.	Refer to BCS-	77, "Symptom Table".	
Is the combinat	tion switch norma	al?		
YES >> GC	) TO 2. pair or replace th	ne malfunction	ing part	
2. СНЕСК НЕ	ADLAMP (LO) R	EQUEST SIG	NAL INPUT	
CONSULT-II		R		
1. Select "HL	LO REQ" of IPD	M E/R data m	onitor item.	
z. with opera		SWILCH, CHECK	ne monitor status.	
Monitor item	Cond	ition	Monitor status	
	Lighting switch	2ND	On	
	gg ettion	OFF	Off	
Is the item state	us normal?			
NO >> Re	place BCM.			
3.HEADLAMF	· ? (LO) CIRCUIT I	NSPECTION		
Check the head	dlamp (LO) circu	it. Refer to <u>EX</u>	<u>80</u> .	
Is the headlam	<u>p (LO) circuit nor</u>	mal?		
YES >> Re	place IPDM E/R	o molfunction	ing port	
INU >> Ke	pair or replace th	ie mailunction	ing part.	

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

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

### Description

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

### **Diagnosis** Procedure

INFOID:000000005631898

INFOID:000000005631897

**1.**COMBINATION SWITCH INSPECTION

Check the combination switch. Refer to <u>BCS-77, "Symptom Table"</u>.

Is the combination switch normal?

YES >> GO TO 2.

NO >> Repair or replace the malfunctioning part.

2.CHECK TAIL LAMP RELAY REQUEST SIGNAL INPUT

#### CONSULT-III DATA MONITOR

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

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

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

Is the item status normal?

YES >> GO TO 3.

NO >> Replace BCM.

**3.**TAIL LAMP CIRCUIT INSPECTION

Check the tail lamp circuit. Refer to EXL-96.

Is the tail lamp circuit normal?

- YES >> Replace IPDM E/R.
- NO >> Repair or replace the malfunctioning part.

## BOTH SIDE FRONT FOG LAMPS ARE NOT TURNED ON

	BUTH SIDE FR		UG LAWIFS ARE N	NOT TURNED O	IN
< SYMPTOM [	DIAGNOSIS >				[XENON TYPE]
BOTH SID	E FRONT FOG	LAM	PS ARE NOT TU	RNED ON	
Description					INFOID:000000005631899
The front fog la	mps are not turned O	N in any	condition.		
Diagnosis P	rocedure				INFOID:000000005631900
1.COMBINATI	ON SWITCH INSPEC	TION			
Check the com	bination switch. Refer	to BCS-	77, "Symptom Table".		
Is the combinat YES >> GC NO >> Re	<u>ion switch normal?</u> ) TO 2. pair or replace the ma	Ilfunction	ing part.		
2.CHECK FRO	ONT FOG LAMP REQ	UEST S	GNAL INPUT		
CONSULT-II     Select "FR     With opera	FOG REQ" of IPDM I ting the front fog lamp	E/R data switch, o	monitor item. check the monitor status.	i.	
		ON			
FR FOG REQ	(Lighting switch 2ND)	OFF	Off		
Is the item state YES >> GC	<u>us normal?</u> ) TO 3. place BCM	1	I		
3.FRONT FO	G LAMP CIRCUIT INS	SPECTIO	N		
Check the front	fog lamp circuit. Refe	er to <u>EXL</u>	• <u>84</u> .		
Is the front fog YES >> Re NO >> Re	lamp circuit normal? place IPDM E/R. pair or replace the ma	Ilfunction	ing part.		
-					

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INFOID:000000005631902

# PERIODIC MAINTENANCE HEADLAMP AIMING ADJUSTMENT

Description

### PREPARATION BEFORE ADJUSTING

#### NOTE:

- For details, refer to the regulations in your own country.
- Perform aiming if the vehicle front body has been repaired and/or the headlamp assembly has been replaced.

Before performing aiming adjustment, check the following.Adjust the tire pressure to the specification.

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

### NOTE:

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

• Wipe out dirt on the headlamp.

#### CAUTION:

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

Ride alone on the driver seat.

AIMING ADJUSTMENT SCREW



Headlamp (RH) adjustment screw А

B. Front fog lamp (RH) adjustment screw

C. Front fog lamp (LH) adjustment screw

- D. Headlamp (LH) adjustment screw
- C: Vehicle center

#### NOTE:

The figure is the vehicle without AFS. Each adjustment screw is applied to the vehicle with AFS.

