# 2007 ACCESSORIES & EQUIPMENT

## Lighting - Avalanche, Escalade, Suburban, Tahoe & Yukon

## SPECIFICATIONS

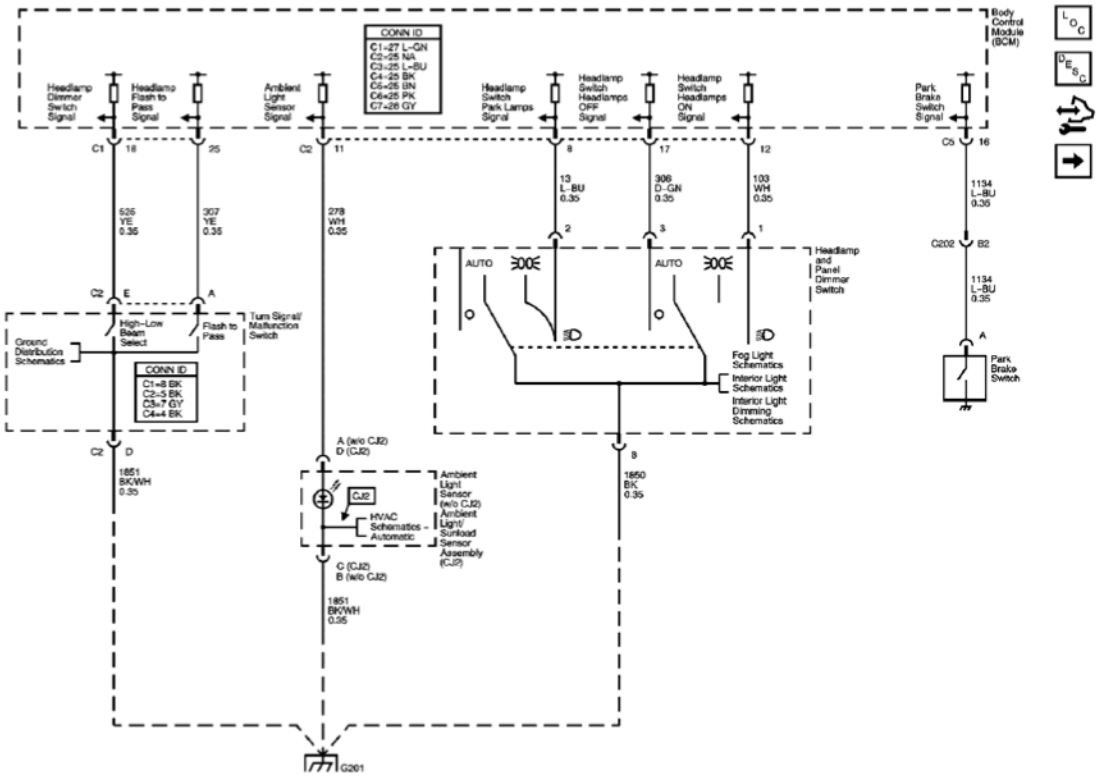
### FASTENER TIGHTENING SPECIFICATIONS

**Fastener Tightening Specifications**

| Application | Specification | |
|---|---|---|
| | Metric | English |
| Center High-Mounted Stop Lamp Mounting Screws | 2 N.m | 18 lb in |
| Headlamp Ballast Screws | 2 N.m | 18 lb in |
| Headlamp Mounting Screws | 6 N.m | 53 lb in |
| License Plate Lamp Screws | 2 N.m | 18 lb in |
| Rear Tail/Turn Signal Lamp Assembly Screws | 2 N.m | 18 lb in |

## SCHEMATIC AND ROUTING DIAGRAMS

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




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**Fig. 1: Headlight and Daytime Running Light Controls Schematic**
**Courtesy of GENERAL MOTORS CORP.**

