2007 ACCESSORIES & EQUIPMENT Lighting - H3

#### 2007 ACCESSORIES & EQUIPMENT

Lighting - H3

## **SPECIFICATIONS**

#### FASTENER TIGHTENING SPECIFICATIONS

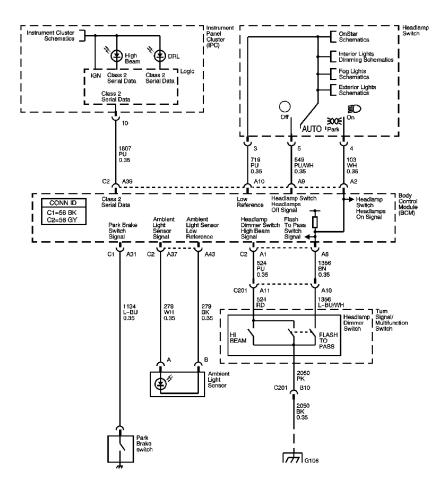
## **Fastener Tightening Specifications**

Specification		fication
Application	Metric	English
Center High Mounted Stop Lamp (CHMSL)	2 N.m	18 lb in
Door Jamb Switch Screw - Body Side Door	2 N.m	18 lb in
Door Jamb Switch Screw - Endgate	2 N.m	18 lb in
DRL Lamp Nuts	6 N.m	53 lb in
Fog Lamp Bolts	10 N.m	89 lb in
Headlamp Bolts	10 N.m	89 lb in
High Mounted Stop Lamp Screws	3 N.m	26 lb in
License Lamp Screws	2 N.m	18 lb in
Park/Turn Lamp Nuts	6 N.m	53 lb in
Pencil Brace Bracket Screw	10 N.m	89 lb in
Rear Tail/Turn Lamp Screws	2 N.m	18 lb in

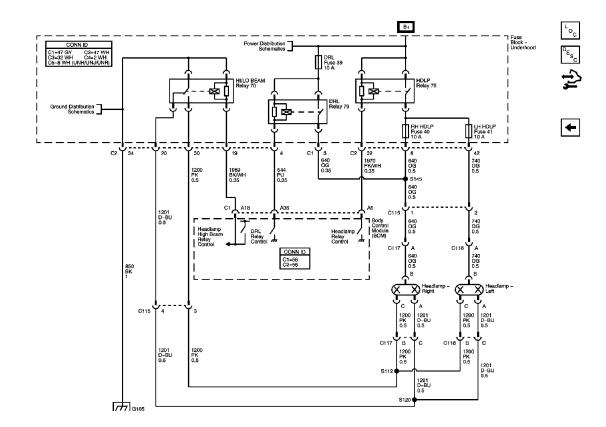
## SCHEMATIC AND ROUTING DIAGRAMS

#### HEADLIGHTS/DAYTIME RUNNING LIGHTS (DRL) SCHEMATICS

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

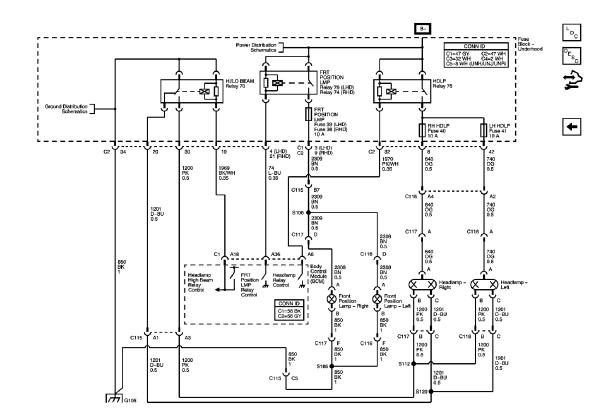






**<u>Fig. 2: Headlamps Schematic</u>** Courtesy of GENERAL MOTORS CORP.

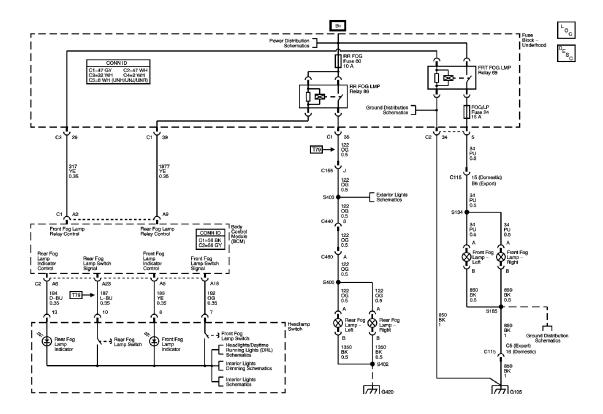
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



## **Fig. 3: Headlamps/Front Position Lamps Schematic** Courtesy of GENERAL MOTORS CORP.

FOG LIGHTS SCHEMATICS

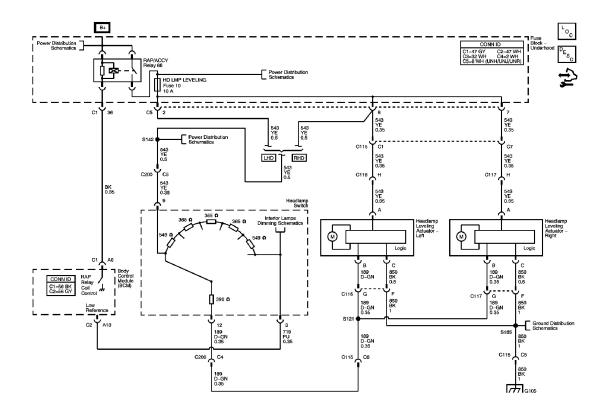
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



## **Fig. 4: Fog Lamps Schematic** Courtesy of GENERAL MOTORS CORP.

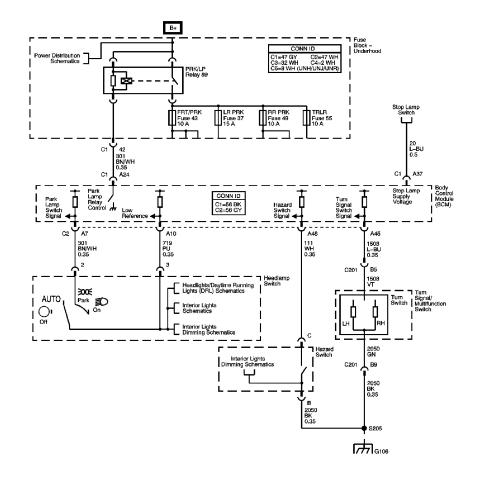
#### HEADLIGHT LEVELING SCHEMATICS

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



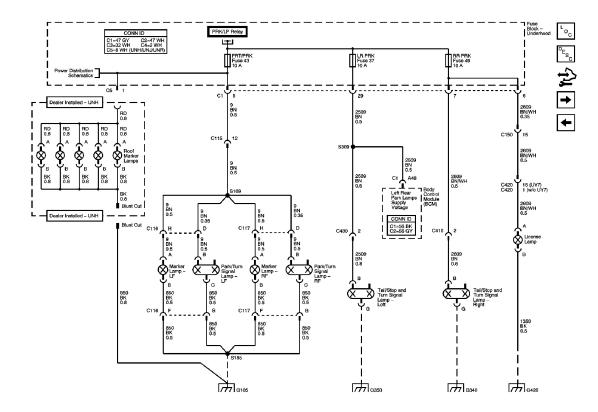
## **Fig. 5: Headlight Leveling Schematic Courtesy of GENERAL MOTORS CORP.**

#### **EXTERIOR LIGHTS SCHEMATICS**





**Fig. 6: Hazard Switch, Park Lamp Control and Turn Signal/Stop Lamp Inputs Schematic** Courtesy of GENERAL MOTORS CORP.



**Fig. 7: Roof Marker Lamps (UNH), License Lamp and Park Lamps Schematic** Courtesy of GENERAL MOTORS CORP.

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

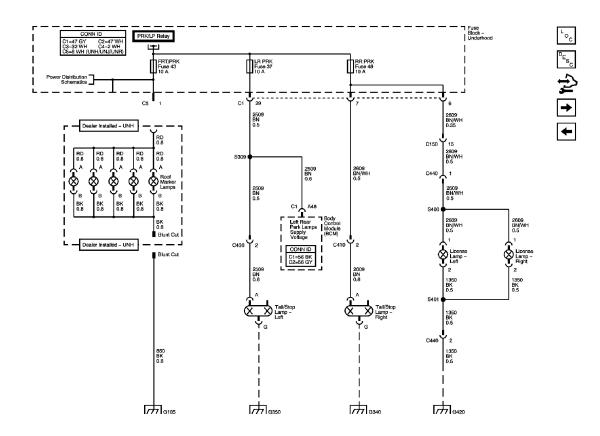
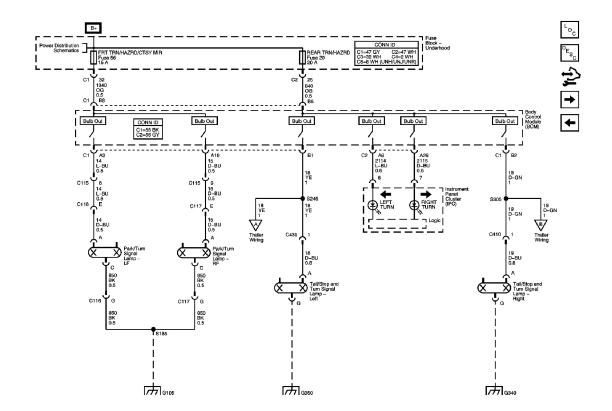
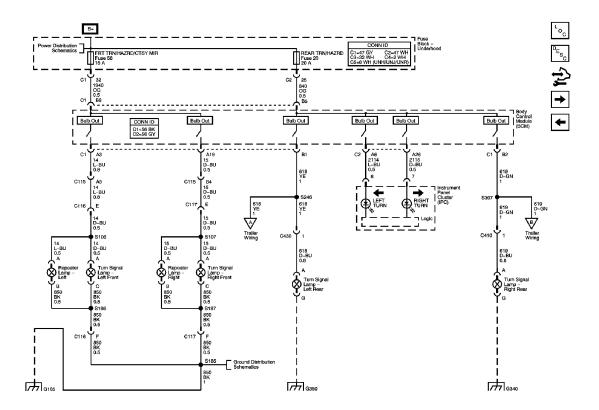


Fig. 8: Roof Marker Lamps (UNH), License Lamps and Park Lamps Schematic - Export Courtesy of GENERAL MOTORS CORP.

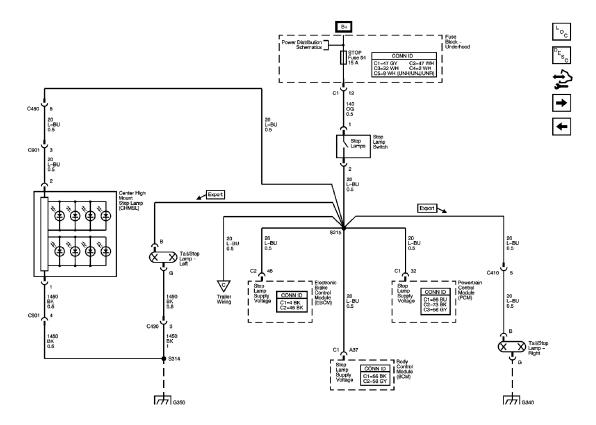
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



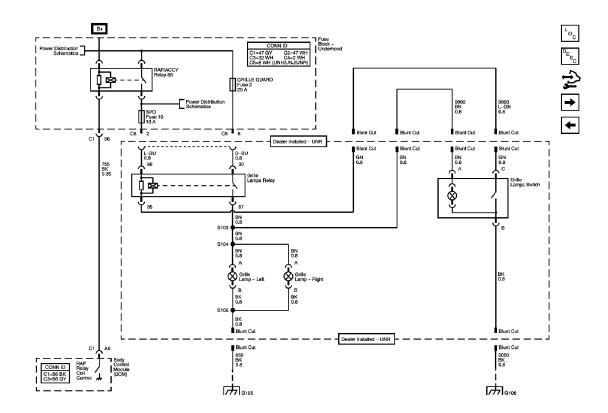
## **Fig. 9: Turn Signal/Stop Lamps Schematic Courtesy of GENERAL MOTORS CORP.**



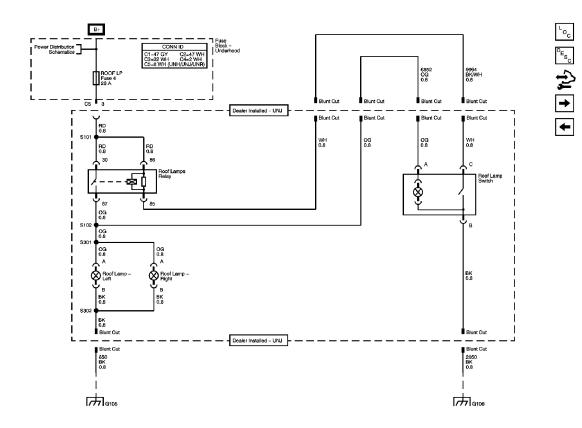
**Fig. 10: Turn Signal/Hazard Lamps Schematic - Export** Courtesy of GENERAL MOTORS CORP.



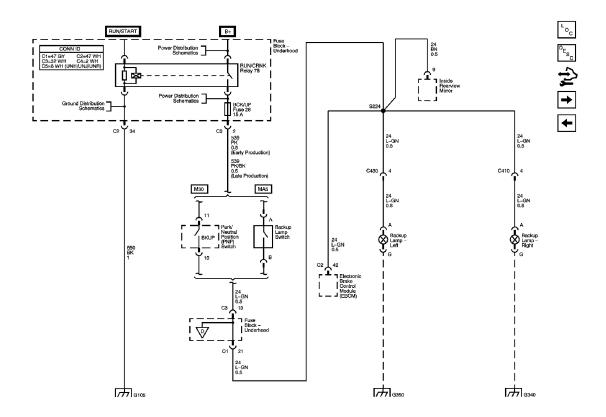
**Fig. 11: Center High Mount Stop Lamps (CHMSL) and Stop Lamp Switch Schematic Courtesy of GENERAL MOTORS CORP.** 



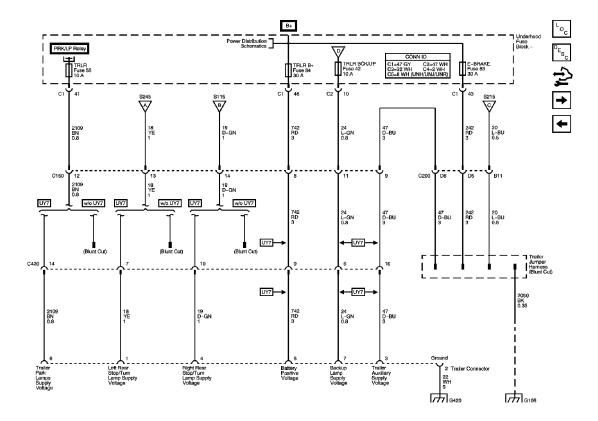
**Fig. 12: Grille Mounted Off Road Lamps Schematic - UNR** Courtesy of GENERAL MOTORS CORP.



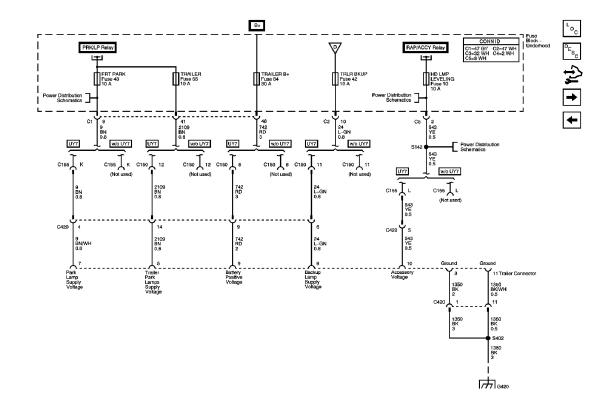
**Fig. 13: Roof Mounted Off Road Lamps Schematic - UNJ** Courtesy of GENERAL MOTORS CORP.



**<u>Fig. 14: Backup Lamps Schematic</u>** Courtesy of GENERAL MOTORS CORP.

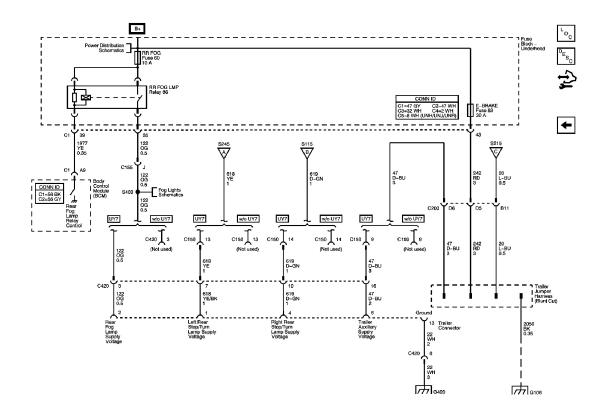


**Fig. 15: Trailer Wiring Schematic** Courtesy of GENERAL MOTORS CORP.



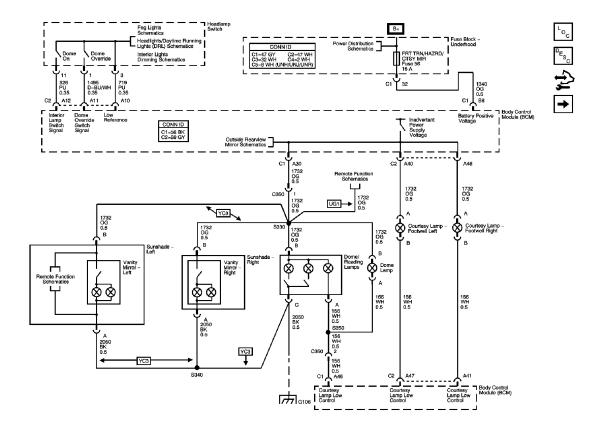
**Fig. 16: Trailer Wiring Schematic - Export (1 of 2)** Courtesy of GENERAL MOTORS CORP.

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

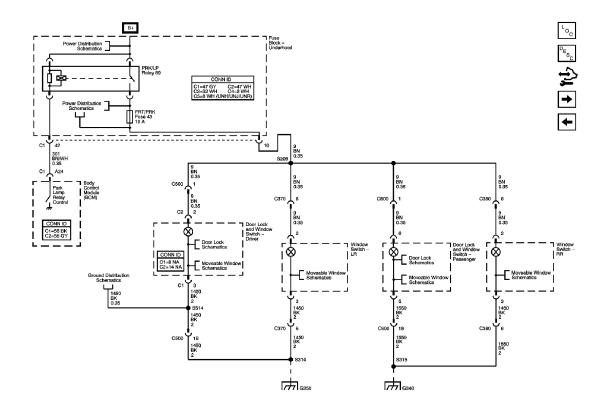


## **Fig. 17: Trailer Wiring Schematic - Export (2 of 2)** Courtesy of GENERAL MOTORS CORP.

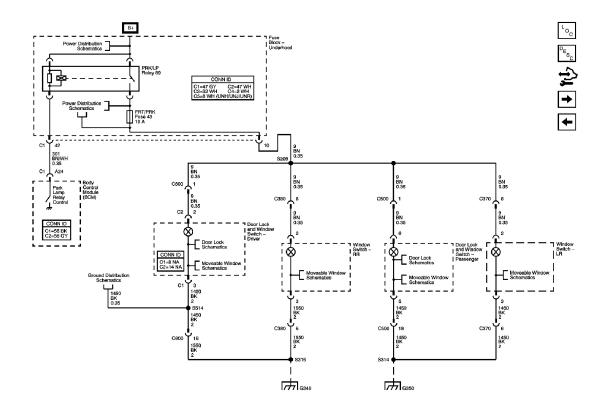
#### **INTERIOR LIGHTS SCHEMATICS**



**Fig. 18: Dome Lamp, Footwell Courtesy Lamps and Vanity Mirror Lamps Schematic** Courtesy of GENERAL MOTORS CORP.



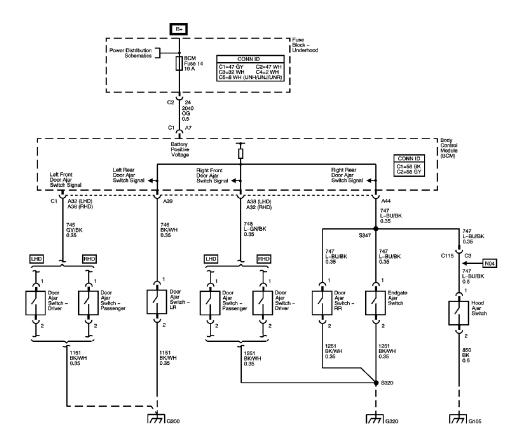
**Fig. 19: Door Lock and Window Switches Schematic Courtesy of GENERAL MOTORS CORP.** 



**Fig. 20: Door Lock and Window Switches Schematic - RHD Courtesy of GENERAL MOTORS CORP.** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

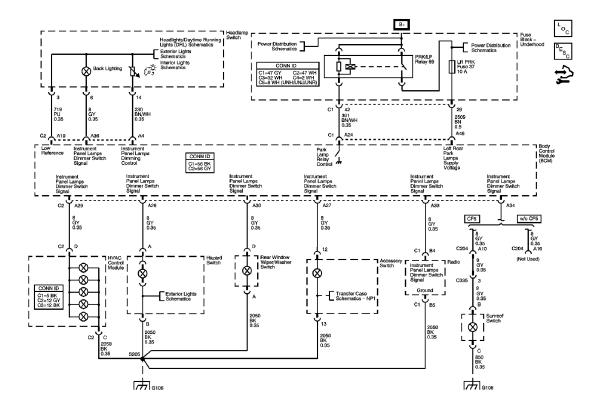
+



## **Fig. 21: Door Jamb Switches Schematic** Courtesy of GENERAL MOTORS CORP.

#### INTERIOR LIGHTS DIMMING SCHEMATICS

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

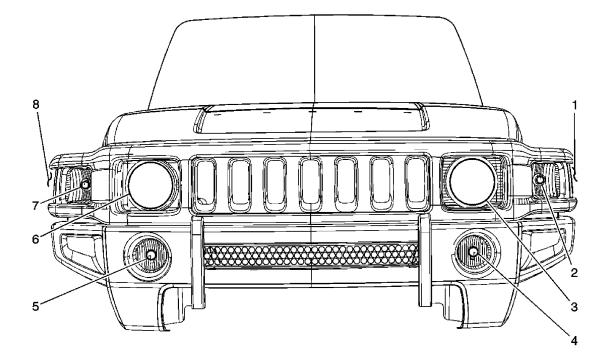


## **Fig. 22: Interior Lights Dimming Schematic Courtesy of GENERAL MOTORS CORP.**

## **COMPONENT LOCATOR**

#### LIGHTING SYSTEMS COMPONENT VIEWS

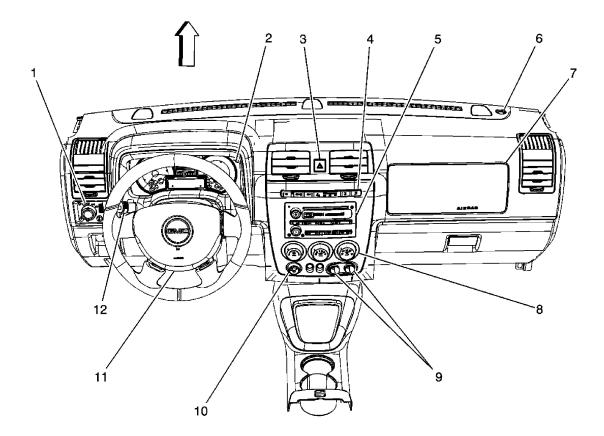
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



## **Fig. 23: Identifying Front Exterior Lights** Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Marker Lamp - LF
2	Park/Turn Signal Lamp - LF
3	Headlamp - Left
4	Fog Lamp - Left
5	Fog Lamp - Right
6	Headlamp - Right
7	Park/Turn Signal Lamp - RF
8	Marker Lamp - RF

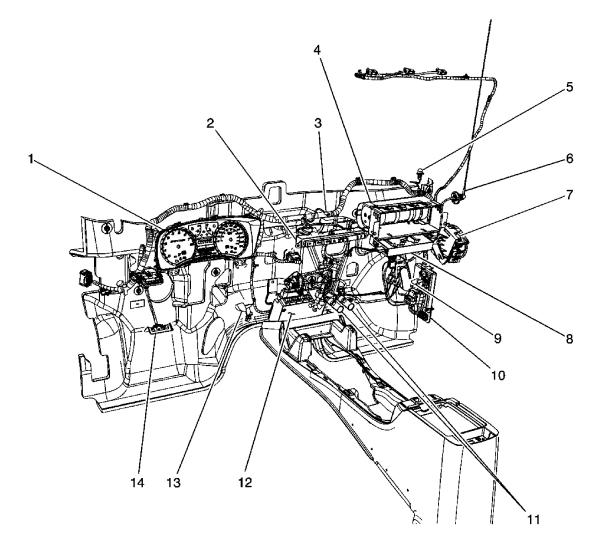
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



## **Fig. 24: Identifying I/P Harness Components Courtesy of GENERAL MOTORS CORP.**

Callout	Component Name
1	Headlamp Switch
2	Instrument Panel Cluster (IPC)
3	Hazard Switch
4	Accessory Switch
5	Radio
6	Ambient Light Sensor
7	Inflatable Restraint I/P Module
8	HVAC Control Module
9	Auxiliary Power Outlets - Front
10	Rear Window Wiper/Washer Switch
11	Inflatable Restraint Steering Wheel Module
12	Turn Signal/Multifunction Switch

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

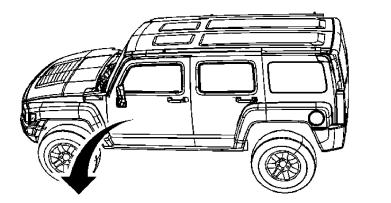


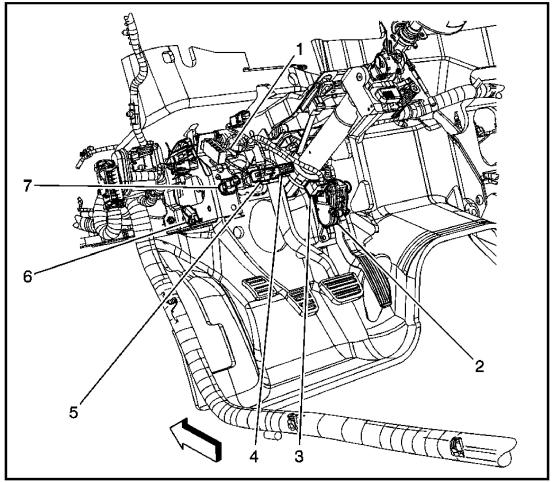
## **Fig. 25: Identifying I/P Harness Components Courtesy of GENERAL MOTORS CORP.**

Callout	Component Name
1	Instrument Panel Cluster (IPC)
2	Accessory Switch
3	Hazard Switch
4	Inflatable Restraint I/P Module
5	Ambient Light Sensor
6	Antenna - Base
7	Transfer Case Shift Control Module
8	Digital Radio Receiver

9	Courtesy Lamp Footwell - Right
10	Body Control Module (BCM)
11	Auxiliary Power Outlets - Front
12	Vehicle Communication Interface Module (VCIM)
13	Courtesy Lamp Footwell - Left
14	Data Link Connector (DLC)

2007 ACCESSORIES & EQUIPMENT Lighting - H3



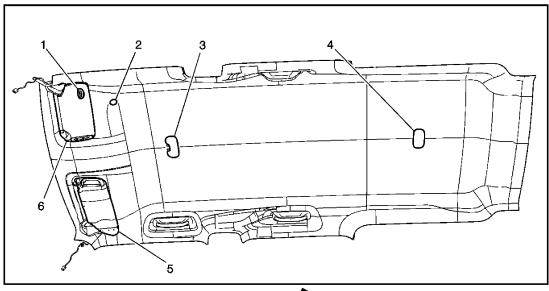


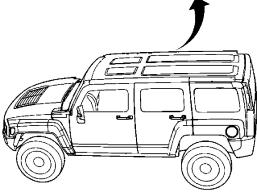
## **Fig. 26: View Of Lower Left Side of I/P** Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Clutch Start Switch (MA5)

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2	Accelerator Pedal Position (APP) Sensor
3	Steering Wheel Position Sensor (JL4)
4	TCC Brake/Cruise Release Switch
5	Stop Lamp Switch
6	Park Brake Switch
7	Clutch Release Switch (MA5)



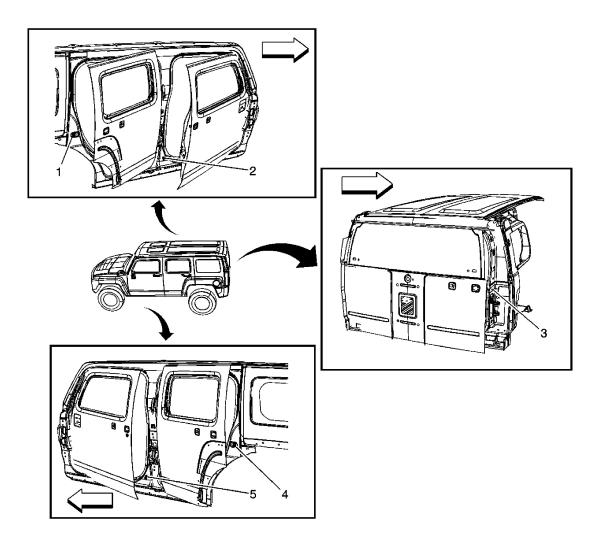


## **Fig. 27: Identifying Headliner Components** Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Garage Door Opener
2	Cellular Microphone

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3	Dome/Reading Lamps
4	Dome Lamp
5	Sunshade - Right (YC3)
6	Sunshade - Left (YC3)

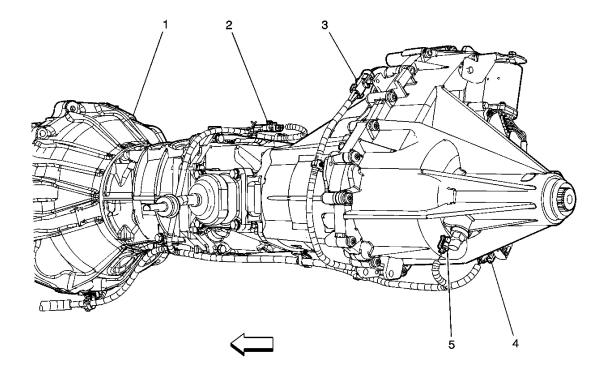


## **Fig. 28: Locating Door Ajar Switches** Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Door Ajar Switch - RR
2	Door Ajar Switch - Passenger
3	Endgate Ajar Switch

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

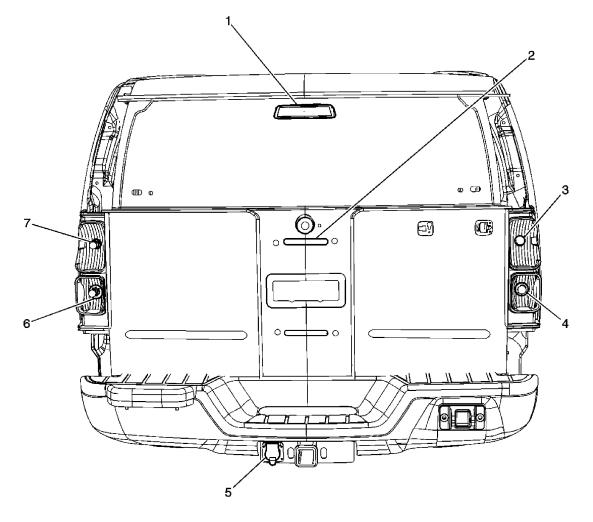
4	Door Ajar Switch - LR
5	Door Ajar Switch - Driver



## **Fig. 29: Identifying Rear Engine Harness (MA5)** Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Transmission Case
2	Backup Lamp Switch
3	Heated Oxygen Sensor (HO2S) 2
4	Transfer Case Encoder Motor Connector
5	Vehicle Speed Sensor (VSS) Connector

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



## **Fig. 30: Identifying Rear Exterior Lights** Courtesy of GENERAL MOTORS CORP.

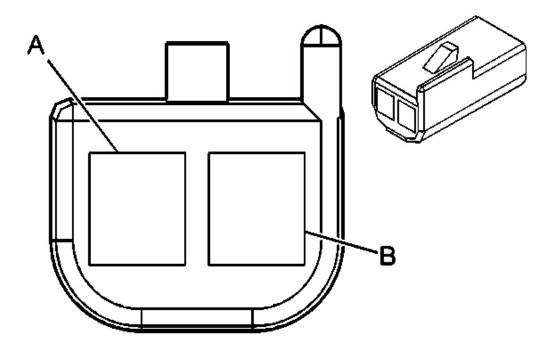
#### **Callouts For Fig. 30**

Callout	Component Name	
1	Center High Mounted Stop Lamp (CHMSL)	
2	License Lamp	
3	Fail/Stop and Turn Signal Lamp - Right	
4	Backup Lamp - Right	
5	Trailer Connector	
6	Backup Lamp - Left	
7	Tail/Stop and Turn Signal Lamp - Left	

#### LIGHTING SYSTEMS CONNECTOR END VIEWS

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

#### **Ambient Light Sensor**



## **Fig. 31: Ambient Light Sensor Connector End View Courtesy of GENERAL MOTORS CORP.**

# Lighting Systems Connector Parts Information

- OEM: 12047662
- Service: 12085535
- Description: 2-Way F Metri-Pack 150 Series (BK)

## **Terminal Part Information**

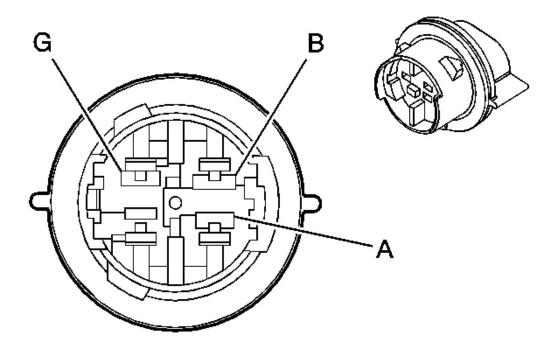
- Terminal/Tray: 12064971/5
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

## **Ambient Light Sensor Connector Terminal Identification**

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

Pin	Wire Color	Circuit No.	Function
А	WH	278	Ambient Light Sensor Signal
В	BK	279	Ambient Light Sensor Low Reference

Backup Lamp - Left



## **Fig. 32: Backup Lamp - Left Connector End View Courtesy of GENERAL MOTORS CORP.**

## Backup Lamp - Left Connector Parts Information

## **Connector Part Information**

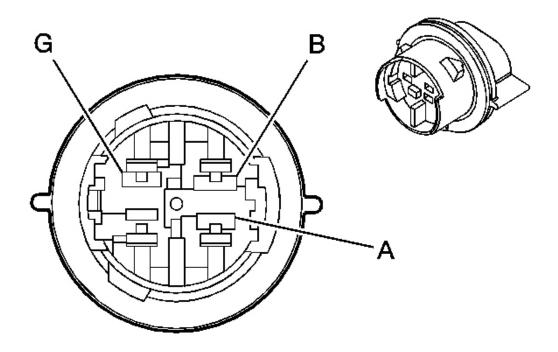
- OEM: 16530673
- Service: Not Serviced
- Description: 3-Way F Lamp Socket (L-GY)

## **Backup Lamp - Left Connector Terminal Identification**

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

А	L-GN	24	Backup Lamp Supply Voltage
В	-	-	Not Used
G	BK	1450	Ground

**Backup Lamp - Right** 



## **Fig. 33: Backup Lamp - Right Connector End View** Courtesy of GENERAL MOTORS CORP.

## Backup Lamp - Right Connector Parts Information Connector Part Information

# • OEM: 16530673

- Service: Not Serviced
- Description: 3-Way F Lamp Socket (L-GY)

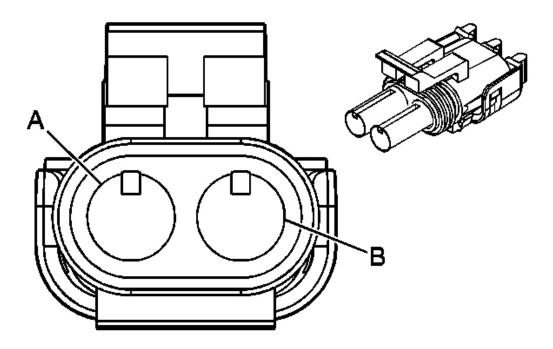
## **Backup Lamp - Right Connector Terminal Identification**

	. 0		
Pin	Wire Color	Circuit No.	Function

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

А	L-GN	24	Backup Lamp Supply Voltage
В	-	-	Not Used
G	BK	1550	Ground

Backup Lamp Switch (MA5)



**Fig. 34: Backup Lamp Switch (MA5) Connector End View** Courtesy of GENERAL MOTORS CORP.

## Backup Lamp Switch (MA5) Connector Parts Information Connector Part Information

- OEM: 12103584
- Service: 12085485
- Description: 2-Way M Weather Pack Tower Series, Sealed (BN)

## **Terminal Part Information**

• Terminal/Tray: 12089040/3

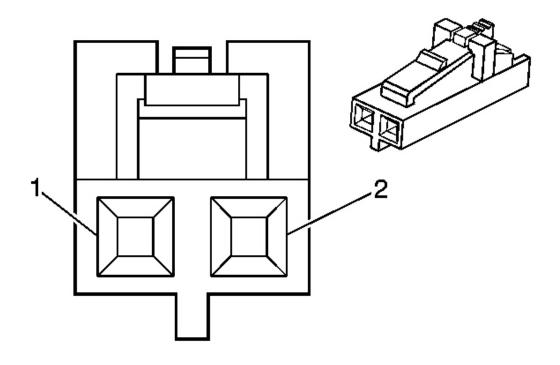
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Core/Insulation Crimp: E/5
- Release Tool/Test Probe: 12014012-1/J-35616-9 (OG)

# **Backup Lamp Switch (MA5) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
A	PK	539	Ignition 1 Voltage
В	L-GN	24	Backup Lamp Supply Voltage

Center High Mount Stop Lamp (CHMSL)



**Fig. 35: Center High Mount Stop Lamp (CHMSL) Connector End View** Courtesy of GENERAL MOTORS CORP.

# Center High Mount Stop Lamp (CHMSL) Connector Parts Information

# **Connector Part Information**

• OEM: 43645-0200

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Service: 88988705
- Description: 2-Way F Micro Fit (3.0) (BK)

# **Terminal Part Information**

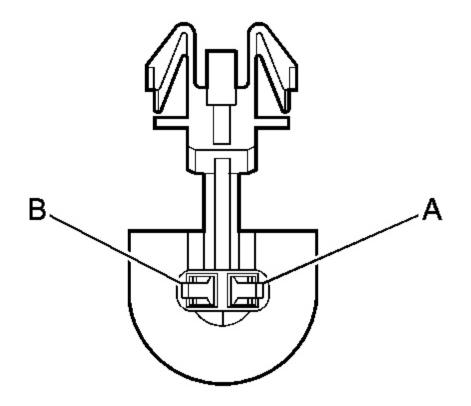
- Terminal/Tray: 43030-0010/23
- Core/Insulation Crimp: H/H
- Release Tool/Test Probe: J-38125-213/J-35616-64A (L-BU)

# Center High Mount Stop Lamp (CHMSL) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	BK	1450	Ground
2	L-BU	20	Stop Lamp Supply Voltage

**Courtesy Lamp - Footwell Left** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 36: Courtesy Lamp - Footwell Left Connector End View Courtesy of GENERAL MOTORS CORP.** 

Courtesy Lamp - Footwell Left Connector Parts Information Connector Part Information

- OEM: 15437400
- Service: See Catalog
- Description: 2-Way F Lamp Socket Wedge (BK)

# **Terminal Part Information**

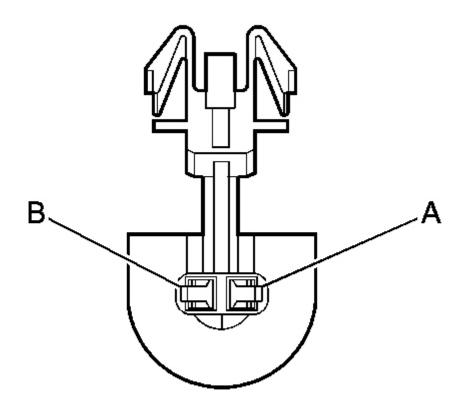
- Terminal/Tray: Service w/Pigtail
- Release Tool/Test Probe: See Terminal Kit

# **Courtesy Lamp - Footwell Left Connector Terminal Identification**

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

Pin	Wire Color	Circuit No.	Function
А	OG	1732	Inadvertent Power Supply Voltage
В	WH	156	Courtesy Lamp Low Control

**Courtesy Lamp - Footwell Right** 



**Fig. 37: Courtesy Lamp - Footwell Right Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Courtesy Lamp - Footwell Right Connector Parts Information Connector Part Information

- OEM: 15437400
- Service: See Catalog
- Description: 2-Way F Lamp Socket Wedge (BK)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

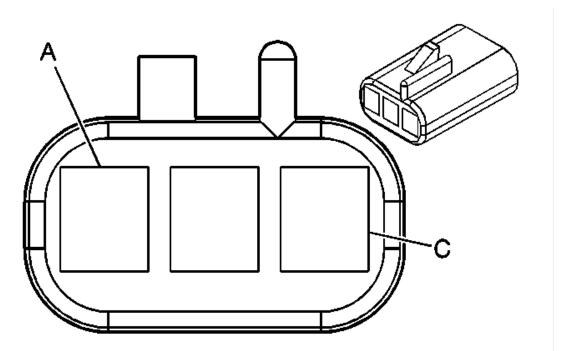
# **Terminal Part Information**

- Terminal/Tray: Service w/Pigtail
- Release Tool/Test Probe: See Terminal Kit

#### **Courtesy Lamp - Footwell Right Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
А	OG	1732	Inadvertent Power Supply Voltage
В	WH	156	Courtesy Lamp Low Control

Dome Lamp



**Fig. 38: Dome Lamp Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Dome Lamp Connector Parts Information

# **Connector Part Information**

- OEM: 12047781
- Service: 12101864
- Description: 3-Way F Metri-Pack 150 Series (BK)

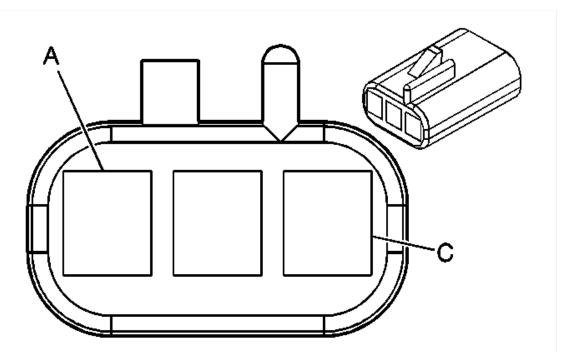
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Terminal/Tray: 12064971/5
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

# **Dome Lamp Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
Α	OG	1732	Inadvertent Power Supply Voltage
В	WH	156	Courtesy Lamp Low Control
C	-	-	Not Used

#### Dome/Reading Lamps



**Fig. 39: Dome/Reading Lamps Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Dome/Reading Lamps Connector Parts Information Connector Part Information

- OEM: 12047781
- Service: 12101864
- Description: 3-Way F Metri-Pack 150 Series (BK)

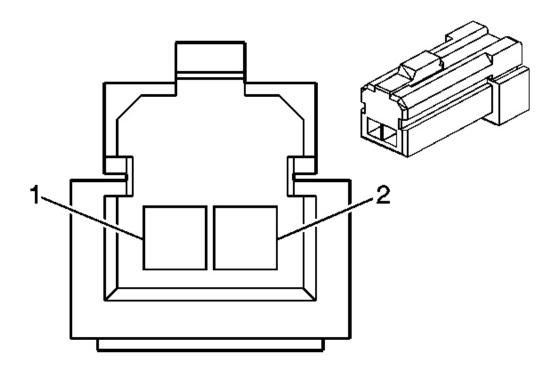
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Terminal/Tray: 12064971/5
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

#### **Dome/Reading Lamps Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
А	WH	156	Courtesy Lamp Low Control
В	OG	1732	Inadvertent Power Supply Voltage
C	BK	2050	Ground

Door Ajar Switch - Driver



**Fig. 40: Door Ajar Switch - Driver Connector End View Courtesy of GENERAL MOTORS CORP.** 

**Door Ajar Switch - Driver Connector Parts Information** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Connector Part Information**

- OEM: 174056-2
- Service: 15306434
- Description: 2-Way F MultiLock 040 (BK)

# **Terminal Part Information**

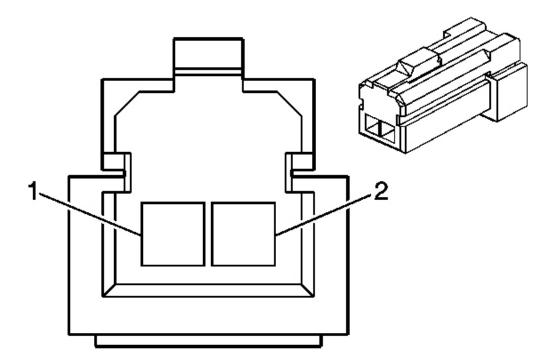
- Terminal/Tray: 173681-2/17
- Core/Insulation Crimp: E/4
- Release Tool/Test Probe: 15315247/J-35616-16 (L-GN)

# Door Ajar Switch - Driver Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	GY/BK	745	Left Front Door Ajar Switch Signal
2	BK/WH	1151	Ground

Door Ajar Switch - Passenger

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 41: Door Ajar Switch - Passenger Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Door Ajar Switch - Passenger Connector Parts Information Connector Part Information

- OEM: 174056-2
- Service: 15306434
- Description: 2-Way F MultiLock 040 (BK)

# **Terminal Part Information**

- Terminal/Tray: 173681-2/17
- Core/Insulation Crimp: E/4
- Release Tool/Test Probe: 15315247/J-35616-16 (L-GN)

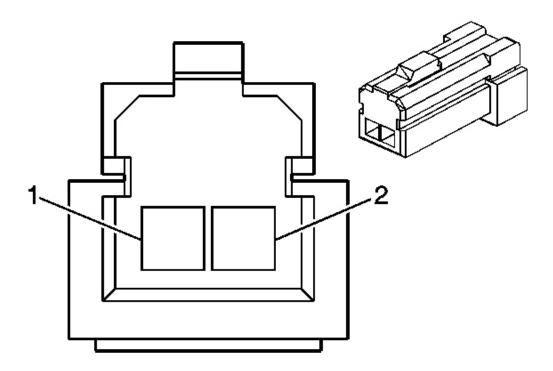
# **Door Ajar Switch - Passenger Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

1	L-GN/BK	748	Right Front Door Ajar Switch Signal
2	BK/WH	1251	Ground

#### Door Ajar Switch - Left Rear



# **Fig. 42: Door Ajar Switch - Left Rear Connector End View Courtesy of GENERAL MOTORS CORP.**

# Door Ajar Switch - Left Rear Connector Parts Information Connector Part Information

- OEM: 174056-2
- Service: 15306434
- Description: 2-Way F MultiLock 040 (BK)

# **Terminal Part Information**

• Terminal/Tray: 173681-2/17

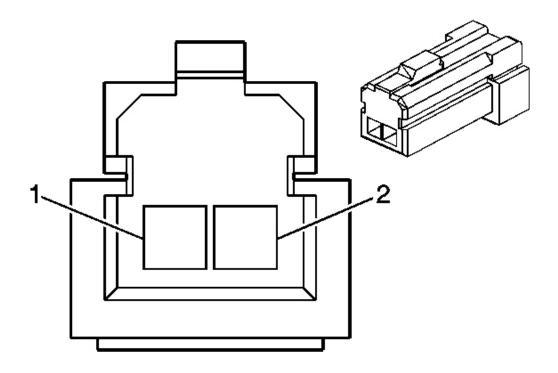
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Core/Insulation Crimp: E/4
- Release Tool/Test Probe: 15315247/J-35616-16 (L-GN)

# Door Ajar Switch - Left Rear Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	BK/WH	746	Left Rear Door Ajar Switch Signal
2	BK/WH	1151	Ground

Door Ajar Switch - Right Rear



**Fig. 43: Door Ajar Switch - Right Rear Connector End View** Courtesy of GENERAL MOTORS CORP.

**Door Ajar Switch - Right Rear Connector Parts Information** 

# **Connector Part Information**

• OEM: 174056-2

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Service: 15306434
- Description: 2-Way F MultiLock 040 (BK)

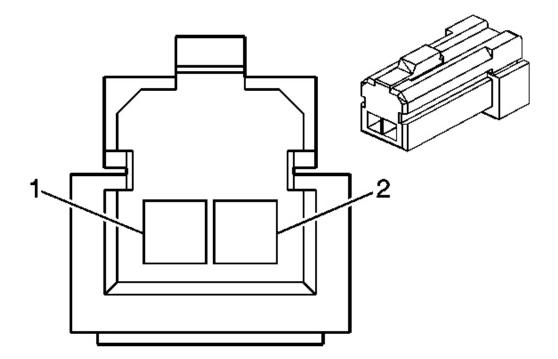
# **Terminal Part Information**

- Terminal/Tray: 173681-2/17
- Core/Insulation Crimp: E/4
- Release Tool/Test Probe: 15315247/J-35616-16 (L-GN)

# Door Ajar Switch - Right Rear Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	L-BU/BK	747	Right Rear Door Ajar Switch Signal
2	BK/WH	1251	Ground

**Endgate Ajar Switch** 



**Fig. 44: Endgate Ajar Switch Connector End View Courtesy of GENERAL MOTORS CORP.** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Endgate Ajar Switch Connector Parts Information**

# **Connector Part Information**

- OEM: 174056-2
- Service: 15306434
- Description: 2-Way F MultiLock 040 (BK)

# **Terminal Part Information**

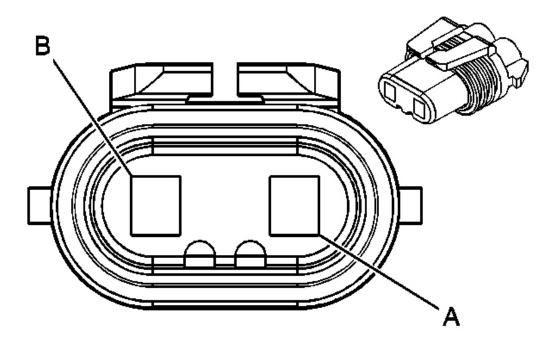
- Terminal/Tray: 173681-2/17
- Core/Insulation Crimp: E/4
- Release Tool/Test Probe: 15315247/J-35616-16 (L-GN)

# **Endgate Ajar Switch Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
1	L-BU/BK	747	Right Rear Door Ajar Switch Signal
2	BK/WH	1251	Ground

Front Fog Lamp - Left

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 45: Front Fog Lamp - Left Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Front Fog Lamp - Left Connector Parts Information Connector Part Information

- OEM: 12059183
- Service: 12101898
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

#### Front Fog Lamp - Left Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function	
А	PU	34	Front Fog Lamp Supply Voltage	

2007 Hummer H3						
	2007 AC	CESSORIES & E	QUIPMENT Lighting - H3			
B	ВК	850	Ground	1		
nt Fog Lamp - R	ight					
~ -	-					
B			A COURT			
в						
B						
B						
В						

А

# **Fig. 46: Front Fog Lamp - Right Connector End View Courtesy of GENERAL MOTORS CORP.**

# Front Fog Lamp - Right Connector Parts Information Connector Part Information

- OEM: 12059183
- Service: 12101898
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

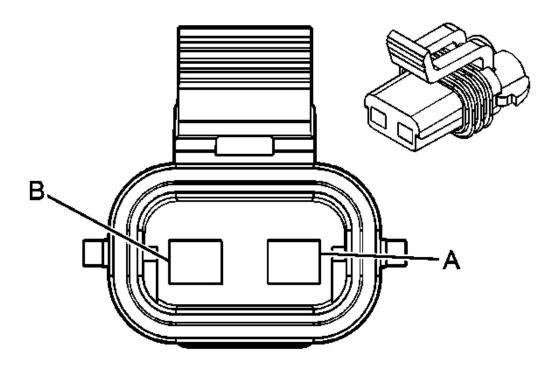
- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

Pin	Wire Color	Circuit No.	Function
А	PU	34	Front Fog Lamp Supply Voltage
В	BK	850	Ground

#### **Front Fog Lamp - Right Connector Terminal Identification**

**Front Position Lamp - Left (Export)** 



**Fig. 47: Front Position Lamp - Left (Export) Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Front Position Lamp - Left (Export) Connector Parts Information Connector Part Information

- OEM: 15300027
- Service: 12101855
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

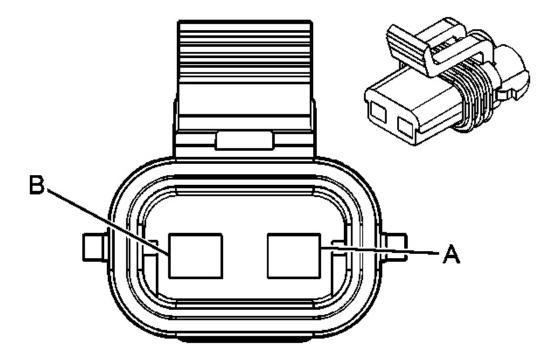
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

# Front Position Lamp - Left (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
Α	BN	2309	Front Position Lamps Supply Voltage
В	BK	850	Ground

Front Position Lamp - Right (Export)



**Fig. 48: Front Position Lamp - Right (Export) Connector End Views** Courtesy of GENERAL MOTORS CORP.

Front Position Lamp - Right (Export) Connector Parts Information

**Connector Part Information** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- OEM: 15300027
- Service: 12101855
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

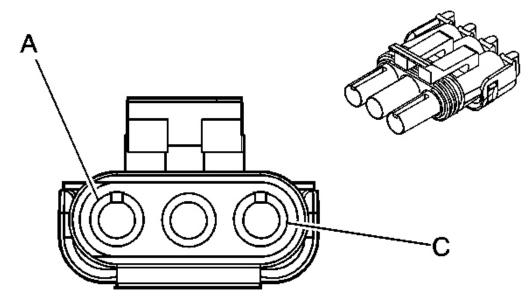
# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

# Front Position Lamp - Right (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	BN	2309	Front Position Lamps Supply Voltage
В	BK	850	Ground

Rear Fog Lamp - Left (T79)



**Fig. 49: Rear Fog Lamp - Left (T79) Connector End View Courtesy of GENERAL MOTORS CORP.** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Rear Fog Lamp - Left (T79) Connector Parts Information**

- OEM: 12015793
- Service: 12101923
- Description: 3-Way F Weather Pack Series, Sealed (BK)

# **Terminal Part Information**

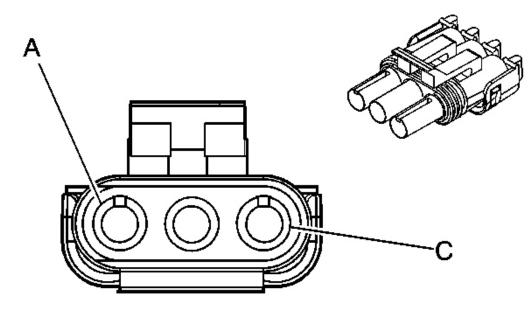
- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

#### Rear Fog Lamp - Left (T79) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
Α	OR	122	Rear Fog Lamp Supply Voltage
В	BK	1350	Ground
C	-	-	Not Used

Rear Fog Lamp - Right (T79)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 50: Rear Fog Lamp - Right (T79) Connector End View** Courtesy of GENERAL MOTORS CORP.