## **HEADLAMP AIMING ADJUSTMENT**

#### < PERIODIC MAINTENANCE >

### [XENON TYPE]

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With AF	S			
Adjustment screw		Screw driver rotation	Facing direction	A
A He		Clockwise	UP	
	Headlamp (RH)	Counterclockwise	DOWN	
В	Front for long (DLI)	Clockwise	DOWN	— B
	Front log lamp (RH)	Counterclockwise	UP	
С	Front for lowp (I H)	Clockwise	DOWN	C
	Front log lamp (LH)	Counterclockwise	UP	
D		Clockwise	UP	
	Headlamp (LH)	Counterclockwise	DOWN	D
Without	AFS			
Adjustment screw		Screw driver rotation	Facing direction	F
А	Headlamp (PH)	Clockwise	DOWN	
		Counterclockwise	UP	
В	Front for lown (DH)	Clockwise	DOWN	F
	From log lamp (KH)	Counterclockwise	UP	
С		Clockwise	DOWN	
	Front log lamp (LH)	Counterclockwise	UP	G
D		Clockwise	DOWN	
	Headlamp (LH)	Counterclockwise	UP	

### **Aiming Adjustment Procedure**

#### 1. Place the screen.

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

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

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

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

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

Low beam distribution on the screen



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

## HEADLAMP AIMING ADJUSTMENT

### < PERIODIC MAINTENANCE >

## [XENON TYPE]

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





Distance between the : 10 m (32.8 ft) headlamp center and the screen (L)
### FRONT FOG LAMP AIMING ADJUSTMENT

< PERIODIC MAINTENA	NCE >

## Description

# PREPARATION BEFORE ADJUSTING

### NOTE:

- For details, refer to the regulations in your own country.
- Perform aiming if the vehicle front body has been repaired and/or the headlamp assembly has been replaced.

Before performing aiming adjustment, check the following.

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

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

• Wipe out dirt on the headlamp.

**CAUTION:** 

Never use organic solvent (thinner, gasoline etc.)

Ride alone on the driver seat.

### AIMING ADJUSTMENT SCREW



- Headlamp (RH) adjustment screw А
- screw
- screw

[XENON TYPE]

INFOID:000000005631904

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- D. Headlamp (LH) adjustment screw
- C: Vehicle center

### NOTE:

The figure is the vehicle without AFS. Each adjustment screw is applied to the vehicle with AFS.

# FRONT FOG LAMP AIMING ADJUSTMENT

#### < PERIODIC MAINTENANCE >

With AFS

[XENON TYPE]

	Adjustment screw	Screw driver rotation	Facing direction
٨	Headlamp (RH)	Clockwise	UP
A		Counterclockwise	DOWN
В	Front fog lamp (RH)	Clockwise	DOWN
		Counterclockwise	UP
С	Front fog lamp (LH)	Clockwise	DOWN
		Counterclockwise	UP
D	Headlamp (LH)	Clockwise	UP
		Counterclockwise	DOWN
nout AF	FS	· · · · ·	
	Adjustment screw	Screw driver rotation	Facing direction
A	Headlamp (RH)	Clockwise	DOWN
		Counterclockwise	UP
В	Front fog lamp (RH)	Clockwise	DOWN
		Counterclockwise	UP
С	Front fog lamp (LH)	Clockwise	DOWN
		Counterclockwise	UP
-	Headlamp (LH)	Clockwise	DOWN
D		Counterclockwise	UP

## Aiming Adjustment Procedure

INFOID:000000005631905

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

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

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

4. Adjust the cutoff line height (A) with the aiming adjustment screw so that the distance (X) between the horizontal center line of front fog lamp (H) and (A) becomes 200 mm (7.87 in).

Front fog lamp light distribution on the screen



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

# FRONT FOG LAMP AIMING ADJUSTMENT

# < PERIODIC MAINTENANCE >

N 2	V X	: Vertical center line of front fog lamp : Cutoff line height	А
			В
			С
			D
			Е
			F
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[XENON TYPE]

# REMOVAL AND INSTALLATION FRONT COMBINATION LAMP

**Exploded View** 

### REMOVAL

INFOID:000000005631906



1. Front combination lamp

### DISASSEMBLY

#### Without AFS



- 1. Front turn signal lamp bulb
- 4. Side marker lamp bulb socket
- 7. Seal packing
- 10. Seal packing
- 13. Parking lamp bulb
- 16. HID control unit

### **CAUTION:**

- 2. Front turn signal lamp bulb socket
- 5. Xenon bulb
- 8. Xenon bulb socket
- 11. Front fog lamp bulb
- 14. Seal packing
- 17. Headlamp housing assembly
- 3. Side marker lamp bulb
- 6. Resin cap
- 9. Resin cap
- 12. Parking lamp bulb socket
- 15. Bumper bracket
- 18. Retaining spring

## FRONT COMBINATION LAMP

### < REMOVAL AND INSTALLATION >

### HID control unit and xenon bulb socket cannot be disassembled.

#### With AFS





NOTE:

- After installation, perform aiming adjustment. Refer to <u>EXL-106, "Description"</u>.
- After installation, check that headlamp lighting. Refer to EXL-115, "Inspection After Installation".