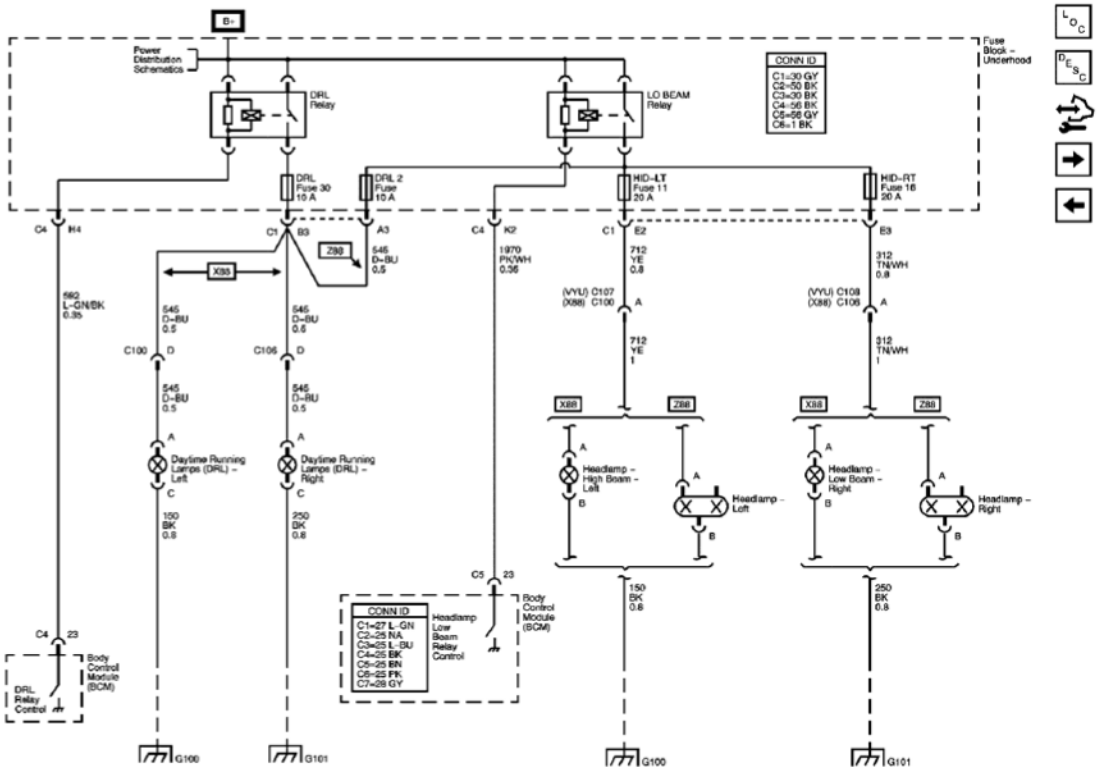



**Fig. 2: Low Beam and Daytime Running Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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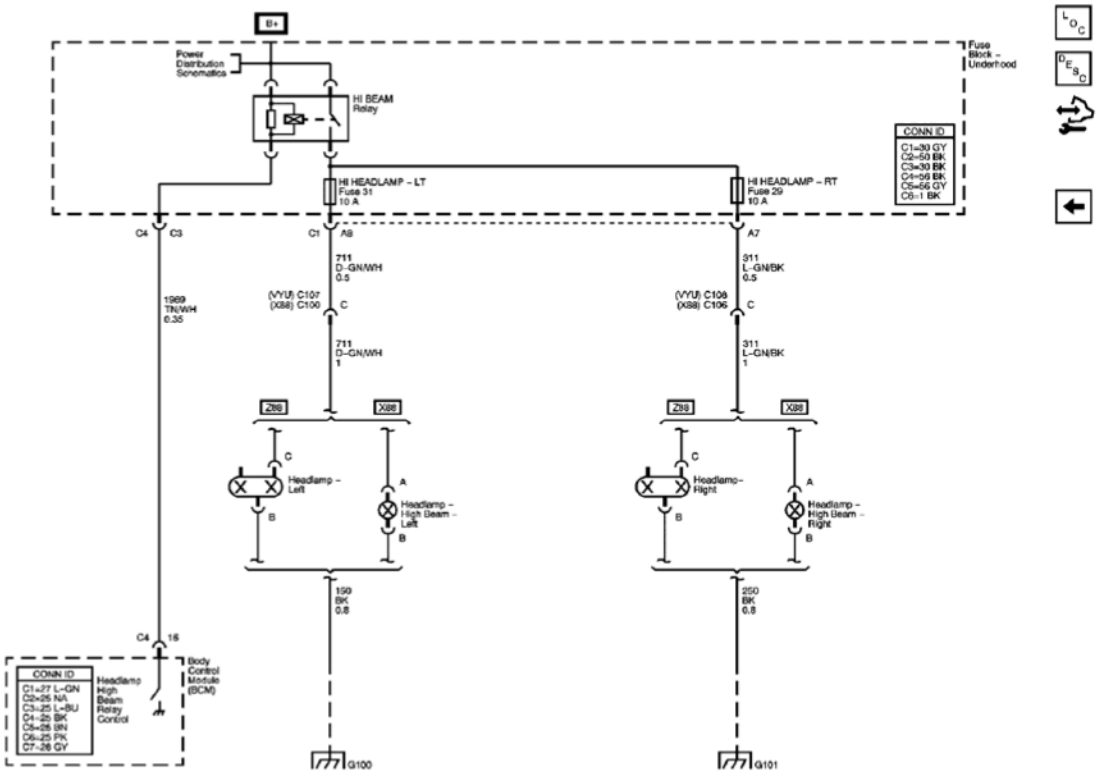