# Rear Fog Lamp - Right (T79) Connector Parts Information

# **Connector Part Information**

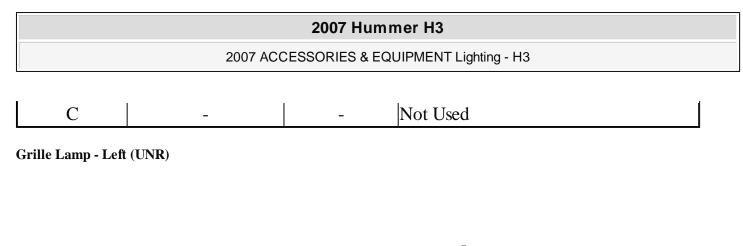
- OEM: 12015793
- Service: 12101923
- Description: 3-Way F Weather Pack Series, Sealed (BK)

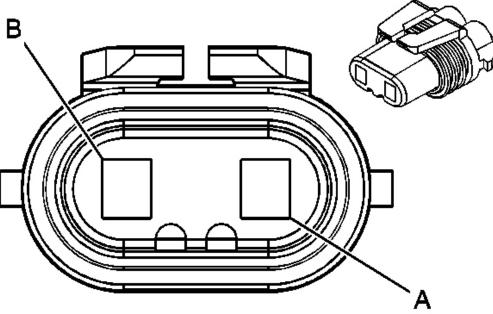
# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

#### **Rear Fog Lamp - Right (T79) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
Α	OR	122	Rear Fog Lamp Supply Voltage
В	BK	1350	Ground





# **Fig. 51: Grille Lamp - Left (UNR) Connector End Views** Courtesy of GENERAL MOTORS CORP.

# Grille Lamp - Left (UNR) Connector Parts Information Connector Part Information

- OEM: 12059183
- Service: 12101898
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

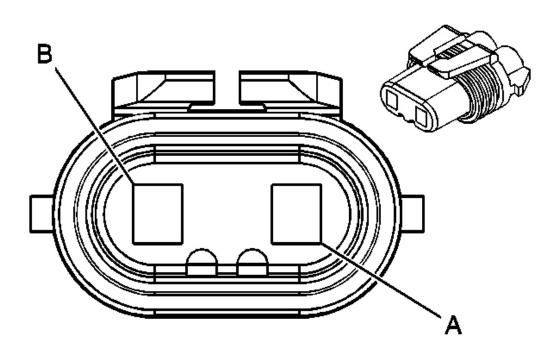
- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

Grine Lamp - Left (UNK) Connector Terminal Identification						
Pin	Wire Color	Circuit No.	Function			
А	BN	-	Grille Lamp Supply Voltage			
В	BK	850	Ground			

# **Grille Lamp - Left (UNR) Connector Terminal Identification**

Grille Lamp - Right (UNR)



**Fig. 52:** Grille Lamp - Right (UNR) Connector End Views Courtesy of GENERAL MOTORS CORP.

# Grille Lamp - Right (UNR) Connector Parts Information Connector Part Information

- OEM: 12059183
- Service: 12101898
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

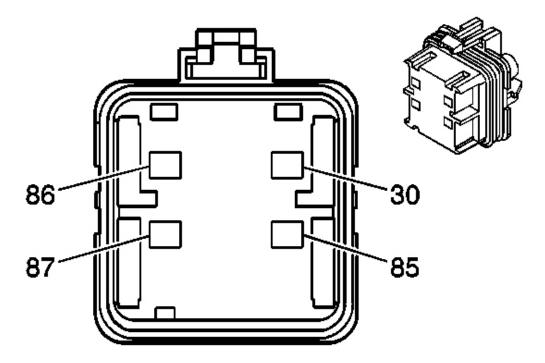
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

# Grille Lamp - Right (UNR) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
Α	BN	-	Grille Lamp Supply Voltage
В	BK	850	Ground

Grille Lamps Relay (UNR)



# **Fig. 53:** Grille Lamps Relay (UNR) Connector End Views Courtesy of GENERAL MOTORS CORP.

**Grille Lamps Relay (UNR) Connector Parts Information** 

#### **Connector Part Information**

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- OEM: 12129716
- Service: 15306045
- Description: 4-Way F Metri-Pack 280 Series, Flexlock (GY)

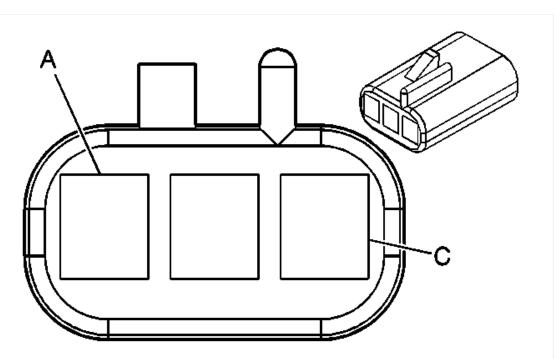
# **Terminal Part Information**

- Terminal/Tray: 12129409/4
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

# Grille Lamps Relay (UNR) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
30	D-BU	-	Battery Positive Voltage
85	GN	-	Grille Lamps Relay Coil Control
86	L-BU	-	Accessory Voltage
87	BN	-	Grille Lamp Supply Voltage

Grille Lamps Switch (UNR)



**Fig. 54: Grille Lamps Switch (UNR) Connector End Views** Courtesy of GENERAL MOTORS CORP.

Grille Lamps Switch (UNR) Connector Parts Information

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Connector Part Information**

- OEM: 12047781
- Service: 12101864
- Description: 3-Way F Metri-Pack 150 Series (BK)

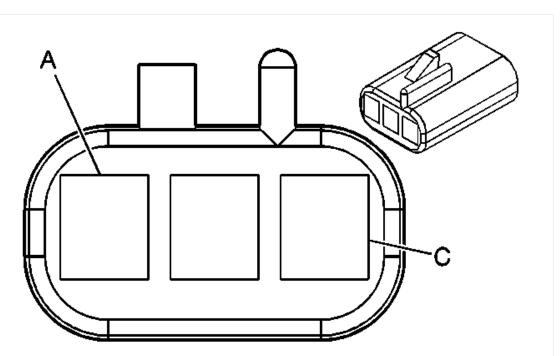
# **Terminal Part Information**

- Terminal/Tray: 12047767/2
- Core/Insulation Crimp: E/A
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

# Grille Lamps Switch (UNR) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	BN	-	Grille Lamps Supply Voltage
В	BK	2050	Ground
С	GN	-	Grille Lamps Relay Coil Control

Hazard Switch



**Fig. 55: Hazard Switch Connector End View Courtesy of GENERAL MOTORS CORP.** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# Hazard Switch Connector Parts Information

# **Connector Part Information**

- OEM: 12047781
- Service: 12101864
- Description: 3-Way F Metri-Pack 150 Series (BK)

# **Terminal Part Information**

- Terminal/Tray: 12064971/5
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

# Hazard Switch Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	GY	X	Instrument Panel Lamps Dimmer Switch Signal
В	BK	2050	Ground
C	WH	111	Hazard Switch Signal

Headlamp - Left (Domestic)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

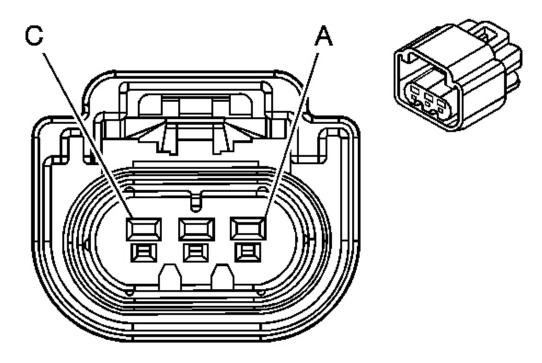


Fig. 56: Headlamp - Left (Domestic) Connector End View Courtesy of GENERAL MOTORS CORP.

# Headlamp - Left (Domestic) Connector Parts Information Connector Part Information

- OEM: 15422250
- Service: 88987995
- Description: 3-Way F GT 150 Series, Sealed (D-GY)

# **Terminal Part Information**

- Terminal/Tray: 12191818/8
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

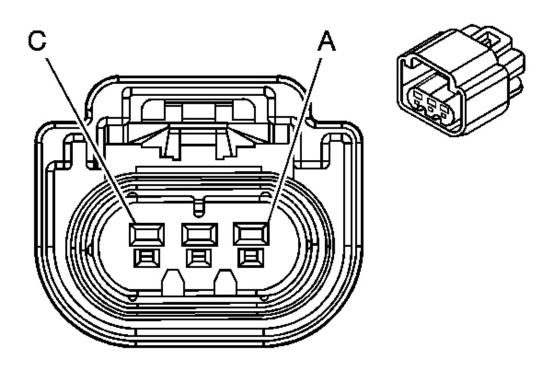
# Headlamp - Left (Domestic) Connector Terminal Identification

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#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

А	D-BU	1201	Low Beam Switched Ground
В	OG	640	Battery Positive Voltage
С	РК	1200	High Beam Switched Ground

Headlamp - Right (Domestic)



**Fig. 57: Headlamp - Right (Domestic) Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Headlamp - Right (Domestic) Connector Parts Information Connector Part Information

- OEM: 15422250
- Service: 88987995
- Description: 3-Way F GT 150 Series, Sealed (D-GY)

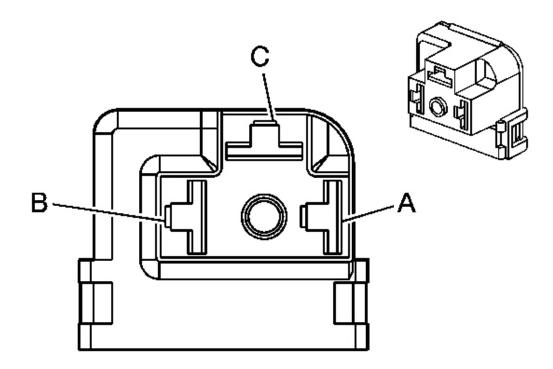
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Terminal/Tray: 12191818/8
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

### Headlamp - Right (Domestic) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	D-BU	1201	Low Beam Switched Ground
В	OG	640	Battery Positive Voltage
С	PK	1200	High Beam Switched Ground

Headlamp - Left (Export)



# **Fig. 58: Headlamp - Left (Export) Connector End View Courtesy of GENERAL MOTORS CORP.**

# Headlamp - Left (Export) Connector Parts Information

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Connector Part Information**

- OEM: 12034372
- Service: 12117369
- Description: 3-Way F Metri-Pack 800 Unsealed (BK)

# **Terminal Part Information**

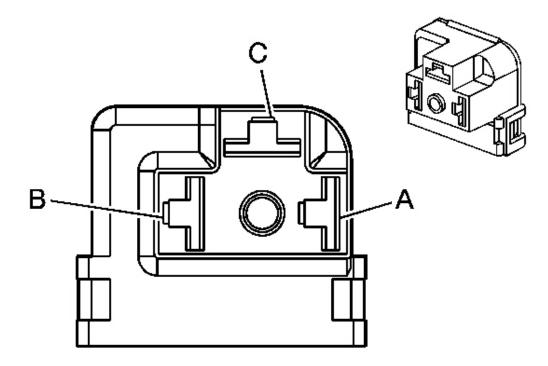
- Terminal/Tray: 12191818/8
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

# Headlamp - Left (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	OR	740	Battery Positive Voltage
В	PK	1200	High Beam Switched Ground
С	D-BU	1201	Low Beam Switched Ground

Headlamp - Right (Export)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 59: Headlamp - Right (Export) Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Headlamp - Right (Export) Connector Parts Information Connector Part Information

- OEM: 12034372
- Service: 12117369
- Description: 3-Way F Metri-Pack 800 Unsealed (BK)

# **Terminal Part Information**

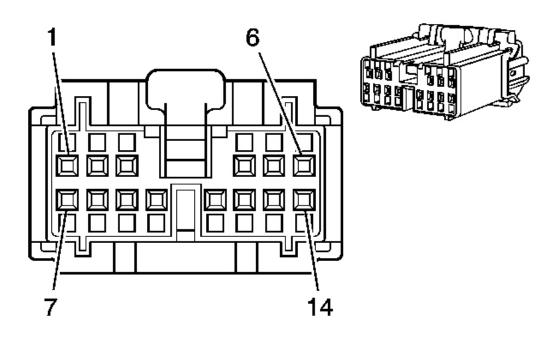
- Terminal/Tray: 12191818/8
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

# Headlamp - Right (Export) Connector Terminal Identification

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

Pin	Wire Color	Circuit No.	Function
Α	OR	640	Battery Positive Voltage
В	РК	1200	High Beam Switched Ground
C	D-BU	1201	Low Beam Switched Ground

**Headlamp Switch** 



# **Fig. 60: Headlamp Switch Connector End View Courtesy of GENERAL MOTORS CORP.**

# Headlamp Switch Connector Parts Information

# **Connector Part Information**

- OEM: IL-AG5-14S-D3C1-A
- Service: 88986257
- Description: 14-Way F 025, IL-AG5 Series (GN)

# **Terminal Part Information**

• Terminal/Tray: IL-AG5-C1-5000/20

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

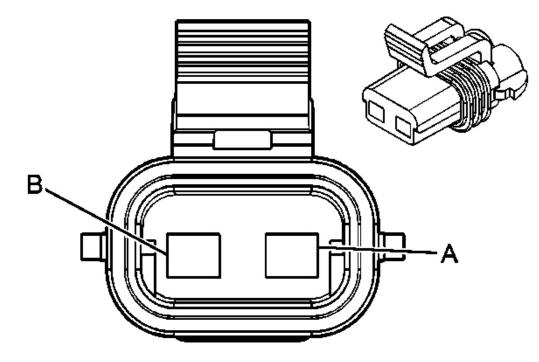
- Core/Insulation Crimp: K/K
- Release Tool/Test Probe: J-38125-211/J-35616-64A (L-BU)

# Headlamp Switch Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	D-BU/WH	1495	Dome Override Switch Signal
2	BN/WH	301	Park Lamp Switch Signal
3	PU	719	Low Reference
4	WH	103	Headlamp Switch On Signal
5	PU/WH	549	Headlamp Switch Headlamps Off Signal
6	GY	8	Instrument Panel Lamps Dimmer Switch Signal
7	OG	192	Front Fog Lamp Switch Signal
8	YE	183	Front Fog Lamp Indicator Control
9	YE	543	Accessory Voltage (Export)
10	D-BU/WH	6796	Voice Recognition Switch Output Signal (UE1)
	L-BU	187	Rear Fog Lamp Switch Signal
11	PU	328	Interior Lamp Switch Signal
12	D-GN	189	Headlamp Leveling Motor Supply Voltage
13	D-BU	184	Rear Fog Lamp Indicator Control
14	BN/WH	230	Instrument Panel Lamps Dimming Control

License Lamp (Domestic)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 61: License Lamp (Domestic) Connectors End Vie** Courtesy of GENERAL MOTORS CORP.

# License Lamp (Domestic) Connector Parts Information Connector Part Information

- OEM: 15300027
- Service: 12101855
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

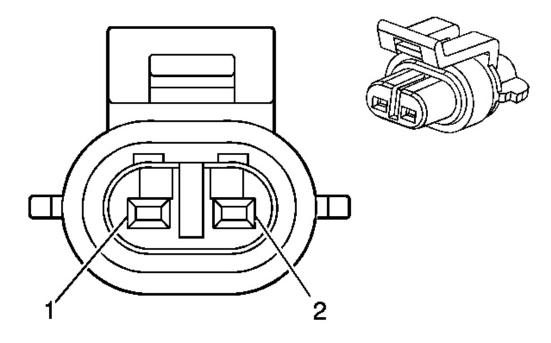
# License Lamp (Domestic) Connector Terminal Identification

	Pin	Wire Color	Circuit No.	Function
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#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

А	BN/WH	2609	Right Rear Park Lamp Supply Voltage
В	BK	1350	Ground

License Lamp - Left (Export)



# **Fig. 62: License Lamp - Left (Export) Connector End View** Courtesy of GENERAL MOTORS CORP.

# License Lamp - Left (Export) Connector Parts Information Connector Part Information

- OEM: 15336195
- Service: 88988136
- Description: 2-Way F GT 150 Series, Sealed (BK)

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5

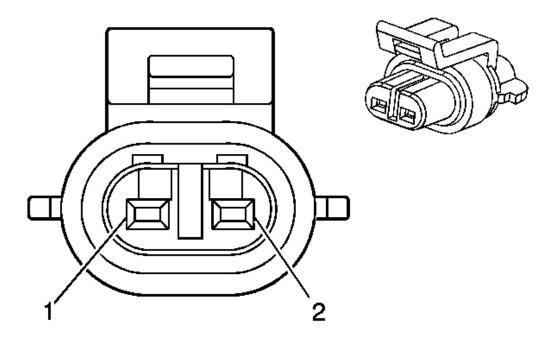
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

• Release Tool/Test Probe: 12094430/J-35616-4A (PU)

#### License Lamp - Left (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	BN/WH	2609	Right Rear Park Lamp Supply Voltage
2	BK	1350	Ground

License Lamp - Right (Export)



# **Fig. 63: License Lamp - Right (Export) Connector End View** Courtesy of GENERAL MOTORS CORP.

# License Lamp - Right (Export) Connector Parts Information Connector Part Information

- OEM: 15336195
- Service: 88988136
- Description: 2-Way F GT 150 Series, Sealed (BK)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

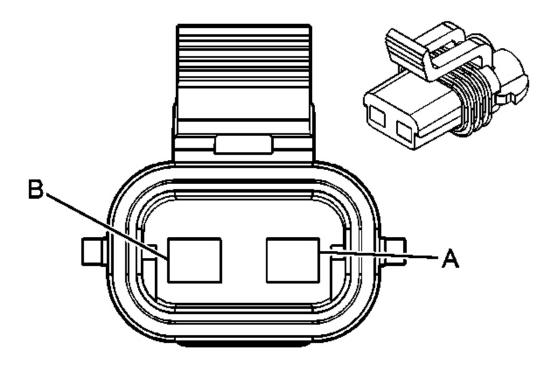
# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

## License Lamp - Right (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	BN/WH	2609	Right Rear Park Lamp Supply Voltage
2	BK	1350	Ground

Marker Lamp - Left Front



**Fig. 64: Marker Lamp - Left Front Connector End View Courtesy of GENERAL MOTORS CORP.** 

**Marker Lamp - Left Front Connector Parts Information** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Connector Part Information**

- OEM: 15300027
- Service: 12101855
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

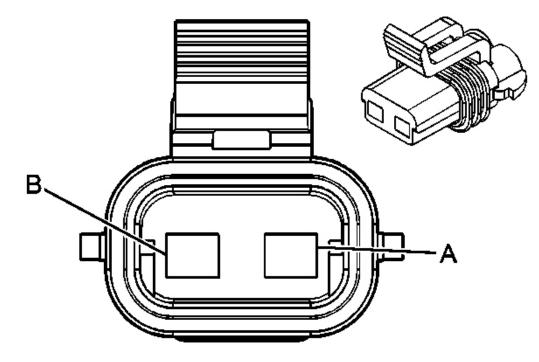
- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

## Marker Lamp - Left Front Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	BN	9	Park Lamp Supply Voltage
В	BK	850	Ground

Marker Lamp - Right Front

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 65: Marker Lamp - Right Front Connector End Views Courtesy of GENERAL MOTORS CORP.** 

# Marker Lamp - Right Front Connector Parts Information Connector Part Information

- OEM: 15300027
- Service: 12101855
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

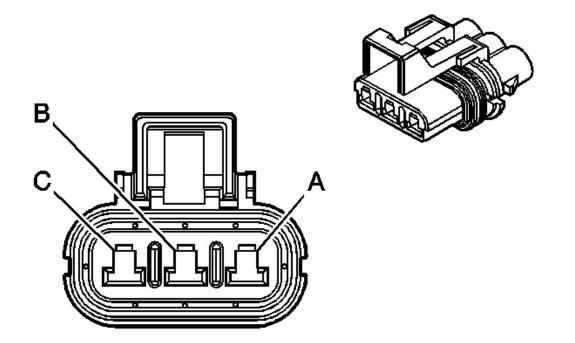
## **Marker Lamp - Right Front Connector Terminal Identification**

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#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

А	BN	9	Park Lamp Supply Voltage
В	BK	850	Ground

#### Park/Turn Signal Lamp - Left Front (Domestic)



# Fig. 66: Park/Turn Signal Lamp - Left Front (Domestic) Connector End View Courtesy of GENERAL MOTORS CORP.

# Park/Turn Signal Lamp - Left Front (Domestic) Connector Parts Information Connector Part Information

- OEM: 12040977
- Service: 12085492
- Description: 3-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5

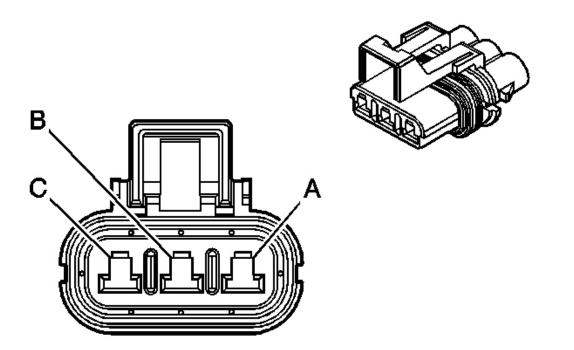
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

• Release Tool/Test Probe: 12094430/J-35616-4A (PU)

## Park/Turn Signal Lamp - Left Front (Domestic) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	D-BU	15	Right Turn Signal Lamp Supply Voltage
В	BN	9	Park Lamp Supply Voltage
С	BK	850	Ground

Park/Turn Signal Lamp - Right Front (Domestic)



<u>Fig. 67: Park/Turn Signal Lamp - Right Front (Domestic) Connector End View</u> Courtesy of GENERAL MOTORS CORP.

Park/Turn Signal Lamp - Right Front (Domestic) Connector Parts Information

# **Connector Part Information**

• OEM: 12040977

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Service: 12085492
- Description: 3-Way F Metri-Pack 280 Series, Sealed (BK)

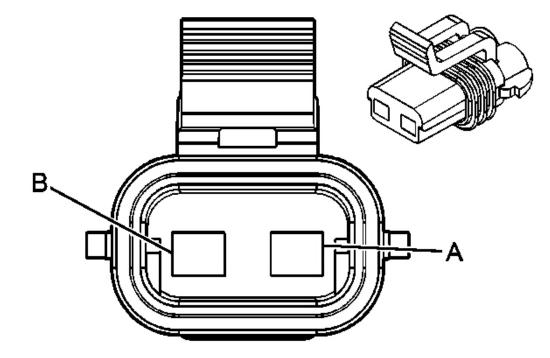
# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

# Park/Turn Signal Lamp - Right Front (Domestic) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	D-BU	15	Right Turn Signal Lamp Supply Voltage
В	BN	9	Park Lamp Supply Voltage
С	BK	850	Ground

**Repeater Lamp - Left (Export)** 



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# **Fig. 68: Repeater Lamp - Left (Export) Connector End Views Courtesy of GENERAL MOTORS CORP.**

# **Repeater Lamp - Left (Export) Connector Parts Information Connector Part Information**

- OEM: 15300027
- Service: 12101855
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

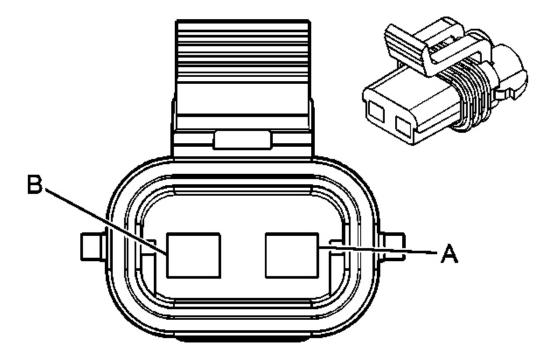
- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

## **Repeater Lamp - Left (Export) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
А	L-BU	14	Roof Lamps Supply Voltage
В	BK	850	Ground

**Repeater Lamp - Right (Export)** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 69: Repeater Lamp - Right (Export) Connector End View** Courtesy of GENERAL MOTORS CORP.

# **Repeater Lamp - Right (Export) Connector Parts Information Connector Part Information**

- OEM: 15300027
- Service: 12101855
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

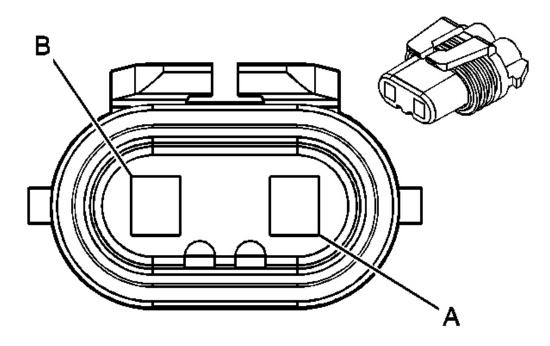
## **Repeater Lamp - Right (Export) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

А	D-BU	15	Roof Lamps Supply Voltage
В	BK	850	Ground

Roof Lamp - Left (UNJ)



# **Fig. 70: Roof Lamp - Left (UNJ) Connector End View** Courtesy of GENERAL MOTORS CORP.

# **Roof Lamp - Left (UNJ) Connector Parts Information**

- OEM: 12059183
- Service: 12101898
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5

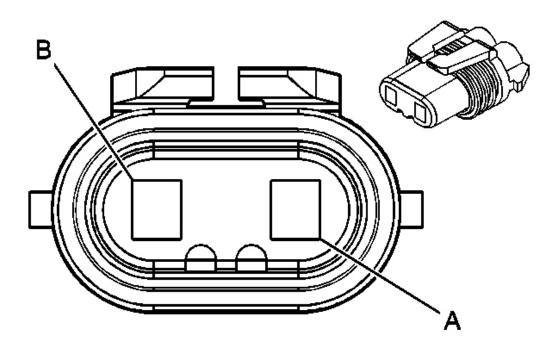
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

• Release Tool/Test Probe: 12094430/J-35616-4A (PU)

## **Roof Lamp - Left (UNJ) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
А	OG	-	Roof Lamps Supply Voltage
В	BK	850	Ground

Roof Lamp - Right (UNJ)



**Fig. 71: Roof Lamp - Right (UNJ) Connector End View Courtesy of GENERAL MOTORS CORP.** 

# **Roof Lamp - Right (UNJ) Connector Parts Information**

- OEM: 12059183
- Service: 12101898
- Description: 2-Way F Metri-Pack 280 Series, Sealed (BK)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

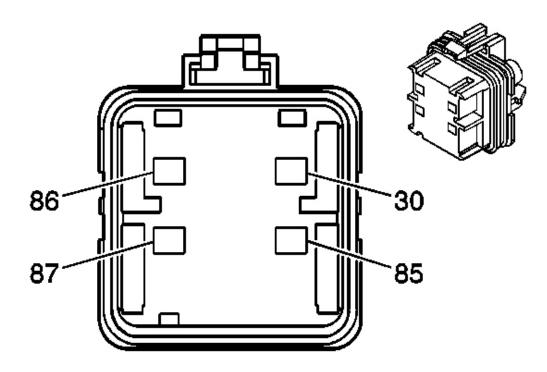
# **Terminal Part Information**

- Terminal/Tray: 12077411/2
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12094430/J-35616-4A (PU)

## **Roof Lamp - Right (UNJ) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
A	OG	-	Roof Lamps Supply Voltage
В	BK	850	Ground

Roof Lamps Relay (UNJ)



**Fig. 72: Roof Lamps Relay (UNJ) Connector End View Courtesy of GENERAL MOTORS CORP.** 

**Roof Lamps Relay (UNJ) Connector Parts Information** 

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# **Connector Part Information**

- OEM: 12129716
- Service: 15306045
- Description: 4-Way F Metri-Pack 280 Series, Flexlock (GY)

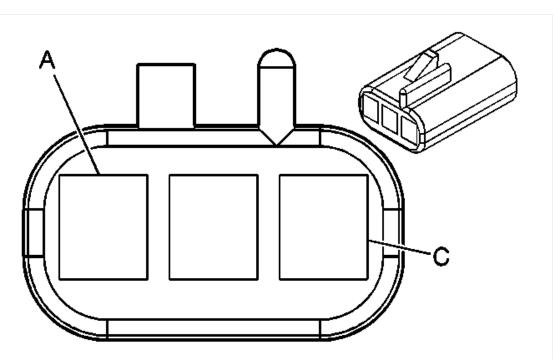
# **Terminal Part Information**

- Terminal/Tray: 12129409/4
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

## **Roof Lamps Relay (UNJ) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
30	RD	-	Battery Positive Voltage
85	WH	-	Roof Lamps Relay Coil Control
86	RD	-	Battery Positive Voltage
87	OG	-	Roof Lamps Supply Voltage

**Roof Lamps Switch (UNJ)** 



**Fig. 73: Roof Lamps Switch (UNJ) Connector End View Courtesy of GENERAL MOTORS CORP.** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Roof Lamps Switch (UNJ) Connector Parts Information**

- OEM: 12047781
- Service: 12101864
- Description: 3-Way F Metri-Pack 150 Series (BK)

# **Terminal Part Information**

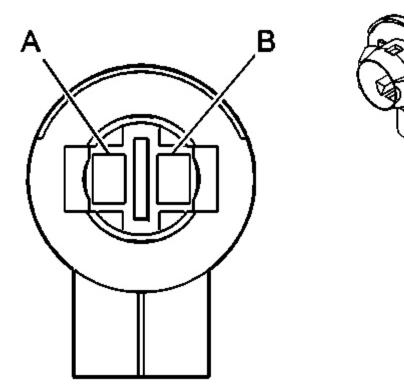
- Terminal/Tray: 12047767/2
- Core/Insulation Crimp: E/A
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

## **Roof Lamps Switch (UNJ) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
Α	OG	-	Roof Lamps Supply Voltage
В	BK	2050	Ground
C	WH	-	Roof Lamps Relay Coil Control

**Roof Marker Lamps (UNH)** 

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# **Fig. 74: Roof Marker Lamps (UNH) Connector End View Courtesy of GENERAL MOTORS CORP.**

# **Roof Marker Lamps (UNH) Connector Parts Information Connector Part Information**

- OEM: 12146418
- Service: See Catalog
- Description: 2-Way F Lamp Socket Wedge Series, Sealed (L-GY)

# **Terminal Part Information**

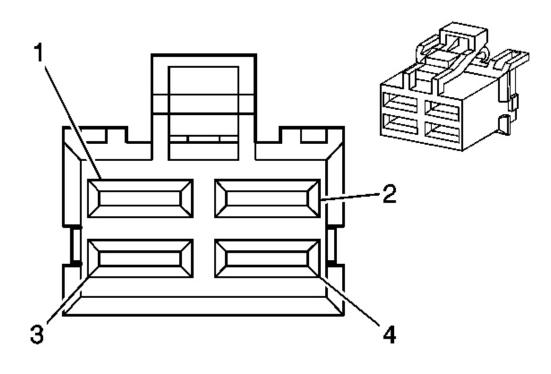
- Terminal/Tray: 1206638/5
- Core/Insulation Crimp: 2/5
- Release Tool/Test Probe: 12180559-1/J-35616-4A (PU)

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# **Roof Marker Lamps (UNH) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
А	RD	9	Park Lamp Supply Voltage
В	BK	850	Ground

Stop Lamp Switch



# **Fig. 75: Stop Lamp Switch Connector End View Courtesy of GENERAL MOTORS CORP.**

# Stop Lamp Switch Connector Parts Information Connector Part Information

- OEM: 7123-6043-30
- Service: 88987863
- Description: 4-Way F 58 M-Type (GY)

## **Terminal Part Information**

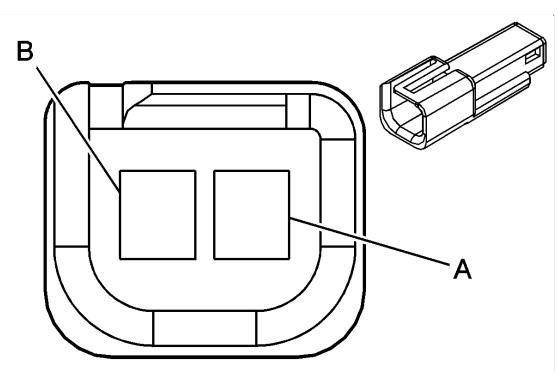
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Terminal/Tray: 7116-2876/10
- Core/Insulation Crimp: C/B
- Release Tool/Test Probe: 12094430/J-35616-42 (RD)

## **Stop Lamp Switch Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
1	OG	140	Battery Positive Voltage
2	L-BU	20	Stop Lamp Supply Voltage
3-4	-	-	Not Used

Sunshade - Left (YC3)



**Fig. 76: Sunshade - Left (YC3) Connector End View Courtesy of GENERAL MOTORS CORP.** 

Sunshade - Left (YC3) Connector Parts Information Connector Part Information

- OEM: 12047663
- Service: 12085481
- Description: 2-Way M Metri-Pack 150 Series (BK)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

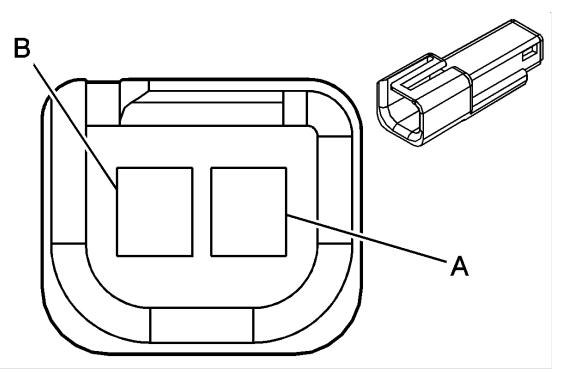
# **Terminal Part Information**

- Terminal/Tray: 12059894/5
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

## Sunshade - Left (YC3) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
Α	BK	2050	Ground
В	OG	1732	Inadvertent Power Supply Voltage

Sunshade - Right (YC3)



**Fig. 77: Sunshade - Right (YC3) Connector End View Courtesy of GENERAL MOTORS CORP.** 

## Sunshade - Right (YC3) Connector Parts Information Connector Part Information

- OEM: 12047663
- Service: 12085481
- Description: 2-Way M Metri-Pack 150 Series (BK)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Terminal Part Information**

- Terminal/Tray: 12059894/5
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

## Sunshade - Right (YC3) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
Α	BK	2050	Ground
В	OG	1732	Inadvertent Power Supply Voltage

Tail/Stop and Turn Signal Lamp - Left (Domestic)

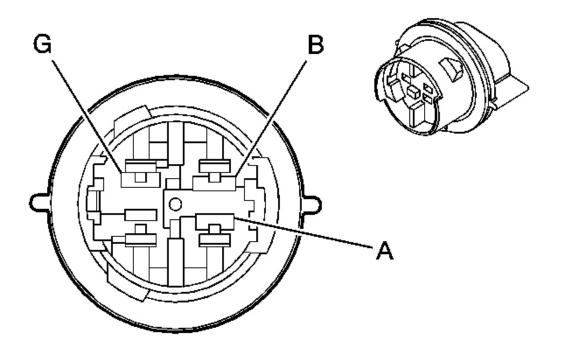


Fig. 78: Tail/Stop and Turn Signal Lamp - Left (Domestic) Connector End View Courtesy of GENERAL MOTORS CORP.

Tail/Stop and Turn Signal Lamp - Left (Domestic) Connector Parts Information

**Connector Part Information** 

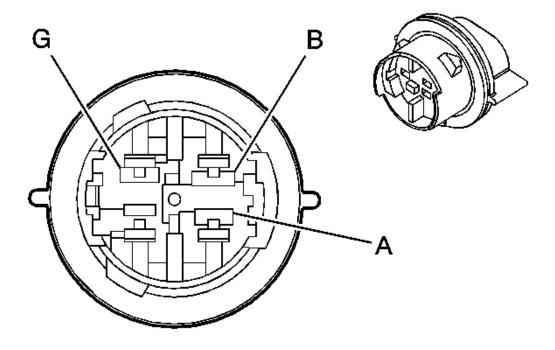
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- OEM: 16530671
- Service: Not Serviced
- Description: 3-Way F Lamp Socket (D-GY)

## Tail/Stop and Turn Signal Lamp - Left (Domestic) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	D-BU		Left Rear Stop/Turn Lamp Supply
			Voltage
В	BN	2509	Left Rear Park Lamp Supply Voltage
G	BK	1450	Ground
U	BK	1450	Ground

Tail/Stop and Turn Signal Lamp - Right (Domestic)



<u>Fig. 79: Tail/Stop and Turn Signal Lamp - Right (Domestic) Connector End View</u> Courtesy of GENERAL MOTORS CORP.

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# Tail/Stop and Turn Signal Lamp - Right (Domestic) Connector Parts InformationConnector Part Information

- OEM: 16530671
- Service: Not Serviced
- Description: 3-Way F Lamp Socket (D-GY)

## Tail/Stop and Turn Signal Lamp - Right (Domestic) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	D-BU	19	Right Rear Stop/Turn Lamp Supply Voltage
В	BN	2509	Right Rear Park Lamp Supply Voltage
C	BK	1550	Ground
U	BK	1550	Ground

Tail/Stop Lamp - Left (Export)

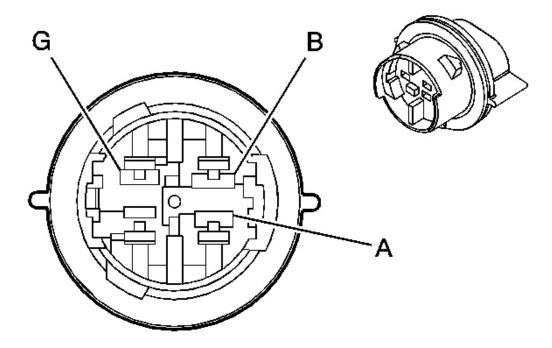


Fig. 80: Tail/Stop Lamp - Left (Export) Connector End View

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Courtesy of GENERAL MOTORS CORP.**

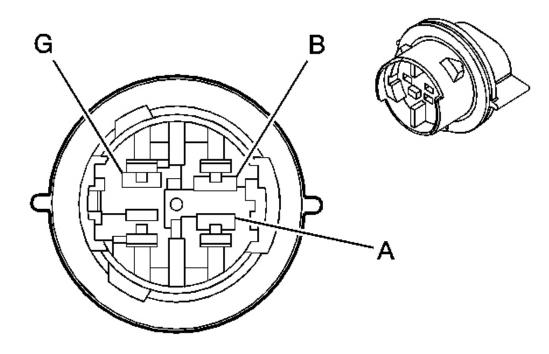
# Tail/Stop Lamp - Left (Export) Connector Parts InformationConnector Part Information

- OEM: 16530671
- Service: Not Serviced
- Description: 3-Way F Lamp Socket (D-GY)

## Tail/Stop Lamp - Left (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	BN	2509	Left Rear Park Lamp Supply Voltage
В	L-BU	20	Left Rear Stop Lamp Supply Voltage
G	BK	1450	Ground
U	BK	1450	Ground

Tail/Stop Lamp - Right (Export)



#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# **Fig. 81: Tail/Stop Lamp - Right (Export) Connector End View** Courtesy of GENERAL MOTORS CORP.

# Tail/Stop Lamp - Right (Export) Connector Parts InformationConnector Part Information

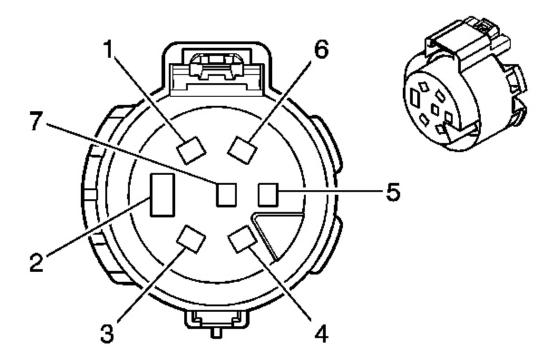
- OEM: 16530671
- Service: Not Serviced
- Description: 3-Way F Lamp Socket (D-GY)

## Tail/Stop Lamp - Right (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
А	BN/WH	2609	Right Rear Park Lamp Supply Voltage
В	L-BU	20	Stop Lamp Supply Voltage
G	BK	1450	Ground
	BK	1450	Ground

**Trailer Connector (Domestic)** 

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# **Fig. 82: Trailer (Domestic) Connector End View Courtesy of GENERAL MOTORS CORP.**

# Trailer Connector (Domestic) Connector Parts Information Connector Part Information

- OEM: 11-894
- Service: 88988703
- Description: 7-Way F Socket (BK)

# **Terminal Part Information**

- Pins: 1, 4
- Terminal/Tray: See Terminal Kit
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit
- Pin: 2

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

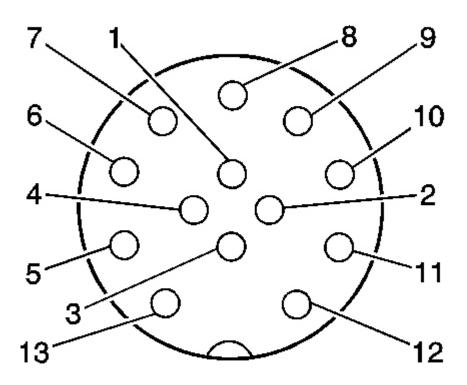
- Terminal/Tray: 54001004/22
- Core/Insulation Crimp: D/1
- Release Tool/Test Probe: 12094429/J-35616-42 (RD)
- Pins: 3-5
- Terminal/Tray: 54001202/22
- Core/Insulation Crimp: 2/D
- Release Tool/Test Probe: 12094429/J-35616-4A (PU)
- Pins: 6-7
- Terminal/Tray: 54001807/22
- Core/Insulation Crimp: 2/4
- Release Tool/Test Probe: 12094429/J-35616-4A (PU)

## **Trailer Connector (Domestic) Connector Terminal Identification**

Pin	Wire Color	Circuit No.	Function
1	YE	18	Left Rear Stop/Turn Lamp Supply
1	I L	10	Voltage
2	WH	22	Trailer Ground
3	D-BU	47	Trailer Auxiliary Supply Voltage
4	D-GN	19	Right Rear Stop/Turn Lamp Supply
·		17	Voltage
5	RD	742	Battery Positive Voltage
6	BN	2109	Trailer Park Lamps Supply Voltage
7	L-GN	24	Backup Lamp Supply Voltage

**Trailer Connector (Export)** 

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



**Fig. 83: Trailer Connector (Export) Connector End View Courtesy of GENERAL MOTORS CORP.** 

# Trailer Connector (Export) Connector Parts Information Connector Part Information

- OEM: 380929
- Service:
- Description: 13-Way F Socket (BK)

# **Terminal Part Information**

- Pins: 1, 13
- Terminal/Tray: See Terminal Kit
- Core/Insulation Crimp: See Terminal Kit
- Release Tool/Test Probe: See Terminal Kit

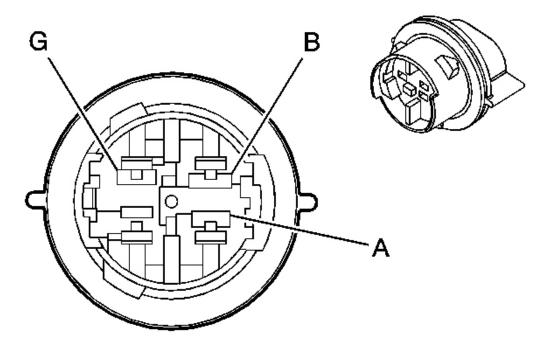
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

Pin	Wire Color	Circuit No.	Function
1	YE	618	Left Rear Stop/Turn Lamp Supply Voltage
2	OR	122	Rear Fog Lamp Supply Voltage
3	BK	1350	Ground
4	D-GN	619	Right Rear Stop/Turn Lamp Supply Voltage
5	BN	2109	Trailer Park Lamps Supply Voltage
6	D-BU	47	Trailer Auxiliary Supply Voltage
7	BN	9	Park Lamp Supply Voltage
8	L-GN	24	Backup Lamp Supply Voltage
9	RD	742	Battery Positive Voltage
10	YE	543	Accessory Voltage
11	BK	1350	Ground
12	-	-	Not Used
13	WH	22	Trailer Ground

# **Trailer Connector (Export) Connector Terminal Identification**

**Turn Signal Lamp - Left Front (Export)** 

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**Fig. 84: Turn Signal Lamp - Left Front (Export) Connector End View** Courtesy of GENERAL MOTORS CORP.