# EXL-113

## FRONT COMBINATION LAMP

### < REMOVAL AND INSTALLATION >

### Replacement

#### **CAUTION:**

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

#### HEADLAMP BULB

- 1. Remove the fender protector. Keep a service area. Refer to <u>EXT-24</u>, "FENDER PROTECTOR : Exploded <u>View"</u>.
- 2. Rotate the resin cap counterclockwise and unlock it.
- 3. Rotate the bulb socket counterclockwise and unlock it.
- Remove the retaining spring lock. Remove the bulb from the headlamp housing assembly.
   CAUTION:

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



### PARKING LAMP BULB

- 1. Remove the air cleaner case. Refer to EM-27, "Exploded View".
- 2. Rotate the bulb socket counterclockwise and unlock it.
- 3. Remove the bulb from the bulb socket.

#### FRONT TURN SIGNAL LAMP BULB

- 1. Remove the fender protector. Keep a service area. Refer to <u>EXT-24</u>, "FENDER PROTECTOR : Exploded <u>View"</u>.
- 2. Rotate the bulb socket counterclockwise and unlock it.
- 3. Remove the bulb from the bulb socket.

#### FRONT FOG LAMP BULB

- 1. Remove the air cleaner case. Refer to EM-27, "Exploded View".
- 2. Rotate the resin cap counterclockwise and unlock it.
- 3. Disconnect front fog lamp bulb terminals.
- 4. Remove the retaining spring lock. Remove the bulb.

#### SIDE MARKER LAMP BULB

- 1. Remove the fender protector. Keep a service area. Refer to <u>EXT-24</u>, "FENDER PROTECTOR : Exploded <u>View"</u>.
- 2. Rotate the bulb socket counterclockwise and unlock it.
- 3. Remove the bulb from the bulb socket.

### **Disassembly and Assembly**

#### DISASSEMBLY

- 1. Rotate the resin cap counterclockwise and unlock it.
- 2. Rotate the xenon bulb socket counterclockwise and unlock it.
- 3. Remove the retaining spring lock. Remove the xenon bulb.
- 4. Remove the bumper bracket.
- 5. Rotate the parking lamp bulb socket counterclockwise and unlock it.

Revision: 2009 Novemver

### **EXL-114**

2010 G37 Convertible

# FRONT COMBINATION LAMP

< RI	EMOVAL AND INSTALLATION > [XENON TYPE]	
6.	Remove the bulb from the parking lamp bulb socket.	
7.	Rotate the front turn signal lamp bulb socket counterclockwise and unlock it.	А
8.	Remove the bulb from the front turn signal lamp bulb socket.	
9.	Rotate the side marker lamp bulb socket counterclockwise and unlock it.	D
10.	Remove the bulb from the side marker lamp bulb socket.	D
11.	Rotate the resin cap counterclockwise and unlock it.	
12.	Disconnect front fog lamp bulb terminals.	С
13.	Remove the retaining spring lock. Remove the bulb.	
ASS	SEMBLY	
Ass	emble in the reverse order of disassembly.	D
<ul> <li>CAUTION:</li> <li>After installing the bulb, install the resin cap and the bulb socket securely for watertightness.</li> <li>After installation, check that headlamp lighting. Refer to EXL-115, "Inspection After Installation", and an anticipation of the secure secure</li></ul>		
Inc	nection After Installation	
1113		
CAL	JTION:	F
whe	porarily install the headlamp on the vehicle. Connect the battery to the connector (vehicle side) en checking ON/OFF status.	
XEN	NON HEADLAMP LIGHTING CHECK	G
Che	the following item, when there is abnormality replace the xenon headlamp assembly.	0
1.	Xenon bulb is cold condition (turn OFF more than 10 minutes), and repetition does headlamp turned ON/	
S	OFF, check that a headlamp illuminated it surely.	Н
Ζ.	tion check that there are not on and off light abnormality such as blinking	
3.	Xenon bulb is warm condition (turn ON more than 15 minutes and turn OFF for 1 minute), and repetition	
	does headlamp turned ON/OFF, check that a headlamp illuminated it surely.	
4.	Headlamp is turn ON for about 30 minutes, check that there are not on and off light, abnormality such as blinking whether brightness of right and left does not have a difference.	
	billing whether brightness of right and left does not have a difference.	1
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# FRONT FOG LAMP

# Exploded View

The front fog lamp is integrated in the front combination lamp. Refer to EXL-112, "Exploded View".