**Fig. 3: High Beams Schematic**
**Courtesy of GENERAL MOTORS CORP.**

## FOG LIGHTS SCHEMATICS

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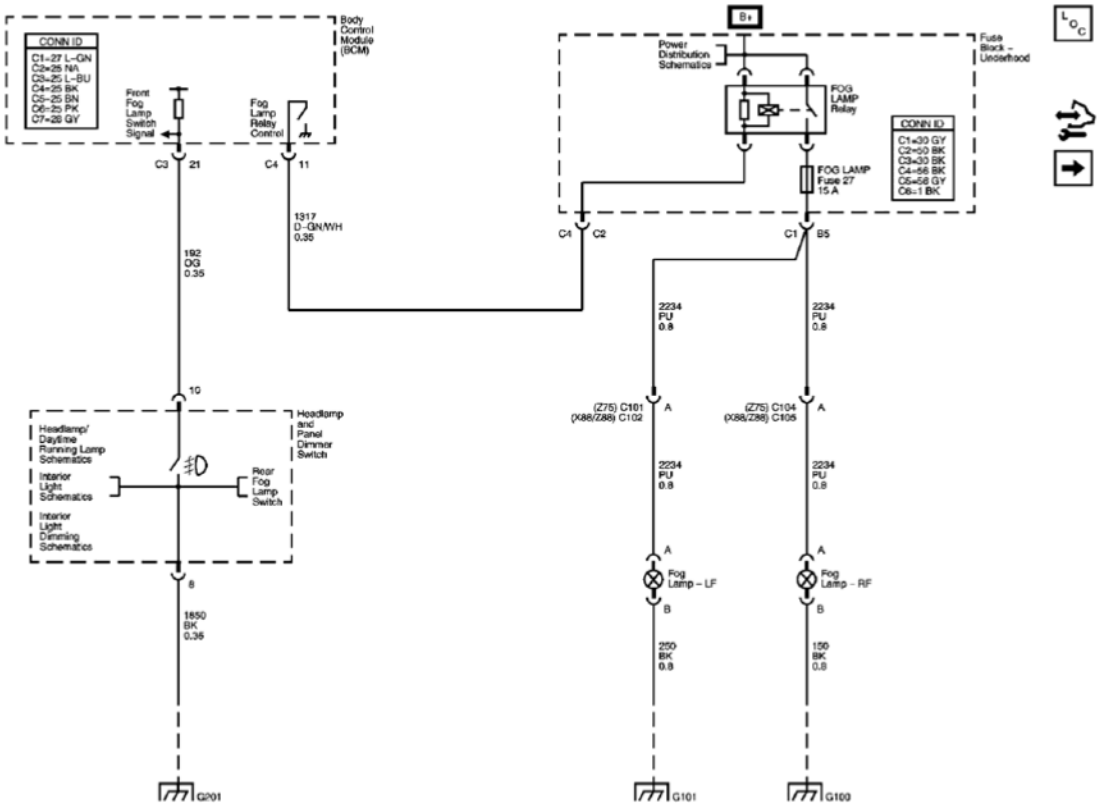