# Turn Signal Lamp - Left Front (Export) Connector Parts Information Connector Part Information

- OEM: 16530672
- Service: See Catalog
- Description: 3-Way F Lamp Socket (D-GY)

# **Terminal Part Information**

- Terminal/Tray: See Terminal Repair Kit
- Core/Insulation Crimp: See Terminal Repair Kit
- Release Tool/Test Probe: See Terminal Repair Kit

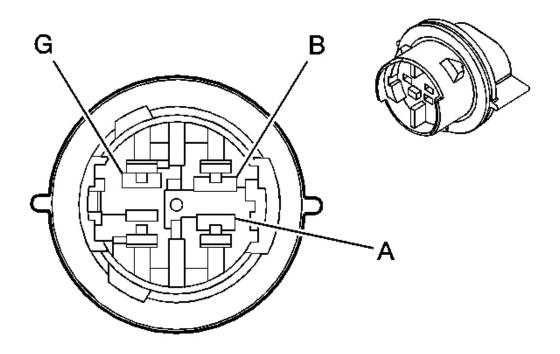
# Turn Signal Lamp - Left Front (Export) Connector Terminal Identification

Turn Signar Lamp - Leit Front (Export) Connector Terminar Identification					
Pin	Wire Color	Circuit No.	Function		

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

А	D-BU	14	Left Turn Signal Lamp Supply Voltage
В	-	-	Not Used
G	BK	850	Ground

Turn Signal Lamp - Right Front (Export)



**Fig. 85: Turn Signal Lamp - Right Front (Export) Connector End View** Courtesy of GENERAL MOTORS CORP.

# Turn Signal Lamp - Right Front (Export) Connector Parts Information Connector Part Information

- OEM: 16530672
- Service: See Catalog
- Description: 3-Way F Lamp Socket (D-GY)

# **Terminal Part Information**

• Terminal/Tray: See Terminal Repair Kit

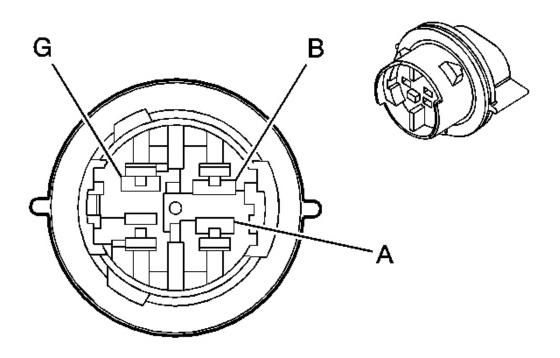
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

- Core/Insulation Crimp: See Terminal Repair Kit
- Release Tool/Test Probe: See Terminal Repair Kit

## Turn Signal Lamp - Right Front (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function	
А	D-BU	15	Right Turn Signal Lamp Supply Voltage	
В	-	-	Not Used	
G	BK	850	Ground	

Turn Signal Lamp - Left Rear (Export)



**Fig. 86: Turn Signal Lamp - Left Rear (Export) Connector End View** Courtesy of GENERAL MOTORS CORP.

Turn Signal Lamp - Left Rear (Export) Connector Parts Information

**Connector Part Information** 

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- OEM: 16530671
- Service: Not Serviced
- Description: 3-Way F Lamp Socket (D-GY)

# **Terminal Part Information**

- Terminal/Tray: See Terminal Repair Kit
- Core/Insulation Crimp: See Terminal Repair Kit
- Release Tool/Test Probe: See Terminal Repair Kit

## Turn Signal Lamp - Left Rear (Export) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function	
А	YE	618	Left Rear Turn Signal Lamp Supply	
			Voltage	
В	-	-	Not Used	
G	BK	1450	Ground	

Turn Signal Lamp - Right Rear (Export)

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

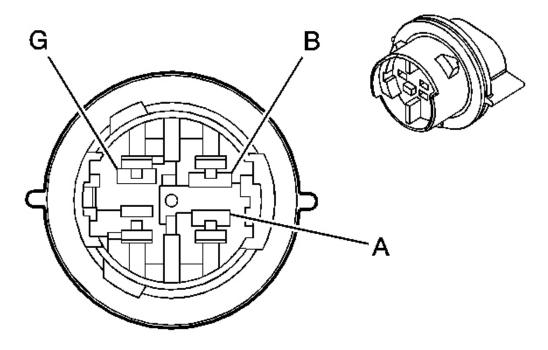


Fig. 87: Turn Signal Lamp - Right Rear (Export) Connector End View Courtesy of GENERAL MOTORS CORP.

# Turn Signal Lamp - Right Rear (Export) Connector Parts Information Connector Part Information

- OEM: 16530671
- Service: See Catalog
- Description: 3-Way F Lamp Socket (D-GY)

# **Terminal Part Information**

- Terminal/Tray: See Terminal Repair Kit
- Core/Insulation Crimp: See Terminal Repair Kit
- Release Tool/Test Probe: See Terminal Repair Kit

# Turn Signal Lamp - Right Rear (Export) Connector Terminal Identification

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

Pin	Wire Color	Circuit No.	Function	
А	D-GN	619	Right Rear Turn Signal Lamp Supply Voltage	
В	-	-	Not Used	
G	BK	1450	Ground	

# **DIAGNOSTIC INFORMATION AND PROCEDURES**

#### **DIAGNOSTIC CODE INDEX**

#### **DIAGNOSTIC CODE INDEX**

DIAGNOSTIC CODE INL	
DTC	Description
DTC B0525 (W/O RPO	Left Turn Signal Circuit
<u>CW9 )</u>	
DTC B0525 (With RPO	Rear Fog Lamp Relay Fault
<u>CW9)</u>	
DTC B0527, B0528 or	Right Turn Signal Circuit
<u>B0529</u>	
DTC B0530 (W/O RPO	Right Turn Signal Circuit
<u>CW9)</u>	
DTC B0532, B0533 or	Left Turn Signal Circuit
<u>B0534</u>	
DTC B2532 or B2533	Front Fog Lamps Control Circuit
DTC B2557 or B2558	Passenger Compartment Lamp Control Circuit
DTC B2575	Headlamp Control Circuit
DTC B2582 or B2583	Headlamp High Beam Control Circuit
DTC B2585	Park Lamp Control Circuit
DTC B2602 or B2603	Daytime Running Lamp Control Circuit
DTC B2622 or B2623	Dimming Display Pulse Width Modulation (PWM) Input
	Circuit
DTC B2624	Dimming Display Pulse Width Modulation (PWM) Input
	Circuit Open
DTC B2647 or B2648	Ambient Light Sensor Circuit

## DIAGNOSTIC STARTING POINT - LIGHTING SYSTEMS

Begin the system diagnosis with the **<u>Diagnostic System Check - Vehicle</u>**. The Diagnostic System Check will provide the following information:

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- The identification of the control modules which command the system
- The ability of the control modules to communicate through the serial data circuit
- The identification of any stored DTCs and their status

The use of the Diagnostic System Check will identify the correct procedure for diagnosing the system and where the procedure is located.

#### SCAN TOOL OUTPUT CONTROLS

Body Control Mo	, <i>,</i> ,	
Scan Tool Output Control	Additional Menu Selection(s)	Description
Body Control Module	High Beams	The BCM activates the beam select relay illuminating the high beam headlamps and high beam indicator when you select ON while the low beam headlamps are on. The high beam headlamps and indicator remain illuminated for 5 seconds.
Body Control Module	Headlamps	The BCM activates the headlamp relay illuminating the low beam headlamps when you select ON. The low beam headlamps remain illuminated for 5 seconds.
Body Control Module	Parking Lamps	The BCM activates the park lamp relay illuminating the parking lamps when you select ON. The parking lamps remain illuminated for 5 seconds.
Body Control Module	Courtesy Lamps	The BCM activates the interior courtesy lamps when you select ON. The interior courtesy lamps remain illuminated for 5 seconds.
Body Control Module	Front Fog Lamps	The BCM activates the front fog lamp relay illuminating the front fog lamps when you select ON. The front fog lamps remain illuminated for 5 seconds.
Body Control Module	LF Turn Lamp/DRL	The BCM activates the left front turn/DRL lamp when you select ON. The left front turn/DRL lamp remains activated until commanded OFF.
Body Control Module	LR Stop/Turn Signal Lamp	The BCM activates the left rear stop/turn signal lamp and left turn indicator when you select ON. The left rear stop/turn signal lamp and indicator remain activated until commanded OFF.

# **Body Control Module (BCM)**

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Body Control Module	RF Turn Lamp/DRL	The BCM activates the right front turn/DRL lamp when you select ON. The right front turn/DRL lamp remains activated until commanded OFF.
Body Control Module	RR Stop/Turn Signal Lamp	The BCM activates the right rear stop/turn signal lamp and right turn indicator when you select ON. The right rear stop/turn signal lamp and indicator remain activated until commanded OFF.
Body Control Module	Inadvertent Power	The BCM disables the inadvertent power supply circuit when you select OFF. The inadvertent power supply circuit remains disabled for 5 seconds.

## SCAN TOOL DATA LIST

# **Body Control Module (BCM)**

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value		
Ignition ON/Engine OFF/Vehicle in PARK/Park Brake Released/Headlamps in AUTO/All Doors Closed					
Ambient Light Sensor	Data	Volts	1.75 Volts Maximum Light to 4.9 Volts Maximum Dark		
Battery Voltage Signal	Data	Volts	Varies		
Dimming Potentiometer	Data	Volts	Varies		
Courtesy Lamp Switch	Inputs	Active/Inactive	Inactive		
Dome Lamp Override Switch	Inputs	On/Off	Off		
Driver Door Ajar Sw.	Inputs	Door Closed/Door Ajar	Door Closed		
Front Fog Lamp Switch	Inputs	Active/Inactive	Inactive		
Front Wipers Active	Inputs	Yes/No	No		
Hazard Lamp Switch	Inputs	Active/Inactive	Inactive		
Headlamp On Switch	Inputs	Active/Inactive	Inactive		
Headlamp Off Switch	Inputs	Active/Inactive	Inactive		
High Beam Select Switch	Inputs	Active/Inactive	Inactive		
Ignition 1 Run/Crank	Inputs	Active/Inactive	Active		
Ignition Off/Run/Crank	Inputs	Active/Inactive	Active		
Park Brake Switch	Inputs	Released/Applied	Released		

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Park Lamp Switch	Inputs	On/Off	Off
Passenger Door Ajar Sw.	Inputs	Door Closed/Door Ajar	Door Closed
Rear Fog Lamp Switch	Inputs	On/Off	Off
Courtesy Lamp Output	Outputs	On/Off	Off
DRL Status	Outputs	On/Off	Varies
Fog Lamp Relay Cmd.	Outputs	On/Off	Off
Headlamp Relay	Outputs	On/Off	Varies
High Beam Relay Command	Outputs	On/Off	Off
Inadvertent Power Cmd. 1	Outputs	On/Off	On
LF Turn/Hazard Lamp Command	Outputs	On/Off	Off
LR Turn/Hazard Lamp Command	Outputs	On/Off	Off
Park Lamps Signal	Outputs	On/Off	Varies
Rear Fog Lamp Relay Cmd.	Outputs	On/Off	Off
RF Turn/Hazard Lamp Command	Outputs	On/Off	Off
RR Turn/Hazard Lamp Command	Outputs	On/Off	Off

#### SCAN TOOL DATA DEFINITIONS

Data

## **Battery Voltage Signal**

The scan tool displays the battery system voltage received by the module.

## **Ambient Light Sensor**

The scan tool displays the output voltage of the ambient light sensor based on the intensity of light detected. As the light intensity increases, the sensor displayed voltage decreases. In the LIGHT state, a low voltage, not less than 1.75 volts, is present and the DRL will be ON. In the DARK state, a high voltage, up to 4.9 volts, is present and the headlamps will be ON.

## **Dimming Potentiometer**

The scan tool displays the voltage value indicating the position of the I/P dimmer switch.

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The scan tool displays 4 volts when the headlamp switch is in the AUTO position and the daytime running lamps (DRL) are ON or the I/P dimmer switch is in the FULL DIM position. The scan tool displays 0 volts when either the park lamps or the headlamps are turned ON and the I/P dimmer switch is in the FULL BRIGHT position.

#### Inputs

## Ignition Off/Run/Crank

The scan tool displays the position of the ignition switch. The scan tool displays Active when the ignition switch is in the RUN or CRANK position.

## **Ignition 1 Run/Crank**

The scan tool displays the position of the ignition switch. The scan tool displays Active when the ignition switch is in the RUN or CRANK position.

## Driver Door Ajar Sw.

The scan tool displays the position of the driver door ajar switch. The scan tool displays Door Closed when the door is closed and Door Ajar when the door is open or ajar. The BCM uses this data in controlling the operation of the courtesy lamps and door ajar warning.

## Passenger Door Ajar Sw.

The scan tool displays the position of the passenger door ajar switch. The scan tool displays Door Closed when the door is closed and Door Ajar when the door is open or ajar. The BCM uses this data in controlling the operation of the courtesy lamps and door ajar warning.

## **High Beam Select Switch**

The scan tool displays the position of the high beam select switch. The scan tool displays Active when the switch is used to activate the high beams.

## Headlamp On Switch

The scan tool displays the position of the headlamp switch. The scan tool displays Active when the headlamp switch is in the ON position. The BCM uses this data in controlling the operation of the headlamps.

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## **Headlamp Off Switch**

The scan tool displays the position of the headlamp switch. The scan tool displays Active when the headlamp switch is in the ON position. The BCM uses this data in controlling the operation of the headlamps.

## **Front Fog Lamp Switch**

The scan tool displays the position of the front fog lamp switch. The scan tool displays ACTIVE when the switch is pressed. The BCM uses this data in controlling the operation of the front fog lamps.

## **Courtesy Lamp Switch**

The scan tool displays the position of the courtesy lamp switch. The scan tool displays ACTIVE when the switch is activated. The BCM uses this data in controlling the operation of the courtesy lamps.

## **Dome Lamp Overide Switch**

The scan tool displays the position of the dome override switch. The scan tool displays On when the switch is pressed. The BCM uses this data in controlling the operation of the courtesy lamps.

## **Cargo Lamp Switch**

The scan tool displays the position of the cargo lamp switch. The scan tool displays ACTIVE when the switch is pressed. The BCM uses this data in controlling the operation of the cargo lamp.

## **Hazard Lamp Switch**

The scan tool displays the position of the hazard lamp switch. The scan tool displays ACTIVE when the switch is pressed. The BCM uses this data in controlling the operation of the hazard lamps.

## **Park Lamp Switch**

The scan tool displays the position of the park lamp switch. The scan tool displays ON when the park lamp switch is in the ON position. The BCM uses this data in controlling the operation of the park lamps.

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## Park Brake Switch

The scan tool displays the position of the park brake pedal. The scan tool displays Applied when the park brake is engaged closing the switch. The BCM uses this data in controlling the operation of the park brake indicator, the reminder chime feature and the DRL system.

## **Front Wipers Active**

The scan tool displays the status of the front wipers. The scan tool displays Yes after approximately the first 3 cycles of the wiper blades. The BCM uses this data in controlling the headlamps during Wiper Activated Headlamp (WAH) mode.

#### Outputs

## **Inadvertent Power Cmd. 1**

The scan tool displays the state of the inadvertent power battery rundown protection feature of the BCM. The scan tool displays On when all inadvertent power circuits are functioning normally.

## LF Turn/Hazard Lamp Command

The scan tool displays the commanded state of the left front turn/hazard lamp. The scan tool displays ON when the BCM activates the left front turn/hazard supply voltage circuit.

## LR Turn/Hazard Lamp Command

The scan tool displays the commanded state of the left rear turn/hazard lamp. The scan tool displays ON when the BCM activates the left rear turn/hazard supply voltage circuit.

## **RF Turn/Hazard Lamp Command**

The scan tool displays the commanded state of the right front turn/hazard lamp. The scan tool displays ON when the BCM activates the right front turn/hazard supply voltage circuit.

## **RR Turn/Hazard Lamp Command**

The scan tool displays the commanded state of the right rear turn/hazard lamp. The scan tool displays ON when the BCM activates the right rear turn/hazard supply voltage circuit.

## **DRL Status**

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The scan tool displays the commanded state of the daytime running lamps (DRL). The scan tool displays ON when the BCM activates the DRL mode.

# **Headlamp Relay**

The scan tool displays the commanded state of the headlamp relay. The scan tool displays ON when the BCM grounds the headlamp relay to activate the headlamps.

## High Beam Relay Command

The scan tool displays the commanded state of the high beam relay. The scan tool displays On when the BCM has activated the high beam relay to illuminate the high beam headlamps.

## **Park Lamps Signal**

The scan tool displays the commanded state of the park lamp relay. The scan tool displays ON when the BCM activates the park lamp relay to illuminate the park lamps.

## **Courtesy Lamp Output**

The scan tool displays the commanded state of the BCM to activate the courtesy lamps. The scan tool displays ON when the BCM energizes the courtesy lamps supply voltage circuit to illuminate the courtesy lamps.

## Fog Lamp Relay Cmd.

The scan tool displays the commanded state of the fog lamp relay. The scan tool displays ON when the BCM energizes the fog lamp relay to activate the fog lamps.

### DTC B0525 (W/O RPO CW9)

#### **Circuit Description**

When the body control module (BCM) receives a left turn signal ON command from the turn signal switch, the BCM will apply voltage to the left turn signal indicator supply voltage circuit. The turn signal flasher, which is integrated within the BCM, will flash the left turn signal indicator lamp in the instrument panel cluster (IPC) simultaneously with the turn signal lamps.

### **DTC Descriptor**

This diagnostic procedure supports the following DTC:

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## DTC B0525 Left Turn Signal Circuit

## Conditions for Running the DTC

The battery voltage must be between 9-16 volts.

## **Conditions for Setting the DTC**

When the BCM receives a left turn signal command and the left turn signal indicator supply voltage circuit is open, shorted to ground or shorted to voltage

### Action Taken When the DTC Sets

The left turn signal indicator in the IPC will not operate or will remain always ON.

## Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**4:** This step tests if battery positive voltage is constantly being applied to the supply voltage circuit.

**5:** This step tests if a condition exists in the supply voltage circuit.

6: This step tests if a condition exists in the ground circuit.

10: After replacement of the IPC, you must calibrate the new cluster for proper operation.

**11:** After replacement of the BCM, you must calibrate the new module for proper operation.

## DTC B0525 (W/O RPO CW9)

	D1C D0323 (W/O KI O CW))					
Step	Action	Yes	No			
Schematic Reference: Fog Lights Schematics						
<b>Connector End View Reference:</b> <u>Lighting Systems Connector End Views, Displays</u>						
and Gages	Connector End Views or Data Communi	cation Connector	r End Views			
	Did you perform the Diagnostic System					
1 Check - Vehicle? Go to						
			Diagnostic			

		Go to Step 2	<u>System Check -</u> Vehicle
	1. Turn ON the ignition, with the engine OFF.		
2	2. Activate the turn signals.		Go to
	Do the exterior turn signals operate correctly?	Go to Step 3	<u>Symptoms -</u> <u>Lighting</u> <u>Systems</u>
	1. Turn OFF the ignition.		
	<ol> <li>Remove the instrument panel cluster (IPC). Refer to <u>Instrument Cluster</u> <u>Replacement (Left Hand Drive)</u> or <u>Instrument Cluster Replacement</u> (Right Hand Drive).</li> </ol>		
3	3. Turn ON the ignition, with the engine OFF.		
	4. Connect a test lamp between the ground circuit and the left turn signal indicator supply voltage circuit at the IPC connector.		
	5. Activate the inoperative turn signal ON and OFF.		
	Does the test lamp illuminate?	Go to Step 4	Go to Step 5
4	Does the test lamp remain illuminated with each command?	Go to Step 7	Go to Step 8
5	Test for a short to ground, open or high resistance in the left turn signal indicator supply voltage circuit. Refer to <u>Circuit</u> <u>Testing and Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 12	Go to Step 6
6	Test for an open or high resistance in the ground circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 12	Go to Step 9
7	Test the left turn signal indicator supply voltage circuit for a short to voltage. Refer		

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	to Circuit Testing and Wiring Repairs.		
	Did you find and correct the condition?	Go to Step 12	Go to Step 9
	Inspect for poor connections at the IPC.		
8	Refer to Circuit Testing and Wiring		
0	<u>Repairs</u> .		
	Did you find and correct the condition?	Go to Step 12	Go to Step 10
	Inspect for poor connections at the harness		
	connector of the body control module		
9	(BCM). Refer to <b><u>Circuit Testing</u></b> and		
	Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 12	Go to Step 11
	Replace the IPC. Refer to Control		
10	Module References for replacement, setup		
10	and programming.		
	Did you complete the replacement?	Go to Step 12	-
	Replace the BCM. Refer to Control		
11	Module References for replacement, setup		
11	and programming.		
	Did you complete the replacement?	Go to Step 12	-
	1. Use the scan tool in order to clear the		
	DTCs.		
	2. Operate the vehicle within the		
12	Conditions for Running the DTC as		
	specified in the supporting text.		
	Does the DTC reset?	Go to Step 2	System OK

## DTC B0525 (WITH RPO CW9)

#### **Circuit Description**

When the body control module (BCM) senses that the rear fog lamp switch signal circuit is grounded momentarily by pressing the rear fog lamp switch, the BCM energizes the rear fog lamp relay by grounding the rear fog lamp relay control circuit. The rear fog lamp indicator is also illuminated.

#### **DTC Descriptor**

This diagnostic procedure supports the following DTC:

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# DTC B0525 Rear Fog Lamp Relay Fault

## **Conditions for Running the DTC**

The battery voltage must be between 9-16 volts.

## Conditions for Setting the DTC

- When the BCM receives a rear fog lamp switch OFF command and the rear fog lamp relay control circuit is shorted to ground
- When the BCM receives a rear fog lamp switch ON command and the rear fog lamp relay control circuit is shorted to voltage or open

## Action Taken When the DTC Sets

The rear fog lamps will not operate or will remain always ON.

## Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**2:** Listen for an audible click when the rear fog lamp relay operates. Command both the ON and OFF states. Repeat the commands as necessary.

**3:** This step tests for ground at the coil side of the rear fog lamp relay.

**4:** This step verifies that the BCM is providing battery positive voltage to the rear fog lamp relay.

**5:** This step tests if battery positive voltage is constantly being applied to the rear fog lamp relay.

6: This step tests if a condition exists in the rear fog lamp relay control circuit.

**12:** After replacement of the BCM, you must calibrate the new module for proper operation.

## DTC B0525 (With RPO CW9)

Step	Action	Yes	No

	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check
		Go to Step 2	<u>Vehicle</u>
	1. Install a scan tool.		
	2. Turn ON the ignition, with the engine OFF.		
2	3. With a scan tool, command the rear	Go to <u>Testing</u>	
	fog lamp relay ON and OFF.	for Intermittent	
	Does the rear for lamp relay turn ON and	Conditions and	
	Does the rear fog lamp relay turn ON and OFF with each command?	<u>Poor</u> Connections	Go to Step 3
	1. Turn OFF the ignition.		
	<ol> <li>Remove the rear fog lamp relay.</li> </ol>		
	Refer to <b><u>Relay Replacement</u></b>		
	(Attached to Wire Harness) or		
	<b>Relay Replacement (Within an</b>		
	Electrical Center) .		
3	3. Turn ON the ignition, with the engine OFF.		
	4. Connect a test lamp between the		
	ground circuit of the rear fog lamp		
	relay and the battery positive voltage circuit of the rear fog lamp relay.		
	encont of the rear log famp relay.		
	Does the test lamp illuminate?	Go to Step 4	Go to Step 1
	1. Connect a test lamp between the		
	control circuit of the rear fog lamp		
	relay and the ground circuit of the rear fog lamp relay.		
4	2. With a scan tool, command the rear		
	fog lamp relay ON and OFF.		
	Does the test lamp turn ON and OFF milt		
	Does the test lamp turn ON and OFF with		

	each command?	Go to Step 8	Go to Step 5
_	Does the test lamp remain illuminated with		
5	each command?	Go to Step 7	Go to Step 6
	Test for a short to ground, an open or high		
	resistance in the rear fog lamp relay control		
6	circuit and rear fog lamp switch indicator		
U	control circuit. Refer to Circuit Testing		
	and Wiring Repairs .	G G 40	
	Did you find and correct the condition?	Go to Step 13	Go to Step 9
	Test for a short to voltage in the rear fog		
	lamp relay control circuit and rear fog		
7	lamp switch indicator control circuit. Refer		
	to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .	G G 40	
	Did you find and correct the condition?	Go to Step 13	Go to Step 9
	Inspect for poor connections at the rear fog		
8	lamp relay. Refer to <u>Circuit Testing</u> and		
0	Wiring Repairs	G G 40	
	Did you find and correct the condition?	Go to Step 13	Go to Step 11
	Inspect for poor connections at the harness		
0	connector of the body control module		
9	(BCM). Refer to <u>Circuit Testing</u> and		
	Wiring Repairs	G . G . 13	
	Did you find and correct the condition?	Go to Step 13	Go to Step 12
	Repair the open or high resistance in the		
10	ground circuit of the rear fog lamp relay.		
	Refer to <u>Wiring Repairs</u> .	C St 12	
	Did you complete the repair?	Go to Step 13	-
	Replace the rear fog lamp relay. Refer to		
11	Relay Replacement (Attached to Wire		
11	Harness) or <u>Relay Replacement (Within</u>		
	an Electrical Center). Did you complete the replacement?	Go to Step 13	
		00 10 Bich 13	
	Replace the BCM. Refer to <u>Control</u> Module References for replacement,		
12	setup and programming.		
	Did you complete the replacement?	Go to Step 13	_
		30 to 5tep 13	
	1. Use the scan tool in order to clear the		
	DTCs.		

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13	2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.		
	Does the DTC reset?	Go to Step 2	System OK

### DTC B0527, B0528 OR B0529

#### **Circuit Description**

When the body control module (BCM) receives a right turn signal ON command from the turn signal switch, the BCM will apply voltage to the right rear stop/turn lamp supply voltage circuit and right turn signal lamps supply voltage circuit. The turn signal flasher is integrated within the BCM and will flash both circuits simultaneously. The turn signal indicator is also illuminated utilizing the right rear stop/turn lamp supply voltage circuit.

### **DTC Descriptors**

This diagnostic procedure supports the following DTCs:

- DTC B0527 Right Turn Signal Circuit Low
- DTC B0528 Right Turn Signal Circuit High
- DTC B0529 Right Turn Signal Circuit Open

### **Conditions for Running the DTC**

The battery voltage must be between 9-16 volts.

### **Conditions for Setting the DTC**

- When the BCM receives a right turn signal command and the right rear stop/turn lamp supply voltage circuit is open, shorted to ground or shorted to voltage
- When the BCM receives a right turn signal command and the right turn signal lamps supply voltage circuit is shorted to ground or shorted to voltage

### Action Taken When the DTC Sets

The right front and/or right rear turn signals will not operate or will remain always ON.

### Conditions for Clearing the MIL/DTC

• This DTC will clear on current status after the condition for setting the fault is corrected.

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- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

## **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

3: This step tests for supply voltage and ground at the inoperative bulb socket.

**4:** This step tests if battery positive voltage is constantly being applied to the supply voltage circuit.

**5:** This step tests if a condition exists in the supply voltage circuit.

6: This step tests if a condition exists in the ground circuit.

**12:** After replacement of the instrument panel cluster (IPC), you must calibrate the new cluster for proper operation.

**14:** After replacement of the BCM, you must calibrate the new module for proper operation.

Step	Action	Yes	No
Schematic	<b>Reference:</b> <u>Fog Lights Schematics</u>		
Connector	End View Reference: Lighting Systems (	Connector End V	<u>iews, Displays</u>
and Gages	Connector End Views or Data Communi	cation Connector	<u>r End Views</u>
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	1. Install a scan tool.		
	2. Turn ON the ignition, with the engine		
	OFF.		
2	3. With a scan tool, command the	Go to <b>Testing</b>	
2	inoperative turn signal ON and OFF.	for Intermittent	
		<b>Conditions and</b>	
	Does the inoperative turn signal operate	<u>Poor</u>	
	ON and OFF with each command?	<b>Connections</b>	Go to Step 3
	1. Turn OFF the ignition.		
	2. Remove the inoperative bulb. Refer to		
	Daytime Running Lamp Bulb		

# DTC B0527, B0528 or B0529

#### 2007 Hummer H3 2007 ACCESSORIES & EQUIPMENT Lighting - H3 **Replacement**, **Tail Lamp Bulb Replacement**, **Instrument** Cluster Replacement (Left Hand Drive) or **Instrument Cluster Replacement** (Right Hand Drive) . 3. Turn ON the ignition, with the engine OFF. 3 4. Connect a test lamp between the ground circuit and the supply voltage circuit of the inoperative bulb socket. 5. With a scan tool, command the inoperative turn signal ON and OFF. Go to Step 5 Does the test lamp illuminate? Go to Step 4 Does the test lamp remain illuminated with 4 each command? Go to Step 7 Go to Step 8 Test for a short to ground, open or high resistance in the supply voltage circuit. 5 Refer to **Circuit Testing** and **Wiring Repairs**. Did you find and correct the condition? Go to Step 15 Go to Step 6 Test for an open or high resistance in the ground circuit. Refer to Circuit Testing 6 and Wiring Repairs . Did you find and correct the condition? Go to Step 15 Go to Step 11 Test the supply voltage circuit for a short to voltage. Refer to Circuit Testing and 7 Wiring Repairs .

Go to Step 15

Go to Step 9

Go to Step 15

Go to Step 11

Go to Step 10

Go to Step 12

Did you find and correct the condition?

Inspect for poor connections at the IPC. Refer to **Circuit Testing** and **Wiring** 

Did you find and correct the condition?

inoperative bulb socket. Refer to Circuit

Inspect for poor connections at the

8

9

cluster (IPC)?

**Repairs**.

Does the condition only exist with the turn signal indicator in the instrument panel

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10	Testing and Wiring Repairs .		
10	Did you find and correct the condition?	Go to Step 15	Go to Step 13
11	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 15	Go to Step 14
12	Replace the IPC. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 15</b>	_
13	Replace the inoperative bulb. Refer to Daytime Running Lamp Bulb Replacement or Tail Lamp Bulb Replacement. Did you complete the replacement?	Go to <b>Step 15</b>	_
14	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 15</b>	_
15	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> </ol>		
	Does the DTC reset?	Go to Step 2	System OK

### DTC B0530 (W/O RPO CW9)

#### **Circuit Description**

When the body control module (BCM) receives a right turn signal ON command from the turn signal switch, the BCM will apply voltage to the right turn signal indicator supply voltage circuit. The turn signal flasher, which is integrated within the BCM, will flash the right turn signal indicator lamp in the instrument panel cluster (IPC) simultaneously with the turn signal lamps.

### **DTC Descriptor**

This diagnostic procedure supports the following DTC:

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

# DTC B0530 Right Turn Signal Circuit

## Conditions for Running the DTC

The battery voltage must be between 9-16 volts.

## **Conditions for Setting the DTC**

When the BCM receives a right turn signal command and the right turn signal indicator supply voltage circuit is open, shorted to ground or shorted to voltage

### Action Taken When the DTC Sets

The right turn signal indicator in the IPC will not operate or will remain always ON.

## Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**4:** This step tests if battery positive voltage is constantly being applied to the supply voltage circuit.

**5:** This step tests if a condition exists in the supply voltage circuit.

6: This step tests if a condition exists in the ground circuit.

10: After replacement of the IPC, you must calibrate the new cluster for proper operation.

**11:** After replacement of the BCM, you must calibrate the new module for proper operation.

## DTC B0530 (W/O RPO CW9)

Step	Action	Yes	No		
Schematic Reference: Fog Lights Schematics					
Connector End View Reference: <u>Lighting Systems Connector End Views</u> , <u>Displays</u>					
and Gages	Connector End Views or Data Communi	cation Connector	r End Views		
	Did you perform the Diagnostic System				
1	Check - Vehicle?		Go to		
			Diagnostic		

		Go to Step 2	<u>System Check -</u> Vehicle
2	<ol> <li>Turn ON the ignition, with the engine OFF.</li> <li>Activate the turn signals.</li> <li>Do the exterior turn signals operate correctly?</li> </ol>	Go to <b>Step 3</b>	Go to <u>Symptoms -</u> <u>Lighting</u> <u>Systems</u>
3	<ol> <li>Turn OFF the ignition.</li> <li>Remove the instrument panel cluster (IPC). Refer to <u>Instrument Cluster</u> <u>Replacement (Left Hand Drive)</u> or <u>Instrument Cluster Replacement</u> (<u>Right Hand Drive</u>).</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>Connect a test lamp between the ground circuit and the right turn signal indicator supply voltage circuit at the IPC connector.</li> <li>Activate the inoperative turn signal ON and OFF.</li> </ol>		
4	Does the test lamp illuminate? Does the test lamp remain illuminated with	Go to <b>Step 4</b>	Go to <b>Step 5</b>
4	each command?	Go to Step 7	Go to Step 8
5	Test for a short to ground, open or high resistance in the right turn signal indicator supply voltage circuit. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 12</b>	Go to <b>Step 6</b>
6	Test for an open or high resistance in the ground circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to Step 12	Go to Step 9
7	Test the right turn signal indicator supply voltage circuit for a short to voltage. Refer		

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	to Circuit Testing and Wiring Repairs.		
	Did you find and correct the condition?	Go to Step 12	Go to Step 9
	Inspect for poor connections at the IPC.		
8	Refer to <b>Circuit Testing</b> and <b>Wiring</b>		
0	<u>Repairs</u> .		
	Did you find and correct the condition?	Go to Step 12	Go to Step 10
	Inspect for poor connections at the harness		
	connector of the body control module		
9	(BCM). Refer to <b><u>Circuit Testing</u></b> and		
	Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 12	Go to Step 11
	Replace the IPC. Refer to <b>Control</b>		
10	Module References for replacement,		
10	setup and programming.		
	Did you complete the replacement?	Go to Step 12	-
	Replace the BCM. Refer to <b>Control</b>		
11	Module References for replacement,		
	setup and programming.		
	Did you complete the replacement?	Go to Step 12	-
	1. Use the scan tool in order to clear the		
	DTCs.		
	2. Operate the vehicle within the		
12	Conditions for Running the DTC as		
	specified in the supporting text.		
	Does the DTC reset?	Go to Step 2	System OK

## DTC B0532, B0533 OR B0534

#### **Circuit Description**

When the body control module (BCM) receives a left turn signal ON command from the turn signal switch, the BCM will apply voltage to the left rear stop/turn lamp supply voltage circuit and left turn signal lamps supply voltage circuit. The turn signal flasher is integrated within the BCM and will flash both circuits simultaneously. The turn signal indicator is also illuminated utilizing the left rear stop/turn lamp supply voltage circuit.

### **DTC Descriptors**

This diagnostic procedure supports the following DTCs:

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- DTC B0532 Left Turn Signal Circuit Low
- DTC B0533 Left Turn Signal Circuit High
- DTC B0534 Left Turn Signal Circuit Open

#### **Conditions for Running the DTC**

The battery voltage must be between 9-16 volts.

#### **Conditions for Setting the DTC**

- When the BCM receives a left turn signal command and the left rear stop/turn lamp supply voltage circuit is open, shorted to ground or shorted to voltage
- When the BCM receives a left turn signal command and the left turn signal lamps supply voltage circuit is shorted to ground or shorted to voltage

### Action Taken When the DTC Sets

The left front and/or left rear turn signals will not operate or will remain always ON.

### Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

#### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

3: This step tests for supply voltage and ground at the inoperative bulb socket.

**4:** This step tests if battery positive voltage is constantly being applied to the supply voltage circuit.

**5:** This step tests if a condition exists in the supply voltage circuit.

6: This step tests if a condition exists in the ground circuit.

**12:** After replacement of the instrument panel cluster (IPC), you must calibrate the new cluster for proper operation.

**14:** After replacement of the BCM, you must calibrate the new module for proper operation.

# DTC B0532, B0533 or B0534

Step	Action	Yes	No
Schematic	Reference: Fog Lights Schematics		
	End View Reference: <u>Lighting Systems</u>		
and Gages	Connector End Views or Data Commun	ication Connecto	
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle
	1. Install a scan tool.		
	2. Turn ON the ignition, with the engine OFF.		
2	3. With a scan tool, command the inoperative turn signal ON and OFF.	Go to <u>Testing</u> for Intermittent Conditions and	
	Does the inoperative turn signal operate ON and OFF with each command?	<u>Poor</u> <u>Connections</u>	Go to Step 3
	1. Turn OFF the ignition.		
	<ol> <li>Remove the inoperative bulb. Refer to Daytime Running Lamp Bulb Replacement, Tail Lamp Bulb Replacement, Instrument Cluster Replacement (Left Hand Drive) or Instrument Cluster Replacement (Right Hand Drive).</li> </ol>		
3	3. Turn ON the ignition, with the engine OFF.		
	4. Connect a test lamp between the ground circuit and the supply voltage circuit of the inoperative bulb socket.		
	5. With a scan tool, command the inoperative turn signal ON and OFF.		
	Does the test lamp illuminate?	Go to Step 4	Go to Step 5
4	Does the test lamp remain illuminated with each command?	Go to Step 7	Go to Step 8
	Test for a short to ground, open or high resistance in the supply voltage circuit.		

	Refer to <b>Circuit Testing</b> and <b>Wiring</b>		
5	Repairs .		
	Did you find and correct the condition?	Go to Step 15	Go to Step 6
	Test for an open or high resistance in the		
6	ground circuit. Refer to Circuit Testing		
U	and <b>Wiring Repairs</b> .		
	Did you find and correct the condition?	Go to Step 15	Go to Step 11
	Test the supply voltage circuit for a short to		
7	voltage. Refer to <b><u>Circuit Testing</u></b> and		
/	Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 15	Go to Step 11
	Does the condition only exist with the turn		
8	signal indicator in the instrument panel		
	cluster (IPC)?	Go to Step 9	Go to Step 10
	Inspect for poor connections at the IPC.		
9	Refer to <u>Circuit Testing</u> and <u>Wiring</u>		
	Repairs .		
	Did you find and correct the condition?	Go to Step 15	Go to Step 12
	Inspect for poor connections at the		
10	inoperative bulb socket. Refer to <u>Circuit</u>		
	<b>Testing</b> and <b>Wiring Repairs</b> .	Cata Star 15	Cata Stan 12
	Did you find and correct the condition?	Go to Step 15	Go to Step 13
	Inspect for poor connections at the harness		
11	connector of the body control module		
11	(BCM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 15	Go to Step 14
	Replace the IPC. Refer to <b>Control</b>	<u> </u>	
	Module References for replacement, setup		
12	and programming.		
	Did you complete the replacement?	Go to Step 15	_
	Replace the inoperative bulb. Refer To	<b>. . . .</b>	
	Daytime Running Lamp Bulb		
13	Replacement or Tail Lamp Bulb		
	Replacement.		
	Did you complete the replacement?	Go to Step 15	-
	Replace the BCM. Refer to Control		
	Module References for replacement, setup		

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14	and programming. Did you complete the replacement?	Go to <b>Step 15</b>	-
15	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> </ol>		
	Does the DTC reset?	Go to Step 2	System OK

## DTC B2532 OR B2533

#### **Circuit Description**

When the body control module (BCM) senses that the front fog lamp switch signal circuit is grounded momentarily by pressing the front fog lamp switch, the BCM energizes the front fog lamp relay by grounding the front fog lamp relay control circuit. The front fog lamp indicator is also illuminated utilizing the same fog lamp relay control circuit.

### **DTC Descriptors**

This diagnostic procedure supports the following DTCs:

- DTC B2532 Front Fog Lamps Control Circuit Low
- DTC B2533 Front Fog Lamps Control Circuit High

### **Conditions for Running the DTC**

The battery voltage must be between 9-16 volts.

#### **Conditions for Setting the DTC**

- When the BCM receives a front fog lamp switch OFF command and the front fog lamp relay control circuit is shorted to ground
- When the BCM receives a front fog lamp switch ON command and the front fog lamp relay control circuit is shorted to voltage or open

#### Action Taken When the DTC Sets

The front fog lamps will not operate or will remain always ON.

Conditions for Clearing the MIL/DTC

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- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**2:** Listen for an audible click when the front fog lamp relay operates. Command both the ON and OFF states. Repeat the commands as necessary.

**3:** This step tests for ground at the coil side of the front fog lamp relay.

**4:** This step verifies that the BCM is providing battery positive voltage to the front fog lamp relay.

**5:** This step tests if battery positive voltage is constantly being applied to the front fog lamp relay.

6: This step tests if a condition exists in the front fog lamp relay control circuit.

**12:** After replacement of the BCM, you must calibrate the new module for proper operation.

Step	Action	Yes	No		
	Schematic Reference: Fog Lights Schematics				
	r End View Reference: <u>Lighting Systems (</u>	Connector End V	iews or <u>Data</u>		
Communi	cation Connector End Views				
	Did you perform the Diagnostic System		Go to		
1	Check - Vehicle?		<u>Diagnostic</u>		
1			System Check -		
		Go to Step 2	<u>Vehicle</u>		
	1. Install a scan tool.				
	2. Turn ON the ignition, with the engine OFF.				
2	3. With a scan tool, command the front	Go to <b>Testing</b>			
	fog lamp relay ON and OFF.	for Intermittent			
		<b>Conditions and</b>			
	Does the front fog lamp relay turn ON and	Poor			
	OFF with each command?	<u>Connections</u>	Go to Step 3		
	1. Turn OFF the ignition.				

## DTC B2532 or B2533

3	<ol> <li>Remove the front fog lamp relay. Refer to <u>Relay Replacement</u> (<u>Attached to Wire Harness</u>) or <u>Relay Replacement (Within an</u> <u>Electrical Center</u>).</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>Connect a test lamp between the ground circuit of the front fog lamp relay and the battery positive voltage circuit of the front fog lamp relay.</li> </ol>		
	Does the test lamp illuminate?	Go to <b>Step 4</b>	Go to <b>Step 10</b>
4	<ol> <li>Connect a test lamp between the control circuit of the front fog lamp relay and the ground circuit of the front fog lamp relay.</li> <li>With a scan tool, command the front fog lamp relay ON and OFF.</li> <li>Does the test lamp turn ON and OFF with</li> </ol>		
	each command?	Go to Step 8	Go to Step 5
5	Does the test lamp remain illuminated with each command?	Go to <b>Step 7</b>	Go to <b>Step 6</b>
6	Test for a short to ground, an open or high resistance in the fog lamp relay control circuit and fog lamp switch indicator control circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 9</b>
7	Test for a short to voltage in the fog lamp relay control circuit and fog lamp switch indicator control circuit. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 9</b>
8	Inspect for poor connections at the front fog lamp relay. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		

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	Did you find and correct the condition?	Go to Step 13	Go to Step 11
9	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Circuit Testing</u> and		
,	Wiring Repairs . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 12</b>
10	Repair the open or high resistance in the ground circuit of the front fog lamp relay. Refer to <u>Wiring Repairs</u> . Did you complete the repair?	Go to <b>Step 13</b>	_
11	Replace the front fog lamp relay. Refer to <b>Relay Replacement (Attached to Wire</b> <b>Harness)</b> or <b>Relay Replacement (Within</b> <b>an Electrical Center)</b> . Did you complete the replacement?	Go to <b>Step 13</b>	_
12	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 13</b>	_
13	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> </ol>		
	Does the DTC reset?	Go to Step 2	System OK

### DTC B2557 OR B2558

### **Circuit Description**

The body control module (BCM) receives a ground signal from the door jamb or dome lamp switches requesting courtesy/dome lamp illumination. When this occurs, the BCM directly sends a voltage through the inadvertent power supply voltage circuit illuminating the courtesy/dome lamps.

### **DTC Descriptors**

This diagnostic procedure supports the following DTCs:

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- DTC B2557 Passenger Compartment Lamp Control Circuit Low
- DTC B2558 Passenger Compartment Lamp Control Circuit High

## **Conditions for Running the DTC**

The battery voltage must be between 9-16 volts.

### Conditions for Setting the DTC

- When the BCM receives a courtesy lamp illumination request signal and the inadvertent power supply voltage circuit is shorted to ground
- When the BCM is not receiving a courtesy lamp illumination request signal and the inadvertent power supply voltage circuit is shorted to voltage
- There is a loss of the underhood fuse block truck body controller (TBC) battery supply voltage to the BCM for more than 1 second.

### Action Taken When the DTC Sets

The courtesy/dome lamps will not operate or are always ON.

### Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

### **Diagnostic Aids**

Perform a visual inspection for loose or poor connections at all related components. Refer to **Testing for Intermittent Conditions and Poor Connections**.

#### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

- 2: This step determines if the problem exists in the wiring.
- **3:** This step determines if a condition exist in the TBC battery voltage supply circuit.
- 5: After replacement of the BCM, you must calibrate the new module for proper operation.

## DTC B2557 or B2558

Step Action	Yes	No
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Connecto	c Reference: <u>Interior Lights Schematics</u> r End View Reference: <u>Lighting Systems C</u>	Connector End	Views or <u>Data</u>
<u>Commun</u> 1	ication Connector End Views Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Check - Vehicle
2	Test the inadvertent power supply voltage circuit for a short to voltage or short to ground. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 6</b>	Go to <b>Step 3</b>
3	Test the truck body controller (TBC) battery positive supply voltage circuit for a short to ground, open or high resistance. Refer to <u>Circuit Testing</u> . Did you find and correct the condition?	Go to <b>Step 6</b>	Go to <b>Step 4</b>
4	Inspect for poor connections at the harness connectors of the body control module (BCM). Refer to <u>Testing for</u> <u>Intermittent Conditions and Poor</u> <u>Connections</u> and <u>Connector Repairs</u> . Did you find and correct the condition?	Go to <b>Step 6</b>	Go to <b>Step 5</b>
5	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 6</b>	_
6	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> </ol>		
	Does the DTC reset?	Go to Step 2	System OK

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When the body control module (BCM) senses a request for headlamp or daytime running lamp (DRL) illumination, the BCM sends a ground signal to the headlamp relay through the low beam headlamp relay control circuit. The headlamp relay will illuminate the low beam headlamps.

## **DTC Descriptor**

This diagnostic procedure supports the following DTC:

DTC B2575 Headlamp Control Circuit

**Conditions for Running the DTC** 

The battery voltage must be between 9-16 volts.

## Conditions for Setting the DTC

- When the BCM receives a command to illuminate the headlamps and the headlamp low beam relay control circuit is open or shorted to voltage
- When the BCM does not receive a command to illuminate the headlamps and the headlamp low beam relay control circuit is shorted to ground

### Action Taken When the DTC Sets

The headlamps will not operate or will remain always ON.

## Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**3:** This step tests for voltage at the voltage supply side of the headlamp relay.

- 4: This step verifies that the BCM is providing ground to the headlamp relay.
- 5: This step tests if ground is constantly being applied to the headlamp relay.

**6:** This step tests if there is opposing voltage present or an open low beam headlamp relay control circuit.

12: After replacement of the BCM, you must calibrate the new module for proper

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operation.

# **DTC B2575**

Step	Action	Yes	No
	Reference: <u>Headlights/Daytime Running</u>	Lights (DRL) So	chematics
<b>Connector</b> I	End View Reference: <u>Lighting Systems</u> (	_	
<b>Communica</b>	tion Connector End Views	1	
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
	1. Install a scan tool.		
	<ol> <li>Turn ON the ignition, with the engine OFF.</li> </ol>		
2	3. With a scan tool, command the headlamps ON and OFF.	Go to <u>Testing</u> for Intermittent <u>Conditions and</u>	
	Does the headlamp relay turn ON and OFF with each command?	Poor Connections	Go to <b>Step 3</b>
3	<ol> <li>Turn OFF the ignition.</li> <li>Disconnect the headlamp relay.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>Probe the battery positive voltage circuit of the headlamp relay with a test lamp that is connected to a good ground.</li> </ol>		
	Does the test lamp illuminate?	Go to Step 4	Go to Step 10
4	<ol> <li>Connect a test lamp between the control circuit of the headlamp relay and the battery positive voltage circuit of the headlamp relay.</li> <li>With a scan tool, command the headlamps ON and OFF.</li> <li>Does the test lamp turn ON and OFF with</li> </ol>		

	each command?	Go to Step 8	Go to Step 5
E	Does the test lamp remain illuminated		
5	with each command?	Go to Step 7	Go to Step 6
	Test the control circuit of the headlamp		
	relay for a short to voltage or an open.		
6	Refer to Circuit Testing and Wiring		
	<u>Repairs</u> .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 9
	Test the control circuit of the headlamp		
7	relay for a short to ground. Refer to		
1	Circuit Testing and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 9
	Inspect for poor connections at the		
8	headlamp relay. Refer to Circuit Testing		
0	and <b>Wiring Repairs</b> .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 11
	Inspect for poor connections at the		
	harness connector of the body control		
9	module (BCM). Refer to <u>Circuit Testing</u>		
	and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 12
	Repair the battery positive voltage circuit		
10	of the headlamp relay. Refer to Wiring		
	<u>Repairs</u> .	G . G( 13	
	Did you complete the repair?	Go to Step 13	-
	Replace the headlamp relay. Refer to		
11	<b>Relay Replacement (Attached to Wire</b>		
11	<u>Harness</u> ) or <u>Relay Replacement</u>		
	(Within an Electrical Center).	Co to Stop 13	
	Did you complete the replacement?	Go to Step 13	-
	Replace the BCM. Refer to <u>Control</u>		
12	Module References for replacement, setup and programming.		
	Did you complete the replacement?	Go to Step 13	_
		30 to 5tep 13	
	1. Use the scan tool in order to clear		
13	the DTCs.		
	2. Operate the vehicle within the		
	Conditions for Running the DTC as		

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specified in the supporting text.		
Does the DTC reset?	Go to Step 2	System OK

#### DTC B2582 OR B2583

#### **Circuit Description**

When the body control module (BCM) receives a ground signal from the multifunction high beam or flash to pass (FTP) switch commanding to illuminate the high beam headlamps, the BCM will energize the high beam relay by grounding the high beam relay control circuit.