# **OPTICAL SENSOR**

### < REMOVAL AND INSTALLATION >

# **OPTICAL SENSOR**

## **Exploded View**

INFOID:000000005631912

[XENON TYPE]



- 1. Insert an appropriate tool between the optical sensor and the instrument upper panel. Pull out the optical sensor upward.
- 2. Disconnect the connector. Remove the optical sensor.

#### INSTALLATION

Install in the reverse order of removal.

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# LIGHTING & TURN SIGNAL SWITCH

# Exploded View

The lighting & turn signal switch is integrated in the combination switch. <u>BCS-80, "Exploded View"</u>.

HAZARD SWITCH	Λ
Exploded View	A
The hazard switch is integrated in the multifunction switch. Refer to AV-117, "Removal and Installation".	В
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STEERING ANGLE SENSOR

Removal and Installation

Refer to BRC-113, "Exploded View".

# **REAR COMBINATION LAMP**

# < REMOVAL AND INSTALLATION >

# REAR COMBINATION LAMP

## **Exploded View**

### REMOVAL

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 1. Seal packing
 2. Rear combination lamp assembly
 3. Grommet

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

### DISASSEMBLY



3.

Rear turn signal lamp bulb socket

- 1. Back-up lamp bulb
- 2. Back-up lamp bulb socket
- 4. Rear turn signal lamp bulb

# Removal and Installation

### **CAUTION:**

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

### REMOVAL

- 1. Remove the trunk rear plate. Refer to INT-23, "Exploded View".
- 2. Remove the rear combination lamp mounting nuts.
- 3. Pull the rear combination lamp toward rear of the vehicle.
- 4. Disconnect rear combination lamp connector.
- 5. Remove the rear combination lamp.

### INSTALLATION

Install in the reverse order of removal.

### CAUTION:

- Seal packing cannot be reused.
- Securely install the grommet.

### Replacement

INFOID:000000005631925

### CAUTION:

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

### REAR TURN SIGNAL LAMP BULB

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

### BACK-UP LAMP BULB

- 1. Remove the rear combination lamp assembly.
- 2. Turn the bulb socket counterclockwise and unlock it.
- 3. Remove the bulb from the socket.

# **HIGH-MOUNTED STOP LAMP**

# < REMOVAL AND INSTALLATION >

# **HIGH-MOUNTED STOP LAMP**

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[XENON TYPE]



- 1. Rear trunk lid finisher outer
- 2. High-mounted stop lamp
- 3. Rear view camera

## **Removal and Installation**

### REMOVAL

- Remove the trunk lid finisher outer. Refer to EXT-36, "Exploded View". 1.
- 2. Remove the screws and remove the high-mounted stop lamp from trunk finisher.
- 3. Cut the two-sided tape by the any appropriate tool.



**INSTALLATION** Install in the reverse order of removal.

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# LICENSE PLATE LAMP

# **Exploded View**

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INFOID-000000005631929

[XENON TYPE]



License plate lamp 1.

# Removal and Installation

### **CAUTION:**

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

#### REMOVAL

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



#### INSTALLATION

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

#### Replacement

#### INFOID:000000005631930

#### **CAUTION:**

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

#### LICENSE PLATE LAMP BULB

Remove license plate lamp.

Revision: 2009 Novemver

# LICENSE PLATE LAMP

### < REMOVAL AND INSTALLATION >

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

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



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### < SERVICE DATA AND SPECIFICATIONS (SDS)

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

# **Bulb Specifications**

INFOID:000000005631931

[XENON TYPE]

Item		Туре	Wattage (W)
	Headlamp (HI/LO)	D2S (Xenon)	35
	Front turn signal lamp	WY21W (Amber)	21
Front combination lamp	Parking lamp	W5W	5
	Front fog lamp	H1	55
	Front side marker lamp	W5W	5
	Stop lamp/Tail lamp	LED	—
Poor combination lamp	Rear turn signal lamp	W21W	21
Real combination lamp	Rear side marker lamp	LED	_
	Back-up lamp	W16W	16
License plate lamp		W5W	5
High-mounted stop lamp		LED	_