**Fig. 4: Front Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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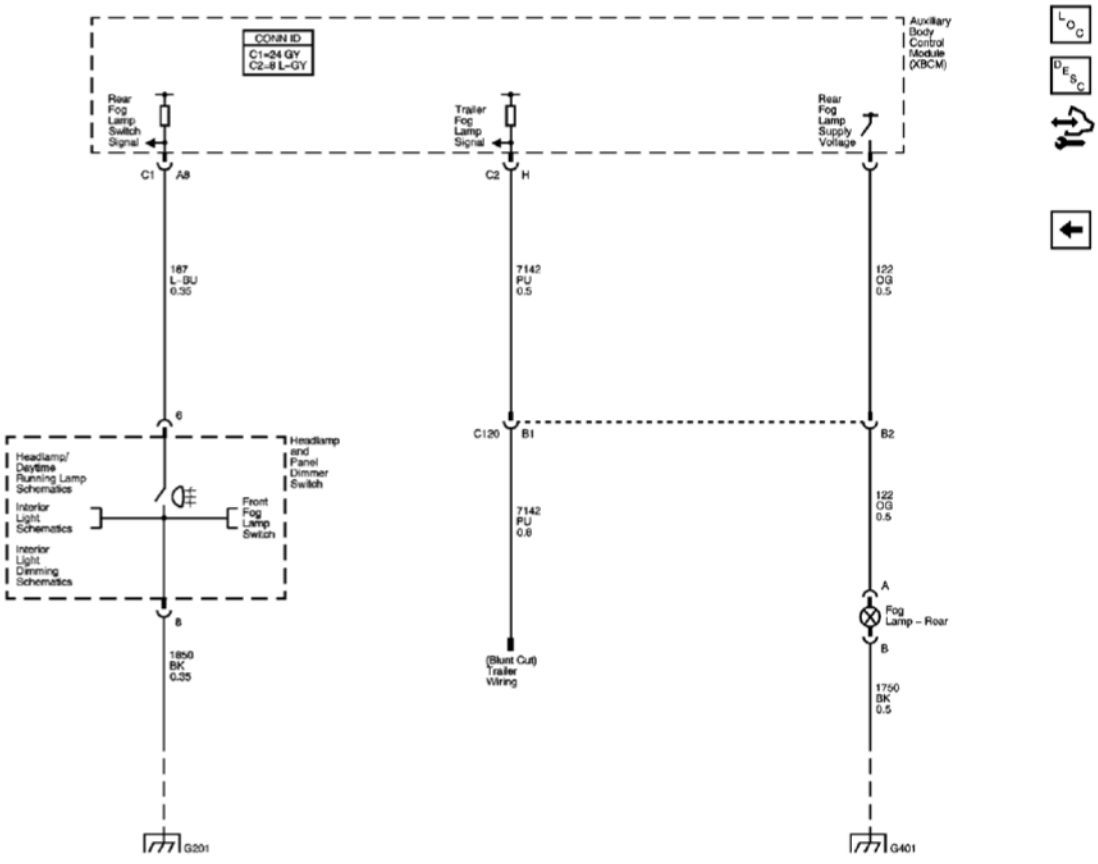



**Fig. 5: Rear (Export) Schematic**
**Courtesy of GENERAL MOTORS CORP.**

**EXTERIOR LIGHTS SCHEMATICS**

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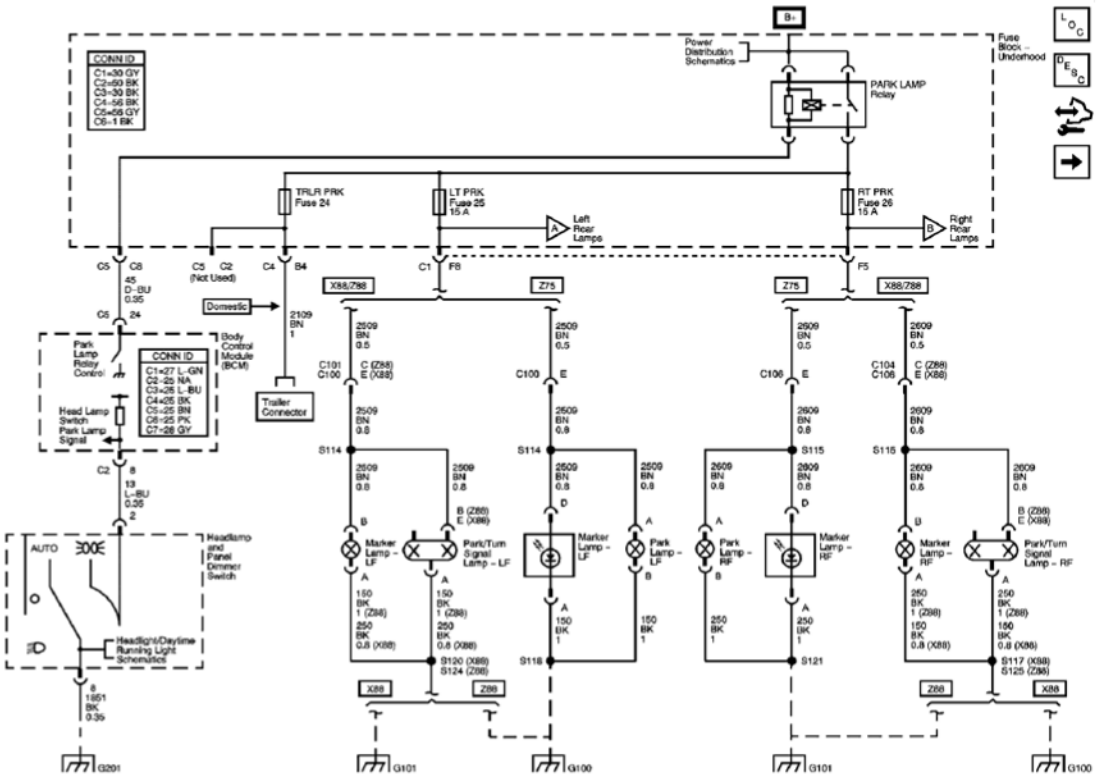