#### **DTC Descriptors**

This diagnostic procedure supports the following DTCs:

- DTC B2582 Headlamp High Beam Control Circuit Low
- DTC B2583 Headlamp High Beam Control Circuit High

### **Conditions for Running the DTC**

The battery voltage must be between 9-16 volts.

### Conditions for Setting the DTC

- When the BCM receives a high beam headlamp OFF command and the high beam headlamp relay control circuit is shorted to ground
- When the BCM receives a high beam headlamp ON command and the high beam headlamp relay control circuit is shorted to voltage or open

### Action Taken When the DTC Sets

The high beam headlamps will not operate or will remain always ON.

### Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

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**2:** Listen for an audible click when the high beam relay operates. Command both the ON and OFF states. Repeat the commands as necessary.

**3:** This step tests for voltage at the coil side of the high beam relay.

4: This step verifies that the BCM is providing ground to the high beam relay.

**5:** This step tests if ground is constantly being applied to the high beam relay.

**6:** This step tests if there is opposing voltage present or an open high beam relay control circuit.

**12:** After replacement of the BCM, you must calibrate the new module for proper operation.

Step	Action	Yes	No	
Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u>				
Connector	End View Reference: <u>Lighting Systems</u>	Connector End V	iews or <u>Data</u>	
Communic	ation Connector End Views			
	Did you perform the Diagnostic System		Go to	
1	Check - Vehicle?		<u>Diagnostic</u>	
-			System Check -	
		Go to Step 2	<u>Vehicle</u>	
	1. Install a scan tool.			
	2. Turn ON the ignition, with the engine OFF.			
2	3. With a scan tool, command the high	Go to Testing		
	beam relay ON and OFF.	for Intermittent		
		Conditions and		
	Does the high beam relay turn ON and OFF		Contra Store 2	
	with each command?	<u>Connections</u>	Go to Step 3	
	1. Turn OFF the ignition.			
	2. Disconnect the high beam relay.			
	3. Turn ON the ignition, with the engine OFF.			
3	4. Probe the battery positive voltage circuit of the high beam relay with a test lamp that is connected to a good ground.			

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## DTC B2582 or B2583

	Does the test lamp illuminate?	Go to Step 4	Go to Step 10
4	<ol> <li>Connect a test lamp between the control circuit of the high beam relay and the battery positive voltage circuit of the high beam relay.</li> <li>With a scan tool, command the high</li> </ol>		
	beam relay ON and OFF. Does the test lamp turn ON and OFF with		
	each command?	Go to Step 8	Go to Step 5
5	Does the test lamp remain illuminated with each command?	Go to <b>Step 7</b>	Go to <b>Step 6</b>
6	Test the control circuit of the high beam relay for a short to voltage or an open. Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u> .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 9
7	Test the control circuit of the high beam relay for a short to ground. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .	G	
	Did you find and correct the condition?	Go to Step 13	Go to Step 9
8	Inspect for poor connections at the high beam relay. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 11
9	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 12
10	Repair the battery positive voltage circuit of the high beam relay. Refer to <u>Wiring</u> <u>Repairs</u> .		
	Did you complete the repair?	Go to Step 13	-
11	Replace the high beam relay. Refer to <u>Relay Replacement (Attached to Wire</u> <u>Harness)</u> or <u>Relay Replacement (Within</u>		
	an Electrical Center).		

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	Did you complete the replacement?	Go to Step 13	-
12	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 13</b>	-
13	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> <li>Does the DTC reset?</li> </ol>	Go to <b>Step 2</b>	System OK

#### **DTC B2585**

#### **Circuit Description**

When the body control module (BCM) receives a ground signal from the headlamp switch commanding to illuminate the park lamps, the BCM will energize the park lamp relay by grounding the park lamp relay control circuit.

### **DTC Descriptor**

This diagnostic procedure supports the following DTC:

## DTC B2585 Park Lamp Control Circuit

**Conditions for Running the DTC** 

The battery voltage must be between 9-16 volts.

### Conditions for Setting the DTC

- When the BCM receives a park lamp OFF command and the park lamp relay control circuit is shorted to ground
- When the BCM receives a park lamp ON command and the park lamp relay control circuit is shorted to voltage or open

#### Action Taken When the DTC Sets

The park lamps will not operate or will remain always ON.

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### Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

#### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**2:** Listen for an audible click when the park lamp relay operates. Command both the ON and OFF states. Repeat the commands as necessary.

**3:** This step tests for voltage at the coil side of the park lamp relay.

4: This step verifies that the BCM is providing ground to the park lamp relay.

5: This step tests if ground is constantly being applied to the park lamp relay.

**6:** This step tests if there is opposing voltage present or an open park lamp relay control circuit.

**12:** After replacement of the BCM, you must calibrate the new module for proper operation.

## DTC B2585

Step	Action	Yes	No
Schematic <b>R</b>	eference: <u>Exterior Lights Schematics</u>		-
<b>Connector E</b>	and View Reference: <u>Lighting Systems</u> (	Connector End V	<b>iews</b> or <b>Data</b>
<u>Communica</u>	<u>tion Connector End Views</u>		
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<u>Diagnostic</u>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	1. Install a scan tool.		
2	2. Turn ON the ignition, with the engine OFF.		
	3. With a scan tool, command the park lamp relay ON and OFF.	Go to <u>Testing</u> <u>for Intermittent</u>	
	Does the park lamp relay turn ON and OFF with each command?	<u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>

1	1	I	1
	1. Turn OFF the ignition.		
	2. Disconnect the park lamp relay.		
	3. Turn ON the ignition, with the engine OFF.		
3	4. Probe the battery positive voltage circuit of the park lamp relay with a test lamp that is connected to a good ground.		
	Does the test lamp illuminate?	Go to Step 4	Go to Step 10
4	<ol> <li>Connect a test lamp between the control circuit of the park lamp relay and the battery positive voltage circuit of the park lamp relay.</li> <li>With a scan tool, command the park lamp relay ON and OFF.</li> </ol>		
	Does the test lamp turn ON and OFF with each command?	Go to <b>Step 8</b>	Go to <b>Step 5</b>
5	Does the test lamp remain illuminated with each command?	Go to <b>Step 7</b>	Go to <b>Step 6</b>
6	Test the control circuit of the park lamp relay for a short to voltage or an open. Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 9</b>
7	Test the control circuit of the park lamp relay for a short to ground. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 12</b>	Go to <b>Step 9</b>
8	Inspect for poor connections at the park lamp relay. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to Step 11
9	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <b>Circuit Testing</b>		

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	and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 12
	Repair the battery positive voltage circuit		
10	of the park lamp relay. Refer to <b>Wiring</b>		
	Repairs .		
	Did you complete the repair?	Go to Step 13	-
	Replace the park lamp relay. Refer to		
	<b>Relay Replacement (Attached to Wire</b>		
11	Harness) or <u>Relay Replacement</u>		
	(Within an Electrical Center)		
	Did you complete the replacement?	Go to Step 13	-
	Replace the BCM. Refer to Control		
12	Module References for replacement,		
12	setup and programming.		
	Did you complete the replacement?	Go to Step 13	-
	1. Use the scan tool in order to clear		
	the DTCs.		
	2. Operate the vehicle within the		
13	Conditions for Running the DTC as		
	specified in the supporting text.		
	Does the DTC reset?	Go to Step 2	System OK

#### DTC B2602 OR B2603

#### **Diagnostic Instructions**

- Perform the **Diagnostic System Check Vehicle** prior to using this diagnostic procedure.
- Review Strategy Based Diagnosis for an overview of the diagnostic approach.
- **<u>Diagnostic Procedure Instructions</u>** provides an overview of each diagnostic category.

### **DTC Descriptors**

## **DTC B2602**

Daytime Running Lamp Control Circuit Low or Open

## **DTC B2603**

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# Daytime Running Lamp Control Circuit High

### **Diagnostic Fault Information**

## DTC B2602 or B2603

Circuit	Short to	Open/High	Short to	Signal
	Ground	Resistance	Voltage	Performance
DRL Control Circuit	B2602	B2602	B2603	-

## **Circuit/System Description**

The daytime running lights (DRL) relay is controlled by the body control module (BCM). Battery positive voltage is applied to the relay coil at all times. The BCM grounds the DRL relay control circuit in order to turn ON the DRL relay illuminating the low beam headlamps at a reduced intensity.

## Conditions for Running the DTC

- The ignition switch is in the RUN position.
- The headlamp switch is in the AUTO position.
- The park brake is not applied.
- The gear selector is not in the PARK position.

## Conditions for Setting the DTC

One of the following conditions must occur:

- The DRL relay control circuit is open, shorted to ground or shorted to voltage.
- The DRL relay coil is open.
- The battery positive voltage to the DRL relay is open.

## Action Taken When the DTC Sets

- The BCM stores DTC B2602 or B2603 in memory.
- The BCM disables the DRL relay control as long as the fault is present.
- The BCM disables the DRL relay control until the next key cycle after the fault is corrected.

## **Conditions for Clearing the DTC**

• A current DTC B2602 or B2603 clears when the BCM no longer detects an open, short to ground or short to battery positive voltage in the control circuit on the DRL relay.

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- 100 consecutive ignition cycles have been recorded without the DTC being detected.
- Using a scan tool can clear the DTC.

#### **Diagnostic Aids**

- The park brake must not be set and the transmission must be is gear for the DRL to operate property.
- An open, short to ground or a short to voltage in the following location may cause a malfunction to occur:
  - $\circ$  The control circuit of the DRL relay coil
  - The DRL relay
  - The BCM

#### **Reference Information**

Schematic Reference

# Headlights/Daytime Running Lights (DRL) Schematics

Connector End View Reference

# Lighting Systems Connector End Views

Electrical Information Reference

- Circuit Testing
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

- Scan Tool Data Definitions
- <u>Scan Tool Data List</u>
- <u>Scan Tool Output Controls</u>

# Circuit/System Verification

Ignition ON, carefully supply sufficient light to the ambient light sensor to activate DRL mode. The BCM Output Data List should indicate that the DRL Status is On. The low beam headlamps should illuminate at a reduced intensity.

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#### **Circuit/System Testing**

- 1. Ignition OFF, disconnect the DRL relay.
- 2. Ignition ON, verify that a test lamp illuminates between the relay coil voltage supply circuit and ground.
  - If the test lamp does not illuminate, repair the voltage supply circuit for a short to ground or an open/high resistance. If the voltage supply circuit fuse is open, test the relay switch control circuit for a short to ground. If the circuit tests normal, test or replace the DRL relay.
- 3. Disconnect the harness connector at the BCM.
- 4. Test for infinite resistance between the DRL relay control circuit and ground
  - o If less than infinite, test the DRL relay control circuit for a short to ground.
- 5. Connect the harness connector at the BCM.
- 6. Connect a test lamp between the relay coil control circuit and the relay coil voltage supply circuit.
- 7. Cycle the key OFF and then ON. Perform the Circuit/System Verification. The test lamp should turn ON.
  - If the test lamp remains OFF all the time, test for a short to voltage or an open/high resistance on the relay coil control circuit. If the circuit tests normal, replace the BCM.
  - If the test lamp remains ON all the time, test for a short to ground on the relay coil control circuit. If the circuit tests normal, replace the BCM.
- 8. If all circuits test normal, test or replace the DRL relay.

# **Component Testing**

# **Relay Test**

- 1. Ignition OFF, disconnect the DRL relay.
- 2. Test for 65 to 95 ohms of resistance between terminals 85 and 86.
  - $\circ$  If the resistance is not within the specified range, replace the relay.
- 3. Test for infinite resistance between the following terminals:
  - 30 and 86
  - 30 and 87
  - 30 and 85
  - 85 and 87
  - $\circ$  If less than infinite resistance, replace the relay.

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4. Test for less than 2 ohms of resistance between terminals 30 and 87A.

• If greater than 2 ohms, replace the relay.

5. Install a 10-amp fused jumper wire between relay terminal 85 and 12 volts. Install a jumper wire between relay terminal 86 and ground. Measure for less than 2 ohms of resistance between terminals 30 and 87.

 $\circ$  If greater than 2 ohms, replace the relay.

# **Repair Procedures**

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- <u>Relay Replacement (Attached to Wire Harness)</u> or <u>Relay Replacement (Within an</u> <u>Electrical Center)</u>
- Control Module References for BCM replacement, setup and programming

# DTC B2622 OR B2623

# **Circuit Description**

The body control module (BCM) receives a variable voltage signal from the instrument panel (I/P) dimmer switch requesting to illuminate the I/P controls illumination lamps to a desired intensity. When this occurs, the BCM directly sends a variable voltage based on the I/P dimmer switch position through the I/P lamps supply voltage circuit to the I/P controls illumination lamps.

# **DTC Descriptors**

This diagnostic procedure supports the following DTCs:

- DTC B2622 Dimming Display Pulse Width Modulation (PWM) Input Circuit Low
- DTC B2623 Dimming Display Pulse Width Modulation (PWM) Input Circuit High

# Conditions for Running the DTC

The battery voltage must be between 9-16 volts.

# Conditions for Setting the DTC

- When the BCM receives an I/P controls illumination lamp request signal and the I/P lamps supply voltage circuit is shorted to ground
- When the BCM is not receiving an I/P controls illumination lamp request signal and the I/P

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lamps supply voltage circuit is shorted to voltage

#### Action Taken When the DTC Sets

The I/P controls illumination lamps will not operate or are always ON.

#### Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

#### **Diagnostic Aids**

Perform a visual inspection for loose or poor connections at all related components. Refer to **Testing for Intermittent Conditions and Poor Connections**.

#### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**2:** This step determines by process of elimination which, if any, dimmable component is causing the DTC to set.

**3:** This step determines if the problem exists in the wiring or the BCM.

**5:** After replacement of the BCM, you must calibrate the new module for proper operation.

# DTC B2622 or B2623

Step	Action	Yes	No	
Schematic Reference: Interior Lights Dimming Schematics				
<b>Connector H</b>	End View Reference: Lighting Systems (	Connector End V	<b>'iews</b> or <b>Data</b>	
Communica	tion Connector End Views			
	Did you perform the Diagnostic System		Go to	
1	Check - Vehicle?		<b>Diagnostic</b>	
1			System Check -	
		Go to Step 2	<u>Vehicle</u>	
	1. Clear the DTC B2622 or B2623			
	with the scan tool.			
	2. Turn the park lamps ON.			
	3. Adjust the instrument panel (I/P)			
	dimmer switch to a mid-range			

2	<ul> <li>dimming position.</li> <li>4. Disconnect each dimmable component from the instrument panel lamps dimming control circuit, one at a time, while monitoring the scan tool current codes.</li> <li>Does either DTC not reset after a particular dimmable component was disconnected?</li> </ul>	Go to <b>Step 4</b>	Go to <b>Step 3</b>
3	<ul> <li>Test for one of the following conditions. Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u>.</li> <li>A short to voltage or short to ground in the I/P lamps supply voltage circuit.</li> <li>An open, high resistance or short to ground in the park lamp supply voltage circuit.</li> </ul>		
4	Did you find and correct the condition? Replace the dimmable component associated with when the code did not reset. Refer to the proper replacement procedure for that particular component. Did you complete the repair?	Go to <b>Step 6</b> Go to <b>Step 6</b>	Go to Step 5
5	Replace the body control module (BCM). Refer to <u>Control Module</u> <u>References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 6</b>	
6	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as</li> </ol>		

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specified in the supporting text.		
Does the DTC reset?	Go to Step 2	System OK

#### **DTC B2624**

#### **Circuit Description**

The body control module (BCM) directly sends a reference voltage to the instrument panel (I/P) dimmer switch which is then reduced based on the I/P dimmer switch position and monitored as a signal to the BCM. The BCM uses this signal to directly control the desired level of I/P illumination lamp intensity.

#### **DTC Descriptor**

This diagnostic procedure supports the following DTC:

DTC 2624 Dimming Display Pulse Width Modulation (PWM) Input Circuit Open

#### **Conditions for Running the DTC**

The battery voltage must be between 9-16 volts.

#### Conditions for Setting the DTC

When the BCM monitors a signal voltage equal to or greater than 4.86 volts for more than one second

#### Action Taken When the DTC Sets

The I/P illumination lamp dimming will not operate.

#### Conditions for Clearing the MIL/DTC

- This DTC will clear on current status after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- History and current DTCs can be cleared using a scan tool.

#### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

**3:** This step tests for the proper operation of the circuit in the low voltage range.

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**4:** This step tests for the proper operation of the circuit in the high voltage range. If the fuse in the jumper opens when you perform this test, the signal circuit is shorted to voltage.

**5:** This step tests for a short to voltage in the signal circuit.

6: This step tests for a high resistance or an open in the low reference circuit.

# **DTC B2624**

Step	Action	Value(s)	Yes	No
Schematic	<b>Reference:</b> Interior Lights Din	nming Schemat	ics	
	End View Reference: Lighting	<u>Systems Conne</u>	ector End View	<u>s</u> or <u>Data</u>
Communic	ation Connector End Views		1	1
1	Did you perform the Diagnostic System Check - Vehicle?	-	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System</u> <u>Check -</u> <u>Vehicle</u>
2	<ol> <li>Install a scan tool.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With the scan tool, observe the Dimming Potentiometer input data parameter in the body control module (BCM) Data List.</li> <li>Does the scan tool indicate that the Dimming Potentiometer input data parameter is within the specified range?</li> </ol>	0.6-4.5 V	Go to <u>Testing</u> <u>for</u> <u>Intermittent</u> <u>Conditions</u> <u>and Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	<ol> <li>Turn OFF the ignition.</li> <li>Disconnect the headlamp and panel dimmer switch.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With a scan tool, observe the Dimming Potentiometer input data</li> </ol>	4.5 V		

	parameter. Does the scan tool indicate that the Dimming Input data parameter is greater than the		C a ta Stara 10	Carta Stars A
4	<ol> <li>specified value?         <ol> <li>Turn OFF the ignition.</li> <li>Connect a 3-amp fused jumper wire between the connector terminals of the low reference circuit and the signal circuit of the headlamp and panel dimmer switch.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With a scan tool, observe the Dimming Potentiometer input data parameter.</li> </ol> </li> <li>Does the scan tool indicate that the Dimming Potentiometer input data parameter is less</li> </ol>	4.86 V	Go to Step 10	
5	<ol> <li>than the specified value?</li> <li>Disconnect the fused jumper wire.</li> <li>Measure the voltage between the connector terminals of the low reference circuit and the signal circuit of the headlamp and panel dimmer switch.</li> <li>Does the voltage measure less than the specified value?</li> </ol>	5.15 V	Go to <b>Step 5</b> Go to <b>Step 6</b>	Go to <b>Step 8</b> Go to <b>Step 7</b>
	1. Turn OFF the ignition.			

6	<ol> <li>Disconnect the negative battery cable.</li> <li>Measure the resistance from the low reference circuit of the headlamp and panel dimmer switch connector and a good ground.</li> </ol>	5 ohms		
	Does the resistance measure less than the specified value?		Go to Step 12	Go to <b>Step</b>
7	Test the signal circuit of the headlamp and panel dimmer switch for a short to voltage. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	_	Go to <b>Step 12</b>	Go to <b>Step</b> 13
8	Test the signal circuit of the headlamp and panel dimmer switch for a open or high resistance. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	-	Go to <b>Step 16</b>	
9	Test the low reference circuit of the headlamp and panel dimmer switch for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u> . Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step</b> 13
10	Test the signal circuit of the headlamp and panel dimmer switch for a short to voltage. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the	_		Go to <b>Step</b>

	condition?		Go to Step 16	13
11	<ol> <li>Disconnect the body control module.</li> <li>Test the low reference circuit of the headlamp and panel dimmer switch for a high resistance or an open. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring</u> <u>Repairs</u>.</li> </ol>	_		
	Did you find and correct the condition?		Go to <b>Step 16</b>	Go to <b>Step</b> 13
12	Inspect for poor connections at the harness connector of the headlamp and panel dimmer switch. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step</b> 14
13	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	-	Go to <b>Step 16</b>	Go to <b>Step</b> 15
14	Replace the headlamp and panel dimmer switch. Refer to <u>Headlamp Switch</u> <u>Replacement</u> . Did you complete the replacement?	_	Go to <b>Step 16</b>	_
15	Replace the BCM. Refer to Control Module References for replacement, setup and programming. Did you complete the replacement?	-	Go to <b>Step 16</b>	_

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16	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> </ol>	-	Go to <b>Step 2</b>	System OK	

# DTC B2647 OR B2648

#### **Circuit Description**

The body control module (BCM) monitors the ambient light sensor signal circuit in order to determine if the daytime running lights (DRL) or the auto headlights (ALC) should be turned ON in the AUTO mode. When the BCM senses the ambient light sensor signal voltage is between 1.75-4.9 volts, either the DRL will be commanded ON or the ALC will be commanded ON depending upon the amount of light received by the sensor.

# DTC Descriptors

This diagnostic procedure supports the following DTC:

- DTC B2647 Ambient Light Sensor Circuit Low
- DTC B2648 Ambient Light Sensor Circuit High

# Conditions for Running the DTC

The system voltage must be between 9-16 volts.

# Conditions for Setting the DTC

- When the ambient light sensor signal voltage is less than 1.75 volts
- When the ambient light sensor signal voltage is more than 4.9 volts

# Action Taken When the DTC Sets

The ALC will remain always ON or always OFF in any ambient light state.

# Conditions for Clearing the MIL/DTC

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- This DTC will clear immediately after the condition for setting the fault is corrected.
- A history DTC will clear after 100 consecutive ignition cycles without a fault present.
- Use a scan tool in order to clear history and current DTCs.

#### **Test Description**

The numbers below refer to the step numbers on the diagnostic table.

2: This step verifies that the value displayed is within the specified range.

**3:** This step tests for the proper operation of the circuit in the high voltage range.

**4:** This step tests for the proper operation of the circuit in the low voltage range. If the fuse in the jumper opens when you perform this test, the signal circuit is shorted to voltage.

# DTC B2647 or B2648

End View Reference: Lighting		ts (DRL) Schen			
Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u> Connector End View Reference: <u>Lighting Systems Connector End Views</u> or <u>Data</u> Communication Connector End Views					
Did you perform the Diagnostic System Check - Vehicle?	-	Go to <b>Step 2</b>	Go to Diagnostic System <u>Check -</u> <u>Vehicle</u>		
<ol> <li>Install a scan tool.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With a scan tool, observe the ambient light sensor parameter in the body control module (BCM) data list.</li> <li>Does the scan tool indicate that the ambient light sensor parameter is within the specified range?</li> </ol>	1.75-4.9 V	Go to <u>Testing</u> <u>for</u> <u>Intermittent</u> <u>Conditions</u> <u>and Poor</u> <u>Connections</u>	Go to <b>Step 3</b>		
	<ol> <li>System Check - Vehicle?</li> <li>Install a scan tool.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With a scan tool, observe the ambient light sensor parameter in the body control module (BCM) data list.</li> <li>Does the scan tool indicate that the ambient light sensor parameter is within the specified</li> </ol>	<ul> <li>System Check - Vehicle?</li> <li>Install a scan tool.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With a scan tool, observe the ambient light sensor parameter in the body control module (BCM) data list.</li> <li>Does the scan tool indicate that the ambient light sensor parameter is within the specified range?</li> </ul>	System Check - Vehicle?       -         Go to Step 2         1. Install a scan tool.         2. Turn ON the ignition, with the engine OFF.         3. With a scan tool, observe the ambient light sensor parameter in the body control module (BCM) data list.         Does the scan tool indicate that the ambient light sensor parameter is within the specified range?		

3	<ol> <li>Disconnect the ambient light sensor.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With a scan tool, observe the ambient light sensor parameter.</li> <li>Does the scan tool indicate that the ambient light sensor parameter is greater than the specified value?</li> </ol>	4.9 V	Go to <b>Step 4</b>	Go to <b>Step 5</b>
4	<ol> <li>Turn OFF the ignition.</li> <li>Connect a 3-amp fused jumper wire between the ambient light sensor low reference circuit and the ambient light sensor signal circuit at the ambient light sensor harness connector.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With a scan tool, observe the ambient light sensor parameter.</li> <li>Does the scan tool indicate that the ambient light sensor parameter is less than the specified value?</li> </ol>	1.75 V	Go to <b>Step 6</b>	Go to <b>Step 7</b>
5	Test the ambient light sensor signal circuit for a short to ground. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	-	Go to <b>Step 13</b>	Go to <b>Step</b> 10
	Test the ambient light sensor low reference circuit for a short			

1			1	
	to ground. Refer to Circuit			
6	Testing and Wiring Repairs .			
0	Did you find and correct the	-		
	condition?		Go to Step 13	Go to Step 9
	Test the ambient light sensor			
	signal circuit for a short to			
	voltage, a high resistance or an			
7	open. Refer to Circuit Testing	-		
	and Wiring Repairs .			
	Did you find and correct the			
	condition?		Go to Step 13	Go to Step 8
	Test the ambient light sensor			
	low reference circuit for a short			
	to voltage, a high resistance or			
8	an open. Refer to Circuit	-		
	Testing and Wiring Repairs .			
	Did you find and correct the			Go to <b>Step</b>
	condition?		Go to Step 13	10
	Inspect for poor connections at			
	the harness connector of the			
	ambient light sensor. Refer to			
	<b>Testing for Intermittent</b>			
9	<b>Conditions and Poor</b>	-		
	Connections and Connector			
	<b>Repairs</b> .			
	Did you find and correct the			Go to Step
	condition?		Go to Step 13	11
	Inspect for poor connections at			
	the harness connector of the			
	BCM. Refer to <b>Testing for</b>			
10	<b>Intermittent Conditions and</b>			
10	Poor Connections and	-		
	Connector Repairs .			
	Did you find and correct the			Go to <b>Step</b>
	condition?		Go to Step 13	12
	Replace the ambient light			
11	sensor. Refer to Ambient Light			
11	Sensor Replacement.	-		
	Did you complete the			

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	replacement?	Go to Step 13	-
12	Replace the BCM. Refer to <u>Control Module References</u> for replacement, setup and programming. Did you complete the replacement?	- Go to <b>Step 13</b>	_
13	<ol> <li>Use the scan tool in order to clear the DTCs.</li> <li>Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.</li> </ol>	- Go to <b>Step 2</b>	System OK

#### SYMPTOMS - LIGHTING SYSTEMS

# IMPORTANT: The following steps must be completed before using the symptom tables.

- 1. Perform the **Diagnostic System Check Vehicle** before using the Symptom Tables in order to verify that all of the following are true:
  - There are no DTCs set.
  - The control modules can communicate via the serial data link.
- 2. Review the system operation and circuit descriptions that apply to the customer complaint in order to familiarize yourself with the system functions. Refer to the following list:
  - Exterior Lighting Systems Description and Operation
  - Interior Lighting Systems Description and Operation

#### Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the lighting system. Refer to <u>Checking Aftermarket Accessories</u>.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

#### Intermittent

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Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections**.

#### Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- Backup Lamps Always On
- Backup Lamps Inoperative
- <u>Clearance Lamps Inoperative</u>
- <u>Courtesy Lamps Always On</u>
- <u>Courtesy Lamps Inoperative</u>
- Daytime Running Lamps (DRL) Always On
- Daytime Running Lamps (DRL) Inoperative
- Daytime Running Lamps (DRL) On with Park Brake Applied
- Fog Lamp Indicator Inoperative
- Fog Lamps Always On
- Fog Lamps Inoperative
- Rear Fog Lamps Always On
- Rear Fog Lamps Inoperative
- Hazard Lamps Always On
- Hazard Lamps Inoperative
- Headlamp Low or High Beams Always On
- Headlamps Inoperative High Beams
- Headlamps Inoperative Low Beams
- Low and High Beams Headlamps Inoperative
- Headlamps Flash to Pass Inoperative
- <u>Headlight Leveling Inoperative</u>
- High Beam Indicator Always On
- High Beam Indicator Inoperative
- Interior Backlighting Does Not Dim
- Interior Backlighting Inoperative
- License Lamps Inoperative

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- <u>Off-Road Lamps Always On</u>
- Off-Road Lamps Inoperative
- Marker Lamps Inoperative
- Park Lamps Inoperative
- Park, License and Tail Lamps Always On
- Park, License and Tail Lamps Inoperative
- <u>Position Lamps Malfunction</u>
- Stop Lamps Always On
- Stop Lamps Inoperative
- Tail Lamps Inoperative
- Turn Signal Lamps and/or Indicators Always On or Flashing
- Turn Signal Lamps and/or Indicators Inoperative
- Vanity Mirror Lamp(s) Inoperative

# BACKUP LAMPS ALWAYS ON

# **Backup Lamps Always On**

Step	Action	Yes	No
Schematic 1	<b>Reference:</b> <u>Exterior Lights Schematics</u>		
Connector	End View Reference: <u>Lighting Systems Co</u>	nnector End Vi	<u>iews, Automatic</u>
Transmissi	on Related Connector End Views or Manu	al Transmission	n Connector
End Views			
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	1. Block the rear wheels.		
	2. Turn ON the ignition, with the engine		Go to <b>Testing</b>
2	OFF.		for
2	3. Place the gear selector in PARK or the		<u>Intermittent</u>
	shifter in Neutral.		<b>Conditions and</b>
			<u>Poor</u>
	Do the backup lamps illuminate?	Go to Step 3	<b><u>Connections</u></b>
	Disconnect the park/neutral position (PNP)		
	switch, if equipped with a automatic		

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3	transmission or the backup lamp switch, if equipped with a manual transmission. Do the backup lamps remain illuminated?	Go to <b>Step 4</b>	Go to <b>Step 5</b>
4	Repair the short to battery positive voltage in the backup lamps supply voltage circuit. Refer to <u>Circuit Testing</u> and <u>Wiring</u>		
	<u><b>Repairs</b></u> . Did you complete the repair?	Go to <b>Step 6</b>	-
	Adjust or replace the PNP switch or backup		
	lamp switch. Refer to Park/Neutral		
	Backup Switch Adjustment and		
5	Park/Neutral Backup Switch		
	Replacement or Backup Lamp Switch		
	Replacement .		
	Did you complete the repair?	Go to Step 6	-
	Operate the system in order to verify the		
6	repair.		
	Did you correct the condition?	System OK	Go to Step 3

# **BACKUP LAMPS INOPERATIVE**

# **Backup Lamps Inoperative**

Step	Action	Yes	No
Schematic	Reference: <u>Exterior Lights Schematics</u>		
Connector	End View Reference: Lighting Systems Co	onnector End Vi	ews, Automatic
<u>Transmissi</u>	on Related Connector End Views or Manu	al Transmissior	<u>Connector</u>
End Views			
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	1. Turn ON the ignition, with the engine		
	OFF.	Go to <b>Testing</b>	
	2. Block the rear wheels.	for	
2	3. Place the gear selector or shifter in the	Intermittent	
	REVERSE position.	Conditions	
		and Poor	
	Do both backup lamps illuminate?	<u>Connections</u>	Go to Step 3

3	Is only one lamp inoperative?	Go to Step 4	Go to Step 5
4	Connect a test lamp between the backup lamp supply voltage circuit and the ground circuit of the socket. Does the test lamp illuminate?	Go to <b>Step 9</b>	Go to <b>Step 8</b>
5	<ol> <li>Turn OFF the ignition.</li> <li>Connect a 15-amp fused jumper wire at the connector between the ignition positive voltage circuit and the backup lamp supply voltage circuit of the park/neutral position (PNP) switch, if equipped with an automatic transmission or the backup lamp switch, if equipped with a manual transmission.</li> <li>Turn ON the ignition, with the engine OFF.</li> </ol>		
	Do the backup lamps illuminate?	Go to Step 6	Go to Step 7
6	Inspect for poor connections at the harness connector of the PNP switch or backup lamp switch. Refer to <u>Testing for Intermittent</u> <u>Conditions and Poor Connections</u> and <u>Connector Repairs</u> . Did you find and correct the condition?	Go to <b>Step 11</b>	Go to <b>Step 10</b>
7	<ul> <li>Repair one of the following conditions.</li> <li>Refer to <u>Circuit Testing</u> and <u>Wiring</u></li> <li><u>Repairs</u>.</li> <li>The open, high resistance or short to ground in the ignition positive voltage circuit or the backup lamps supply voltage circuit</li> <li>The open or high resistance in the ground circuit</li> </ul>		
	Did you complete the repair?	Go to Step 11	-

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8	Repair the open or high resistance in the backup lamp supply voltage circuit or the ground circuit.		
	Did you complete the repair?	Go to Step 11	-
	Replace the inoperative bulb. Refer to		
9	Backup Lamp Bulb Replacement.		
	Did you complete the replacement?	Go to Step 11	-
10	Adjust or replace the PNP switch if equipped with an automatic transmission or the backup lamp switch if equipped with a manual transmission. Refer to <u>Park/Neutral</u> <u>Backup Switch Adjustment</u> and <u>Park/Neutral Backup Switch</u> <u>Replacement</u> or <u>Backup Lamp Switch</u> <u>Replacement</u> . Did you complete the replacement?	Go to <b>Step 11</b>	_
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

# **CLEARANCE LAMPS INOPERATIVE**

# **Clearance Lamps Inoperative**

Step	Action	Yes	No
Schematic I	Reference: <u>Exterior Lights Schematics</u>		
Connector 1	End View Reference: <u>Lighting Systems (</u>	Connector End V	<b>iews</b> or <b>Data</b>
Communica	ation Connector End Views		
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	Turn ON the park lamps.	Go to <b>Testing</b>	
	Do the clearance lamps illuminate?	for Intermittent	
2		<b>Conditions and</b>	
		<b>Poor</b>	
		<b>Connections</b>	Go to Step 3
	Are the park lamps illuminated?		
3			Go to <u>Park,</u>
			License and

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		Go to Step 4	<u>Tail Lamps</u> Inoperative
4	Are all clearance lamps inoperative?	Go to Step 7	Go to <b>Step 5</b>
5	Test the clearance lamp supply voltage and ground circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 9</b>	Go to <b>Step 6</b>
6	Inspect for poor connections at the harness connector of the clearance lamp. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 9</b>	Go to <b>Step 8</b>
7	<ul> <li>Repair the interior park lamps supply voltage circuit of the clearance lamps for the following:</li> <li>An open</li> <li>A high resistance</li> <li>A short to ground</li> </ul> Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u> . Did you complete the repair?	Go to <b>Step 9</b>	_
8	Replace the affected clearance/identification lamp. Refer to <b>Roof Clearance Lamp Bulb</b> <b>Replacement</b> or <b>Roof Identification</b> <b>Lamp Bulb Replacement</b> . Did you complete the replacement?	Go to <b>Step 9</b>	
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

#### COURTESY LAMPS ALWAYS ON

# Courtesy Lamps Always On

Step	Action	Yes	No

mmu	nication Connector End Views or <u>Vehicle A</u>	ccess Connector	End Views
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check</u> <u>Vehicle</u>
2	Verify that the courtesy/dome lamps are always on. Do the courtesy/dome lamps operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	<ul> <li>Inspect for the following related body control module (BCM) module data parameters. Refer to <u>Scan Tool Data List</u> and <u>Scan Tool Data Definitions</u> for typical values and definitions:</li> <li>The courtesy lamp switch</li> <li>The dome lamp override switch</li> <li>The driver door ajar switch</li> <li>The passenger door ajar switch</li> </ul>		
	Was a problem found?	Go to Step 4	Go to Step 7
4	Disconnect and test the switch of the affected input circuit for proper continuity in the open and closed positions. Refer to <u>Circuit Testing</u> . Does the switch operate properly?	Go to <b>Step 5</b>	Go to <b>Step 6</b>
5	<ul> <li>Test the signal and ground circuits of the affected input circuit for the following:</li> <li>A short to ground</li> <li>An open</li> <li>A high resistance</li> </ul>		

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	Refer to <b>Circuit Testing</b> and <b>Wiring</b>		
	Repairs .		
	Did you find and correct the condition?	Go to Step 11	Go to Step 7
	Inspect for poor connections at the harness		
6	connector of the affected switch. Refer to		
0	Circuit Testing and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 11	Go to Step 9
	Test for a short to ground in any of the		
_	courtesy lamp low control circuits.		
7	Refer to <u>Circuit Testing</u> and <u>Wiring</u>		
	Repairs .	G ( G( 11	
	Did you find and correct the condition?	Go to Step 11	Go to Step 8
	Inspect for poor connections at the harness		
8	connector of the BCM. Refer to <u>Circuit</u>		
	<b>Testing</b> and <b>Wiring Repairs</b> .	Q ( Q 11	
	Did you find and correct the condition?	Go to Step 11	Go to Step 10
	Replace the switch in the affected circuit.		
	Refer to one of the following replacement		
	procedures as applicable:		
	• Headlamp Switch Replacement		
9	<ul> <li>Front Side Door Lock Replacement</li> </ul>		
	Rear Door Lock Replacement		
	Endgate Latch Replacement		
	- Endgate Baten Replacement		
	Did you complete the replacement?	Go to Step 11	-
	Replace the BCM. Refer to Control		
10	Module References for replacement, setup		
10	and programming.		
	Did you complete the replacement?	Go to Step 11	-
	Operate the system in order to verify the		
11	repair.		
	Did you correct the condition?	System OK	Go to Step 3

#### **COURTESY LAMPS INOPERATIVE**

# **Courtesy Lamps Inoperative**

Step	Action	Yes	No
Schematic	<b>Reference:</b> Interior Lights Schematics		
	End View Reference: <u>Lighting Systems</u>		
<u>Communi</u>	cation Connector End Views or Vehicle A	ccess Connector	End Views
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	Verify that the courtesy lamps are inoperative. Do the courtesy lamps operate normally?	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	<ul> <li>Inspect for the following related body control module (BCM) module data parameters. Refer to <u>Scan Tool Data List</u> and <u>Scan Tool Data Definitions</u> for typical values and definitions:</li> <li>The courtesy lamp switch</li> <li>The dome lamp override switch</li> <li>The driver door ajar switch</li> <li>The passenger door ajar switch</li> </ul>		
	Was a problem found?	Go to Step 6	Go to Step 4
4	Connect a test lamp between the supply voltage and ground circuits of the inoperative lamp and activate the lamp. Does the test lamp illuminate?	Go to <b>Step 11</b>	Go to <b>Step 5</b>
5	Test the supply voltage and ground circuits of the inoperative lamp for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 11</b>	Go to <b>Step 9</b>
6	Disconnect and test the switch of the affected input circuit for proper continuity in the open and closed positions. Refer to		

	Circuit Testing .		
	Does the switch operate properly?	Go to Step 7	Go to Step 8
	Test the signal and ground circuits of the affected input circuit for the following:		
	• A short to ground		
7	• An open		
7	A high resistance		
	Refer to <b>Circuit Testing</b> and <b>Wiring</b>		
	<b><u>Repairs</u></b> . Did you find and correct the condition?	Go to Step 13	Go to Step 9
8	Inspect for poor connections at the harness connector of the affected switch. Refer to		
	Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 13	Go to Step 10
2	Inspect for poor connections at the harness connector of the BCM. Refer to <b>Circuit</b>		
9	<b>Testing</b> and <b>Wiring Repairs</b> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 12</b>
	Replace the switch in the affected circuit. Refer to one of the following replacement procedures as applicable:		
	Headlamp Switch Replacement		
10	<u>Front Side Door Lock</u> <u>Replacement</u>		
	Rear Door Lock Replacement		
	Endgate Latch Replacement		
	Did you complete the replacement?	Go to <b>Step 13</b>	_
	Replace the inoperative bulb. Refer to the		
11	correct replacement procedure.		
	Did you complete the repair?	Go to Step 13	-
	Replace the BCM. Refer to <b>Control</b>		
	Module References for replacement,		

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12	setup and programming. Did you complete the replacement?	Go to Step 13	-
13	Operate the system in order to verify the repair.		
15	Did you correct the condition?	System OK	Go to Step 3

# DAYTIME RUNNING LAMPS (DRL) ALWAYS ON

# Daytime Running Lamps (DRL) Always On

Step	Action	Yes	No
Schematic	Reference: <u>Headlights/Daytime Running</u>	Lights (DRL) So	chematics
Connector	End View Reference: Lighting Systems (	Connector End V	<b>iews</b> or <b>Data</b>
<u>Communic</u>	ation Connector End Views		
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	<ol> <li>Carefully supply sufficient light to the ambient light sensor.</li> <li>Place the headlamps in the AUTO position.</li> <li>Does the system operate normally?</li> </ol>	Go to <u>Testing</u> for Intermittent Conditions and <u>Poor</u> Connections	Go to <b>Step 3</b>
3	Remove the DRL fuse in the underhood fuse block. Do the DRL turn OFF?	Go to Step 4	Go to <b>Step 7</b>
4	<ol> <li>Reinstall the DRL fuse.</li> <li>Use the scan tool to observe the DRL Status parameter while switching the headlamp switch back and forth several times between AUTO and HEAD.</li> </ol>		
	Does the DRL parameter change states as expected? Inspect for poor connections at the harness connector of the underhood fuse block. Refer to <b>Testing for Intermittent</b>	Go to Step 5	Go to <b>Step 6</b>

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5	Conditions and Poor Connections and Connector Repairs .		
	Did you find and correct the condition?	Go to Step 10	Go to Step 8
	Inspect for poor connections at the harness		
	connector of the body control module		
6	(BCM). Refer to <u><b>Testing for</b></u>		
0	<b>Intermittent Conditions and Poor</b>		
	Connections and Connector Repairs .		
	Did you find and correct the condition?	Go to Step 10	Go to Step 9
	Repair the DRL supply voltage circuit.		
7	Refer to <b>Wiring Repairs</b> .		
	Did you complete the repair?	Go to Step 10	-
	Replace the DRL relay. Refer to <b>Relay</b>		
	<b>Replacement (Attached to Wire</b>		
8	Harness) or <u>Relay Replacement</u>		
	(Within an Electrical Center) .		
	Did you complete the replacement?	Go to Step 10	-
	Replace the BCM. Refer to <b>Control</b>		
9	Module References for replacement,		
9	setup and programming.		
	Did you complete the replacement?	Go to Step 10	-
	Operate the system in order to verify the		
10	repair.		
	Did you correct the condition?	System OK	Go to Step 3

# DAYTIME RUNNING LAMPS (DRL) INOPERATIVE

# **Daytime Running Lamps (DRL) Inoperative**

	Suffine Running Lumps (DRL) moperative					
Step	Action	Yes	No			
Schematic	Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics					
Connector	End View Reference: Lighting Systems (	Connector End V	' <b>iews</b> or <b>Data</b>			
<u>Communic</u>	cation Connector End Views					
	Did you perform the Diagnostic System		Go to			
1	Check - Vehicle?		<b>Diagnostic</b>			
1			System Check -			
		Go to Step 2	<u>Vehicle</u>			
	1. Carefully supply sufficient light to the ambient light sensor.					

2	<ul><li>2. Place the headlamps in the AUTO position.</li><li>Do the low beam headlamp bulbs illuminate?</li></ul>	Go to <u>Testing</u> for Intermittent Conditions and <u>Poor</u> Connections	Go to <b>Step 3</b>
3	With a scan tool, observe the DRL Status parameter in the body control module (BCM) data list. Does the scan tool display On?	Go to <b>Step 4</b>	Go to <b>Step 7</b>
4	Test the DRL supply voltage circuit for an open, high resistance or short to ground. Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u> . Did you find and correct the condition?	Go to <b>Step 9</b>	Go to <b>Step 5</b>
5	Inspect for poor connections at the harness connector of the underhood fuse block. Refer to <u>Testing for Intermittent</u> <u>Conditions and Poor Connections</u> and <u>Connector Repairs</u> . Did you find and correct the condition?	Go to <b>Step 9</b>	Go to <b>Step 6</b>
6	Replace the DRL relay. Refer to <u>Relay</u> <u>Replacement (Attached to Wire</u> <u>Harness)</u> or <u>Relay Replacement (Within</u> <u>an Electrical Center)</u> . Did you complete the repair?		_
7	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Testing</u> <u>for Intermittent Conditions and Poor</u> <u>Connections</u> and <u>Connector Repairs</u> . Did you find and correct the condition?	Go to <b>Step 9</b>	Go to <b>Step 8</b>
8	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 9</b>	-
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

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# DAYTIME RUNNING LAMPS (DRL) ON WITH PARK BRAKE APPLIED

# **Daytime Running Lamps (DRL) On with Park Brake Applied**

Step	Action	Yes	No
Schemati	c Reference: <u>Headlights/Daytime Running</u>	Lights (DRL) Se	chematics
	or End View Reference: <u>Lighting Systems</u> (		
<u>Commun</u>	<b>lication Connector End Views</b> or <b>Hydraulic</b>	c Brake Connecto	or End Views
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	Verify that the daytime running lamps (DRL) headlamps are ON with the parking brake applied. Do the DRL headlamps operate normally with the parking brake applied?	Go to <u>Testing</u> for Intermittent Conditions and <u>Poor</u> Connections	Go to <b>Step 3</b>
3	<ol> <li>Set the park brake.</li> <li>Turn ON the ignition, with the engine OFF.</li> <li>With the scan tool, read the park brake switch status.</li> <li>Does the scan tool display Applied?</li> </ol>	Go to <b>Step 6</b>	Go to <b>Step 4</b>
4	<ol> <li>Disconnect the park brake switch.</li> <li>Connect a fused jumper wire between the park brake switch signal circuit and the ground circuit.</li> <li>With the scan tool, read the park brake switch status.</li> <li>Does the scan tool display Applied?</li> </ol>		Go to <b>Step 5</b>
5	Test for an open or high resistance in the park brake switch signal circuit or ground circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 10</b>	Go to <b>Step 6</b>
	Inspect for poor connections at the harness connector of the body control module		

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6	(BCM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 10</b>	Go to <b>Step 8</b>
7	Inspect for poor connections at the harness connector of the park brake switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 10</b>	Go to <b>Step 9</b>
8	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 10</b>	-
9	Replace the park brake switch. Refer to <u>Parking Brake Indicator Switch</u> <u>Replacement (LHD)</u> or <u>Parking Brake</u> <u>Indicator Switch Replacement (RHD)</u> . Did you complete the replacement?	Go to <b>Step 10</b>	-
10	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

# FOG LAMP INDICATOR INOPERATIVE

# **Fog Lamp Indicator Inoperative**

Step	Action	Yes	No
Schematic	<b>Reference:</b> Fog Lights Schematics		
Connector	End View Reference: Lighting Systems Co	nnector End Vi	ews
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check
		Go to Step 2	- Vehicle
	Verify that the fog lamp indicator is	Go to <u>Testing</u>	
	inoperative.	<u>for</u>	
2	Does the fog lamp indicator operate	<u>Intermittent</u>	
2	normally?	<b>Conditions</b>	
		and Poor	
		<b>Connections</b>	Go to Step 3
	Do the fog lamps operate normally?		
3			Go to
			Symptoms -

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		Go to <b>Step 4</b>	Lighting Systems
	Test the fog lamp indicator control circuit for		
	a short to ground, open or high resistance.		
4	Refer to <b>Circuit Testing</b> or <b>Wiring</b>		
	Repairs .		
	Did you find and correct the condition?	Go to Step 6	Go to Step 5
	Replace the headlamp and panel dimmer		
5	switch. Refer to Headlamp Switch		
5	Replacement.		
	Did you complete the repair?	Go to Step 6	-
	Operate the system in order to verify the		
6	repair.		
	Did you correct the condition?	System OK	Go to Step 3

# FOG LAMPS ALWAYS ON

# Fog Lamps Always On

Step	Action	Yes	No
Schematic 1	Reference: <u>Fog Lights Schematics</u>		
<b>Connector</b> 1	End View Reference: <u>Lighting Systems (</u>	Connector End V	<b>iews</b> or <b>Data</b>
Communic	ation Connector End Views		
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	Verify that the front fog lamps are always	Go to <u>Testing</u>	
	ON.	for Intermittent	
2	Do the front fog lamps operate normally?	<b>Conditions and</b>	
		Poor	
		<b>Connections</b>	Go to Step 3
	With a scan tool, observe the Front Fog		
3	Lamp Switch data parameter in the body		
5	control module (BCM) data list.		
	Does the scan tool display Inactive?	Go to Step 4	Go to Step 6
	Remove the front fog lamp relay. Refer to		
4	<b>Relay Replacement (Attached to Wire</b>		
	Harness) or <u>Relay Replacement</u>		

	(Within an Electrical Center) .		
	Did the front fog lamps turn OFF?	Go to Step 5	Go to Step 8
	Test for a voltage signal at the fog lamp		
	relay control circuit terminal for the front		
	fog lamp relay in the underhood fuse		
5	block. Refer to <u>Electrical Center</u>		
	Identification Views and Circuit		
	Testing .		
	Was a voltage signal present?	Go to Step 7	Go to Step 10
	Test for a short to ground in the front fog		
6	lamp switch signal circuit. Refer to		
0	Circuit Testing and Wiring Repairs .		
	Did you find and correct a condition?	Go to Step 12	Go to Step 11
	Inspect for poor connections at the		
7	harness connector of the BCM. Refer to		
,	Circuit Testing and Wiring Repairs .		
	Did you find and correct a condition?	Go to Step 12	Go to Step 9
	Repair the short to voltage in the front fog		
8	lamp supply voltage circuit. Refer to		-
0	Wiring Repairs .		
	Did you complete the repair?	Go to Step 12	
	Replace the BCM. Refer to <u>Control</u>		
9	Module References for replacement,		-
-	setup and programming.		
	Did you complete the replacement?	Go to Step 12	
	Replace the front fog lamp relay. Refer to		
10	Relay Replacement (Attached to Wire		
10	Harness) or <u>Relay Replacement</u>		-
	(Within an Electrical Center)	Cata Star 12	
	Did you complete the repair?	Go to Step 12	
	Replace the headlamp and panel dimmer		
11	switch. Refer to <u>Headlamp Switch</u>		-
	<u>Replacement</u> . Did you complete the repair?	Go to Stop 12	
	Did you complete the repair?	Go to Step 12	
	1. Use the scan tool in order to clear		
12	any induced DTCs.		
12	2. Operate the system in order to verify		
	the repair.		

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# FOG LAMPS INOPERATIVE

# **Fog Lamps Inoperative**

Step	Action	Yes	No
Schematic	<b>Reference:</b> Fog Lights Schematics		
Connector End View Reference: Lighting Systems Connector End Views or Data			
Communi	cation Connector End Views		-
	Did you perform the Diagnostic System Check - Vehicle?		Go to <b>Diagnostic</b>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	Verify that the front fog lamps are	Go to Testing	
	inoperative.	for Intermittent	
2	Do the front fog lamps operate normally?	<u>Conditions and</u> Poor	
		Connections	Go to Step 3
3	Is only one front fog lamp inoperative?	Go to Step 4	Go to Step 5
	<ol> <li>Inspect the inoperative bulb and socket for an open filament or poor terminal contact and replace as necessary. Refer to <u>Front Fog Lamp</u> <u>Bulb Replacement</u>.</li> </ol>		
4	2. If a condition is not found, locate and repair the open or high resistance in the front fog lamp supply voltage circuit or ground circuit to the inoperative lamp. Refer to <u>Circuit</u> <u>Testing and Wiring Repairs</u> .		-
	Did you complete the repair?	Go to Step 16	
5	With the engine OFF, turn the key to RUN and the headlamp switch to PARK.		Go to <b>Symptoms -</b>
	Do the park lamps illuminate?	Go to <b>Step 6</b>	<u>Lighting</u> <u>Systems</u>
6	Inspect the FOG LP fuse.		
U	Is the fuse open?	Go to Step 7	Go to Step 8

7	Test for a short to ground in the front fog lamp supply voltage circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 16</b>	Go to Step 14
8	<ol> <li>Place the front fog lamp switch in the ON position.</li> <li>Remove the front fog lamp relay. Refer to <u>Relay Replacement</u> (<u>Attached to Wire Harness</u>) or <u>Relay Replacement (Within an</u> <u>Electrical Center</u>).</li> <li>Test for a voltage signal at the fog lamp relay control circuit terminal for the front fog lamp relay in the underhood fuse block. Refer to <u>Electrical Center Identification</u> <u>Views</u> and <u>Circuit Testing</u>.</li> <li>Was a voltage signal present?</li> </ol>	Go to <b>Step 11</b>	Go to <b>Step 9</b>
9	Test the front fog lamp switch signal and ground circuits for an open, high resistance or short to voltage. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 16</b>	Go to <b>Step 10</b>
10	<ol> <li>Remove the fog lamp switch. Refer to <u>Headlamp Switch Replacement</u>.</li> <li>Place a fused jumper between the fog lamp switch signal and ground connector terminals.</li> <li>Test for a voltage signal at the fog lamp relay control circuit terminal for the front fog lamp relay in the underhood fuse block. Refer to <u>Electrical Center Identification</u> <u>Views</u> and <u>Circuit Testing</u>.</li> <li>Was a voltage signal present?</li> </ol>		Go to <b>Step 12</b>
	Test for an open or high resistance in the		

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12connector of (BCM). Refe12(BCM). RefeWiring RepaDid you find13Replace the F13Module Refe13Replace the F14Replace the fRelay Replace14Harness) or F15Replace the f	and correct the condition? BCM. Refer to <u>Control</u> erences for replacement,	Go to <b>Step 16</b>	Go to <b>Step 13</b>
13Module Reference13Setup and pro Did you comp14Replace the f Relay Replace14Harness) or p an Electrical Did you comp15Replace the h switch. Reference	erences for replacement,		
Relay Replay14Harness) or 1an ElectricalDid you comp15Replace the hswitch. ReferReplacemen	plete the replacement?	Go to <b>Step 16</b>	-
15 switch. Refer <b>Replacemen</b>	ront fog lamp relay. Refer to cement (Attached to Wire Relay Replacement (Within <u>I Center)</u> . plete the repair?	Go to <b>Step 16</b>	-
	headlamp and panel dimmer to <b>Headlamp Switch</b>	Go to <b>Step 16</b>	-
<ol> <li>Use the induced</li> <li>Operate the repa</li> <li>Did you correct</li> </ol>	scan tool in order to clear any		

# **REAR FOG LAMPS ALWAYS ON**

# **Rear Fog Lamps Always On**

Step	Action	Yes	No
Schematic	<b>Reference:</b> Fog Lights Schematics		
Connector End View Reference: Lighting Systems Connector End Views or Data			
Communi	cation Connector End Views		
1	Did you perform the Diagnostic System Check - Vehicle?		Go to <b>Diagnostic</b>

			System Check -
		Go to Step 2	<u>Vehicle</u>
	Verify that the rear fog lamps are always	Go to <u>Testing</u>	
	on.	<u>for Intermittent</u>	
2	Do the rear fog lamps operate normally?	<b>Conditions and</b>	
		Poor	
		<u>Connections</u>	Go to Step 3
	Use the scan tool to monitor the rear fog		
2	lamp switch input with the switch in the		
3	OFF position. Does the scan tool indicate that the switch		
	is ON?	Go to <b>Step 4</b>	Go to <b>Step 5</b>
	Test for a short to ground in the rear fog	00 to Step 4	00 to Step 5
4	lamp switch signal circuit.		
4	Did you find and correct the condition?	Go to Step 12	Go to <b>Step 10</b>
	Remove the rear fog lamp relay.		
5	Does the rear fog lamp turn OFF?	Go to Step 6	Go to Step 8
	1. Ensure that the rear fog lamp switch is		
	in the OFF position.		
	2. Test for a ground signal at the rear fog		
C	lamp relay control circuit terminal in		
6	the underhood fuse block. Refer to		
	Circuit Testing .		
	Was a ground signal found?	Go to <b>Step 7</b>	Go to <b>Step 11</b>
	Inspect for poor connections at the harness		
	connector of the body control module		
7	(BCM). Refer to <u>Circuit Testing</u> and		
,	Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 12	Go to Step 9
	Repair the short to voltage in the rear fog		<b>X</b>
0	lamp supply voltage circuit. Refer to		
8	Wiring Repairs .		
	Did you complete the repair?	Go to Step 12	-
	Replace the BCM. Refer to Control		
9	Module References for replacement, setup		
ソ	and programming.		
	Did you complete the replacement?	Go to Step 12	-

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10	Replace the rear fog lamp switch. Refer to <b>Headlamp Switch Replacement</b> .	Co to Stop 12	
	Did you complete the repair?	Go to Step 12	-
	Replace the rear fog lamp relay. Refer to		
	<b>Relay Replacement (Attached to Wire</b>		
11	Harness) or Relay Replacement (Within		
	an Electrical Center) .		
	Did you complete the repair?	Go to Step 12	-
	Operate the system in order to verify the		
12	repair.		
	Did you correct the condition?	System OK	Go to Step 3

# **REAR FOG LAMPS INOPERATIVE**

# **Rear Fog Lamps Inoperative**

Step	Action	Yes	No		
Schematic	Schematic Reference: Fog Lights Schematics				
Connector	End View Reference: Lighting Systems	Connector End V	iews or <u>Data</u>		
Communic	ation Connector End Views				
	Did you perform the Diagnostic System		Go to		
1	Check - Vehicle?		<u>Diagnostic</u>		
1			System Check -		
		Go to Step 2	<u>Vehicle</u>		
	Verify that the rear fog lamps are	Go to Testing			
	inoperative.	for Intermittent			
2	Do the rear fog lamps operate normally?	<b>Conditions and</b>			
		Poor			
		<b><u>Connections</u></b>	Go to Step 3		
	Test the inoperative bulb for an open or				
	poor terminal contact and replace as				
3	necessary. Refer to <u>Circuit Testing</u> or				
	Tail Lamp Bulb Replacement.				
	Did you find and correct a condition?	Go to Step 15	Go to Step 4		
	With the engine Off, turn the key to RUN		Go to		
4	and the headlamp switch to AUTO.		<u>Symptoms -</u>		
	Do the park lamps illuminate?		<b>Lighting</b>		
		Go to Step 5	<u>Systems</u>		
5	Inspect the RR FOG fuse.				
5					

	Is the fuse open?	Go to Step 6	Go to Step 7
6	Test for a short to ground in the rear fog lamp supply voltage circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 15</b>	Go to <b>Step 13</b>
7	<ol> <li>Place the rear fog lamp switch in the ON position.</li> <li>Remove the rear fog lamp relay.</li> <li>Test for a ground signal at the rear fog lamp relay control circuit terminal in the underhood fuse block. Refer to <u>Circuit Testing</u>.</li> </ol>		
	Was a ground signal present?	Go to Step 10	Go to Step 8
8	Test the rear fog lamp switch signal and ground circuits for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 15</b>	Go to <b>Step 9</b>
9	<ol> <li>Remove the fog lamp switch.</li> <li>Place a fused jumper between the fog lamp switch signal and ground connector terminals.</li> <li>Test for a ground signal at the rear fog lamp relay control circuit terminal in the body relay block. Refer to <u>Circuit Testing</u>.</li> </ol>		
	Was a ground signal present?	Go to Step 14	Go to Step 11
10	Test for an open or high resistance in the rear fog lamp supply voltage circuit and the ground circuit. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 15</b>	Go to <b>Step 13</b>
11	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Circuit Testing</u> and		

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	Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 15	Go to Step 12
	Replace the BCM. Refer to <b>Control</b>		
12	Module References for replacement,		
12	setup and programming.		
	Did you complete the replacement?	Go to Step 15	-
	Replace the rear fog lamp relay. Refer to		
	<b>Relay Replacement (Attached to Wire</b>		
13	Harness) or <u>Relay Replacement</u>		
	(Within an Electrical Center) .		
	Did you complete the repair?	Go to Step 15	-
	Replace the rear fog lamp switch. Refer to		
14	Headlamp Switch Replacement.		
	Did you complete the repair?	Go to Step 15	-
15	Operate the system in order to verify the		
	repair.		
	Did you correct the condition?	System OK	Go to Step 3

# HAZARD LAMPS ALWAYS ON

# Hazard Lamps Always On

Step	Action	Yes	No	
Schematic Reference: <u>Exterior Lights Schematics</u> Connector End View Reference: <u>Lighting Systems Connector End Views</u>				
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>	
2	Verify that the hazard lamps are always ON. Do the hazard lamps operate normally?	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>	
3	<ol> <li>Ensure that the hazard lamp switch is in the OFF position.</li> <li>With a scan tool, observe the Hazard Lamp Switch data parameter in the body control module (BCM) data list.</li> </ol>			

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	Does the scan tool display Active?	Go to Step 4	Go to Step 5
4	Test the hazard switch signal circuit for a short to ground. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct a condition?	Go to Step 9	Go to Step 6
5	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 9</b>	Go to <b>Step 7</b>
6	Inspect for poor connections at the harness connector of the hazard switch. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> .		
7	Did you find and correct a condition?Replace the BCM. Refer to ControlModule Referencesand programming.Did you complete the repair?	Go to <b>Step 9</b> Go to <b>Step 9</b>	Go to <b>Step 8</b>
8	Replace the hazard switch. Refer to Hazard Warning Switch Replacement. Did you complete the repair?	Go to <b>Step 9</b>	_
9	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> </ol>		
	Did you correct the condition?	System OK	Go to Step 3

#### HAZARD LAMPS INOPERATIVE

# **Hazard Lamps Inoperative**

Step	Action	Yes	No		
Schematic	Schematic Reference: Exterior Lights Schematics				
Connector	End View Reference: Lighting Systems (	Connector End V	views		
	Did you perform the Diagnostic System		Go to		
1	Check - Vehicle?		<u>Diagnostic</u>		
1			System Check -		
		Go to Step 2	<u>Vehicle</u>		

2	Verify that the hazard lamps are always ON. Do the hazard lamps operate normally?	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	<ol> <li>Ensure that the hazard lamp switch is in the ON position.</li> <li>With a scan tool, observe the Hazard Lamp Switch data parameter in the body control module (BCM) data list.</li> </ol>		
4	Does the scan tool display Inactive?Test the hazard switch signal circuit and ground circuit for an open or high resistance. Refer to Circuit Testing and Wiring RepairsWiring RepairsDid you find and correct a condition?	Go to <b>Step 4</b> Go to <b>Step 9</b>	Go to <b>Step 5</b> Go to <b>Step 6</b>
5	Inspect for poor connections at the harness connector of the BCM. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> . Did you find and correct a condition?	Go to <b>Step 9</b>	Go to <b>Step 7</b>
6	Inspect for poor connections at the harness connector of the hazard switch. Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u> . Did you find and correct a condition?	Go to <b>Step 9</b>	Go to <b>Step 8</b>
7	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the repair?	Go to <b>Step 9</b>	_
8	Replace the hazard switch. Refer to Hazard Warning Switch Replacement. Did you complete the repair?	Go to Step 9	-
9	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> </ol>		

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Did you correct the condition	System OK	Go to <b>Step 3</b>
	bystem on	

# HEADLAMP LOW OR HIGH BEAMS ALWAYS ON

# Headlamp Low or High Beams Always On

Step	Action	Yes	No		
Schematic	Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u>				
	• End View Reference: <u>Lighting Systems (</u>	-			
Communi	cation Connector End Views				
	Did you perform the Diagnostic System		Go to		
1	Check - Vehicle?		<u>Diagnostic</u>		
1			System Check -		
		Go to Step 2	<u>Vehicle</u>		
	Verify that the low or high beam headlamps	Go to <u>Testing</u>			
	are always ON.	<u>for Intermittent</u>			
2	Do the low and high beam headlamps	<b>Conditions and</b>			
	operate normally?	Poor			
		<u>Connections</u>	Go to Step 3		
	Does the Wiper Activated Headlamp				
3	(WAH) function of the wiper system				
	operate normally?	Go to Step 6	Go to Step 4		
	With the key in RUN and the wiper switch				
	in the OFF position, use the scan tool to				
4	monitor the Front Wipers Active input				
	parameter. Does the scan tool parameter display				
	Inactive?	Go to Step 13	Go to Step 5		
	Test the windshield wiper switch signal 1				
	circuit for a short to ground. Refer to				
5	Circuit Testing and Wiring Repairs .				
	Did you find and correct the condition?	Go to Step 21	Go to Step 20		
	Can you illuminate both low and high beam				
6	headlamps at the same time when activating				
	the headlamp dimmer switch?	Go to Step 15	Go to Step 7		
	1. Place the headlamp and panel dimmer				
	switch in the OFF position.				
	2. Turn the ignition ON with the engine				
	2. Furthere ignition Or with the elignic				

7	<ul> <li>OFF.</li> <li>3. With a scan tool, observe the Headlamp OFF Switch data parameter in the Body Control Module (BCM) data list.</li> <li>Does the scan tool display Active?</li> </ul>	Go to <b>Step 10</b>	Go to <b>Step 8</b>
8	<ol> <li>Disconnect the headlamp and panel dimmer switch. Refer to <u>Headlamp</u> <u>Switch Replacement</u>.</li> <li>Place a fused jumper between the headlamp switch headlamps OFF signal circuit and low reference circuit terminals.</li> <li>Does the scan tool display Active?</li> </ol>	Go to <b>Step 14</b>	Go to <b>Step 9</b>
9	<ul> <li>Does the scan tool display Active?</li> <li>Test for an open or high resistance in one of the following headlamp and panel dimmer switch circuits. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u>.</li> <li>The headlamp switch headlamps OFF signal</li> <li>The low reference circuit</li> <li>Did you find and correct a condition?</li> </ul>	Go to <b>Step 14</b>	Go to <b>Step 13</b>
10	Remove the headlamp relay. Refer to <u>Relay</u> <u>Replacement (Attached to Wire</u> <u>Harness)</u> or <u>Relay Replacement (Within</u> <u>an Electrical Center)</u> . Do the low or high beam headlamps remain always ON?	Go to <b>Step 16</b>	Go to <b>Step 11</b>
11	Test for a ground signal at the headlamp relay control circuit connector terminal. Refer to <u>Circuit Testing</u> and <u>Electrical</u> <u>Center Identification Views</u> . Is a ground control signal present?	Go to <b>Step 12</b>	Go to <b>Step 18</b>

I			ı <b>1</b>
	Test for a short to ground in the headlamp		
10	relay control circuit. Refer to <u>Circuit</u>		
12	Testing and Electrical Center		
	Identification Views	G ( S( <b>31</b>	G ( G( 12
	Did you find and correct a condition?	Go to Step 21	Go to Step 13
	Inspect for poor connections at the harness		
13	connector of the BCM. Refer to <u>Circuit</u>		
	Testing and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 21	Go to Step 17
	Inspect for poor connections at the harness		
	connector of the headlamp and panel		
14	dimmer switch. Refer to <b><u>Circuit Testing</u></b>		
	and <u>Wiring Repairs</u> .		G G 10
	Did you find and correct the condition?	Go to Step 21	Go to Step 19
	Repair the short to ground in the right or		
	left low or high beam headlamp ground		
15	circuit. Refer to <u>Circuit Testing</u> and		-
	Wiring Repairs .		
	Did you complete the repair?	Go to Step 21	
	Repair the short to voltage in the right or		
16	left low beam headlamp supply voltage		_
10	circuit. Refer to Wiring Repairs.		
	Did you complete the repair?	Go to Step 21	
	Replace the BCM. Refer to <b>Control</b>		
17	Module References for replacement, setup		-
17	and programming.		
	Did you complete the replacement?	Go to Step 21	
	Replace the headlamp relay. Refer to <b><u>Relay</u></b>		
	<b>Replacement (Attached to Wire</b>		
18	Harness) or <u>Relay Replacement (Within</u>		-
	an Electrical Center) .		
	Did you complete the repair?	Go to Step 21	
19	Replace the headlamp and panel dimmer		
	switch. Refer to <b><u>Headlamp Switch</u></b>		_
	<u>Replacement</u> .		
	Did you complete the repair?	Go to Step 21	
20	Replace the turn signal/multifunction		
	switch. Refer to <b>Turn Signal</b>		-

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	Multifunction Switch Replacement . Did you complete the repair?	Go to <b>Step 21</b>	
	1. Use the scan tool in order to clear any induced DTCs.		
21	2. Operate the system in order to verify the repair.		
	Did you correct the condition?	System OK	Go to Step 3

# **HEADLAMPS INOPERATIVE - HIGH BEAMS**

# **Headlamps Inoperative - High Beams**

Step	Action	Yes	No
Schematic	Reference: <u>Headlights/Daytime Running</u>	Lights (DRL) So	chematics
Connector	End View Reference: Lighting Systems (	Connector End V	<b>iews</b> or <u>Data</u>
Communio	cation Connector End Views		
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	Verify that the high beam headlamps are inoperative. Do the high beam headlamps operate normally?	Go to <u>Testing</u> for Intermittent Conditions and Poor Connections	Go to <b>Step 3</b>
3	Is only one high beam headlamp inoperative?	Go to <b>Step 4</b>	Go to <b>Step 5</b>
4	<ol> <li>Inspect the inoperative bulb for an open filament and connector for poor terminal contact and replace/repair as necessary. Refer to <u>Headlamp Bulb</u> <u>Replacement</u> or <u>Wiring Repairs</u>.</li> <li>If the condition above does not exist, repair the open, high resistance or short to ground in the high beam headlamp supply voltage circuit or ground circuit to the inoperative lamp. Refer to <u>Circuit Testing</u></li> </ol>		

	and Wiring Repairs .		
	Did you complete the repair?	Go to Step 13	-
5	Test the headlamp dimmer switch high beam signal and ground circuits for an open or high resistance. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 13</b>	Go to <b>Step 6</b>
6	<ol> <li>Place the headlamp switch in the ON position.</li> <li>Connect a fused jumper from ground to the headlamp high beam dimmer switch signal terminal of the turn signal/multifunction switch connector.</li> <li>Do the high beam headlamps illuminate?</li> </ol>	Go to <b>Step 8</b>	Go to <b>Step 7</b>
7	Connect a fused jumper from B+ voltage to the beam select relay control circuit terminal at the beam select relay in the underhood fuse block. Do the high beam headlamps illuminate?	Go to <b>Step 9</b>	Go to <b>Step 11</b>
8	Inspect for poor connections at the harness connector of the turn signal/multifunction switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 12</b>
9	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 10</b>
10	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?		_
11	Replace the beam select relay. Refer to <u>Relay Replacement (Attached to Wire</u> <u>Harness)</u> or <u>Relay Replacement (Within</u>	*	

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	an Electrical Center) . Did you complete the repair?	Go to <b>Step 13</b>	-
12	Replace the turn signal/multifunction switch. Refer to <u>Turn Signal</u> <u>Multifunction Switch Replacement</u> . Did you complete the repair?	Go to <b>Step 13</b>	-
13	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> </ol>	System OK	Go to <b>Step 3</b>

# **HEADLAMPS INOPERATIVE - LOW BEAMS**

# **Headlamps Inoperative - Low Beams**

Step	Action	Yes	No		
Schematic	Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics				
Connector	End View Reference: Lighting Systems (	Connector End V	<u>iews, Data</u>		
Communic	cation Connector End Views or Wiper/Wa	asher Connector	End Views		
	Did you perform the Diagnostic System		Go to		
1	Check - Vehicle?		<u>Diagnostic</u>		
1			System Check -		
		Go to Step 2	<u>Vehicle</u>		
	Verify that the low beam headlamps are	Go to <u>Testing</u>			
	inoperative.	<u>for Intermittent</u>			
2	Do the low beam headlamps operate	<b>Conditions and</b>			
	normally?	Poor			
		<b>Connections</b>	Go to Step 3		
3	Is only one low beam headlamp				
5	inoperative?	Go to Step 4	Go to Step 5		
	1. Inspect the inoperative bulb for an				
	open filament and connector for poor				
	terminal contact and replace/repair,				
	as necessary. Refer to Headlamp				
	Bulb Replacement or Wiring				
	<u>Repairs</u> .				
	2. If the condition above does not exist,				

4	repair the open, high resistance or short to ground in the low beam headlamp supply voltage circuit or ground circuit to the inoperative lamp. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you complete the repair?	Go to <b>Step 18</b>	-
5	Does the wiper activated headlamp (WAH) function of the wiper system operate normally?	Go to <b>Step 8</b>	Go to <b>Step 6</b>
6	<ol> <li>Block the wheels.</li> <li>Place the ignition switch in the RUN position with the engine OFF.</li> <li>Place the gearshift lever in DRIVE.</li> <li>Place the wiper switch in the LO speed position.</li> <li>Use the scan tool to monitor the Front Wipers Active input to the body control module (BCM).</li> <li>Does the scan tool display Active after approximately 3 cycles of the wiper blades?</li> </ol>	Go to <b>Step 13</b>	Go to <b>Step 7</b>
7	<ul> <li>Test the windshield wiper switch signal 1 circuit for the following:</li> <li>An open</li> <li>A high resistance</li> <li>A short to voltage</li> </ul> Refer to <u>Circuit Testing</u> and <u>Wiring</u> <u>Repairs</u> . Did you find and correct a condition?	Go to <b>Step 18</b>	Go to <b>Step 12</b>
8	Disconnect the turn signal/multifunction switch. Do the low beam headlamps illuminate?	Go to <b>Step 11</b>	Go to <b>Step 9</b>

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9	<ol> <li>Remove the beam select relay. Refer to <u>Relay Replacement (Attached to</u> <u>Wire Harness)</u> or <u>Relay</u> <u>Replacement (Within an Electrical</u> <u>Center)</u>.</li> <li>Test for a voltage signal at the headlamp high beam relay control circuit terminal in the underhood fuse block. Refer to <u>Electrical Center</u> <u>Identification Views</u> and <u>Circuit</u> <u>Testing</u>.</li> <li>Was a voltage signal present?</li> </ol>	Go to <b>Step 10</b>	Go to <b>Step 14</b>		
10	Test for a short to voltage in the headlamp high beam relay control circuit. Refer to Electrical Center Identification Views and <u>Circuit Testing</u> . Did you find and correct a condition?	Go to <b>Step 18</b>	Go to <b>Step 13</b>	-	
11	Test for a short to ground in the headlamp dimmer switch high beam signal circuit or flash to pass switch signal circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 18</b>	Go to <b>Step 12</b>		
12	Inspect for poor connections at the harness connector of the turn signal/multifunction switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 18</b>	Go to <b>Step 15</b>		
13	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to Step 18	Go to <b>Step 16</b>		
14	Inspect for poor connections at the harness connector of the underhood fuse block and beam select relay. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition? Replace the turn signal/multifunction	Go to <b>Step 18</b>	Go to <b>Step 17</b>		

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15	switch. Refer to <u><b>Turn Signal</b></u> <u><b>Multifunction Switch Replacement</b></u> . Did you complete the repair?	Go to <b>Step 18</b>	-
16	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 18</b>	_
17	Replace the beam select relay. Refer to <b>Relay Replacement (Attached to Wire</b> <b>Harness)</b> or <b>Relay Replacement (Within</b> <b>an Electrical Center)</b> . Did you complete the repair?	Go to <b>Step 18</b>	_
18	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> <li>Did you correct the condition?</li> </ol>	System OK	Go to <b>Step 3</b>

# LOW AND HIGH BEAMS HEADLAMPS INOPERATIVE

# Low and High Beams Headlamps Inoperative

Action	Yes	No
r Reference: <u>Headlights/Daytime Running</u>	<u>, Lights (DRL) So</u>	<u>chematics</u>
r End View Reference: <u>Lighting Systems (</u>	Connector End V	iews or <u>Data</u>
cation Connector End Views		
Did you perform the Diagnostic System		Go to
Check - Vehicle?		<b>Diagnostic</b>
		System Check -
	Go to Step 2	<u>Vehicle</u>
Verify that the low or high beam headlamps	Go to Testing	
are inoperative.	for Intermittent	
Do the low and high beam headlamps	<b>Conditions and</b>	
operate normally?	Poor	
	<b>Connections</b>	Go to Step 3
Does the wiper activated headlamp (WAH)		
function of the wiper system operate		
normally?	Go to Step 6	Go to Step 4
	<ul> <li>Reference: <u>Headlights/Daytime Running</u></li> <li>End View Reference: <u>Lighting Systems (cation Connector End Views</u></li> <li>Did you perform the Diagnostic System</li> <li>Check - Vehicle?</li> <li>Verify that the low or high beam headlamps are inoperative.</li> <li>Do the low and high beam headlamps operate normally?</li> <li>Does the wiper activated headlamp (WAH) function of the wiper system operate</li> </ul>	Reference: Headlights/Daytime Running Lights (DRL) SoEnd View Reference: Lighting Systems Connector End Vcation Connector End ViewsDid you perform the Diagnostic System Check - Vehicle?Go to Step 2Verify that the low or high beam headlamps are inoperative. Do the low and high beam headlamps operate normally?Go to Step 2Does the wiper activated headlamp (WAH) function of the wiper system operate

4	With the key in RUN and the wiper switch in the LO position, use the scan tool to monitor the Front Wipers Active input parameter. Does the scan tool parameter display Active?	Go to <b>Step 12</b>	Go to <b>Step 5</b>
5	Test the windshield wiper switch signal 1 circuit for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 20</b>	Go to <b>Step 19</b>
6	<ol> <li>Place the headlamp and panel dimmer switch in the ON position.</li> <li>Turn the ignition ON with the engine OFF.</li> <li>With a scan tool, observe the Headlamp On Switch data parameter in the body control module (BCM) data list.</li> <li>Does the scan tool display Active?</li> </ol>	Go to <b>Step 9</b>	Go to <b>Step 7</b>
7	<ol> <li>Does the scan tool display Active?</li> <li>Disconnect the headlamp and panel dimmer switch. Refer to <u>Headlamp</u> <u>Switch Replacement</u>.</li> <li>Place a fused jumper between the headlamp switch headlamps on signal circuit and low reference circuit terminals.</li> <li>Does the scan tool display Active?</li> </ol>	Go to <b>Step 13</b>	Go to <b>Step 8</b>
8	<ul> <li>Test for one of the following conditions in the headlamp and panel dimmer switch circuits. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u>.</li> <li>An open or high resistance in the headlamp switch headlamps on signal circuit or low reference circuit.</li> <li>A short to ground in the headlamp</li> </ul>		A

	switch headlamps off signal circuit.		
	Did you find and correct a condition?	Go to <b>Step 20</b>	Go to Step 12
9	<ol> <li>Remove the headlamp relay. Refer to <u>Relay Replacement (Attached to</u> <u>Wire Harness)</u> or <u>Relay</u> <u>Replacement (Within an Electrical</u> <u>Center)</u>.</li> <li>Place a fused jumper between the battery positive voltage circuit and headlamp supply voltage circuit terminals to the headlamp relay in the underhood fuse block. Refer to <u>Electrical Center Identification</u> <u>Views</u>.</li> </ol>		
	Do the low or high beam headlamps illuminate?	Go to <b>Step 10</b>	Go to Step 14
10	Test for a ground signal at the headlamp relay control circuit connector terminal. Refer to <u>Circuit Testing</u> and <u>Electrical</u> <u>Center Identification Views</u> . Is a ground control signal present?	Go to <b>Step 16</b>	Go to <b>Step 11</b>
11	Test for an open or high resistance in the headlamp relay control circuit. Refer to <u>Circuit Testing</u> and <u>Electrical Center</u> <u>Identification Views</u> . Did you find and correct a condition?	Go to <b>Step 20</b>	Go to <b>Step 12</b>
12	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 20</b>	Go to <b>Step 15</b>
13	Inspect for poor connections at the harness connector of the headlamp and panel dimmer switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 20</b>	Go to <b>Step 17</b>

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14	Inspect for poor connections at the harness connector of the underhood fuse block and terminals at the beam select relay. Refer to <u><b>Circuit Testing</b></u> and <u><b>Wiring Repairs</b></u> . Did you complete the repair?	Go to <b>Step 20</b>	Go to <b>Step 18</b>
15	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 20</b>	
16	Replace the headlamp relay. Refer to <u>Relay</u> <u>Replacement (Attached to Wire</u> <u>Harness)</u> or <u>Relay Replacement (Within</u> <u>an Electrical Center)</u> . Did you complete the repair?	Go to <b>Step 20</b>	_
17	Replace the headlamp and panel dimmer switch. Refer to <u>Headlamp Switch</u> <u>Replacement</u> . Did you complete the repair?	Go to <b>Step 20</b>	-
18	Replace the beam select relay. Refer to <b>Relay Replacement (Attached to Wire</b> <b>Harness)</b> or <b>Relay Replacement (Within</b> <b>an Electrical Center)</b> . Did you complete the repair?	Go to <b>Step 20</b>	-
19	Replace the turn signal/multifunction switch. Refer to <u>Turn Signal Multifunction</u> <u>Switch Replacement</u> . Did you complete the repair?	Go to <b>Step 20</b>	-
20	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> <li>Did you correct the condition?</li> </ol>	System OK	Go to <b>Step 3</b>

# HEADLAMPS FLASH TO PASS INOPERATIVE

# **Headlamps Flash to Pass Inoperative**

		Step	Action	Yes	No
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Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u> Connector End View Reference: <u>Lighting Systems Connector End Views</u> or <u>Data</u>				
	ication Connector End Views		<u>ICWS</u> OF <u>Data</u>	
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Check Vehicle	
2	Verify that the flash to pass (FTP) is inoperative. Does the FTP operate normally?	Go to <u>Testing</u> for Intermittent Conditions and <u>Poor</u> Connections	Go to <b>Step 3</b>	
3	Do the high beam headlamps operate normally?	Go to <b>Step 4</b>	Go to <u>Symptoms -</u> <u>Lighting</u> <u>Systems</u>	
4	<ol> <li>Turn the key to RUN with the engine OFF.</li> <li>Connect a fused jumper from ground to the flash to pass switch signal terminal of the turn signal/multifunction switch connector.</li> <li>Do the high beam headlamps illuminate?</li> </ol>	Go to <b>Step 6</b>	Go to <b>Step 5</b>	
5	Test the flash to pass signal circuit for an open or high resistance. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct a condition?	Go to <b>Step 10</b>	Go to Step 7	
6	Inspect for poor connections at the harness connector of the turn signal/multifunction switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to Step 10	Go to <b>Step 9</b>	
7	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .			

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	Did you find and correct the condition?	Go to Step 10	Go to Step 8
	Replace the BCM. Refer to Control		
8	Module References for replacement,		
0	setup and programming.		
	Did you complete the replacement?	Go to Step 10	-
	Replace the turn signal/multifunction		
9	switch. Refer to <b><u>Turn Signal</u></b>		
9	Multifunction Switch Replacement .		
	Did you complete the repair?	Go to Step 10	-
	1. Use the scan tool in order to clear any induced DTCs.		
10	2. Operate the system in order to verify the repair.		
	Did you correct the condition?	System OK	Go to Step 3

#### HEADLIGHT LEVELING INOPERATIVE

# **Headlight Leveling Inoperative**

Action	Value(s)	Yes	No		
Schematic Reference: <u>Headlight Leveling Schematics</u>					
End View Reference: <u>Lightin</u>	ng Systems Conn	ector End Viev	vs		
id you review the Exterior			Go to		
ighting Systems Description			<b>Exterior</b>		
nd Operation and perform the			<b>Lighting</b>		
ecessary inspections?	-		<u>Systems</u>		
			<b>Description</b>		
			and		
		Go to Step 2	<b>Operation</b>		
erify that the headlight		Go to Testing			
eveling is inoperative.		<u>for</u>			
oes the headlight leveling		<b>Intermittent</b>			
perate normally?	-	<b>Conditions</b>			
		and Poor			
		<b>Connections</b>	Go to Step 3		
spect the HD LMP					
EVELING fuse in the	_				
nderhood fuse block.					
	End View Reference: Lightin id you review the Exterior ighting Systems Description ad Operation and perform the ecessary inspections? erify that the headlight veling is inoperative. oes the headlight leveling berate normally? espect the HD LMP EVELING fuse in the	Reference: Headlight Leveling Schematics         Cnd View Reference: Lighting Systems Conn         id you review the Exterior         ighting Systems Description         ad Operation and perform the         excessary inspections?         erify that the headlight         veling is inoperative.         oes the headlight leveling         perate normally?	Reference: Headlight Leveling Schematics         Cond View Reference: Lighting Systems Connector End View         id you review the Exterior       id         ighting Systems Description       operation and perform the         ad Operation and perform the       -         becessary inspections?       -         Go to Step 2       Go to Step 2         erify that the headlight       Go to Testing         veling is inoperative.       -         oes the headlight leveling       -         perate normally?       -         spect the HD LMP       -         EVELING fuse in the       -		

	Is the fuse open?		Go to Step 10	Go to Step 4
4	With ignition switch in RUN, test the supply voltage circuit at the inoperative headlamp leveling motor connector. Refer to <u>Circuit Testing</u> . Is the specified voltage present?	B+	Go to <b>Step 5</b>	Go to <b>Step 11</b>
5	Test the ground circuit at the inoperative headlamp leveling motor connector for continuity to ground. Refer to <u>Circuit</u> <u>Testing</u> . Is continuity present?	-		Go to <b>Step 12</b>
6	Connect a digital multimeter (DMM) from ground to the headlamp leveling motor supply voltage circuit at the inoperative headlamp leveling motor connector and adjust the headlamp leveling switch from the highest to lowest setting. Refer to <u>Circuit Testing</u> . Does the DMM display within the specified range?	2.0 V-8.0 V	Go to <b>Step 16</b>	
7	Test the ground circuit of the headlamp leveling switch for continuity to ground. Refer to <u>Circuit Testing</u> . Is there continuity?	-	Go to <b>Step 8</b>	Go to <b>Step 13</b>
8	Test the supply voltage circuit at the headlamp leveling switch connector. Refer to <u>Circuit</u> <u>Testing</u> . Is the specified voltage present?	B+	Go to <b>Step 9</b>	Go to <b>Step 15</b>
9	With the ignition switch in the OFF position, test for an open, high resistance, short to ground or short to voltage in the headlamp leveling motor	_		

	supply voltage circuit. Refer to			
	<u>Circuit Testing</u> . Did you find a condition?		Go to <b>Step 14</b>	Go to Step 17
	Test for a short to ground in the supply voltage circuit. Refer to			
10	<u>Circuit Testing</u> and <u>Power</u> <u>Distribution Schematics</u> .	-		
	Did you find and correct a condition?		Go to <b>Step 18</b>	Go to <b>Step 16</b>
	Repair the open or high resistance in the supply voltage			
11	circuit. Refer to <u>Wiring</u> <u>Repairs</u> .	-		
	Is repair complete?		Go to Step 18	-
12	Repair the open or high resistance in the ground circuit.			
12	Refer to <u>Wiring Repairs</u> . Is repair complete?	-	Go to Step 18	-
13	Repair the open or high resistance in the ground circuit. Refer to <u>Wiring Repairs</u> .	_		
	Is repair complete?		Go to Step 18	-
14	Repair open, high resistance, short to ground or short to voltage in the headlamp leveling motor supply voltage circuit. Refer to <b>Wiring</b>	_		
	<b>Repairs</b> . Did you complete the repair?		Go to <b>Step 18</b>	-
15	Repair the open or high resistance in the supply voltage circuit. Refer to <u>Wiring</u>	-		
	<u><b>Repairs</b></u> . Did you complete the repair?		Go to Step 18	-
16	Replace the inoperative headlamp leveling motor. Refer	_		
	to <u>Headlamp Replacement</u> . Is repair complete?		Go to Step 18	-

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17	Replace headlamp leveling switch. Refer to <u>Headlamp</u> <u>Switch Replacement</u> . Did you complete the repair?	-	Go to <b>Step 18</b>	_
18	Operate the system in order to verify the repair. Did you correct the condition?	-	System OK	Go to Step 3

# HIGH BEAM INDICATOR ALWAYS ON

# High Beam Indicator Always On

Step	Action	Yes	No
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Check - Vehicle
2	Verify that the high beam indicator is always ON. Does the high beam indicator operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	<ol> <li>Turn the ignition switch to the RUN position.</li> <li>Turn the headlamp switch to the ON position.</li> <li>Place the turn signal/multifunction switch to the high beams position.</li> <li>Do the high beam headlamps function properly?</li> </ol>	Go to <b>Step 4</b>	Go to <u>Symptoms -</u> <u>Lighting</u> <u>Systems</u>
4	<ol> <li>Place the turn signal/multifunction switch to the low beams position.</li> <li>Using a scan tool, select the IPC Special Functions Display Test to command the high beam indicator ON, then OFF.</li> <li>Does the high beam indicator lamp turn</li> </ol>	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> Poor	

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	ON and OFF when commanded?	<b>Connections</b>	Go to Step 5
5	Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 7</b>	Go to <b>Step 6</b>
б	Replace the IPC. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 7</b>	-
7	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> </ol>		
	Did you correct the condition?	System OK	Go to Step 3

# HIGH BEAM INDICATOR INOPERATIVE

# **High Beam Indicator Inoperative**

Step	Action	Yes	No
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Check - Vehicle
2	Verify that the high beam indicator is inoperative. Does the high beam indicator operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	
3	<ol> <li>Turn the ignition switch to the RUN position.</li> <li>Turn the headlamp switch to the ON position.</li> <li>Place the turn signal/multifunction switch to the high beams position.</li> <li>Do the high beam headlamps function</li> </ol>		Go to <u>Symptoms -</u> Lighting

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	properly?	Go to Step 4	<u>Systems</u>
4	<ol> <li>Place the turn signal/multifunction switch to the low beams position.</li> <li>Using a scan tool, select the IPC Special Functions Display Test to command the high beam indicator ON, then OFF.</li> </ol>	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u>	
	Does the high beam indicator lamp turn ON and OFF when commanded?	<u>Poor</u> <u>Connections</u>	Go to Step 5
5	Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u>		
	Did you find and correct the condition? Replace the IPC. Refer to <b>Control</b>	Go to Step 7	Go to Step 6
6	Module References for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 7</b>	-
7	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> </ol>		
	Did you correct the condition?	System OK	Go to Step 3

# INTERIOR BACKLIGHTING DOES NOT DIM

# **Interior Backlighting Does Not Dim**

Step	Action	Yes	No
Schematic	<b>Reference:</b> Interior Lights Dimming Sch	<u>ematics</u>	
Connector	End View Reference: <u>Lighting Systems</u> (	Connector End V	iews or <u>Data</u>
Communi	cation Connector End Views		
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<b>Diagnostic</b>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	Verify that the interior backlighting does	Go to <b>Testing</b>	

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2	not dim. Does the interior backlighting operate normally?	<u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	<ul> <li>Use the scan tool to observe the Dimming</li> <li>Potentiometer voltage data in the body</li> <li>control module (BCM) Data List while</li> <li>adjusting the dimmer switch throughout the</li> <li>full range.</li> <li>Does the scan tool data indicate an</li> <li>approximate voltage change from the</li> </ul>		
	minimum to the maximum voltage?	Go to Step 6	Go to Step 4
4	Test for a short to ground in the instrument panel lamps dimming signal circuit. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct a condition?	Go to Step 9	Go to Step 5
5	Inspect for poor connections at the harness connector of the headlamp and panel dimmer switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 9	Go to Step 7
6	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 9</b>	Go to <b>Step 8</b>
7	Replace the headlamp and panel dimmer switch. Refer to Headlamp Switch         Replacement.         Did you complete the replacement?	Go to <b>Step 9</b>	
8	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 9</b>	-
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

#### INTERIOR BACKLIGHTING INOPERATIVE

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# **Interior Backlighting Inoperative**

Step	Action	Yes	No
Schemati	c Reference: Interior Lights Dimming Sch	nematics	
Connecto	r End View Reference: <u>Master Electrical</u>	Component List	
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Check - Vehicle
2	Verify that the interior backlighting is inoperative. Does the interior backlighting operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	Do the park lamps operate correctly?	Go to <b>Step 4</b>	Go to <u>Symptoms -</u> <u>Lighting</u> <u>Systems</u>
4	Are all of the interior backlighting lamps inoperative?	Go to Step 7	Go to Step 5
5	<ul> <li>Test for an open or high resistance in the following circuits of the inoperative lamp.</li> <li>Refer to <u>Circuit Testing</u> and <u>Wiring</u></li> <li><u>Repairs</u>.</li> <li>The instrument panel lamps supply voltage</li> <li>The park lamp supply voltage</li> <li>The ground</li> </ul>	Go to <b>Step 10</b>	Go to <b>Step 6</b>
6	Connect a test lamp between the supply voltage circuit and ground circuit of the inoperative lamp. Refer to <u>Wiring</u> <u>Repairs</u> . Does the test lamp illuminate?	Go to <b>Step 8</b>	Go to Step 7
	Inspect for poor connections at the harness connector of the body control module		

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7	(BCM). Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 10</b>	Go to <b>Step 9</b>
	Replace the affected lamp or internal lamp		
8	component. Did you complete the replacement?	Go to <b>Step 10</b>	-
9	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming.		
	Did you complete the replacement?	Go to Step 10	-
10	Operate the system in order to verify the		
10	repair. Did you correct the condition?	System OK	Go to Step 3

# LICENSE LAMPS INOPERATIVE

# **License Lamps Inoperative**

r				
Step	Action	Yes	No	
Schematic	<b>Reference:</b> <u>Exterior Lights Schematics</u>			
Connector	End View Reference: Lighting Systems (	Connector End V	<u>'iews</u>	
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Check - Vehicle	
2	Verify that the license lamps are inoperative. Do the license lamps operate normally?	Go to <u>Testing</u> for Intermittent Conditions and <u>Poor</u> Connections	Go to <b>Step 3</b>	
3	Is the right tail lamp inoperative also?	Go to Step 5	Go to Step 4	
4	Inspect the inoperative bulbs/sockets for open filaments or poor terminal contact. Does any lamp have an open filament or poor terminal contact?	Go to <b>Step 7</b>	Go to <b>Step 6</b>	
5	Repair the open, high resistance or short to ground in the park lamp supply voltage circuit. Refer to <u>Wiring Repairs</u> . Did you complete the repair?	Go to <b>Step 8</b>	-	

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6	Repair the open or high resistance in the park lamps supply voltage circuit or ground circuit. Refer to <u>Wiring Repairs</u> . Did you complete the repair?	Go to <b>Step 8</b>	-
7	Replace the inoperative bulb or repair/replace the socket. Refer to <u>Wiring</u> <u>Repairs</u> in Wiring Systems or <u>Rear</u> <u>License Lamp Replacement (Base)</u> or <u>Rear License Lamp Replacement (with</u> <u>BRM and RHD)</u> . Did you complete the repair?	Go to <b>Step 8</b>	-
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

### MARKER LAMPS INOPERATIVE

# **Marker Lamps Inoperative**

			<b>N</b> T
Step	Action	Yes	No
Schematic	<b>Reference:</b> <u>Exterior Lights Schematics</u>		
Connector	End View Reference: Lighting Systems (	Connector End V	iews
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	Verify that the marker lamps are inoperative. Do the marker lamps operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	Place the headlamp switch in the PARK position. Do the park lamps operate normally?	Go to <b>Step 4</b>	Go to <u>Symptoms -</u> <u>Lighting</u> <u>Systems</u>
4	Inspect the inoperative bulb and socket for an open filament or poor terminal connections. Does any lamp have an open filament or		

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	poor terminal connections?	Go to Step 6	Go to Step 5
	Repair an open or high resistance in one of the following circuits:		
	• Marker lamp supply voltage		
5	• Ground		
	Refer to <b>Wiring Repairs</b> .		
	Did you complete the repair?	Go to Step 7	-
	Replace the defective bulb or		
6	repair/replace the socket. Refer to <b>Front</b>		
0	Side Marker Lamp Bulb Replacement.		
	Did you complete the repair?	Go to Step 7	-
	Operate the system in order to verify the		
7	repair.		
	Did you correct the condition?	System OK	Go to Step 3

# **OFF-ROAD LAMPS ALWAYS ON**

# **Off-Road Lamps Always On**

Step	Action	Yes	No
Schematic <b>H</b>	Reference: <u>Exterior Lights Schematics</u>		
<b>Connector</b> I	End View Reference: <u>Lighting Systems (</u>	Connector End V	iews or <u>Data</u>
Communica	ation Connector End Views		
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<u>Diagnostic</u>
1			System Check -
		Go to Step 2	<u>Vehicle</u>
	Place the off-road lamps switch in the ON	Go to Testing	
	and then the OFF positions.	for Intermittent	
2	Does the system operate normally?	<b>Conditions and</b>	
		<u>Poor</u>	
		<u>Connections</u>	Go to Step 3
3	Disconnect the off-road lamps switch.		
3	Do the off-road lamps turn OFF?	Go to Step 6	Go to Step 4
	1. Reconnect the off-road lamps switch.		
	2. Disconnect both off-road lamps		

1			I
	relays, noting which one turns off the		
	lamps. Refer to <b><u>Relay Replacement</u></b>		
l.	(Attached to Wire Harness) or		
4	<b>Relay Replacement (Within an</b>		
	Electrical Center).		
	Do the off-road lamps turn OFF?	Go to Step 5	Go to Step 8
	Test the off-road lamps relay control		
	circuit of the off-road lamps switch for a		
5	short to voltage. Refer to Circuit Testing		
	and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 11	Go to Step 7
	Inspect for poor connections at the harness		
	connector of the off-road lamps switch.		
6	Refer to <b>Testing for Intermittent</b>		
6	Conditions and Poor Connections and		
	Connector Repairs .		
	Did you find and correct the condition?	Go to Step 11	Go to Step 9
	Inspect for poor connections at the harness		
	connector of the off-road lamps relay.		
7	Refer to <b>Testing for Intermittent</b>		
7	Conditions and Poor Connections and		
	Connector Repairs .		
	Did you find and correct the condition?	Go to Step 11	Go to Step 10
	Repair the off-road lamps supply voltage		
o	circuit for a short to voltage. Refer to		
8	Wiring Repairs .		
	Did you complete the repair?	Go to Step 11	-
	Replace the off-road lamps switch. Refer		
9	to <b>Off Road Lamp Switch</b>		
9	Replacement.		
	Did you complete the replacement?	Go to Step 11	-
10	Replace the appropriate off-road lamps		
	relay. Refer to <b>Relay Replacement</b>		
	(Attached to Wire Harness) or Relay		
10	<b>Replacement (Within an Electrical</b>		
	Center).		
	Did you complete the repair?	Go to Step 11	-
		*	

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Operate the system in order to verify the		
11 repair. Did you correct the condition?	System OK	Go to Step 3

### **OFF-ROAD LAMPS INOPERATIVE**

# **Off-Road Lamps Inoperative**

Step	Action	Yes	No
Schematic	Reference: <u>Exterior Lights Schematics</u>		
Connector	r End View Reference: Lighting Systems	Connector End V	<b>iews</b> or <b>Data</b>
Communi	cation Connector End Views		
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Check Vehicle
2	Verify that the off-road lamps are inoperative. Do the off-road lamps operate normally?	Go to <u>Testing</u> for Intermittent Conditions and <u>Poor</u> Connections	Go to <b>Step 3</b>
3	Is only one off-road lamp inoperative?	Go to Step 4	Go to Step 6
4	Test the supply voltage circuit of the inoperative lamp for high resistance, short to ground or an open. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 21</b>	Go to <b>Step 5</b>
5	Test the ground circuit of the inoperative lamp for high resistance or an open. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 21</b>	Go to <b>Step 13</b>
6	Connect a test lamp between the battery positive voltage circuit of the off-road lamps switch and a good ground. Does the test lamp illuminate?	Go to <b>Step 7</b>	Go to <b>Step 16</b>
7	Connect a 3-amp fused jumper wire between the battery positive circuit and the off-road lamp relay control circuit of the off-road lamps switch.		