**Fig. 6: Park Lamp Controls and Front Park Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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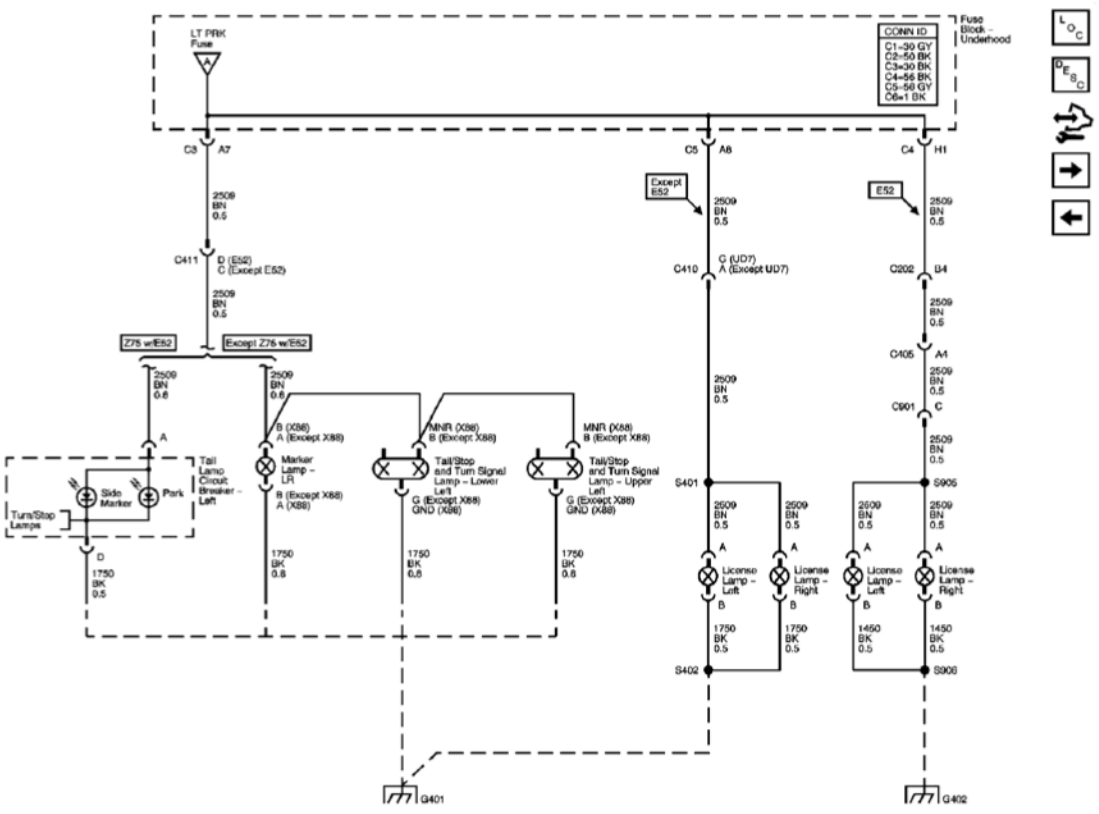