	Do the off-road lamps illuminate?	Go to Step 15	Go to Step 8
	Connect a 3-amp fused jumper wire		
_	between the battery positive circuit and		
8	the off-road lamp supply voltage circuit of		
	the off-road lamps relay.		
	Do the off-road lamps illuminate?	Go to Step 9	Go to Step 11
	Test the off-road lamp relay control circuit		
	of the off-road lamps switch for high		
9	resistance, short to ground or an open.		
	Refer to <u>Circuit Testing</u> and <u>Wiring</u>		
	Repairs . Did you find and correct the condition?	Go to <b>Step 21</b>	Go to Step 10
	-	00 10 Bttp 21	
	Test the ground circuit of the off-road lamps relay for high resistance or an open.		
10	Refer to <u>Circuit Testing</u> and <u>Wiring</u>		
10	Repairs .		
	Did you find and correct the condition?	Go to Step 21	Go to Step 11
	Test the battery positive voltage circuit of	1	<b>A</b>
	the off-road lamps relay for high resistance		
11	or an open. Refer to Circuit Testing and		
	Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 21	Go to Step 12
	Test the ground circuit of the off-road		
12	lamps for high resistance or an open. Refer		
12	to <b><u>Circuit Testing</u></b> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 21	Go to Step 17
	Inspect for poor connections at the harness		
	connector of the off-road lamp. Refer to		
13	<b>Testing for Intermittent Conditions</b>		
10	and Poor Connections and Connector		
	Repairs .	G ( G( <b>31</b>	
	Did you find and correct the condition?	Go to Step 21	Go to Step 18
	Inspect for poor connections at the harness		
	connector of the off-road lamps relay.		
14	Refer to <b>Testing for Intermittent</b>		
	Conditions and Poor Connections and		
	<u>Connector Repairs</u> . Did you find and correct the condition?	Go to Stop 21	Go to Stop 10
	Did you find and correct the condition?	Go to Step 21	Go to Step 19

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15	Inspect for poor connections at the harness connector of the off-road lamps switch. Refer to <u>Testing for Intermittent</u> <u>Conditions and Poor Connections</u> and <u>Connector Repairs</u> . Did you find and correct the condition?	Go to <b>Step 21</b>	Go to <b>Step 20</b>
16	Repair the battery positive voltage circuit of the off-road lamps switch. Refer to <b>Wiring Repairs</b> . Did you complete the repair?	Go to <b>Step 21</b>	
17	Repair the supply voltage circuit of the off-road lamps. Refer to <u>Wiring Repairs</u> . Did you complete the repair?	Go to <b>Step 21</b>	-
18	Replace the inoperative off-road lamp. Refer to <u>Off Road Lamp Bulb</u> <u>Replacement</u> . Did you complete the replacement?	Go to <b>Step 21</b>	-
19	Replace the inoperative off-road lampsrelay. Refer to Relay Replacement(Attached to Wire Harness) or RelayReplacement (Within an ElectricalCenter)Did you complete the replacement?	Go to <b>Step 21</b>	_
20	Replace the off-road lamps switch. Refer to <u>Off Road Lamp Switch</u> <u>Replacement</u> . Did you complete the replacement?	Go to <b>Step 14</b>	-
21	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

# PARK LAMPS INOPERATIVE

# **Park Lamps Inoperative**

Step	Action	Yes	No	
Schematic Reference: Exterior Lights Schematics				
Connector End View Reference: Lighting Systems Connector End Views				
	Did you perform the Diagnostic System			
			Go to	

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1	Check - Vehicle?	Go to Step 2	<u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	Verify that the front park lamps are inoperative. Do the park lamps operate normally?	Go to <u>Testing</u> for Intermittent Conditions and <u>Poor</u> Connections	Go to <b>Step 3</b>
3	Inspect the FRT PARK LAMP fuse in the underhood fuse block. Is the fuse open?	Go to Step 5	Go to <b>Step 4</b>
4	Inspect the inoperative bulbs/sockets for open or shorted filaments/terminals. Does any lamp have an open or shorted filament/terminals?	Go to Step 7	Go to <b>Step 6</b>
5	Repair the short to ground in the park lamps supply voltage circuit. Refer to <u>Wiring Repairs</u> . Did you complete the repair?	Go to <b>Step 8</b>	-
6	Repair an open or high resistance in the park lamps supply voltage circuit or ground circuit to the inoperative lamp. Refer to <u>Wiring Repairs</u> . Did you complete the repair?	Go to <b>Step 8</b>	_
7	Replace the defective bulb/socket. Refer to <b>Daytime Running Lamp Bulb</b> <b>Replacement</b> . Did you complete the repair?	Go to <b>Step 8</b>	_
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

# PARK, LICENSE AND TAIL LAMPS ALWAYS ON

# Park, License and Tail Lamps Always On

Step	Action	Yes	No		
Schematic Reference: <u>Exterior Lights Schematics</u>					
<b>Connector End View Reference:</b> Lighting Systems Connector End Views or Data					

1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to Diagnostic System Checl Vehicle
2	Verify that the park, license and tail lamps are always on. Do the park, license and tail lamps operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step</b> 3
3	Remove the park lamp relay. Refer to <b>Relay Replacement (Attached to Wire</b> <b>Harness)</b> or <b>Relay Replacement (Within</b> <b>an Electrical Center)</b> . Do the park lamps turn OFF?	Go to <b>Step 4</b>	Go to <b>Step</b> 9
4	<ol> <li>Ensure that the headlamp switch is in the OFF or AUTO position and there is sufficient light to the ambient light sensor.</li> <li>Test for a ground signal at the park lamp relay control circuit terminal in the underhood fuse block. Refer to <u>Electrical Center Identification</u> <u>Views</u> and <u>Circuit Testing</u>.</li> </ol>		
5	<ul> <li>Was a ground signal present?</li> <li>Use the scan tool to check the body control module (BCM) Park Lamp Switch input data.</li> <li>Does the scan tool indicate a park lamps OFF request signal?</li> </ul>	Go to <b>Step 5</b> Go to <b>Step 8</b>	Go to <b>Step 1</b> Go to <b>Step (</b>
6	Test for a short to ground in the park lamp switch on signal circuit. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step</b> 7
7	Inspect for poor connections at the harness connector of the headlamp and panel dimmer switch. Refer to <u>Circuit Testing</u>		

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	and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 11
8	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 12
	Repair the short to voltage in one of the following circuits. Refer to <b>Wiring Repairs</b> :		
	• The park lamp supply voltage		
9	• The tail lamp supply voltage		
	• The license lamp supply voltage		
	• The marker lamp supply voltage		
	Did you complete the repair?	Go to Step 13	
	Replace the park lamp relay. Refer to		
10	Relay Replacement (Attached to Wire		
10	<u>Harness)</u> or <u>Relay Replacement (Within</u> an Electrical Center) .		
	Did you complete the repair?	Go to Step 13	-
11	Replace the headlamp switch. Refer to <b>Headlamp Switch Replacement</b> .		
	Did you complete the repair?	Go to Step 13	-
12	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming.		
	Did you complete the replacement?	Go to Step 13	-
	1. Use the scan tool in order to clear any induced DTCs.		
13	2. Operate the system in order to verify the repair.		
	Did you correct the condition?	System OK	Go to Step 3

# PARK, LICENSE AND TAIL LAMPS INOPERATIVE

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Step	Action	Yes	No
chematic	Reference: Exterior Lights Schematics		
	· End View Reference: <u>Lighting Systems</u> (	Connector End V	iews or Data
	cation Connector End Views		
1	Did you perform the Diagnostic System Check - Vehicle?		Go to Diagnostic System Check
		Go to Step 2	<u>Vehicle</u>
2	Verify that the park, license and tail lamps are inoperative. Do the park, license and tail lamps operate normally?	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u>	Contra Stars 2
		<u>Connections</u>	Go to Step 3
3	<ol> <li>Remove the park lamp relay. Refer to <u>Relay Replacement (Attached to</u> <u>Wire Harness)</u> or <u>Relay</u> <u>Replacement (Within an Electrical</u> <u>Center)</u>.</li> <li>Ensure that the headlamp switch is in the ON position.</li> <li>Test for a ground signal at the park lamp relay control circuit terminal in the underhood fuse block. Refer to <u>Circuit Testing</u> and <u>Electrical</u> <u>Center Identification Views</u>.</li> </ol>		
	Was a ground signal present?	Go to Step 8	Go to Step 4
4	Use the scan tool to check the body control module (BCM) park lamp switch input data. Does the scan tool indicate a park lamps ON request signal?	Go to <b>Step 7</b>	Go to <b>Step 5</b>
5	Test for an open or high resistance in the park lamp switch on signal circuit. Refer to <b>Circuit Testing</b> and <b>Wiring Repairs</b> . Did you find and correct the condition?		Go to <b>Step 6</b>
	Inspect for poor connections at the harness		<b>F</b>

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6	connector of the headlamp and panel dimmer switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 11</b>	Go to <b>Step 9</b>
7	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Circuit</u> <u>Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 11</b>	Go to <b>Step 10</b>
8	Replace the park lamp relay. Refer to <b>Relay Replacement (Attached to Wire</b> <b>Harness)</b> or <b>Relay Replacement (Within</b> <b>an Electrical Center)</b> . Did you complete the repair?	Go to <b>Step 11</b>	_
9	Replace the headlamp switch. Refer to Headlamp Switch Replacement. Did you complete the repair?	Go to <b>Step 11</b>	_
10	Replace the BCM. Refer to <u>Control</u> <u>Module References</u> for replacement, setup and programming. Did you complete the replacement?	Go to <b>Step 11</b>	-
11	<ol> <li>Use the scan tool in order to clear any induced DTCs.</li> <li>Operate the system in order to verify the repair.</li> </ol>		
	Did you correct the condition?	System OK	Go to Step 3

## POSITION LAMPS MALFUNCTION

**Diagnostic Instructions** 

- Perform the **Diagnostic System Check Vehicle** prior to using this diagnostic procedure.
- <u>Strategy Based Diagnosis</u>
- Diagnostic Procedure Instructions

## **Circuit/System Description**

The underhood fuse block supplies battery voltage through the FRT POS fuse to the coil and switch terminals of the FRT POSITION LMP relay located in the underhood fuse block. The

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underhood fuse block also provides battery voltage to the PARK LP relay coil and switch terminals. When the headlamp switch is turned to the position lamp ON position, a signal is sent to the BCM to ground both the FRT POSITION LMP relay and PARK LP relay control circuits. This energizes the relays, closing the switch contacts and provides battery voltage to the front and rear position lamps. The front position lamps are permanently grounded at G105 and the rear position lamps are grounded at G420. With both power and ground, the position lamps illuminate. If the headlamps are activated by either the headlamp switch or the BCM in Automatic Lamp Control (ALC) mode, just the front position lamps will be disabled.

#### **Reference Information**

Schematic Reference

## **Exterior Lights Schematics**

**Connector End View Reference** 

## Lighting Systems Connector End Views

**Electrical Information Reference** 

- <u>Circuit Testing</u>
- Connector Repairs
- Testing for Intermittent Conditions and Poor Connections
- Wiring Repairs

Scan Tool Reference

- Scan Tool Output Controls
- <u>Scan Tool Data List</u>
- Scan Tool Data Definitions

## **Circuit/System Testing**

- 1. Ignition On, observe the scan tool DRL Status data parameter while toggling the headlamp switch between the position lamps ON and OFF positions.
  - If the parameter does not change between states, test the position lamps switch signal circuit for an open, high resistance or short to ground. If the circuit tests normal, test or replace the headlamp switch.
- 2. Ignition OFF, disconnect the FRT POSITION LMP relay.
- 3. Ignition ON, verify that a test lamp does not illuminate between the relay controlled output

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circuit and ground.

- If the test lamp illuminates, test the relay controlled output circuit for a short to voltage.
- 4. Verify that a test lamp illuminates between the relay coil B+ circuit and ground.
  - If the test lamp does not illuminate, test the relay coil B+ circuit for a short to ground or an open/high resistance. If the circuit tests normal and the B+ circuit fuse is open, test the relay controlled output circuit for a short to ground. If the circuit tests normal, test or replace the front position lamp relay.
- 5. Verify that a test lamp illuminates between the relay switch B+ circuit and ground.
  - If the test lamp does not illuminate, test the relay switch B+ circuit for an open/high resistance.
- 6. Disconnect the harness connector at the inoperative position lamp.
- 7. Test for less than 1.0 ohm of resistance between the inoperative position lamp ground circuit terminal 1 and ground.

• If greater than the specified range, test the ground circuit for an open/high resistance.

- 8. Connect the harness connector at the inoperative position lamp.
- 9. Connect a 10-A fused jumper wire between the relay switch B+ circuit and the relay controlled output circuit. Verify the position lamps are activated.
  - If the position lamps do not activate, test the relay controlled output circuit for an open/high resistance. If the circuit tests normal, test or replace the inoperative position lamp bulb.
- 10. Connect a test lamp between the relay coil B+ circuit and the relay coil control circuit.
- 11. Command the position lamps ON and OFF with the scan tool utilizing the Daytime Running Lamps output control. The test lamp should turn ON and OFF when changing between the commanded states.
  - If the test lamp is always ON, test the relay coil control circuit for a short to ground. If the circuit tests normal, replace the BCM.
  - If the test lamp is always OFF, test the relay coil control circuit for a short to voltage or an open/high resistance. If the circuit tests normal, replace the BCM.
- 12. If all circuits test normal, test or replace the position lamp relay.

## **Repair Procedures**

Perform the **<u>Diagnostic Repair Verification</u>** after completing the diagnostic procedure.

• <u>Relay Replacement (Attached to Wire Harness)</u> or <u>Relay Replacement (Within an</u> <u>Electrical Center)</u>.

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- Position Lamp Bulb Replacement.
- <u>Control Module References</u> for BCM replacement, setup and programming.

## STOP LAMPS ALWAYS ON

## **Stop Lamps Always On**

Step	Action	Yes	No
Schematic	<b>Reference:</b> <u>Exterior Lights Schematics</u>		
Connector	End View Reference: Lighting Systems	Connector End V	iews
1	Did you review the Exterior Lighting Systems Description and Operation and perform the necessary inspections?		Go to <u>Exterior</u> <u>Lighting</u> <u>Systems</u> <u>Description and</u>
		Go to Step 2	<b>Operation</b>
2	Verify that the stop lamps are always ON. Do the stop lamps operate normally?	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	
	Discompatible stop lower switch	Connections	Go to Step 3
3	Disconnect the stop lamp switch. Do the stop lamps remain illuminated?	Go to Step 4	Go to Step 5
4	<ul> <li>Test for a short to voltage in one of the following circuits or components. Refer to Wiring Repairs .</li> <li>Stop lamp switch signal</li> <li>Center high mounted stop lamp (CHMSL) supply voltage</li> <li>Stop lamp supply voltage</li> <li>Electronic brake control module (EBCM) center high mounted stop lamp (CHMSL) supply voltage input</li> <li>Powertrain control module (PCM) center high mounted stop lamp (CHMSL) supply voltage input</li> </ul>		
	Did you find and correct the condition?	Go to Step 7	Go to <b>Step 6</b>

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5	Replace the stop lamp switch. Refer to <b>Stop Lamp Switch Replacement</b> . Did you complete the repair?	Go to <b>Step 7</b>	-
6	Replace the body control module (BCM). Refer to <u>Control Module References</u> for replacement, setup and programming. Did you complete the repair?	Go to <b>Step 7</b>	-
7	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

## **STOP LAMPS INOPERATIVE**

## **Stop Lamps Inoperative**

Step	Action	Yes	No
Schematic	<b>Reference:</b> <u>Exterior Lights Schematics</u>		
Connector	End View Reference: Lighting Systems	Connector End V	iews
1	Did you review the Exterior Lighting Systems Description and Operation and perform the necessary inspections?		Go to <u>Exterior</u> Lighting Systems Description and
		Go to Step 2	<u>Operation</u>
2	Verify that the stop lamps are inoperative. Do the stop lamps operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> Connections	
3	Is only one lamp inoperative?	Go to Step 4	Go to <b>Step 3</b> Go to <b>Step 5</b>
4	Inspect the lamp for an open filament or poor connector terminal contact. Was a condition found?	Go to <b>Step 11</b>	Go to <b>Step 10</b>
5	Connect a test lamp from ground to the supply voltage circuit terminal of the inoperative lamp socket or connector and apply the service brake. Refer to <u>Circuit</u> <u>Testing</u> . Does the test lamp illuminate?	Go to <b>Step 8</b>	Go to <b>Step 6</b>
	Remove the stop lamp switch and install a		

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6	fused jumper between the stop lamp switch battery positive voltage circuit terminal and the stop lamp switch signal circuit terminal of the stop lamp switch connector. Do the stop lamps illuminate?	Go to <b>Step 12</b>	Go to <b>Step 7</b>
7	<ul> <li>Test for one of the following conditions.</li> <li>Refer to <u>Circuit Testing</u>.</li> <li>An open, high resistance or short to ground in the battery positive voltage circuit or the stop lamp supply voltage circuit.</li> <li>An open or high resistance in the ground circuit.</li> </ul>	Go to <b>Step 14</b>	Go to <b>Step 9</b>
8	Repair the open or high resistance in the ground circuit of the inoperative lamp. Refer to <u>Wiring Repairs</u> . Is the repair complete?	Go to <b>Step 14</b>	-
9	Inspect for poor connections at the harness connector of the body control module (BCM). Refer to <u>Testing for</u> <u>Intermittent Conditions and Poor</u> <u>Connections</u> and <u>Connector Repairs</u> . Did you find and correct the condition?	Go to <b>Step 14</b>	Go to <b>Step 13</b>
10	<ul> <li>Repair one of the following conditions.</li> <li>Refer to Wiring Repairs .</li> <li>An open, high resistance or a short to ground in the stop lamp supply voltage circuit</li> <li>An open or high resistance in the ground circuit</li> <li>Is the repair complete?</li> </ul>	Go to <b>Step 14</b>	_
	Repair the connector or replace the bulb.		

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11	Refer to <b>Wiring Repairs</b> , <b>Tail Lamp</b> <b>Bulb Replacement</b> or <b>High Mount Stop</b> <b>Lamp Replacement</b> .		
	Is the repair complete?	Go to Step 14	-
	Replace the stop lamp switch. Refer to		
12	Stop Lamp Switch Replacement.		
	Did you complete the replacement?	Go to Step 14	-
	Replace the BCM. Refer to Control		
13	Module References for replacement,		
	setup and programming.		
	Did you complete the replacement?	Go to Step 14	-
	Operate the system in order to verify the		
14	repair.		
	Did you correct the condition?	System OK	Go to Step 3

## TAIL LAMPS INOPERATIVE

## **Tail Lamps Inoperative**

Step	Action	Yes	No
Schematic	Reference: <u>Exterior Lights Schematics</u>		
Connector	r End View Reference: <u>Lighting Systems</u> (	Connector End V	<u>iews</u>
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	Verify that the tail lamps are inoperative. Do the tail lamps operate normally?	Go to <u>Testing</u> for Intermittent <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	Inspect the appropriate fuse for the inoperative lamps in the underhood fuse block. Is the fuse open?	Go to <b>Step 5</b>	Go to <b>Step 4</b>
4	Inspect the inoperative bulbs/sockets for open or shorted filaments/terminals. Does any lamp have an open or shorted filament/terminals?	Go to <b>Step 7</b>	Go to <b>Step 6</b>

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5	Repair the short to ground in the inoperative tail lamps supply voltage circuit or license lamp supply voltage circuit. Refer to <b>Wiring Repairs</b> . Did you complete the repair?	Go to <b>Step 8</b>	-
6	Repair the open or high resistance in the inoperative tail lamps supply voltage circuit or ground circuit. Refer to <u>Wiring</u> <u>Repairs</u> . Did you complete the repair?	Go to <b>Step 8</b>	-
7	Replace the defective bulb/socket. Refer to <u>Tail Lamp Bulb Replacement</u> . Did you complete the repair?	Go to <b>Step 8</b>	-
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

## TURN SIGNAL LAMPS AND/OR INDICATORS ALWAYS ON OR FLASHING

## Turn Signal Lamps and/or Indicators Always On or Flashing

0	<b>1</b> <i>i</i>	0	
Step	Action	Yes	No
Schematic	<b>Reference:</b> Exterior Lights Schematics		
Connector	End View Reference: <u>Lighting Systems</u> (	Connector End V	<b>iews</b> or <b>Data</b>
<u>Communi</u>	cation Connector End Views		
	Did you perform the Diagnostic System		Go to
1	Check - Vehicle?		<u>Diagnostic</u>
1			System Check -
		Go to Step	<u>Vehicle</u>
	Verify that the turn signal lamps and/or	Go to <u>Testing</u>	
	indicators are always ON or flashing.	for Intermittent	
2	Do the turn signal lamps operate normally?	<b>Conditions and</b>	
		<u>Poor</u>	
		<b>Connections</b>	Go to Step 3
	Inspect the affected bulb/socket for an		
3	internal short, poor terminal contact or a		
5	shorted filament.		
	Was a problem found?	Go to Step 8	Go to Step 4
	Disconnect the multifunction turn signal		

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4	switch. Do the affected turn signals and indicators		
	still illuminate?	Go to Step 5	Go to Step 6
_	Test for a high resistance or short to ground		
5	in the turn signal switch signal circuit. Did you find and correct the condition?	Go to Step 11	Go to Step 7
	Inspect for poor connections at the		
6	multifunction turn signal switch. Refer to		
0	Circuit Testing and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 11	Go to Step 9
	Inspect for poor connections at the body		
7	control module (BCM). Refer to <u>Circuit</u>		
	<b>Testing</b> and <b>Wiring Repairs</b> . Did you find and correct the condition?	Go to <b>Step 11</b>	Go to <b>Step 10</b>
	Replace or repair the affected bulb/socket.		
	Refer to <b>Daytime Running Lamp Bulb</b>		
8	Replacement or Tail Lamp Bulb		-
	Replacement.		
	Did you complete the repair?	Go to Step 11	
	Replace the turn signal/multifunction		
9	switch. Refer to <b>Turn Signal</b>		_
	Multifunction Switch Replacement .		
	Did you complete the repair?	Go to Step 11	
	Replace the BCM. Refer to <u>Control</u>		
10	Module References for replacement,		-
	setup and programming. Did you complete the repair?	Go to Step 11	
		00 to Step 11	
	1. Use the scan tool in order to clear any induced DTCs.		
11	2. Operate the system in order to verify the repair.		
	Did you correct the condition?	System OK	Go to Step 3

## TURN SIGNAL LAMPS AND/OR INDICATORS INOPERATIVE

## **Turn Signal Lamps and/or Indicators Inoperative**

	Step	Action	Yes	No
--	------	--------	-----	----

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Connector	Reference: <u>Exterior Lights Schematics</u> End View Reference: <u>Lighting Systems (</u> eation Connector End Views	Connector End V	iews or Data
1	Did you perform the Diagnostic System Check - Vehicle?	Go to <b>Step 2</b>	Go to <u>Diagnostic</u> <u>System Check -</u> <u>Vehicle</u>
2	Verify that the turn signal lamps and/or indicators are inoperative. Do the turn signal lamps and/or indicators operate normally?	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	Are only the turn signal indicators in the instrument panel cluster (IPC) inoperative?	Go to <b>Step 4</b>	Go to <b>Step 5</b>
4	Test the inoperative turn signal supply voltage circuit to the IPC for an open or high resistance. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to <b>Step 13</b>	Go to <b>Step 7</b>
5	<ol> <li>Place the ignition switch to the ON position with the engine OFF.</li> <li>Using a scan tool, command the left and right turn signals ON and OFF with the BCM special functions scan tool output controls.</li> <li>Can you activate the turn signals with the scan tool?</li> </ol>	Go to <b>Step 6</b>	Go to <b>Step 9</b>
6	<ul> <li>Test for one of the following conditions.</li> <li>Refer to <u>Circuit Testing</u> and <u>Wiring</u></li> <li><u>Repairs</u>.</li> <li>An open, high resistance, short to ground or short to voltage in the turn signal switch signal circuit</li> <li>An open or high resistance in the turn signal/multifunction switch ground circuit</li> </ul>		

#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3

	Did you find and correct the condition?	Go to Step 13	Go to Step 8
	Inspect for poor connections at the IPC.		
7	Refer to Circuit Testing and Wiring		
/	Repairs .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 10
	Inspect for poor connections at the		
8	multifunction turn signal switch. Refer to		
0	Circuit Testing and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 11
	Inspect for poor connections at the body		
9	control module (BCM). Refer to <u>Circuit</u>		
	Testing and Wiring Repairs .		
	Did you find and correct the condition?	Go to Step 13	Go to Step 12
	Replace the IPC. Refer to <b>Control</b>		
10	Module References for replacement,		
10	setup and programming.		
	Did you complete the repair?	Go to Step 13	-
	Replace the turn signal/multifunction		
11	switch. Refer to <b>Turn Signal</b>		
11	Multifunction Switch Replacement .		
	Did you complete the repair?	Go to Step 13	-
	Replace the BCM. Refer to <b>Control</b>		
12	Module References for replacement,		
	setup and programming.		
	Did you complete the repair?	Go to Step 13	-
	Operate the system in order to verify the		
13	repair.		
	Did you correct the condition?	System OK	Go to Step 3

## VANITY MIRROR LAMP(S) INOPERATIVE

## Vanity Mirror Lamp(s) Inoperative

Step	Action	Yes	No
Schematic	<b>Reference:</b> Interior Lights Schematics		
Connector End View Reference: Lighting Systems Connector End Views			
	Did you perform the Diagnostic System		Go to
	Check - Vehicle?		Diagnostic

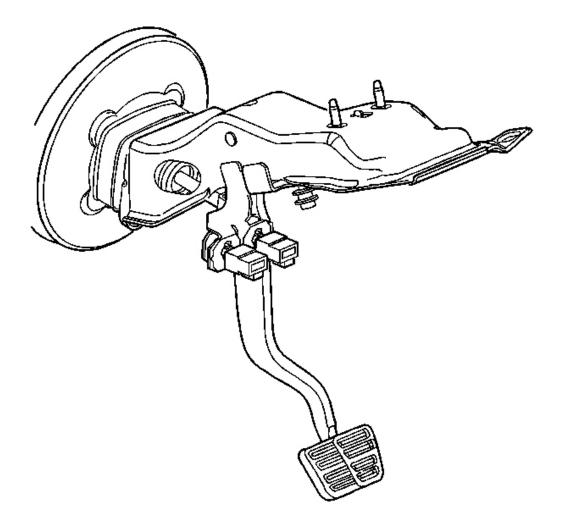
## 2007 ACCESSORIES & EQUIPMENT Lighting - H3

1			System Check -
		Go to Step 2	<u>Vehicle</u>
2	Verify that the visor vanity mirror lamps are inoperative. Do the visor vanity mirror lamps operate normally?	Go to <u>Testing</u> <u>for Intermittent</u> <u>Conditions and</u> <u>Poor</u> <u>Connections</u>	Go to <b>Step 3</b>
3	Connect a test lamp from the inadvertent power courtesy lamps supply voltage circuit above the headliner at the inoperative visor vanity mirror connector to ground. Refer to <u>Circuit Testing</u> . Does the test lamp illuminate?		Go to <b>Step 5</b>
4	Connect a test lamp between the inadvertent power courtesy lamps supply voltage circuit and the ground circuit at the inoperative visor vanity mirror lamp connector. Refer to <u>Circuit Testing</u> . Does the test lamp illuminate?		Go to <b>Step 6</b>
5	Repair the open, high resistance or short to ground in the inadvertent power courtesy lamps supply voltage circuit. Refer to <b>Wiring Repairs</b> . Is the repair complete?	Go to <b>Step 8</b>	_
6	Repair the open or high resistance in the ground circuit. Refer to <u>Wiring Repairs</u> . Is the repair complete?	Go to <b>Step 8</b>	-
7	<ol> <li>Inspect the inoperative visor mirror bulb for an open filament and replace as necessary.</li> <li>If the bulb is good, replace the sunshade. Refer to <u>Sunshade</u> <u>Replacement</u>.</li> <li>Is the repair complete?</li> </ol>	Go to <b>Step 8</b>	
	Operate the system in order to verify the	00 10 5164 0	-
8	repair. Did you correct the condition?	System OK	Go to <b>Step 3</b>

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## **REPAIR INSTRUCTIONS**

## STOP LAMP SWITCH ADJUSTMENT



## **Fig. 88: View Of Brake Pedal** Courtesy of GENERAL MOTORS CORP.

- 1. Rotate the switch counterclockwise, allowing the retainer to release.
- 2. Pull the brake pedal rearward to full stop.

## IMPORTANT: Do not move the brake pedal during switch adjustment as

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## this will cause an over-adjusted switch which could cause brake drag.

3. While holding the brake pedal FIRMLY in position rearward, push the switch inward fully until the switch body contacts the brake pedal arm striker plate.

At this point the plunger in the switch should be pushed in.

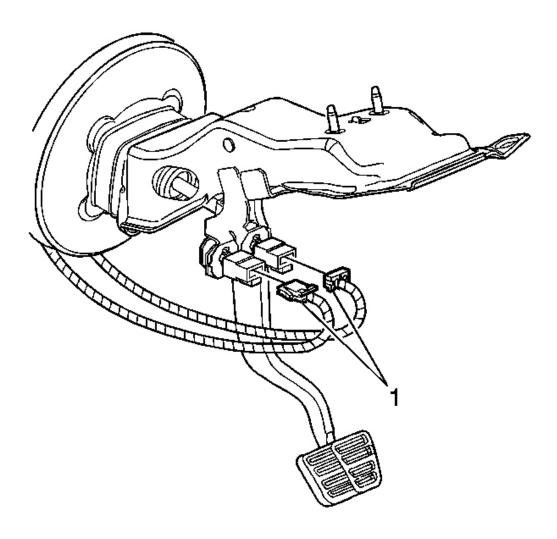
- 4. Rotate the switch clockwise until a "click" is heard.
- 5. The switch is properly adjusted when there is 7 mm (0.028 in) clearance between the end of the switch barrel and the striker plate on the brake pedal arm.

## STOP LAMP SWITCH REPLACEMENT

#### **Removal Procedure**

1. Disconnect the stop lamp switch electrical connectors (1).

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## **Fig. 89: View Of Stop Lamp Electrical Connectors Courtesy of GENERAL MOTORS CORP.**

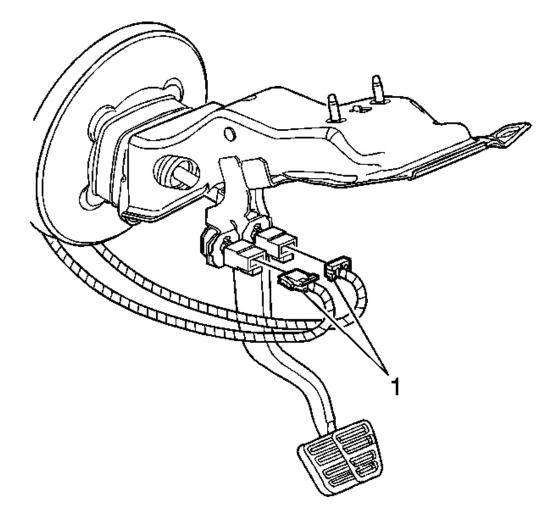
- 2. Rotate the switch counterclockwise.
- 3. Remove the switch from the bracket.
- 4. Remove the switch from the vehicle.

#### **Installation Procedure**

- 1. Position the switch near the bracket.
- 2. Ensure the switch key-way is properly indexed to the plastic retainer.

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3. Install and adjust the switch. Refer to **Stop Lamp Switch Adjustment**.

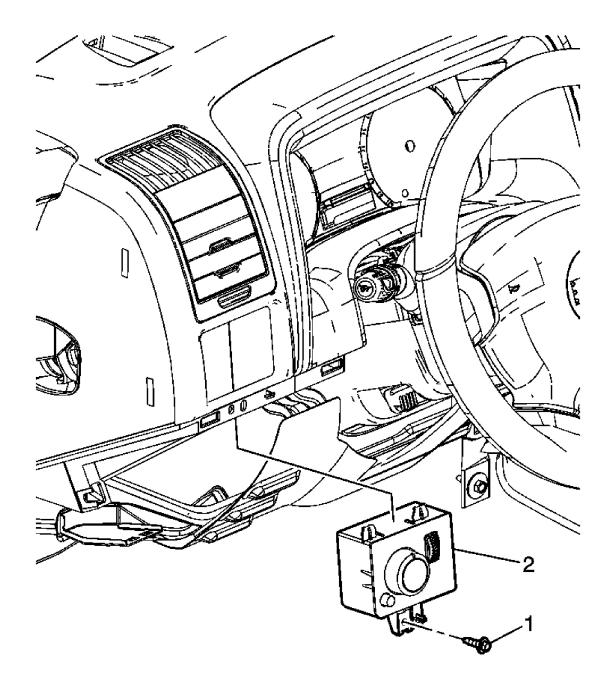


## **Fig. 90: View Of Stop Lamp Electrical Connectors Courtesy of GENERAL MOTORS CORP.**

- 4. Connect the stop lamp switch electrical connectors (1).
- 5. Check the switch for proper operation.

## HEADLAMP SWITCH REPLACEMENT

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## **Fig. 91: Headlamp Switch Replacement** Courtesy of GENERAL MOTORS CORP.

## Headlamp Switch Replacement

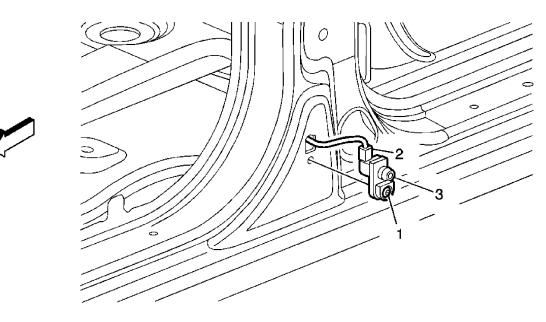
neautamp Switch Keplacem	
Callout	Component Name
NOTE:	
-	
Refer to Fastener Notice.	

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## Fastener Tightening Specifications: Refer to <u>Fastener Tightening</u> <u>Specifications</u>.Preliminary Procedure: Remove the left knee bolster panel. Refer to <u>Driver Knee Bolster Replacement (Left Hand Drive)</u> or <u>Driver Knee Bolster</u> <u>Replacement (Right Hand Drive)</u>.

	Screw, Headlamp Switch
1	
	Tighten: 2 N.m (18 lb in)
2	Switch Assembly, Headlamp
2	Tip: Disconnect the electrical connector.

## FRONT SIDE DOOR JAMB SWITCH REPLACEMENT



**Fig. 92: Door Jamb Switch Replacement - Front Courtesy of GENERAL MOTORS CORP.** 

## Front Side Door Jamb Switch Replacement

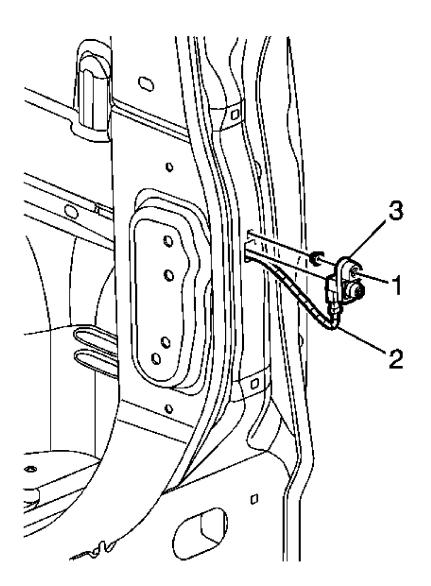
Callout	Component Name
NOTE:	
Refer to Fastene	r Notice .
Fastener Tigh	tening Specifications: Refer to Fastener Tightening Specifications.
	Screw Door Lamb Switch (Otv: 1)
	Screw, Door Jamb Switch (Qty: 1)
1	Tighten: 2 N.m (18 lb in)

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2	Connector, Door Jamb Switch Electrical Harness
3	Switch, Door Jamb (Qty: 1)

#### **REAR DOOR JAMB SWITCH REPLACEMENT**





## **Fig. 93: Door Jamb Switch Replacement - Rear** Courtesy of GENERAL MOTORS CORP.

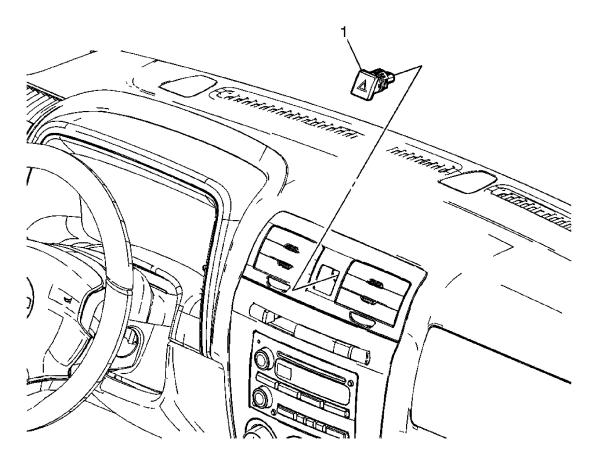
## **Rear Door Jamb Switch Replacement**

Callout	Component Name
NOTE:	
Refer to Fastene	Notice .

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Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
	Screw, Rear Endgate Switch (Qty: 1)
1	<b>Tighten:</b> 2 N.m (18 lb in)
2	Connector, Switch Electrical Harness
3	Switch, Rear Endgate (Qty: 1)

## HAZARD WARNING SWITCH REPLACEMENT



## **Fig. 94: Hazard Warning Switch Replacement Courtesy of GENERAL MOTORS CORP.**

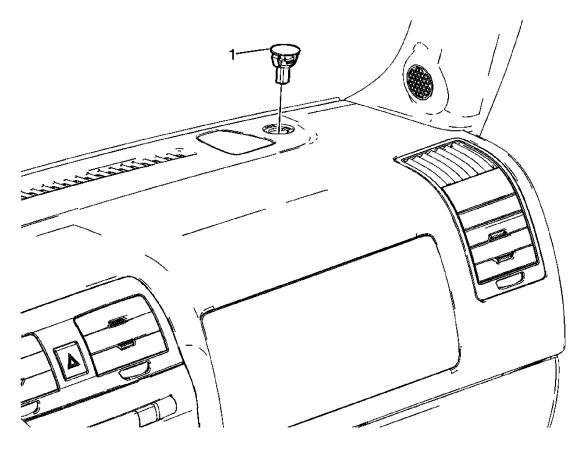
## Hazard Warning Switch Replacement

Callout	Component Name
Fastener Tigh	tening Specifications: Refer to Fastener Tightening Specifications.
	Switch Assembly, Hazard Lamp
	Tip:

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1	1. Use a small plastic trim tool to remove the switch.
1	2. Disconnect the electrical connector.

## AMBIENT LIGHT SENSOR REPLACEMENT



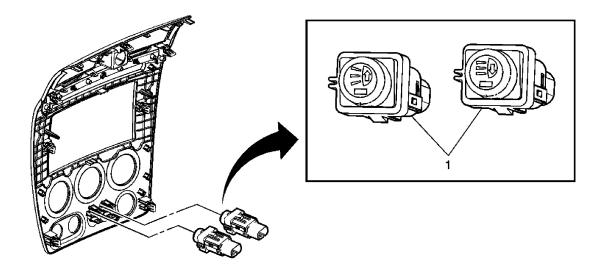
**Fig. 95: Ambient Light Sensor Replacement Courtesy of GENERAL MOTORS CORP.** 

implent Eight School Replacement	Ambient	Light Se	ensor Re	placement
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Callout	Component Name
Fastener Tigh	tening Specifications: Refer to Fastener Tightening Specifications.
1	Sensor Assembly, Ambient Light Tip:
1	<ol> <li>Use a small plastic trim tool to remove the sensor.</li> <li>Disconnect the electrical connector.</li> </ol>

#### OFF ROAD LAMP SWITCH REPLACEMENT

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## **Fig. 96: Switch Replacement - Off-Road Lamps** Courtesy of GENERAL MOTORS CORP.

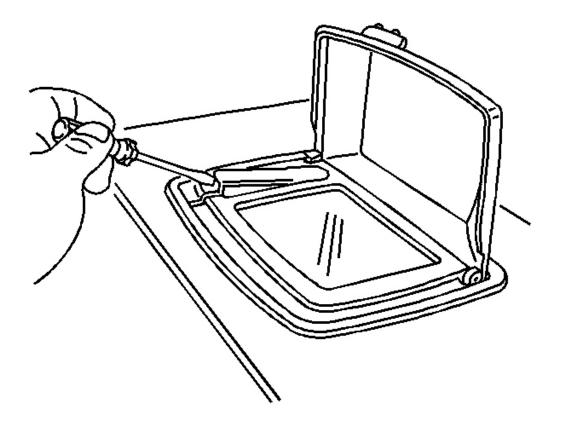
## **Off Road Lamp Switch Replacement**

Callout	Component Name	
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.		
Preliminary Pr	ocedure:	
Remove the cent	er instrument panel (I/P) trim panel. Refer to <b>Instrument Panel Center</b>	
Trim Panel Re	placement (Left Hand Drive) or Instrument Panel Center Trim Panel	
Replacement (1	Right Hand Drive) .	
	Off Road Lights Front End Mounted Switch Assembly	
1	<b>Tip:</b> If the vehicle is equipped with both roof and front end mounted off	
	road lights, note the connector location to avoid crossing the switches.	

#### VANITY MIRROR LAMP REPLACEMENT

**Removal Procedure** 

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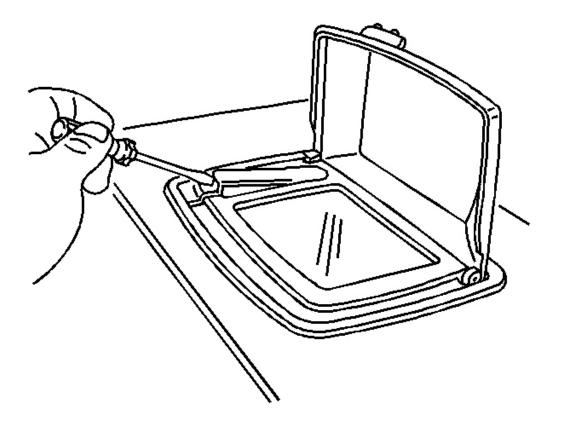


## **Fig. 97: Identifying Vanity Light Lens Retaining Tab** Courtesy of GENERAL MOTORS CORP.

- 1. Fold down the sunshade.
- 2. Open the cover to the vanity mirror in order to reveal the vanity light.
- 3. Use a flat bladed tool in order to release the retaining tab on the vanity light lens.
- 4. Remove the vanity light lens from the vanity mirror.
- 5. Remove the bulb from the socket.

#### **Installation Procedure**

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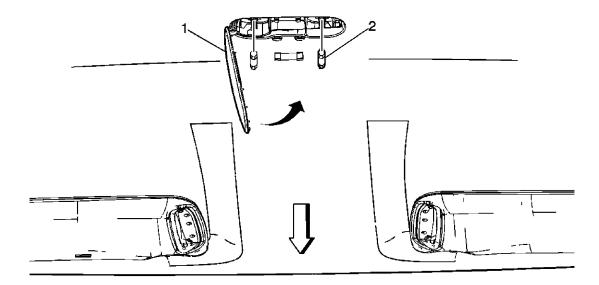


## **Fig. 98: Identifying Vanity Light Lens Retaining Tab** Courtesy of GENERAL MOTORS CORP.

- 1. Install the bulb to the socket.
- 2. Install the vanity light lens to the vanity mirror ensuring the retaining tab is fully seated.
- 3. Close the cover to the vanity mirror.
- 4. Return the sunshade to the folded up position.

## DOME LAMP REPLACEMENT

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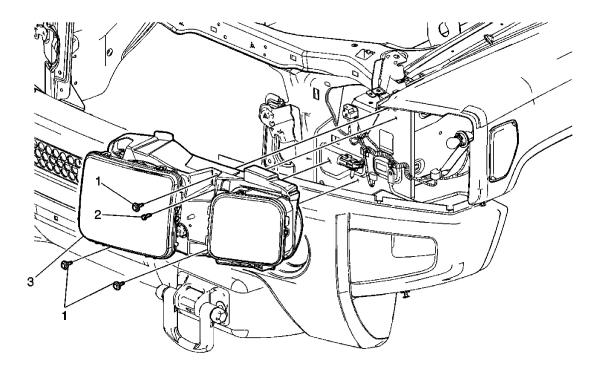
## **Fig. 99: Dome Lamp Replacement** Courtesy of GENERAL MOTORS CORP.

## **Dome Lamp Replacement**

Callout	Component Name	
<b>Fastener Tigh</b>	tening Specifications: Refer to Fastener Tightening Specifications.	
1	Lens, Dome Lamp Assembly <b>Tip:</b> Pry open the lens with a flat-bladed tool.	
2	Bulb, Dome Lamp	

## HEADLAMP REPLACEMENT

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## **Fig. 100: View Of Headlamp & Components Courtesy of GENERAL MOTORS CORP.**

## Headlamp Replacement

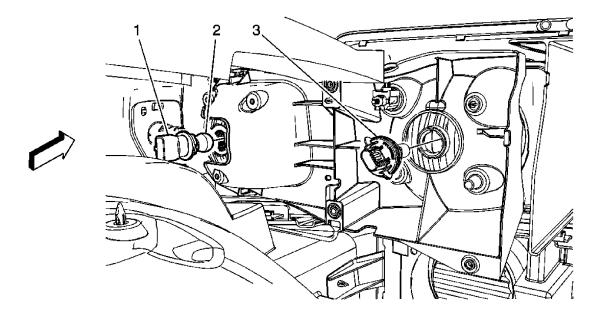
Callout	Callout Component Name	
Preliminary P	rocedures	
2. Remove t assembly.		
being serv	ove the fender pencil brace away from the headlamp composite which is viced.	
1	Headlamp Assembly Bolt (Qty: 3) NOTE: Refer to <u>Fastener Notice</u> . <b>Procedure</b>	
	<ol> <li>Support the headlamp assembly when removing the bolts.</li> <li>Pull the lamp assembly slightly forward.</li> </ol>	

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	3. Disconnect the electrical connector from the forward lamp harness connector.
	4. Disconnect the jumper harness connector from the fender flare turn signal lamp.
	<b>Tighten:</b> 10 N.m (89 lb in)
	Headlamp Support Bracket Bolt
	Procedure
2	1. Rotate the bracket upward to allow access to remove headlamp assembly.
	2. Rotate the outer edge of the headlamp outward in order to remove the lamp assembly from the grille assembly support.
	Tighten: 5 N.m (44 lb in)
	Headlamp Assembly
	Procedure
3	1. Remove the bulbs from the headlamp assembly and transfer.
	2. Pull the headlamp assembly forward to remove.
	<ol> <li>Aim the headlamp assembly after service. Refer to <u>Headlamp</u> <u>Aiming</u>.</li> </ol>

## HEADLAMP BULB REPLACEMENT

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## **Fig. 101: Headlamp Bulb Replacement** Courtesy of GENERAL MOTORS CORP.

## Headlamp Bulb Replacement

Callout	Component Name	
<b>Fastener Tigh</b>	Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
Preliminary P	rocedure	
1. Open the	hood and secure the prop rod.	
2. Disconnec	et the electrical connector to the headlamp bulb socket.	
3. Turn the b	bulb socket counterclockwise to remove.	
1	Daytime Running Lamp Bulb/Park Turn Signal Socket	
2	Daytime Running Bulb/Park Turn Signal Bulb	
3	Headlamp Bulb (Lo/Hi) (H13) <b>Tip:</b> Pinch terminal and pull to remove bulb.	

## HEADLAMP AIMING

The vehicle has a visual optical headlamp aiming system. The aim has been preset at the factory and should need no further adjustment.

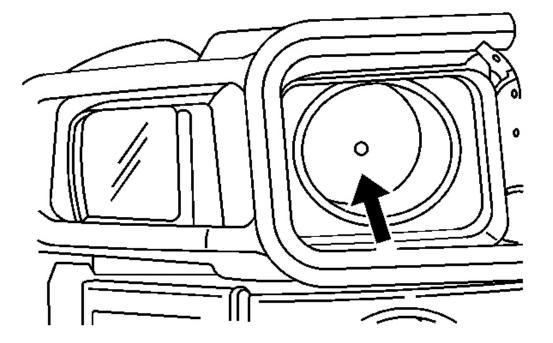
However, if the vehicle is damaged in an accident, the headlamp aim may be affected and adjustment may be necessary.

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If oncoming vehicles flash their high beams at you, this may also mean the vertical aim needs to be adjusted.

The vehicle should be properly prepared as follows:

- The vehicle should be placed so the headlamps are 25 ft. (7.6 m) from a light colored wall or other flat surface.
- The vehicle must have all four tires on a level surface which is level all the way to the wall or other flat surface.
- The vehicle should be placed so it is perpendicular to the wall or other flat surface.
- The vehicle should not have any snow, ice or mud on it.
- The vehicle should be fully assembled and all other work stopped while headlamp aiming is being performed.
- The vehicle should be normally loaded with a full tank of fuel and one person or 160 lbs (75 kg) sitting on the driver's seat.
- Tires should be properly inflated.
- The spare tire is in its original location in the vehicle.



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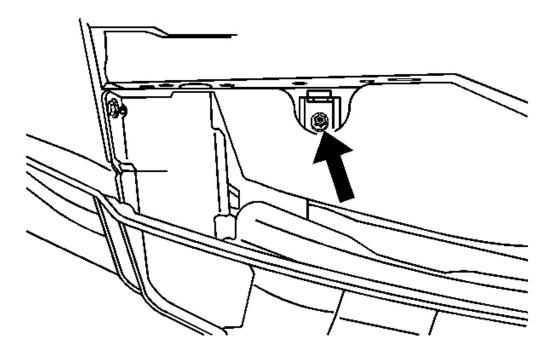
## **Fig. 102: Identifying Headlamp Aiming Dot** Courtesy of GENERAL MOTORS CORP.

- 1. To adjust the vertical aim, perform the following procedure:
  - 1. Find the aim dot on the lens of the headlamp.
  - 2. Measure the distance from the ground to the aim dot on the headlamp. Record the distance.
  - 3. At the wall or other flat surface, measure from the ground upward the recorded distance from Step 2 and mark it.
  - 4. Draw or tape a horizontal line the width of the vehicle at the wall or other flat surface where it was marked it Step 4.

## NOTE: Do not cover a headlamp to improve beam cut-off when aiming. Covering a headlamp may cause excessive heat build-up which may cause damage to the headlamp.

2. Turn on the headlamps and place a piece of cardboard or equivalent in front of the headlamp not being aimed. This should allow only the beam of light from the headlamp being aimed to be seen on the flat surface.

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## **Fig. 103: Locating Vertical Headlamp Aiming Screws** Courtesy of GENERAL MOTORS CORP.

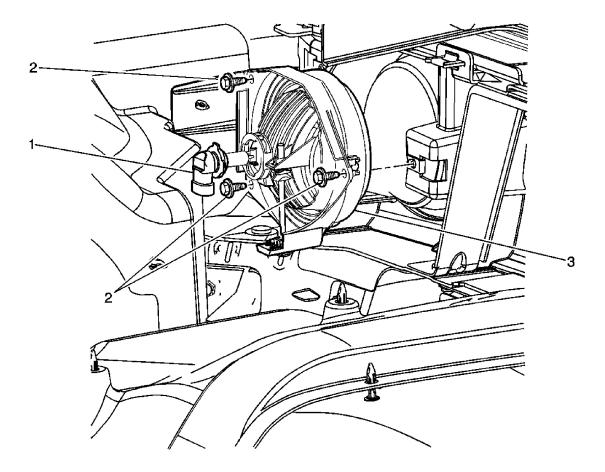
3. Locate the vertical headlamp aiming screws, which are under the hood near each headlamp assembly.

The adjustment screw can be turned with an E8 Torx® socket or T15 Torx® screwdriver.

- 4. Turn the vertical aiming screw until the headlamp beam is aimed to the horizontal tape line. If you turn it clockwise, it will raise the beam and if you turn it counterclockwise, it will lower the beam.
- 5. Repeat steps 6 and 7 for the opposite headlamp.

## FRONT FOG LAMP REPLACEMENT

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## **Fig. 104: Fog Lamp Replacement - Front** Courtesy of GENERAL MOTORS CORP.

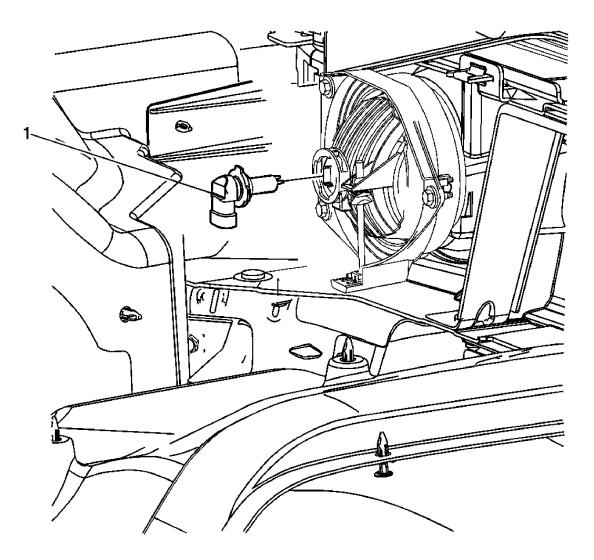
## **Front Fog Lamp Replacement**

Callout	Component Name	
<b>Preliminary Pro</b>	Preliminary Procedures	
1. Remove eit	her the LF or RF wheelhouse liner.	
2. Remove the	fog lamp bulb by twisting counterclockwise.	
3. Disconnect	the electrical connector, if replacing the fog lamp bulb.	
	CAUTION:	
1	Refer to <u>Halogen Bulb Caution</u> .	
	Bulb, Front Fog Lamp	
	Bolts, Front Fog Lamp Retainer (Qty: 3)	
	NOTE:	

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2	Refer to <u>Fastener Notice</u> .
	Tighten: Tighten to 10 N.m (89 lb in)
	Lamp Assembly, Front Fog
3	<b>Tip:</b> Aim the fog lamps after the replacement of a lamp assembly. Refer to
	Fog Lamp Aiming.

## FRONT FOG LAMP BULB REPLACEMENT



## **Fig. 105: Fog Lamp Bulb Replacement - Front** Courtesy of GENERAL MOTORS CORP.

## Front Fog Lamp Bulb Replacement

**Component Name** 

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## Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

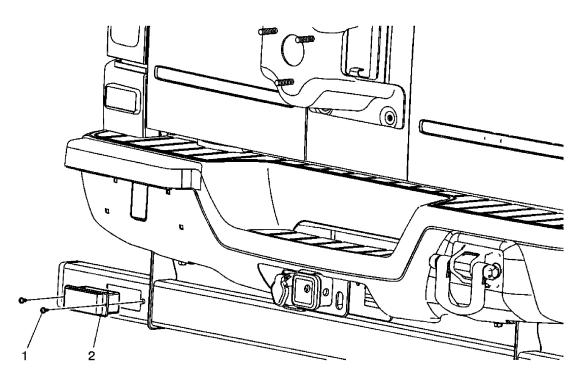
## **Preliminary Procedures**

1

- 1. Remove the engine shield. Refer Engine Shield Replacement .
- 2. Remove the fog lamp bulb by twisting counterclockwise.
- 3. Disconnect the electrical connector.

Front Fog Lamp Bulb (Qty: 1)

## REAR FOG LAMP REPLACEMENT (WITH BRM AND RHD)



**Fig. 106: Identifying Rear Fog Lamp & Screws** Courtesy of GENERAL MOTORS CORP.

**Rear Fog Lamp Replacement (with BRM and RHD)** 

Real 1 05 Duin	p Replacement (with Dirit and Rild)
Callout	Component Name
1	Rear Fog Lamp Screws (Qty: 2) NOTE: Refer to <u>Fastener Notice</u> .

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	<b>Tighten:</b> Tighten the screws to 2.0 N.m (18 lb in)
2	Rear Fog Lamp Assembly <b>Tip:</b> Pull the lamp assembly from the rear bumper impact bar extension assembly and disconnect the electrical harness connector from the lamp assembly.

## FOG LAMP AIMING

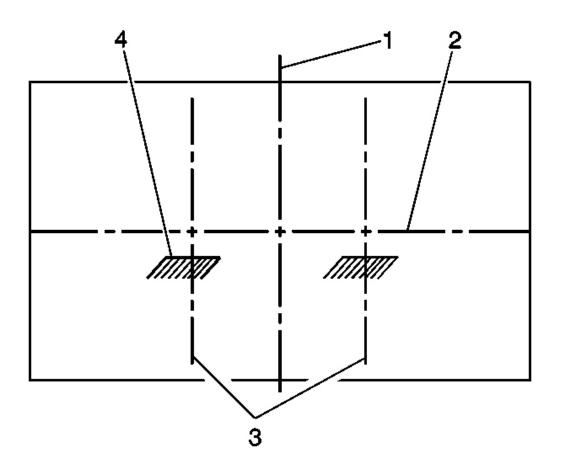
#### **Preparation Procedure**

# IMPORTANT: Horizontal aim is not adjustable on this vehicle. Vertical aim is done by an adjusting nut located on the rear of the fog lamp. Prior to aiming the fog lamps, perform the following steps:

- 1. Completely assemble all of the components on the vehicle.
- 2. Place the vehicle on a level surface.
- 3. Stop all unnecessary operations or work that could affect the ride height of the vehicle.
- 4. Close the doors and verify that the luggage compartment is empty.
- 5. Stabilize the suspension by rocking the vehicle sideways.
- 6. Ensure that the fuel level is full.
- 7. Ensure that the tires are inflated to the proper pressure.
- 8. Ensure that the driver or a similar weight, approximately 75 kg (165 lb), is in the vehicle driver seat.

## Aiming Procedure

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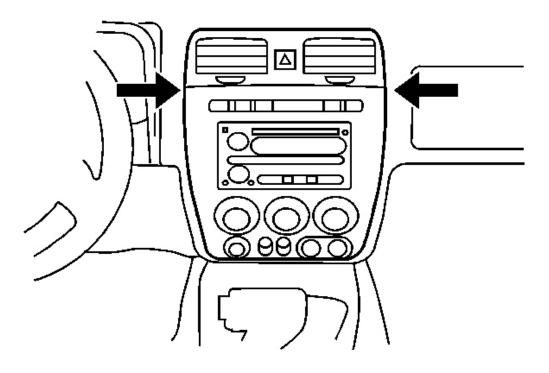
# **Fig. 107: Locating Alignment Points On Target Screen** Courtesy of GENERAL MOTORS CORP.

- 1. Park the vehicle 7.6 m (25 ft) away from the target screen.
- 2. Measure from the center of the fog lamp to the ground line. Using this measurement, mark the horizontal centerline (2) of the fog lamp on the target screen directly in front of the vehicle.
- 3. The adjustment hole is located in the front fascia just above the fog lamp assembly.
- 4. Turn ON the fog lamps. The top of the fog lamp beam image (4) on the target screen should be 102 mm (4 in) below the center of the fog lamp lens height.
- 5. Adjust the fog lamp as required using the adjusting screw at the bottom side of the fog lamp assembly.
- 6. Turn OFF the fog lamps.

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## OFF ROAD LAMP PACKAGE INSTALLATION

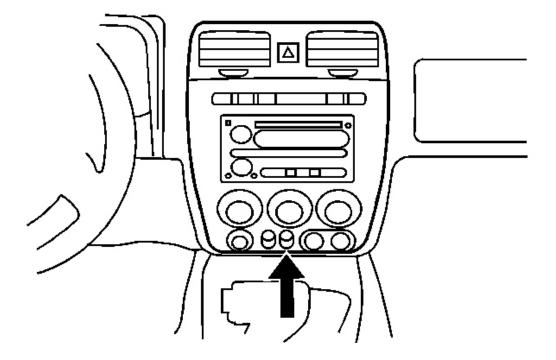
- 1. Follow the Wiring Systems sub-section for splicing wires using splice sleeves. Refer to **Splicing Copper Wire Using Splice Sleeves**.
- 2. Remove the ground terminal of the battery. Refer to <u>Battery Negative Cable</u> <u>Disconnection and Connection</u>.
- 3. Ensure the vehicle is in the park (P) position.
- 4. Apply park brake.



# **Fig. 108: Pressing Inward At Sides Of Radio Trimplate** Courtesy of GENERAL MOTORS CORP.

- 5. Using a flat-bladed tool, press inward at the sides of the radio trimplate in order to release the clips.
- 6. Press in on both sides if the trimplate just below the HVAC vents.
- 7. Gently remove the trimplate.

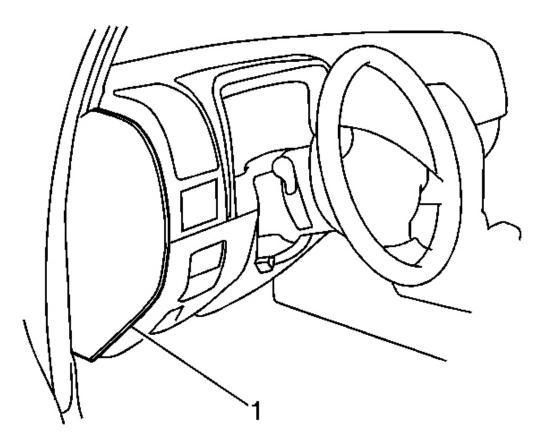
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



# **Fig. 109: Locating Switch Plug** Courtesy of GENERAL MOTORS CORP.

- 8. Remove the switch plug next to the auxiliary power outlet by flexing open the retention walls on the back of the trimplate and pushing the plug from the front of the trimplate at the same time.
- 9. Snap the switch into the open position from the rear of the trimplate.

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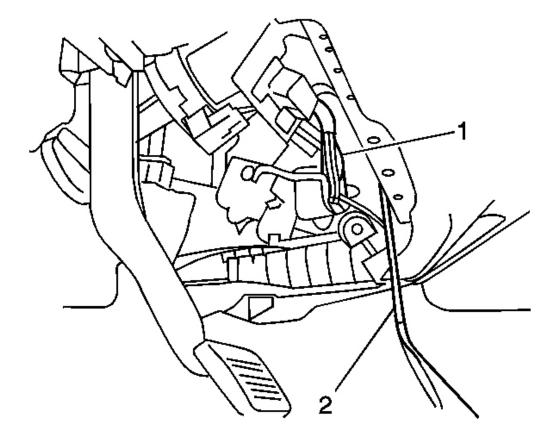
# **Fig. 110: View End Cover Trim Panel** Courtesy of GENERAL MOTORS CORP.

- 10. Remove the instrument panel (I/P) end cover trim panel (1) by gently prying the outer edge with a flat-bladed tool in order to release the clips.
- 11. Remove the I/P lower trim plate by releasing the clips and pulling from the lower right side first.
- 12. Remove the hood release handle and cable by removing the screws and pressing forward in the vehicle to disengage the tabs.
- 13. Route the switch connector harness up from the driver's side floor behind the I/P center console.

# IMPORTANT: Ensure the taped portion of the harness extends beyond the I/P center console brackets.

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- 14. Connect the switch connector to the switch.
- 15. Reinstall the I/P trimplate by positioning the trimplate and pressing in at the retention clip locations.



# **Fig. 111: Locating Blunt Cut Wire & Harness Courtesy of GENERAL MOTORS CORP.**

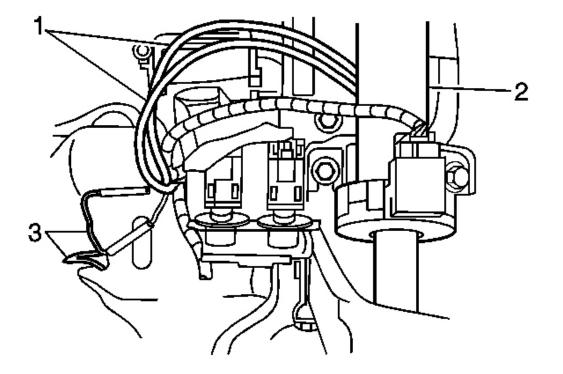
- 16. Locate the black blunt cut wire (1) on the right side of the driver footwell above the footwell lamp.
- 17. Tape this wire up onto the harness (2).
- 18. Splice this wire to the black wire in Pin B of the switch connector and use the splice sleeve to connect the wire.

# IMPORTANT: If the vehicle is equipped with trailer electric brake or front

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# off road lights, this wire will be used already.

19. Use the splice sleeve to connect the appropriate ground wires together.

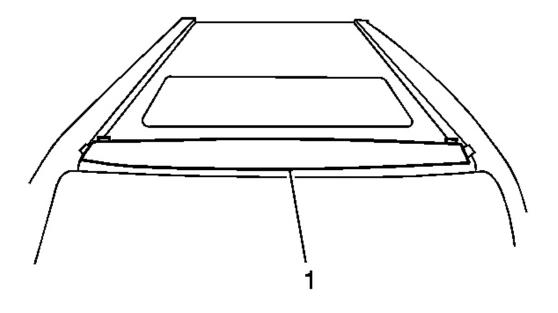


# **Fig. 112: Routing Wires** Courtesy of GENERAL MOTORS CORP.

- 20. Route the orange and white wires from the switch (1) over the steering column support (2).
- 21. Locate the blunt cut wires (3) under the I/P on the left side of the driver footwell above the park brake.
- 22. These wires may be taped back onto the harness branch, cut the tape in order to free the wires.
- 23. Splice the orange blunt cut wire to the orange wire in pin A of the switch connector using the splice procedure and the splice sleeves provided.
- 24. Splice the white-striped, black blunt cut wire to the white wire in pin C of the switch connector using the splice procedure and the splice sleeves provided.

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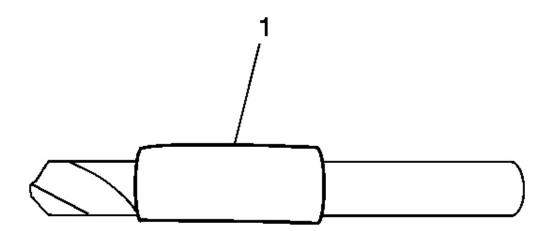
- 25. Using tie straps, tie strap the wires to the other wire bundles out of the driver footwell area.
- 26. Install the I/P lower trim plate by positioning the trim plate and pressing inward at the clip locations.
- 27. Install the hood release cable and handle assembly by engaging the handle tab and installing the screws.
- 28. Install the I/P end cover trim panel by positioning the panel and pressing inward at the clip locations.



# **Fig. 113: View Of Centering Template** Courtesy of GENERAL MOTORS CORP.

- 29. Center the template provided (1) on the roof between the two A-pillars. Position the template so that the front edge rests against the rear edge of the windshield reveal molding and tape in place.
- 30. Mark the 6 hole locations with a trip punch or center punch.

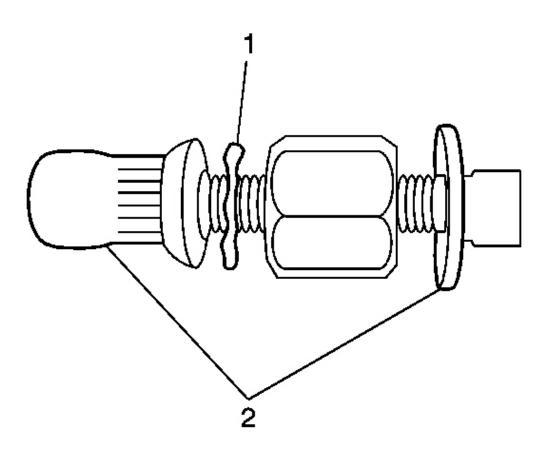
#### 2007 ACCESSORIES & EQUIPMENT Lighting - H3



# **Fig. 114: View Of Tape Wrapped Drill Bit** Courtesy of GENERAL MOTORS CORP.

- 31. Before drilling, add several wraps of tape (1) around end of drill bit to prevent the drill bit from penetrating through the roof into the headliner.
- 32. Drill pilot holes with 2 mm (3/32 in) drill bit.
- 33. Expand the holes with 6 mm (1/4 in) drill bit.
- 34. Drill 9 mm holes in the 6 hole locations using the bit supplied within the kit.
- 35. Clear all the metal shavings from around the holes with a magnet or vacuum.
- 36. Apply GM Superlube® with PTFE, GM P/N 12371287, to the lower half of the rivnut and between the washer and hex body of rivnut tool prior to inserting the rivnut into the hole.

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# **Fig. 115: Identifying Rivnut Tool** Courtesy of GENERAL MOTORS CORP.

37. Ensure that the Star washer (1) is positioned on top of the rivnut tool (2) (all provided).

# NOTE: Refer to Fastener Notice .

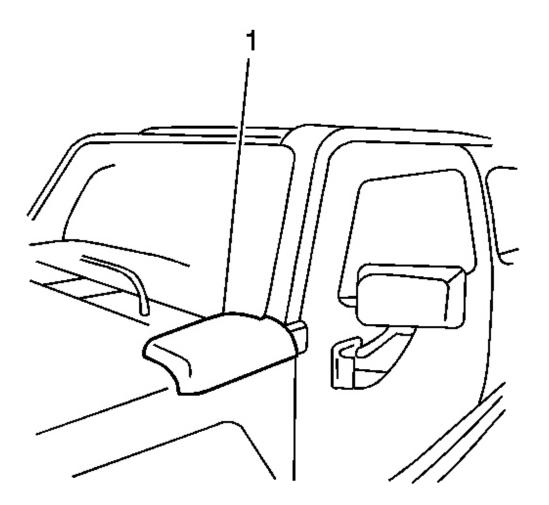
# **IMPORTANT:** Do not overtighten the rivnuts.

38. Using a 5/16 inch box wrench in conjunction with a 1/2 inch open end wrench, secure the rivnuts to the roof panel.

**Tighten:** Tighten the rivnut to 7 N.m (45 lb in).

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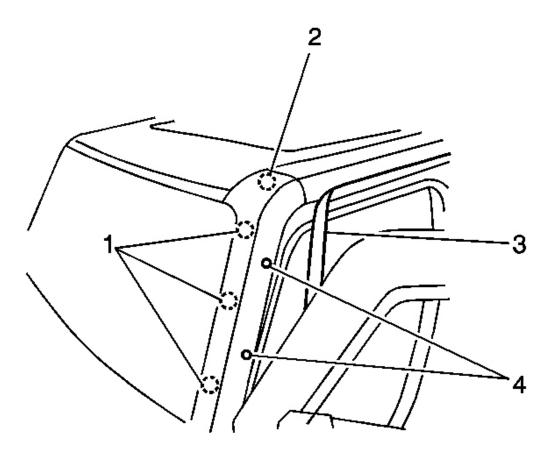
39. Secure each rivnut to the roof panel.



# **Fig. 116: Identifying Air Inlet Cover** Courtesy of GENERAL MOTORS CORP.

40. Remove the air inlet cover (1) on the driver side by gently pulling upward to release the clips.

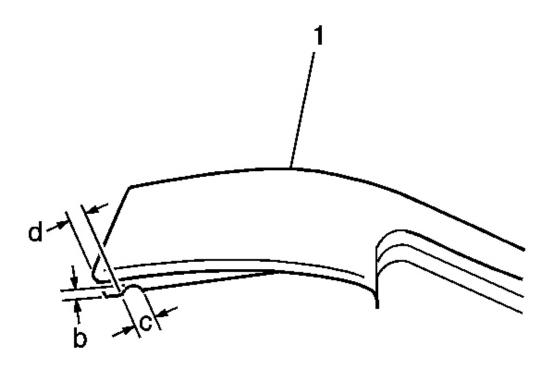
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# **Fig. 117: Removing/Installing A-pillar trim** Courtesy of GENERAL MOTORS CORP.

- 41. Open the driver door.
- 42. Remove the exterior trim on both driver and passenger A-pillars by first peeling back the weatherstrip (3) to expose 2 screws (4).
- 43. Using a phillips head screwdriver, remove the screws.
- 44. Pull the lower end of the A-pillar trim to unsnap the clips (1).
- 45. Disengage the A-pillar trim from the front end of the luggage rack/siderail (2) and remove.

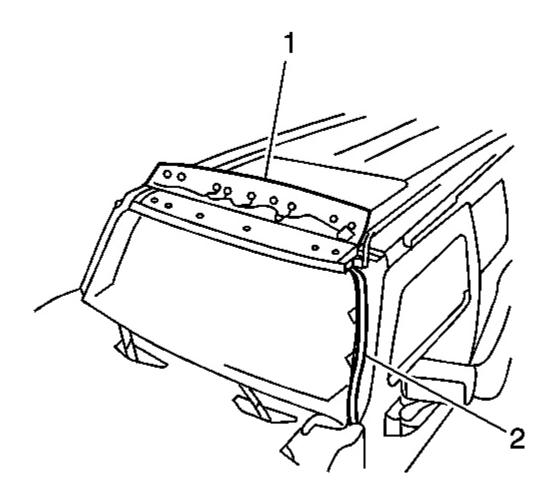
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# **Fig. 118: Clipping Notch In A-Pillar** Courtesy of GENERAL MOTORS CORP.

46. Using diagonal cutters, clip a notch (c) in the driver side A-pillar (1) trim as shown for the wire entry.

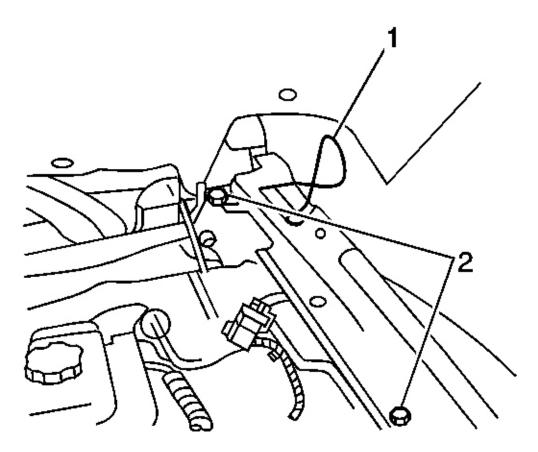
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# **Fig. 119: Locating Lightbar And Electrical Harness Assembly Courtesy of GENERAL MOTORS CORP.**

- 47. Place the lightbar (1) and electrical harness assembly (2) upside down on the roof.
- 48. Route the harness down the driver side A-pillar, placing it near the windshield glass interference to A-pillar and spot tape in 3 places.
- 49. Ensure the harness lies flat and does not interfere with the snap locations for the A-pillar trim.

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# **Fig. 120: Loosening 2 Screws At Fender Flange Courtesy of GENERAL MOTORS CORP.**

- 50. Loosen the 2 screws (2) at the fender flange under the air inlet cover to allow the electrical harness (1) to pass underneath.
- 51. Move the black foam out from under fender flange.
- 52. Route the harness under the fender flange.
- 53. Disconnect the relay, if necessary, to fit the harness through.
- 54. Reconnect the relay, if necessary.
- 55. Torque the fender flange attaching screws.

Tighten: Tighten the fender flange screws to 7 N.m (45 lb in).

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- 56. Reposition the black foam under fender flange.
- 57. Rotate the lightbar to the correct orientation on the roof.
- 58. Position the front edge of light bar approximately 3 mm (1/8 in) rearward from the front edge of the windshield reveal molding. Using the 6 fasteners provided and T25® Torx driver, install the lightbar to the roof.

# **IMPORTANT:** Ensure the wiring is not trapped beneath the fasteners.

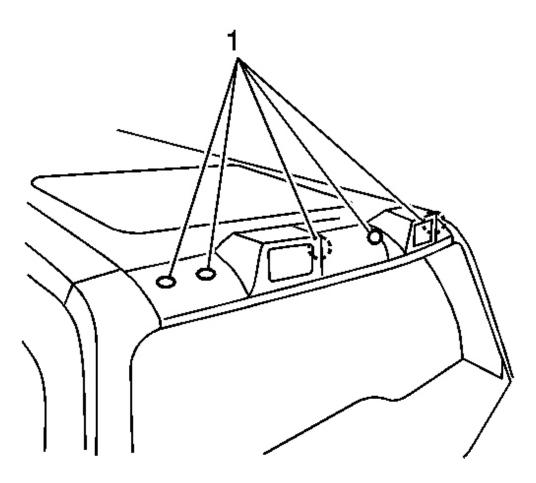
59. Secure the light bar to the roof.

Maintain a parallel gap to the windshield reveal molding and luggage rack side rails.

**Tighten:** Tighten the fasteners to 4.5 N.m (30 lb in).

60. Ensure the lightbar is centered between A-pillars and adjust if necessary.

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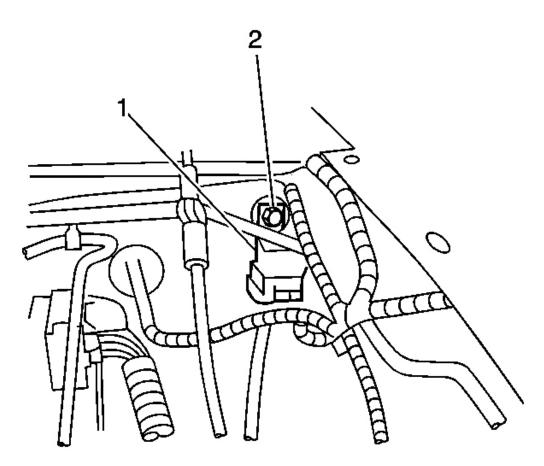
# **Fig. 121: Identifying Fastener Covers** Courtesy of GENERAL MOTORS CORP.

- 61. Install the 6 fastener covers (1) by aligning the cover tab to the driver side and gently pressing in place.
- 62. Install the A-pillar trim by hooking the rear edge and pressing the clips into place.
- 63. Install the 2 screws behind the weatherstrip.

Tighten: Tighten the screws to 2 N.m (18 lb in).

64. Reposition the weatherstrip.

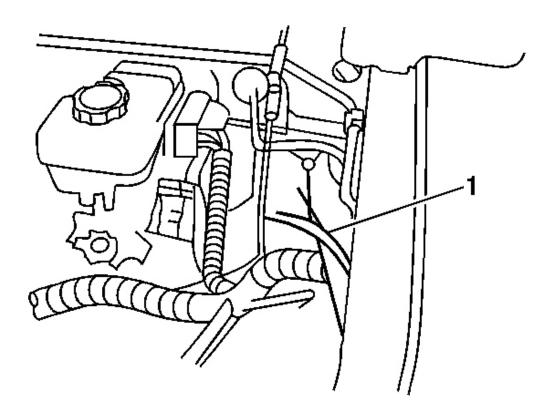
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# **Fig. 122: Identifying Relay Bracket & Bracket Stud** Courtesy of GENERAL MOTORS CORP.

- 65. In the engine compartment, locate the stud (2) on the driver side front of dash that holds the insulator mat in place.
- 66. Hang the relay bracket (1) on this stud and secure with a palnut, provided in the kit.

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# **Fig. 123: Locating 6 Blunt Wiring Cuts** Courtesy of GENERAL MOTORS CORP.

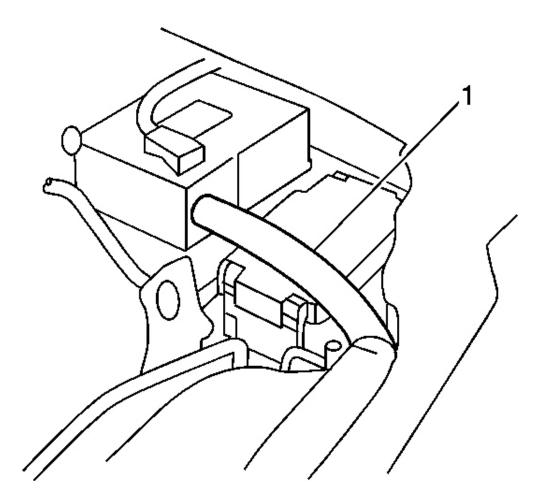
- 67. Locate the 6 blunt wiring cuts (1) in the engine compartment behind the driver side wheelhouse. The engine compartment blunt cuts have seals on them that must be removed prior to using the splice sleeve.
- 68. Carefully remove some of the seal on the appropriate wire using a wiring stripping tool.
- 69. Using the splice sleeve provided, splice the white-striped blunt black cut wire to the white wire in the electrical harness.
- 70. Replace the conduit over the splice and tape the wiring in position.
- 71. Splice the orange blunt cut to the orange harness wire using the splice sleeve provided.
- 72. Replace the conduit over the splice and tape into place.
- 73. Splice the black blunt cut wire from the vehicle to the black blunt cut wire in the harness using the splice sleeve provided.

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74. Replace the conduit over the splice and tape into place.

# IMPORTANT: There may be more than one blunt cut wire, all of them are ground wires.

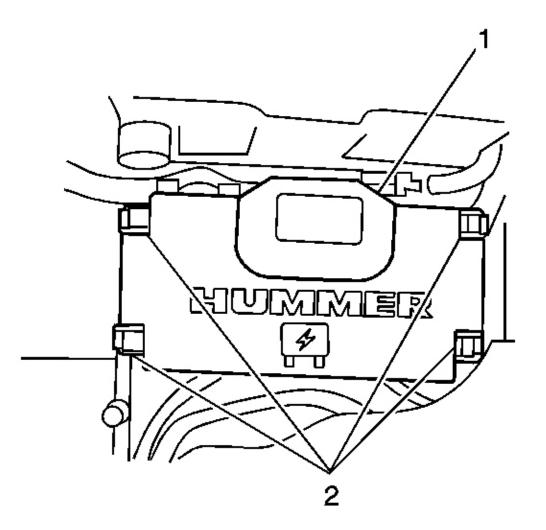
75. Check the voltage or resistance to confirm.



# **Fig. 124: Locating Battery Vent Tube** Courtesy of GENERAL MOTORS CORP.

76. Remove the battery vent tube (1) in order to access the bussed electrical center (BEC).

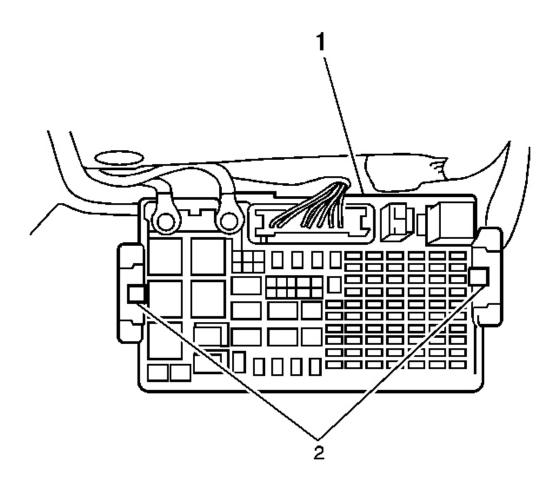
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# **Fig. 125: View Of BEC Cover Courtesy of GENERAL MOTORS CORP.**

77. Release the BEC cover (1) by depressing the locks (2) on both sides of cover simultaneously.

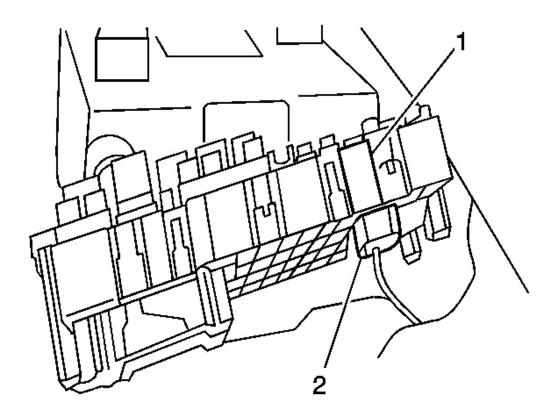
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# **Fig. 126: Identifying BEC Release Tabs** Courtesy of GENERAL MOTORS CORP.

- 78. Press the release the tabs (2) on the right and left sides.
- 79. Pull up on the BEC (1) using both hands.

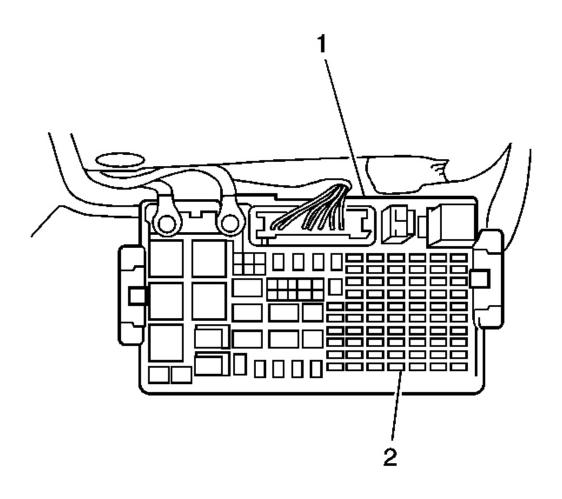
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# **Fig. 127: View Of BEC 8-Way Electrical Connector Courtesy of GENERAL MOTORS CORP.**

- 80. Locate the red harness wire that has a connector hanging from it.
- 81. Plug the 8-way electrical connector (2) into the bottom of BEC (1) as shown.
- 82. Reassemble the BEC by ensuring the 2 47-way connectors are in the upright and locked position. Ensure the locking fingers are engaged under the mating lock lug.
- 83. Press downward and listen for an audible snap.

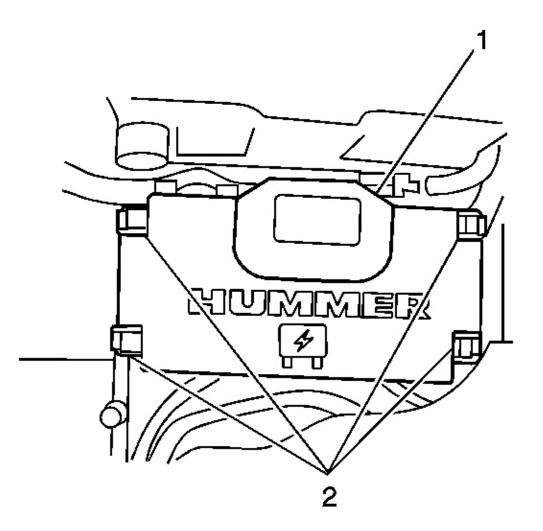
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# **Fig. 128: Identifying 20A Fuse Location Courtesy of GENERAL MOTORS CORP.**

84. Install the 20A fuse into location 4, callout (2), per the diagram inside of the BEC cover.

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# **Fig. 129: View Of BEC Cover Courtesy of GENERAL MOTORS CORP.**

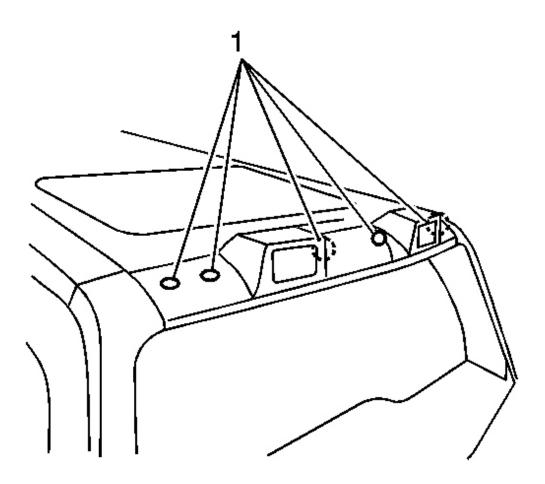
- 85. Position the cover (1) over the 4 lock tabs (2). Ensure the appropriate wire routing to avoid trapping wires.
- 86. Press the cover downward and listen for an audible snap.
- 87. Install the battery vent tube.
- 88. Connect the negative battery cable. Refer to <u>Battery Negative Cable Disconnection and</u> <u>Connection</u>.
- 89. Remove the lamp covers.

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- 90. Press the lamp switch and verify the lamps are working.
- 91. Adjust the lamps, if needed. Refer to Off Road Lamp Adjustment.
- 92. Place the vehicle in park transmission position.
- 93. Disengage the park brake.

#### OFF ROAD LAMP BULB REPLACEMENT

**Removal Procedure** 



**Fig. 130: Identifying Fastener Covers** Courtesy of GENERAL MOTORS CORP.

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- 1. Remove the 6 fastener covers by inserting a flat-bladed tool into the slot on the passengers side of each cover and gently lifting upward.
- 2. Using a T25 Torx driver, loosen the six bolts (1) under the fastener covers.
- 3. Rotate the lightbar rearward so that the light bar is laying upside down on the roof.
- 4. Remove the bulb socket from the lamp assembly by rotating 1/4 turn counterclockwise.
- 5. Pull the bulb outward from the lamp socket.
- 6. Replace the bulb.

## Installation Procedure

- 1. Install the bulb socket into the lamp assembly by rotating 1/4 turn clockwise.
- 2. Rotate the light bar to the correct orientation.

# NOTE: Refer to Fastener Notice .

3. Install the fasteners.

Tighten: Tighten the fasteners to 4.5 N.m (30 lb in).

4. Install the 6 fastener covers by aligning the tab to the drivers side and gently pressing inward into place.

# OFF ROAD LAMP ADJUSTMENT

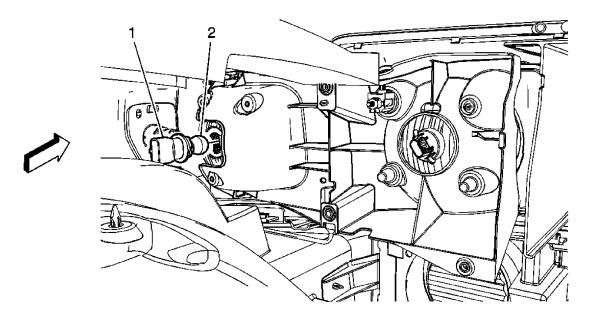
## Adjustment Procedure

- 1. Insert the flat, angled end of the adjustment wrench into the depressions on the outboard edges of the covers.
- 2. Gently press forward to pry the covers off.
- 3. With the covers off and the roof lamps off, insert a 10 mm hex wrench between the outboard edge of the lamp and housing onto the adjustment screw.
- 4. Loosen the adjustment screw.
- 5. Rotate the lamp up or down to the desired position.
- 6. Tighten the adjustment screw.
- 7. Inspect the backside of the cover for RH or LH designation molded into the plastic. the RH cover goes on the passenger side and the LH goes on the driver side.
- 8. Slide the end with the long hook and O-ring into the lamp housing on the inboard side of the lamp.

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9. Press the end with the two short tabs into the outboard side until you hear an audible snap.

## DAYTIME RUNNING LAMP BULB REPLACEMENT



# **Fig. 131: Daytime Running Lamp Bulb Replacement** Courtesy of GENERAL MOTORS CORP.

# **Daytime Running Lamp Bulb Replacement**

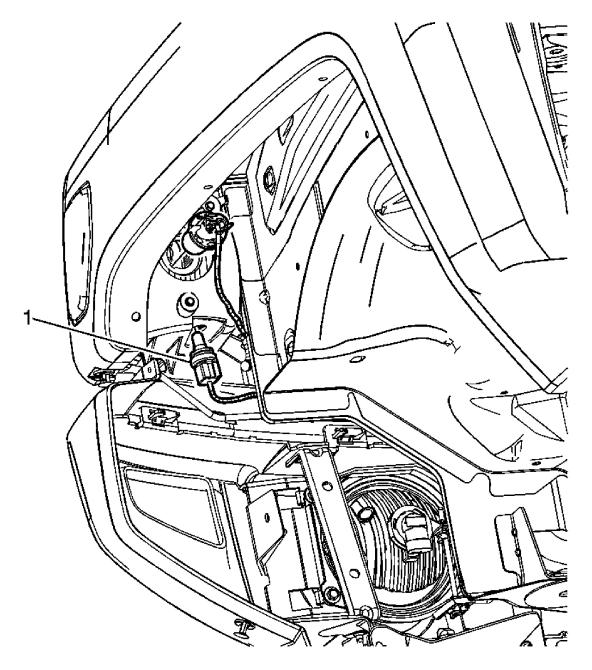
Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
Preliminary F	Procedure

- 1. Remove either the RH or LH front wheelhouse panel. Refer to <u>Wheelhouse Panel</u> <u>Replacement (Front)</u> or <u>Wheelhouse Panel Replacement (Rear)</u>.
- 2. Disconnect the electrical connector to the daytime running lamp (DRL) bulb socket.

	Daytime Running Lamp Bulb Socket <b>Tip:</b> Twist the lamp socket counterclockwise to remove.
2	Daytime Running Bulb

## POSITION LAMP BULB REPLACEMENT

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# **Fig. 132: Identifying Position Lamp Bulb** Courtesy of GENERAL MOTORS CORP.

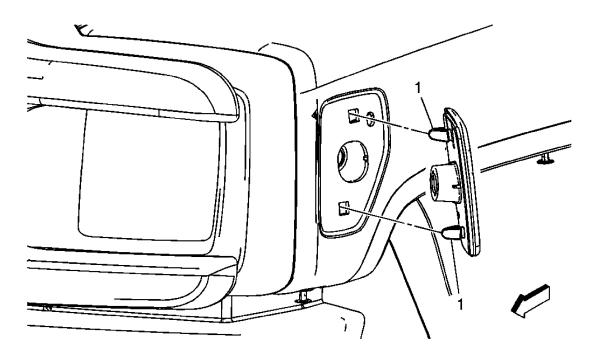
# **Position Lamp Bulb Replacement**

I obtition Lum	build Replacement
Callout	Component Name
Preliminary Procedure:	
Remove either the RH or LH front wheelhouse panel. Refer to Wheelhouse Panel	
Replacement (Front) or Wheelhouse Panel Replacement (Rear) .	

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	Front Position Lamp Bulb <b>Tip:</b>
1	1. Twist the lamp socket counterclockwise to remove from the lamp assembly.
	2. Remove the bulb from the lamp socket.

#### FRONT SIDE MARKER LAMP REPLACEMENT (BASE)



## **Fig. 133: Marker Lamp Replacement - Front Side** Courtesy of GENERAL MOTORS CORP.

## Front Side Marker Lamp Replacement (Base)

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	

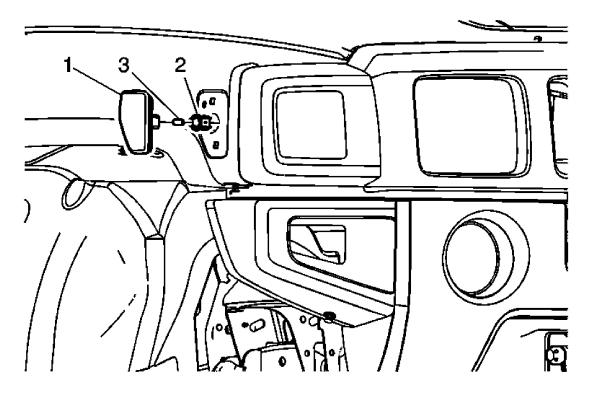
# **Preliminary Procedure**

- 1. Remove either the RH or LH wheelhouse panel. Refer to <u>Wheelhouse Panel</u> <u>Replacement (Front)</u> or <u>Wheelhouse Panel Replacement (Rear)</u>.
- 2. Disconnect the electrical socket from the front marker lamp, twist counterclockwise to remove.

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Lamp Assembly, Front Side Marker (Qty: 2)
 **Tip:** Pinch the clips and push the marker lamp outboard from the wheel opening flare.

## FRONT SIDE MARKER LAMP REPLACEMENT (WITH BRM AND RHD)



# **Fig. 134: Replacing Front Side Marker Lam** Courtesy of GENERAL MOTORS CORP.

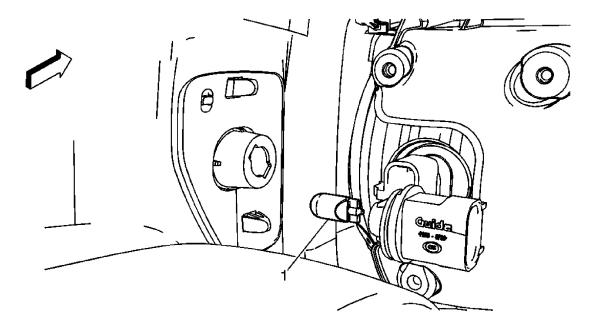
# Front Side Marker Lamp Replacement (with BRM and RHD)

Callout	Component Name	
Preliminary Procedure		
·		
1. Remove	either the RH or LH wheelhouse panel. Refer to Wheelhouse Panel	
<b>Replace</b>	ment (Front) or Wheelhouse Panel Replacement (Rear) .	
2. Disconne	ect the electrical socket from the front indicator lamp.	
	Front Side Indicator Lamp Assembly	
1	<b>Tip:</b> Pinch the clips and push the marker lamp outboard from the wheel	
	opening flare.	
2	Indicator Lamp Socket	

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# 3 Indicator Lamp Bulb **Tip:** Replace the bulb as needed.

### FRONT SIDE MARKER LAMP BULB REPLACEMENT



# **Fig. 135: Marker Lamp Replacement - Front Side** Courtesy of GENERAL MOTORS CORP.

## Front Side Marker Lamp Bulb Replacement

Callout

**Component Name** 

Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

# **Preliminary Procedures**

- 1. Remove the front wheelhouse panel. Refer <u>Wheelhouse Panel Replacement (Front)</u> or <u>Wheelhouse Panel Replacement (Rear)</u>.
- 2. Remove the electrical socket by twisting counterclockwise.
  - Bulb, Front Marker Lamp (Qty: 1)

## **ROOF MARKER LAMP PACKAGE INSTALLATION**

#### **Installation Procedure**

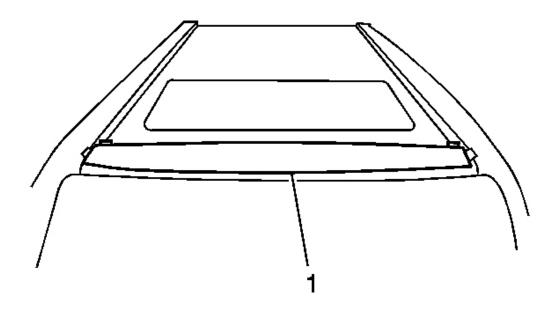
1

1. Follow the Wiring Systems sub-section for splicing wires using splice sleeves. Refer to

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# **Splicing Copper Wire Using Splice Sleeves** .

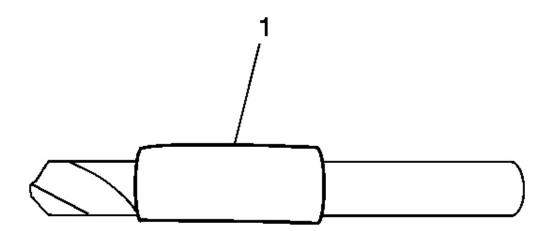
- 2. Remove the ground terminal of the battery. Refer to <u>Battery Negative Cable</u> <u>Disconnection and Connection</u>.
- 3. Ensure the vehicle is in the park position.
- 4. Apply park brake.



# **Fig. 136: View Of Centering Template** Courtesy of GENERAL MOTORS CORP.

- 5. Center the template provided (1) on the roof between the two A-pillars. Position the template so that the front edge rests against the rear edge of the windshield reveal molding and tape in place.
- 6. Mark the 6 hole locations with a trip punch or center punch.