**Fig. 7: Left Rear Park Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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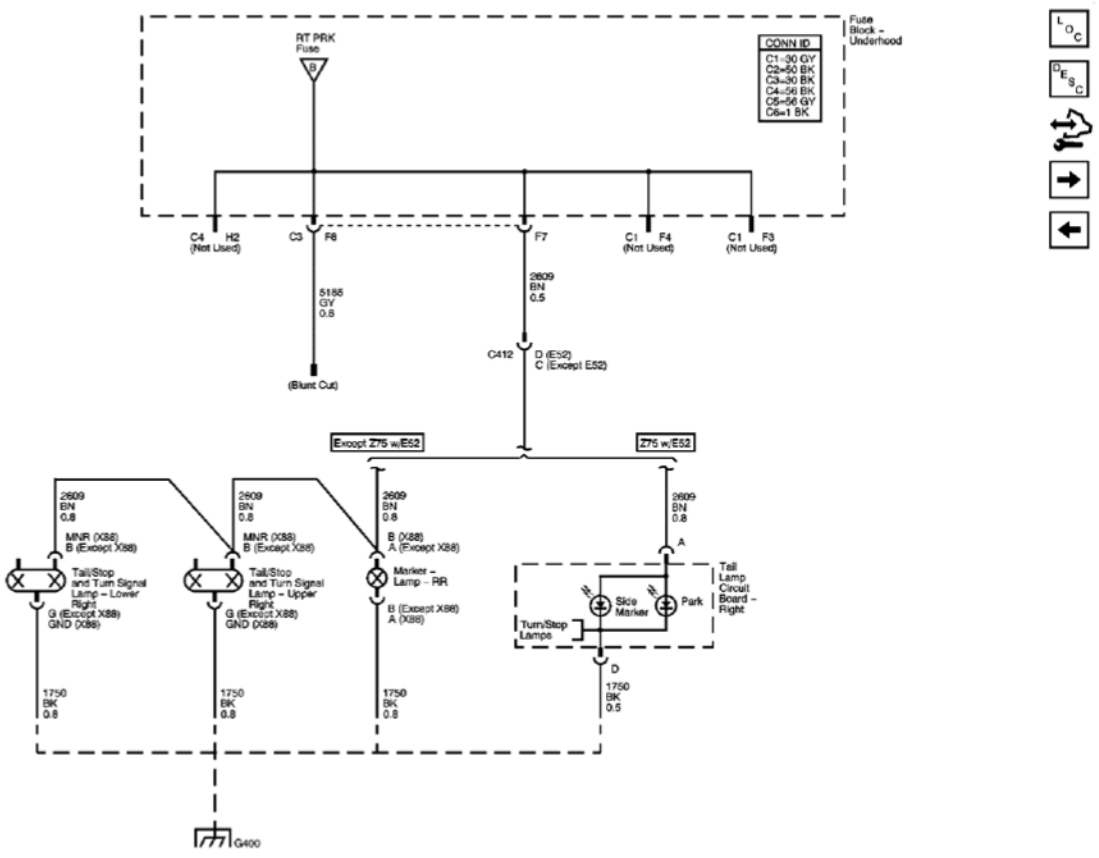



**Fig. 8: Right Rear Park Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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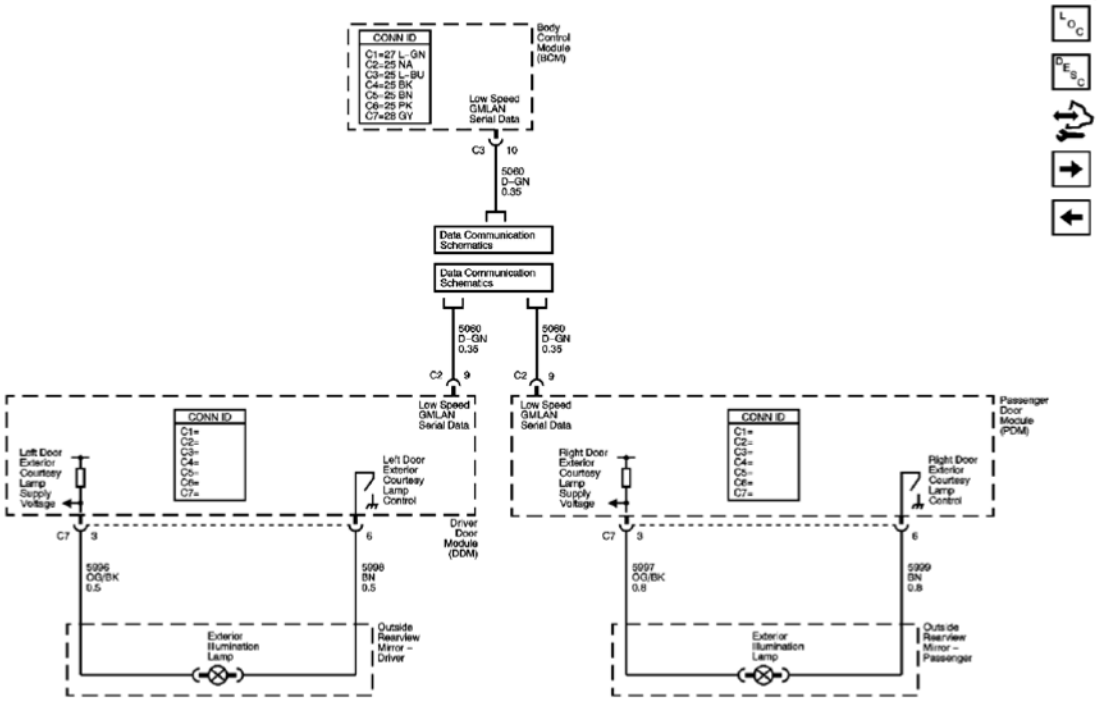