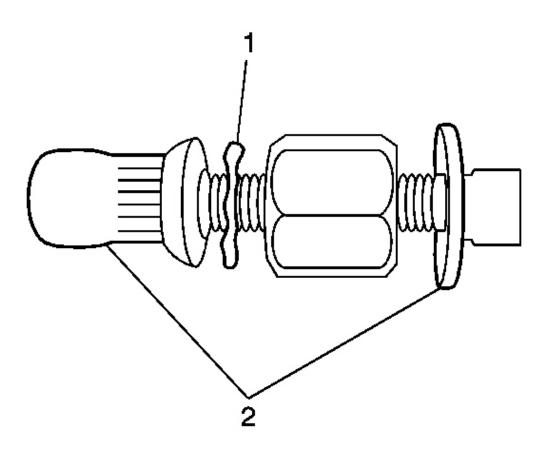
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# **Fig. 137: View Of Tape Wrapped Drill Bit** Courtesy of GENERAL MOTORS CORP.

- 7. Before drilling, add several wraps of tape (1) around end of drill bit to prevent the drill bit from penetrating through the roof into the headliner.
- 8. Drill pilot holes with 2 mm (3/32 in) drill bit.
- 9. Expand the holes with 6 mm (1/4 in) drill bit.
- 10. Drill 9 mm holes in the 6 hole locations using the bit supplied within the kit.
- 11. Clear all the metal shavings from around the holes with a magnet or vacuum.
- 12. Apply GM Super Lube with PTFE, GM P/N 12371287, to the lower half of the rivnut and between the washer and hex body of rivnut tool prior to inserting the rivnut into the hole.

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# **Fig. 138: Identifying Rivnut Tool** Courtesy of GENERAL MOTORS CORP.

13. Ensure that the Star washer (1) is positioned on top of the rivnut tool (2).

# NOTE: Refer to <u>Fastener Notice</u>.

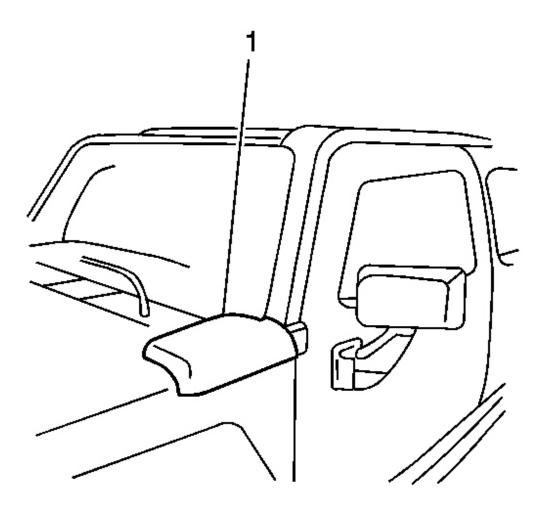
# **IMPORTANT:** Do not overtighten the rivnuts.

14. Using a 5/16 inch box wrench in conjunction with a 1/2 inch open end wrench, secure the rivnuts to the roof panel.

Tighten: Tighten the rivnuts to 7 N.m (45 lb in).

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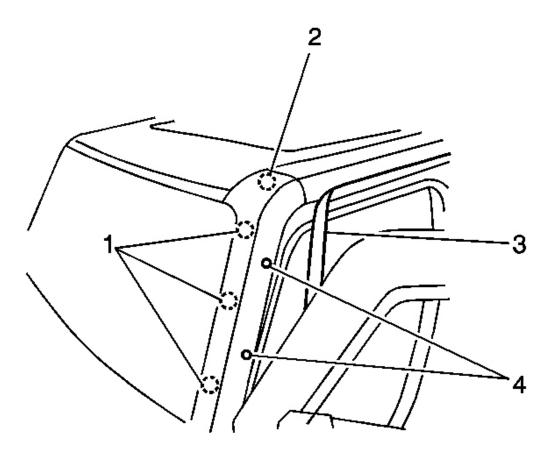
15. Secure each rivnut to the roof panel.



# **Fig. 139: Identifying Air Inlet Cover** Courtesy of GENERAL MOTORS CORP.

16. Remove the air inlet covers (1) on both driver and passenger sides by gently pulling upward to release the clips.

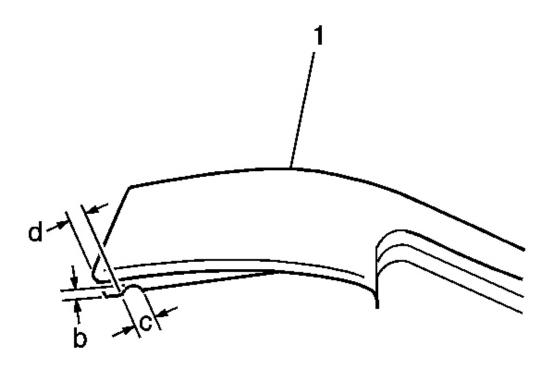
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# **Fig. 140: Removing/Installing A-pillar trim** Courtesy of GENERAL MOTORS CORP.

- 17. Open both front doors.
- 18. Remove the exterior trim on both driver and passenger A-pillars by first peeling back the weatherstrip (3) to expose 2 screws (4).
- 19. Using a Phillips head screwdriver, remove the screws.
- 20. Pull the lower end of the A-pillar trim to unsnap the clips (1).
- 21. Disengage the A-pillar trim from the front end of the luggage rack/siderail (2) and remove.

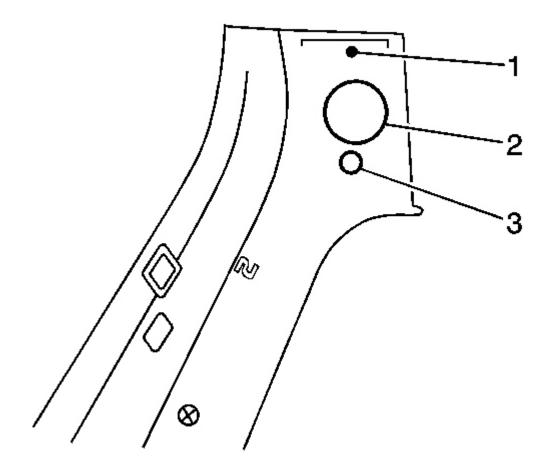
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# **Fig. 141: Clipping Notch In A-Pillar** Courtesy of GENERAL MOTORS CORP.

22. Using diagonal cutters, clip a notch (c) in both A-pillars (1) as shown for the wire pass through.

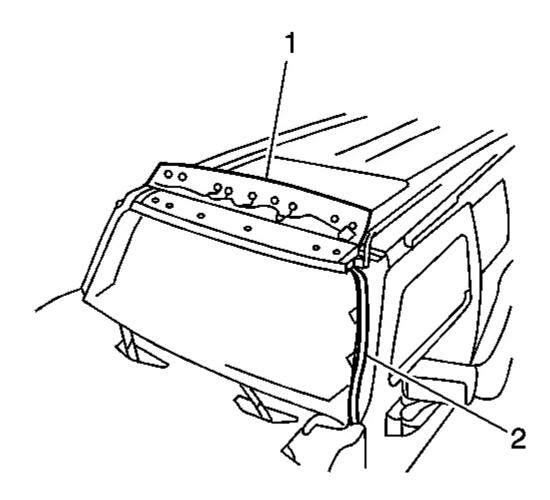
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# **Fig. 142: Drilling 3 Holes** Courtesy of GENERAL MOTORS CORP.

- 23. Drill 3 holes in both A-pillar trim pieces for clearance lamp installation. On the backside of the A-pillar trim, locate the 3 circles and center points which are molded into the trim.
- 24. Using a 2 mm drill bit, pre-drill (1) all 3 holes.
- 25. Using a 2 inch holesaw, drill the middle hole (2).
- 26. Using a 1/2 inch drillbit, drill the forward hole (3).

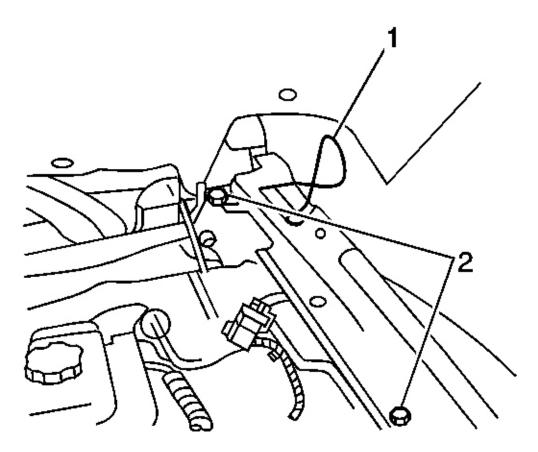
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## **Fig. 143: Locating Lightbar And Electrical Harness Assembly Courtesy of GENERAL MOTORS CORP.**

- 27. Place the lightbar (1) and electrical harness assembly (2) upside down on the roof.
- 28. Route the harness down the driver side A-pillar, placing it near the windshield glass interference to A-pillar and spot tape in 3 places.
- 29. Ensure the harness lies flat and does not interfere with snap locations for A-pillar trim.

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## **Fig. 144: Loosening 2 Screws At Fender Flange Courtesy of GENERAL MOTORS CORP.**

- 30. Loosen the 2 screws (2) at the fender flange under the air inlet cover to allow the electrical harness (1) to pass underneath.
- 31. Move the black foam out of the way.
- 32. Tighten the fender flange attaching screws.

**Tighten:** Tighten the fender flange screws to 7 N.m (45 lb in).

- 33. Reposition the black foam under fender flange.
- 34. Rotate the lightbar to the correct orientation.
- 35. Position the front edge of light bar approximately 3 mm (1/8 in) rearward from the front

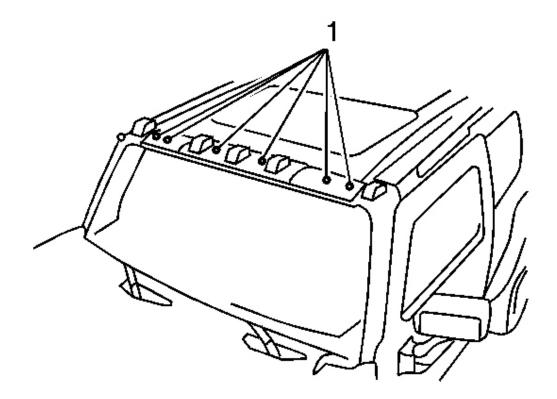
edge of the windshield reveal molding. Using the 6 fasteners provided and T25 $\mbox{\ensuremath{\mathbb R}}$  Torx driver, install the lightbar to the roof.

# **IMPORTANT:** Ensure the wiring is not trapped beneath the fasteners.

36. Maintain a parallel gap to the windshield reveal molding and luggage rack side rails.

**Tighten:** Tighten the fasteners to 4.5 N.m (30 lb in).

37. Ensure the lightbar is centered between A-pillars, adjust if necessary.



# **Fig. 145: Identifying Fastener Covers** Courtesy of GENERAL MOTORS CORP.

38. Install the 6 fastener covers (1) by aligning the cover's tab to the driver's side and gently pressing in place.

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- 39. Mount the clearance lamps to A-pillars by sliding hook at front edge into 1/2 inch hole. Secure the rear edge with T20® torx driver and screw provided.
- 40. Ensure left hand lamp is on the driver side A-pillar and right hand lamp is on the passenger side A-pillar.
- 41. Plug in the bulb and socket on clearance lamps by pressing the socket in and turning 1/4 turn clockwise.
- 42. Reinstall the A-pillar trim on both driver and passenger sides by hooking rear edge under tab at luggage rack siderail and pressing the clips into place.
- 43. Install the 2 screws behind the weatherstrip.

**Tighten:** Tighten the screws to 2 N.m(18 lb in).

44. Reposition the weatherstrip.

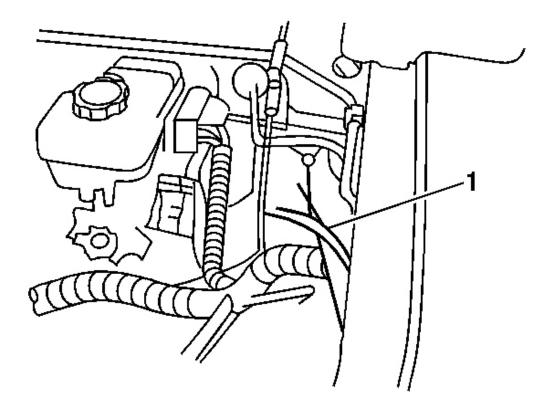
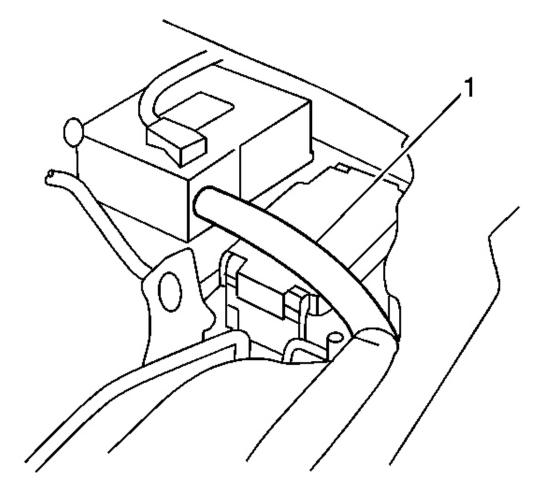


Fig. 146: Locating 6 Blunt Wiring Cuts

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# **Courtesy of GENERAL MOTORS CORP.**

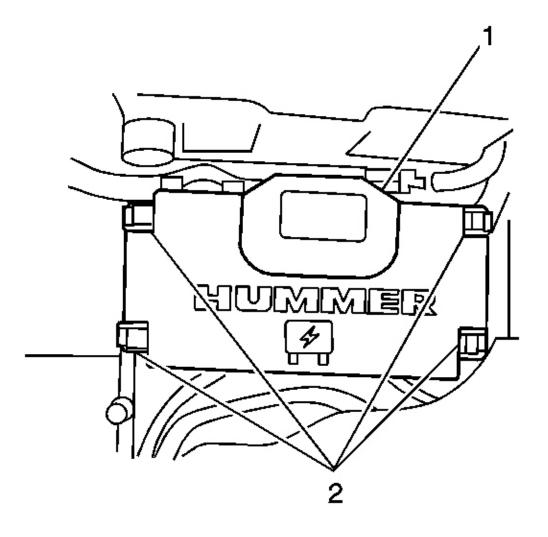
- 45. Locate the 6 blunt wiring cuts (1) in the engine compartment behind the driver's side wheelhouse. The engine compartment blunt cuts have seals on them that must be removed prior to using the splice sleeve.
- 46. Carefully remove some of the seal on the appropriate wire using a wiring stripping tool.
- 47. Using the splice sleeve provided, splice the blunt black cut wire to the black wire in the electrical harness.
- 48. Replace the conduit over the splice and tape the wiring in position.



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## **Courtesy of GENERAL MOTORS CORP.**

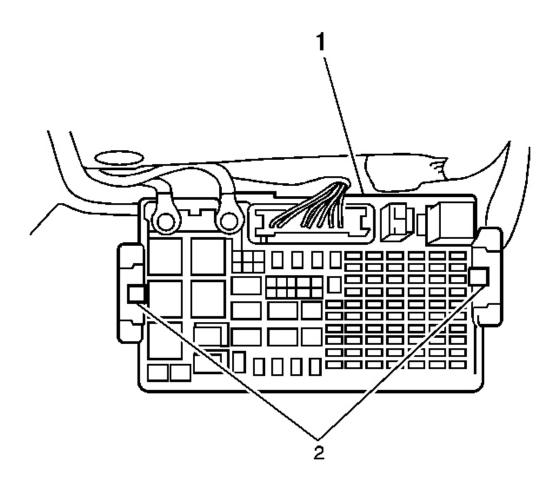
49. Remove the battery vent tube (1) in order to access the bussed electrical center (BEC).



# **Fig. 148: View Of BEC Cover Courtesy of GENERAL MOTORS CORP.**

50. Release the BEC cover (1) by depressing the locks (2) on both sides of cover simultaneously.

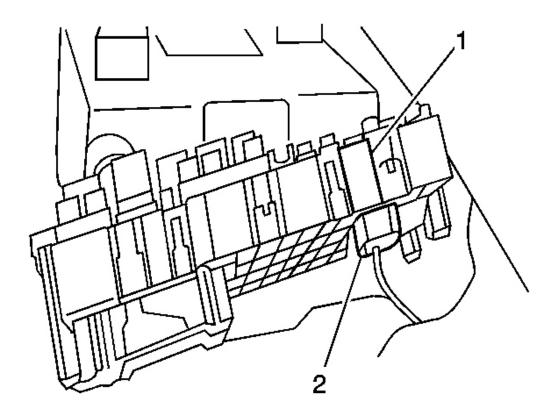
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# **Fig. 149: Identifying BEC Release Tabs** Courtesy of GENERAL MOTORS CORP.

- 51. Press the tabs (2) on the right and left sides.
- 52. Pull up on the BEC using both hands.

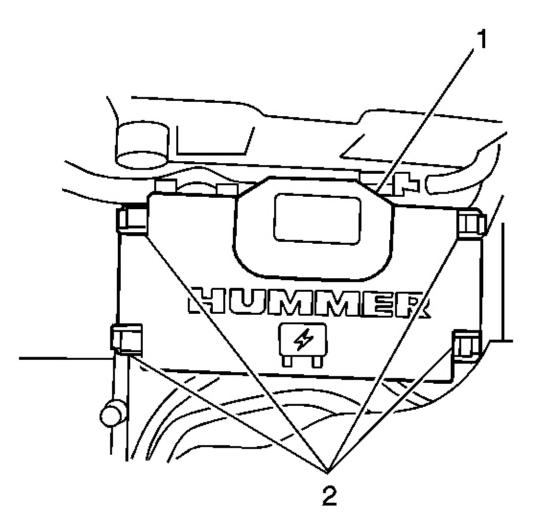
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# **Fig. 150: View Of BEC 8-Way Electrical Connector Courtesy of GENERAL MOTORS CORP.**

- 53. Locate the red harness wire with a connector at the end.
- 54. Plug the 8-way electrical connector (2) into the bottom of BEC (1) as shown.
- 55. Reassemble the BEC by ensuring the 2 47-way connectors are in the upright and locked position. Ensure the locking fingers are engaged under the mating lock lug.
- 56. Press downward and listen for an audible snap.

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# **Fig. 151: View Of BEC Cover Courtesy of GENERAL MOTORS CORP.**

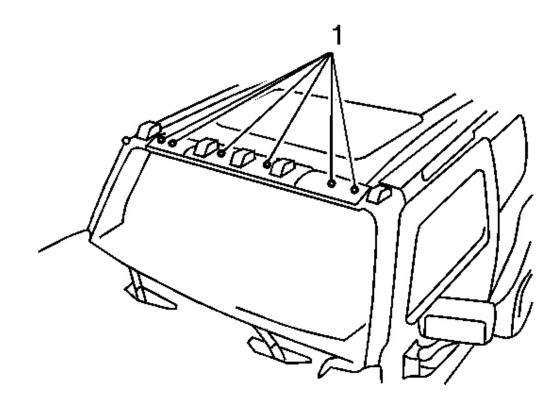
- 57. Position the cover (1) over the 4 lock tabs (2). Ensure the appropriate wire routing to avoid trapping wires.
- 58. Press down and listen for an audible snap.
- 59. Install the negative battery cable. Refer to <u>Battery Negative Cable Disconnection and</u> <u>Connection</u>.
- 60. Verify the marker lamps come on with the other exterior lamps.
- 61. Place the vehicle in park transmission position.

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62. Disengage the park brake.

### **ROOF IDENTIFICATION LAMP BULB REPLACEMENT**

**Removal Procedure** 



# **Fig. 152: Locating Fastener Covers Courtesy of GENERAL MOTORS CORP.**

- 1. Remove the 6 fastener covers (1) by inserting a flat-head screwdriver into the slot on the passenger's side of each cover and gently lifting upward.
- 2. Using a T25® torx driver, loosen the 6 bolts under the fastener covers.
- 3. Rotate lightbar back so that lightbar is laying upside down on roof. Remove the bulb socket from lamp assembly by rotating the bulb socket 1/4 turn counterclockwise.
- 4. Pull the bulb out of the socket.
- 5. Replace bulb.

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#### **Installation Procedure**

1. Install the bulb socket into the lamp assembly by rotating the bulb socket 1/4 turn clockwise.

# NOTE: Refer to Fastener Notice .

2. Rotate lightbar to correct orientation and install the bolts using the T25 torx driver.

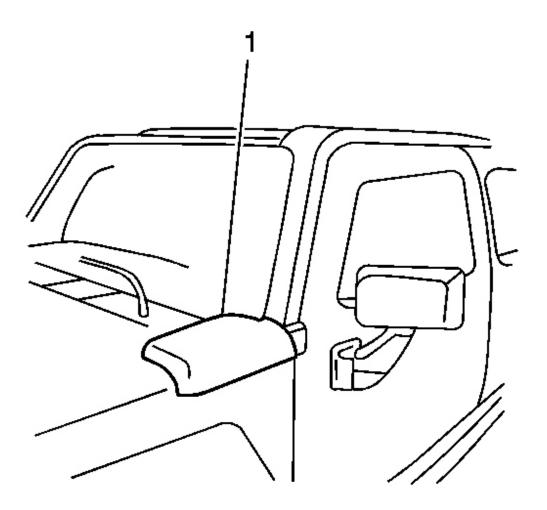
**Tighten:** 4.5 N.m (30 lb in).

3. Install the 6 fastener covers by aligning the tab to driver's side and gently pressing in place.

#### **ROOF CLEARANCE LAMP BULB REPLACEMENT**

**Removal Procedure** 

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# **Fig. 153: Identifying Air Inlet Cover Courtesy of GENERAL MOTORS CORP.**

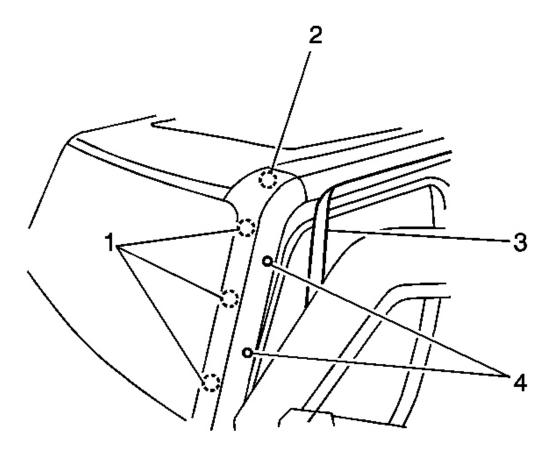
- 1. Remove the air inlet cover (1) by pulling up to release the clips.
- 2. Open the front doors.
- 3. Remove A-pillar trim by first peeling back the weatherstrip to expose the 2 screws.
- 4. Use a Phillips head screwdriver, to remove the screws.
- 5. Pull up on the lower end of the A-pillar trim to unsnap the clips (1).
- 6. Unhook the A-pillars from the front end of the luggage rack/siderail.
- 7. Remove bulb socket from the lamp assembly by rotating 1/4 turn counterclockwise.

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- 8. Pull the bulb out of the socket.
- 9. Replace the bulb.

## **Installation Procedure**

1. Install the lamp socket into the lamp assembly by rotating the lamp socket 1/4 turn clockwise.



# **Fig. 154: Removing/Installing A-pillar trim** Courtesy of GENERAL MOTORS CORP.

2. Install the A-pillar trim by hooking the rear edge under the tab (2) at the luggage rack/siderail and pressing the clips (1) into place.

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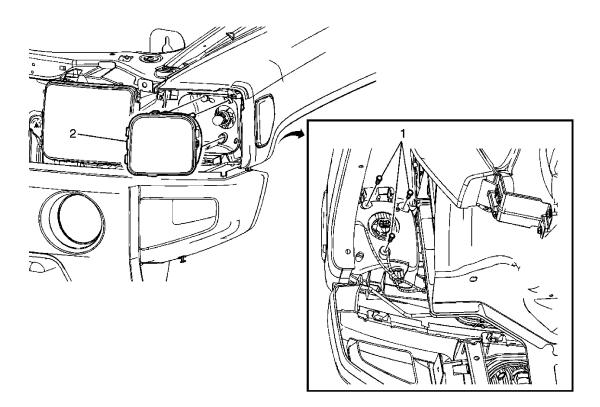
# NOTE: Refer to Fastener Notice .

3. Install the 2 screws (4) behind weatherstrip.

**Tighten:** Tighten the screws to 2 N.m (18 lb in).

4. Reposition the weatherstrip (3).

PARKING AND TURN SIGNAL LAMP REPLACEMENT



# Fig. 155: Replacing Parking and Turn Signal Lamp Courtesy of GENERAL MOTORS CORP.

## Parking and Turn Signal Lamp Replacement

Callout Component Name

# **Preliminary Procedure**

- 1. Remove either the RH or LH front wheelhouse panel. Refer to <u>Wheelhouse Panel</u> <u>Replacement (Front)</u> or <u>Wheelhouse Panel Replacement (Rear)</u>.
- 2. Remove the front grille. Refer to Grille Replacement.

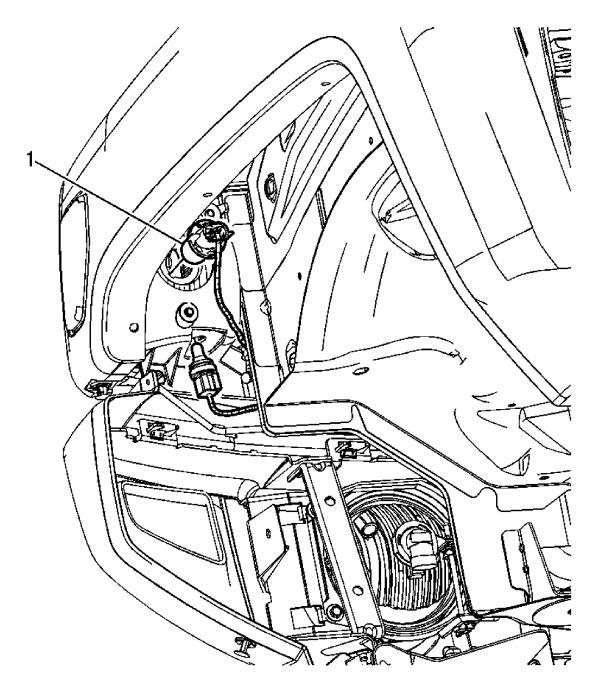
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3. Disconnect the electrical connector from the daytime running lamp (DRL) bulb socket.

	1
	Park and Turn Signal Lamp Bolt (Qty: 3)
	NOTE:
	Refer to Fastener Notice .
1	Tighten: 5 N.m (44 lb in)
	<b>Tip:</b> Support the lamp assembly when removing the bolts.
	Park and Turn Signal Lamp Assembly
	Tip:
2	
2	1. Remove the bulb sockets from the park and turn signal lamp assembly.
	2. Remove the park and turn signal lamp assembly by sliding forward.

## PARK/TURN SIGNAL LAMP BULB REPLACEMENT

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**Fig. 156: Replacing Park/Turn Signal Lamp Bulb** Courtesy of GENERAL MOTORS CORP.

# Park/Turn Signal Lamp Bulb Replacement

t |

**Component Name** 

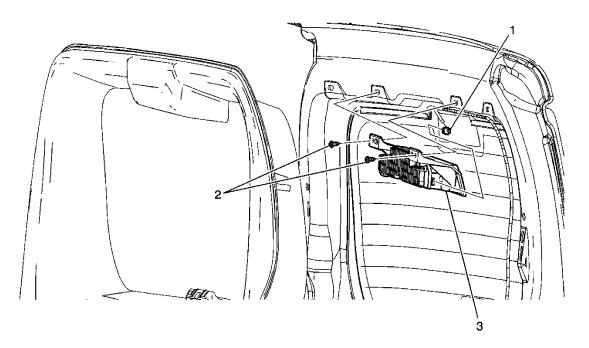
# **Preliminary Procedure:**

Remove either the RH or LH front wheelhouse panel. Refer to Wheelhouse Panel

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Replacement (Front) or Wheelhouse Panel Replacement (Rear) .	
	Park and Turn Signal Lamp Bulb
	Tip:
1	1. Twist the lamp socket counterclockwise to remove from the lamp assembly.
	2. Remove the bulb from the lamp socket.

## HIGH MOUNT STOP LAMP REPLACEMENT



# **Fig. 157: High Mounted Stop Lamp Replacement Courtesy of GENERAL MOTORS CORP.**

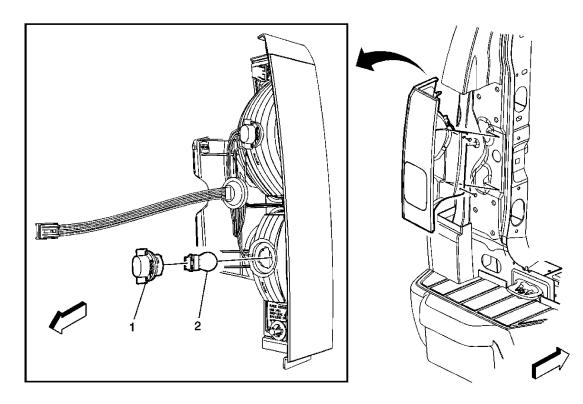
# **High Mount Stop Lamp Replacement**

Callout	Component Name
NOTE:	
Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to Fastener Tightening	
<b>Specifications</b> . <b>Preliminary Procedure:</b> Remove the endgate upper interior trim panel.	
Refer to Endgate Trim Panel Replacement.	
1	Connector, Electrical Harness (Qty: 1)

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2	Bolts, High Mounted Stop Lamp (Qty: 2)
_	Tighten: 2 N.m (18 lb in)
3	Lamp Assembly - High Mounted Stop (LED) (Qty: 1)

#### BACKUP LAMP BULB REPLACEMENT



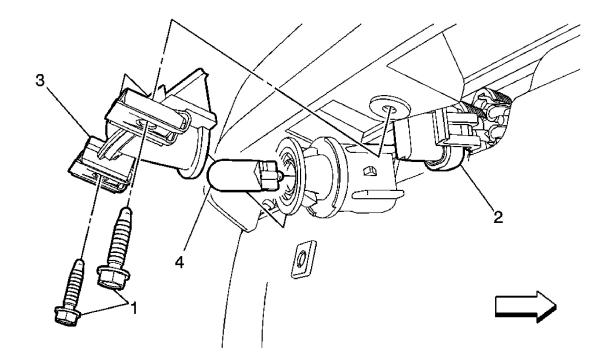
# **Fig. 158: Replacing Backup Lamp Bulb** Courtesy of GENERAL MOTORS CORP.

# **Backup Lamp Bulb Replacement**

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
Preliminary Procedure:	
Remove either the LR or RR tail lamp assembly. Refer to <b>Tail Lamp Replacement</b> .	
1	Back Up Lamp Bulb Socket
	<b>Tip:</b> Turn the lamp socket counter-clockwise a quarter turn to remove from
	the tail lamp.
2	Back Up Lamp Bulb
	<b>Tip:</b> Pull the bulb straight from the lamp socket.

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## **REAR LICENSE LAMP REPLACEMENT (BASE)**



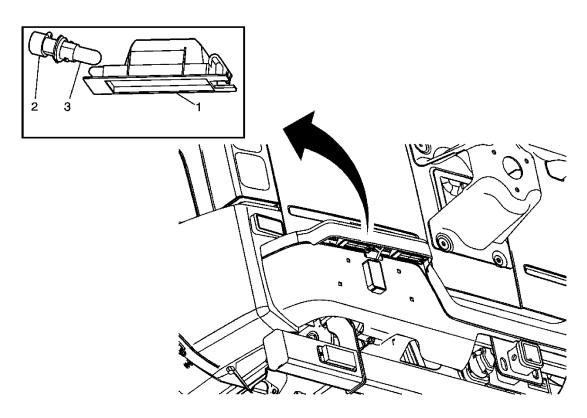
# **Fig. 159: License Lamp Replacement** Courtesy of GENERAL MOTORS CORP.

## **Rear License Lamp Replacement (Base)**

Callout	Component Name
NOTE:	
Refer to Fastener Notice.	
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
	Screws, License Plate Lamp (Qty: 2)
1	Tighten: 2 N.m (18 lb in)
2	Connector, License Plate Lamp Assembly (Qty: 1)
	Tip: Pull electrical harness slightly rearward to disconnect from socket.
3	Lamp Assembly - Rear License Plate (Qty: 1)
	Tip: Hold socket and rotate lens counterclockwise to remove from socket.
4	Bulb, Rear License Plate Lamp (Qty: 1)
	Tip: Hold socket and pull bulb straight outward.

#### REAR LICENSE LAMP REPLACEMENT (WITH BRM AND RHD)

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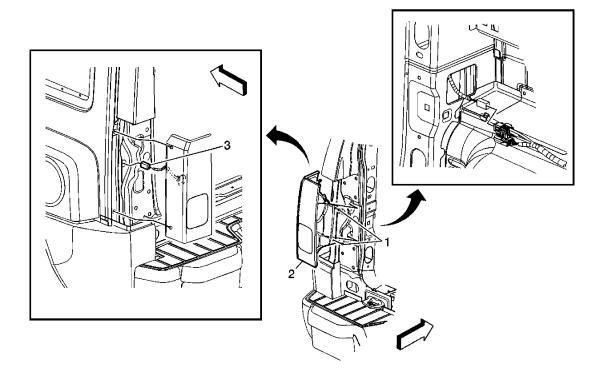
# **Fig. 160: Replacing Rear License Lamp** Courtesy of GENERAL MOTORS CORP.

# **Rear License Lamp Replacement (with BRM and RHD)**

Callout	Component Name
	Rear License Plate Lamp Assembly
1	<b>Tip:</b> Depress the very small lamp tabs inboard towards the outboard side of
	the vehicle in order to release the lamps from the impact bar bumper cover.
	License Plate Lamp Socket
2	Tip: Twist the lamp socket electrical connector counter-clockwise and
	remove from the lens housing.
3	License Plate Lamp Bulb

#### TAIL LAMP REPLACEMENT

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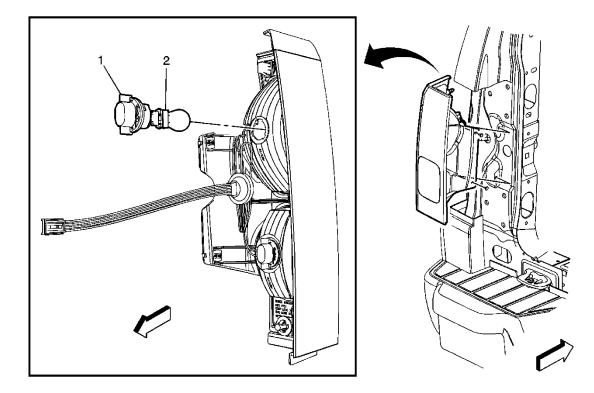
# **Fig. 161: Tail Lamp Assembly Replacement Courtesy of GENERAL MOTORS CORP.**

## **Tail Lamp Replacement**

Callout	Component Name
NOTE:	
Refer to Fastener	Notice .
0	tening Specifications: Refer to <u>Fastener Tightening</u> Preliminary Procedure: Open the endgate in order to access the left rear
taillamp assemb	• • •
	Screws, Tail Lamp Housing (Qty: 2)
	Tip: Pull lamp housing outward in order to release the exterior side pin
1	retainers.
	Tighten: 3 N.m (26 lb in)
	Lamp Assembly, Tail
2	Tip: Disconnect the bulb sockets from the lamp housing by rotating
	counterclockwise.
3	Connector, Tail Lamp Electrical

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## TAIL LAMP BULB REPLACEMENT



# **Fig. 162: Replacing Tail Lamp Bulb** Courtesy of GENERAL MOTORS CORP.

# Tail Lamp Bulb Replacement

Callout	Component Name	
<b>Fastener Tig</b>	Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
Preliminary Procedure:		
Remove eithe	Remove either the LR or RR tail lamp assembly. Refer to <b>Tail Lamp Replacement</b> .	
1	Directional Lamp Bulb Socket	
	Tip: Turn the lamp socket counter-clockwise a quarter turn to remove from	
	the tail lamp.	
	Directional Lamp Bulb	
	Tip: Pull the bulb straight from the lamp socket.	

# **DESCRIPTION AND OPERATION**

#### EXTERIOR LIGHTING SYSTEMS DESCRIPTION AND OPERATION

**Exterior Lamps** 

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The exterior lighting system consists of the following lamps:

- The headlamps
- The daytime running lamps (DRL)
- The front fog lamps
- The park, tail and marker lamps
- The position lamps (export)
- The rear fog lamps (export)
- The turn signal lamps
- The stop lamps
- The backup lamps
- The clearance and identification Lamps
- The off road lamps

The door lock switch backlighting of the interior door lock switches are also supplied voltage by the courtesy lamp supply voltage circuit and will only operate while the park lamps are illuminated. This circuit is diagnosed as part of the exterior lamp lighting system.

## Headlamps

Major components of this system are the body control module (BCM), headlamp relay, beam select relay, ambient light sensor, headlamp and panel dimmer switch, turn signal/multifunction switch, park brake switch and the low and high beam headlamps.

The headlamps may be turned ON in 2 different ways. First, when the driver places the headlamp switch in the ON position, normal operation occurs. Second, when the headlamp switch is placed in the AUTO position, automatic lamp control (ALC) operation occurs. During ALC control, the headlamps will be OFF in daylight conditions or in low/high beam operation in low light conditions.

On the Global export vehicles, the headlamps will only operate when the engine is running and the gear selector is out of the PARK position.

The headlamp relay receives battery positive voltage directly from the battery. The BCM supplies a ground signal to the headlamp relay for normal headlight operation. The BCM also supplies voltage to the beam select relay coil for high beam headlight operation. When the driver places the headlamp switch in the ON position and the dimmer switch is in the low beam position, the headlamp relay supplies current flow through the left and right low beam headlamp fuses to both low and high beam headlamps. Both low beam headlights are grounded through the beam select

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relay. When activated, the dimmer switch sends a ground signal to the BCM in the high beam position and a momentary ground signal in the flash-to-pass (FTP) position from G106. The BCM then energizes the beam select relay which switches the headlamp grounds from the low beam headlight bulbs to the high beam headlight bulbs illuminating the high beam headlights. With the headlights in the low beam position, the high beams may be momentarily turned ON or flashed by activating the FTP portion of the switch.

The instrument panel cluster (IPC) illuminates the high beam indicator when the BCM detects that the high beams are requested. The IPC receives a class 2 message from the BCM requesting illumination.

The Headlamps On at Exit and Perimeter Lighting modes can be adjusted using the steering wheel controls to select the desired function as displayed in the driver information center (DIC). The Headlamps On at Exit selection will allow the driver to customize the period of time that the headlamps remain illuminated upon exiting the vehicle. This period can be adjusted from 0-180 seconds. The Perimeter Lighting feature allows the driver to select if they desire the headlamps and backup lamps to illuminate when the door UNLOCK button on the key fob is activated. This feature can be turned ON or OFF by using the DIC steering wheel control buttons.

#### Daytime Running Lamps (DRL)

The ambient light sensor is a light sensitive transistor that varies its voltage signal to the body control module (BCM) in response to changes to the outside (ambient) light level. When the BCM receives this signal, it will either turn ON the daytime running lamps (DRL) or the headlamps for auto headlamp operation. Any function or condition that turns ON the headlights will cancel the DRL operation. With the headlight switch in the AUTO position, the headlights will either be turned ON or OFF, after an approximate 8 second delay depending on whether daylight or low light conditions are sensed. When the ambient light sensor signals the BCM for DRL operation in daylight conditions, the BCM illuminates the low beam headlamps at a reduced intensity utilizing the DRL relay. The DRL will operate when the ignition switch is in the RUN position, the headlamp and panel dimmer switch is in the AUTO position, the gear selector is not in the PARK position and the parking brake is released. When these conditions have been met and the ambient light sensor indicates daytime conditions, the DRL will illuminate.

DRL operation can be temporarily disabled by momentarily placing the headlamp switch in the OFF position. This will cancel DRL operation until the switch is momentarily placed in the OFF position again or until the next ignition key cycle occurs. Canadian requirements prohibit disabling DRL operation therefore the Canadian export vehicles are not equipped with the DRL defeat feature. Global export vehicles are not equipped for DRL operation and therefore also do not have the DRL disable feature on the switch.

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#### Headlamp Leveling (Export)

The HD LMP LEVELING fuse in the underhood fuse block supplies battery positive voltage to the headlamp leveling switch and headlamp leveling motors. When the driver places the headlamp leveling switch in any position, a signal is sent to the headlamp leveling motors to adjust the headlight aiming to one of three positions. Ground for the headlamp leveling switch is provided by the BCM and G105 supplies ground to the headlamp leveling motors. When position III is selected on the headlamp leveling switch, the headlamps will automatically be illuminated.

#### Fog Lamps

With both the ignition switch in the RUN position and the park lamps or low beam head lamps ON, the fog lights will illuminate when the driver presses the fog lamp switch. The FOG LP fuse in the underhood fuse block supplies battery positive voltage to the fog lamps. With the headlamp switch is in either the park or headlamp position and the fog lamp switch is pressed, the body control module (BCM) will energize the fog lamp relay control circuit. The current flow is from the fog lamp relay to both front fog lamps and to ground G105. The state of the fog lamps, either ON or OFF, will remain the same until the fog lamp switch is pressed again or the ignition switch is cycled OFF and ON. Fog lamp operation will be cancelled whenever the park lamps are turned OFF or the high beam headlights have been selected.

The rear fog lamps (export) are located below the rear bumper fascia. The rear fog lamps have a dedicated relay and both the relay control and current flow operate the same as the front fog lamps. The RR FOG fuse in the underhood fuse block supplies voltage to the lamps and G420 supplies ground.

#### Park, Tail, Marker, License and Clearance Lamps

The park, tail, marker, license and clearance lamps are turned ON when the headlamp switch is placed in the PARK or ON position or anytime the headlights are requested. The underhood fuse block supplies battery positive voltage to both the park lamp relay switch contacts and the park lamp coil circuit. The body control module (BCM) provides a ground or control circuit to the park lamp relay coil circuit. When the park lamps are requested ON, the BCM energizes the park lamp relay. Current flow is from the park lamp relay to the individual park lamp circuit fuses and to their respective park, tail, marker, license and clearance lamps. The front park, marker, tail, license and clearance lamps are grounded at G105, G350, G340 and G420. If the driver places the headlight switch in the ON position after the ignition switch has been turned OFF, the park, tail, marker, license and clearance lamps will remain ON until turned OFF or the battery runs dead.

#### **Position Lamps (Export)**

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The front and rear position lamps are turned ON when the headlamp switch is placed in the position lamps position. The underhood fuse block supplies battery positive voltage to the position lamp relay switch contacts and the position lamp relay coil circuit. The body control module (BCM) provides a ground control circuit to the position lamp relay coil circuit. When the position lamps are requested ON, the BCM energizes the position lamps. The front position lamps are grounded at G105 and the rear position lamps are grounded at G420. If the headlamps are activated by either the headlamp switch or the BCM in Automatic Lamp Control (ALC) mode, just the front position lamps will be disabled. The rear position lamps remain illuminated and now act as the tail lamps.

## Turn Signal Lamps

The FRT/TRN/HAZ/CRTSY/MIRR and REAR/TRN/HAZ fuses in the underhood fuse block supplies battery positive voltage to the body control module (BCM). When the turn signal switch is placed in either the left or right position, a signal is sent to the BCM to illuminate the desired turn signal lamps. The BCM has an internal flasher that sends an ON-OFF voltage signal to either the left or right turn signals and their instrument panel cluster (IPC) indicator. When the hazard switch is pressed, a separate ground signal is sent to the BCM to activate and flash all turn signal lamps including both IPC turn indicators. The front and rear turn signals are grounded at G105, G350 and G340.

The IPC illuminates the TURN SIGNAL ON indicator in the driver information center (DIC) when the IPC determines that the turn signal is active for more than 1.2 km (0.75 mi). The BCM sends a class 2 message to the radio in order to activate the audible warning.

#### Stop Lamps

The STOP fuse in the underhood fuse block supplies battery positive voltage to the normally open stop lamp switch. When the driver presses the brake pedal, the switch contacts close and battery positive voltage is supplied to the body control module (BCM), electronic brake control module (EBCM), powertrain control module (PCM) and the center high mounted stop lamp (CHMSL) which is grounded at G350. The EBCM may also supply battery positive voltage to activate the stop lamps during specific ABS events.

## Backup Lamps

The BCK/UP LPS fuse in the underhood fuse block supplies battery positive voltage to the normally open park/neutral position (PNP) switch of a vehicle equipped with an automatic transmission or the backup lamp switch if equipped with a manual transmission. When the driver places the gear selector lever is in the REVERSE position, the switch closes and the current flow is from the switch to the backup lamps. The backup lamps are grounded at G350 and G340.

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#### **Off-Road Lamps**

The off-road lamps are available in several configurations with lights mounted on the roof and on the front brush guard. The lamps are controlled by a single, rocker type switch, located on the instrument panel. When the switch is closed, voltage is supplied to the relays on the off-road lamps relay control circuit. When the relays are energized, voltage is supplied to the off-road lamps.

## INTERIOR LIGHTING SYSTEMS DESCRIPTION AND OPERATION

#### **Interior Lamps**

The interior lighting consists of the following 2 groups. This first group includes lamps that illuminate the interior and may not be dimmed.

- The dome lamp
- The footwell lamps
- The reading lamps
- The vanity mirror lamps

#### **Courtesy Lamps**

The courtesy lamps include the reading lamps, footwell lamps and dome lamps. The cargo lamp, footwell lamps and dome lamp may be manually turned ON or OFF by placing the interior lamp switch in the ON or OFF position. When the driver places the dome lamp defeat switch in the OFF position, these courtesy lamps will be disabled. If a door is opened, the courtesy lamps will illuminate. After all the doors have been closed, the courtesy lamps will remain illuminated approximately 15 seconds after the last door closes. The courtesy lamps will also turn ON prior to any door being opened and will remain illuminated approximately 40 seconds when the driver removes the ignition key. The body control module (BCM) will immediately turn OFF the courtesy lamps if a door lock command is received with all of the doors closed or if the ignition switch is turned to either the ON or RUN position. Individual power and ground circuits to each lamp are supplied by the BCM except for the reading and vanity mirror lamps which are grounded at G106.

The reading and vanity mirror lamps can be activated individually by the switches integrated within the dome/reading lamp and vanity mirror. Voltage is supplied by the BCM through the dome lamp circuit with the lamps being grounded at G106.

#### **Keyless Entry Interior Illumination**

When the driver uses the door key in order to unlock the doors, the body control module (BCM)

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receives a door unlock signal. The BCM must have inputs that indicate that the ignition switch is OFF, the courtesy lamp switch is OFF and all the doors are closed. The BCM will then illuminate the interior lamps. The courtesy lamps will remain illuminated for approximately 15 seconds after the door is closed. If the door locks are activated to the LOCK position or if the ignition switch is turned to either the RUN or CRANK position, the courtesy lamps will turn OFF immediately.

When the driver uses the remote function actuator transmitter to unlock the doors or presses the panic button, the BCM will keep the courtesy lamps ON for approximately 15 seconds. If the door locks are activated to the UNLOCK or LOCK position or if the ignition switch is turned to either the RUN or CRANK position, the courtesy lamps will turn OFF immediately. The BCM will also keep the courtesy lamps ON for approximately 40 seconds after an alarm event is completed.

#### **Battery Rundown Protection/Inadvertent Power**

The body control module (BCM) inadvertent power courtesy lamps supply voltage circuit provides battery positive voltage to all of the interior courtesy lamps. In the event that any of these lamps were to remain illuminated for a period of more than 20 minutes with the ignition switch in the OFF position, the BCM will deactivate the inadvertent power courtesy lamps supply voltage circuit to prevent a total battery discharge condition. Only when the ignition switch is cycled back to the RUN position will the BCM reset the internal timer and reactivate the inadvertent power courtesy lamps supply voltage circuit.

The BCM also utilizes the inadvertent power courtesy lamps supply voltage circuit as a courtesy lamp request signal circuit when none of the lamps in the circuit are illuminated. When a reading lamp switch is activated, the BCM receives the request for lamp illumination and switches to supplying voltage to the inadvertent power courtesy lamps supply voltage circuit.

#### Interior Switch and Control Illumination

The second group includes lamps which illuminate the interior switches, controls and displays that may or may not be dimmed. This group may use a combination of LED, incandescent lamps and vacuum fluorescent (VF) displays.

The door lock and window switches are supplied voltage through the FRT PRK LAMPS fuse and cannot be dimmed. These lamps will be illuminated at full intensity whenever the park lamps are ON.

This second list of components are supplied voltage through the body control module (BCM) and can be dimmed.

• Hazard switch

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- Headlamp and panel dimmer switch
- HVAC control head assembly
- Instrument panel cluster (IPC) via class 2 signal
- Radio
- Rear window wiper/washer switch
- Accessory switch
- Sunroof switch

When the ignition switch is turned to the RUN position, the radio VF displays turn ON at maximum brightness. When the park lamps are ON, all dimmable incandescent back lighting illuminate at the dimming level indicated by the I/P dimmer switch and all the other back lighting lamps illuminate at full intensity. At the same time all VF displays dim to match the indicated dimming level. The panel dimmer switch potentiometer is an input to the BCM. When the driver selects a dimming setting by moving the I/P dimming switch potentiometer, all dimmable incandescent back lighting lamps are provided with a specific voltage. When the I/P dimmer switch is moved from MIN to MAX, all VF displays, as well as all dimmable incandescent back lighting respond from minimum intensity to maximum brightness in response to the I/P dimmer switch The grounding for all of the incandescent back lighting lamps is provided by G105 and G106.