**Fig. 9: Exterior Illumination Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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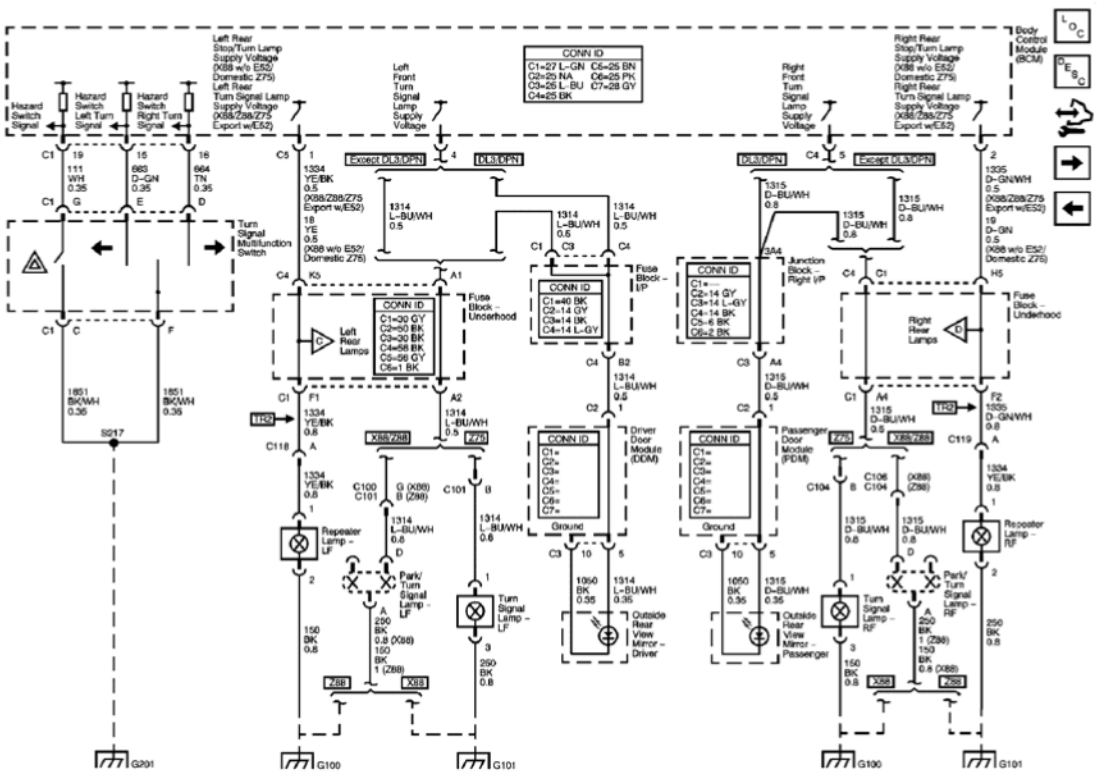



**Fig. 10: Turn Signal Lamp Control and Front Turn Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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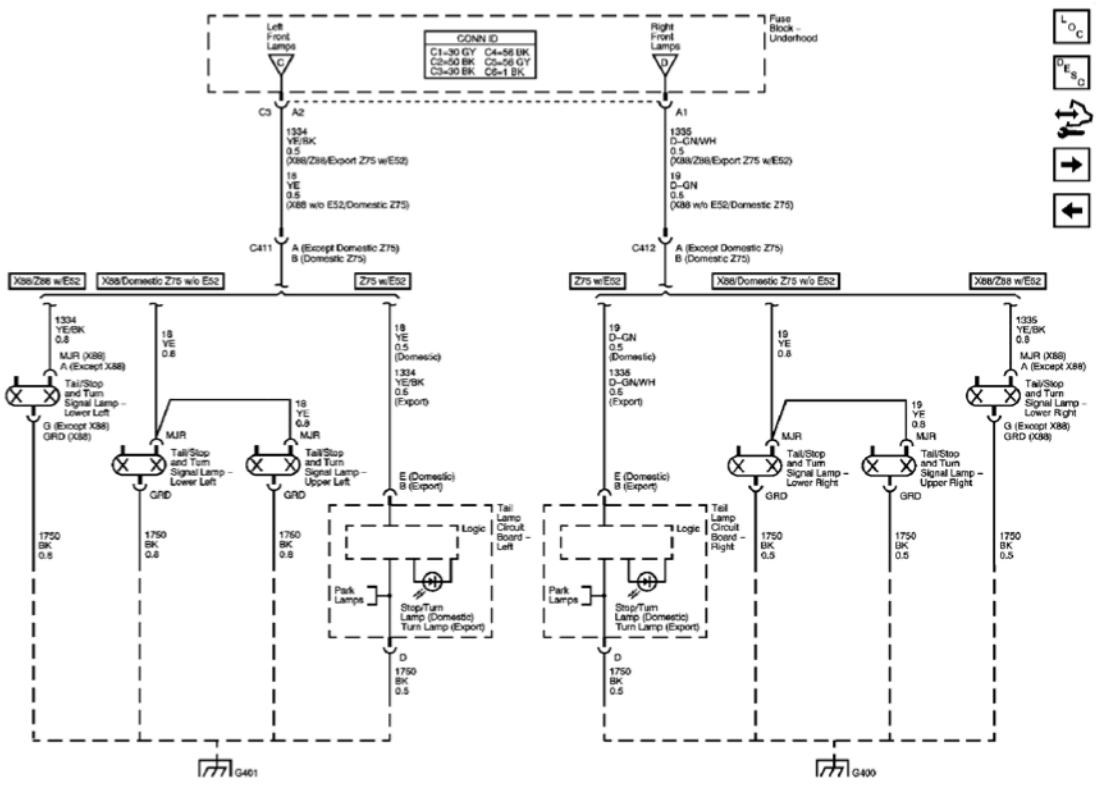



**Fig. 11: Rear Turn Signal Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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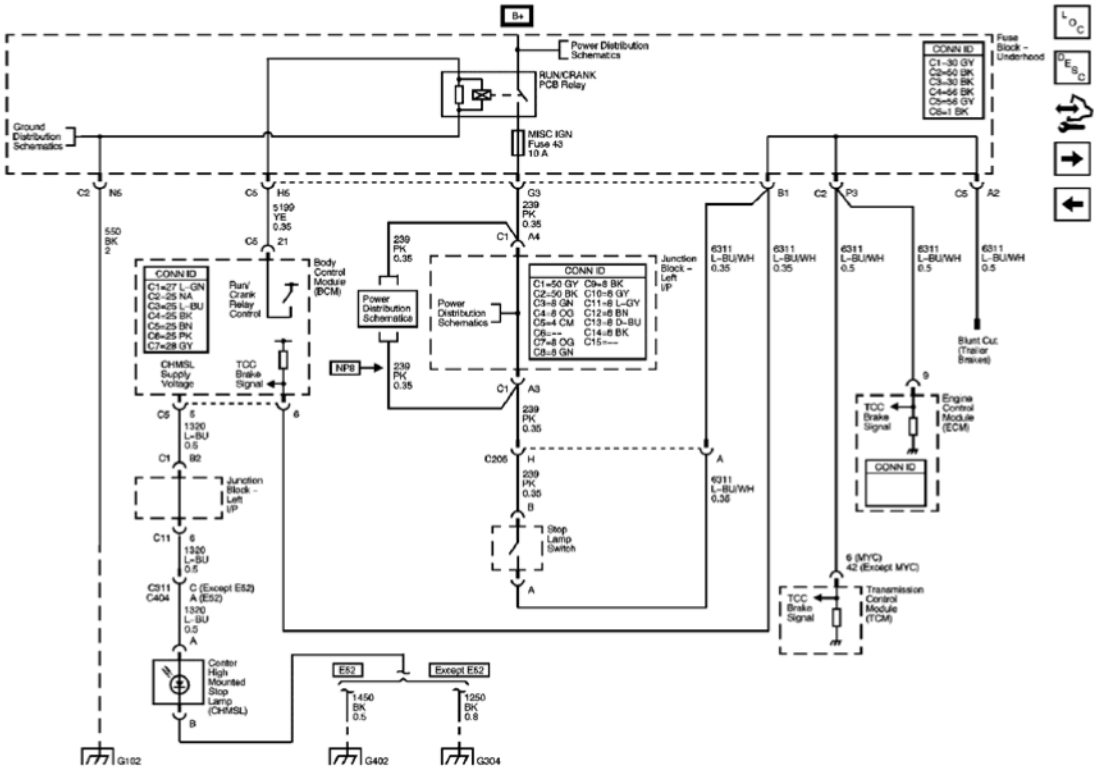



**Fig. 12: Stop Lamp Control and CHMSL Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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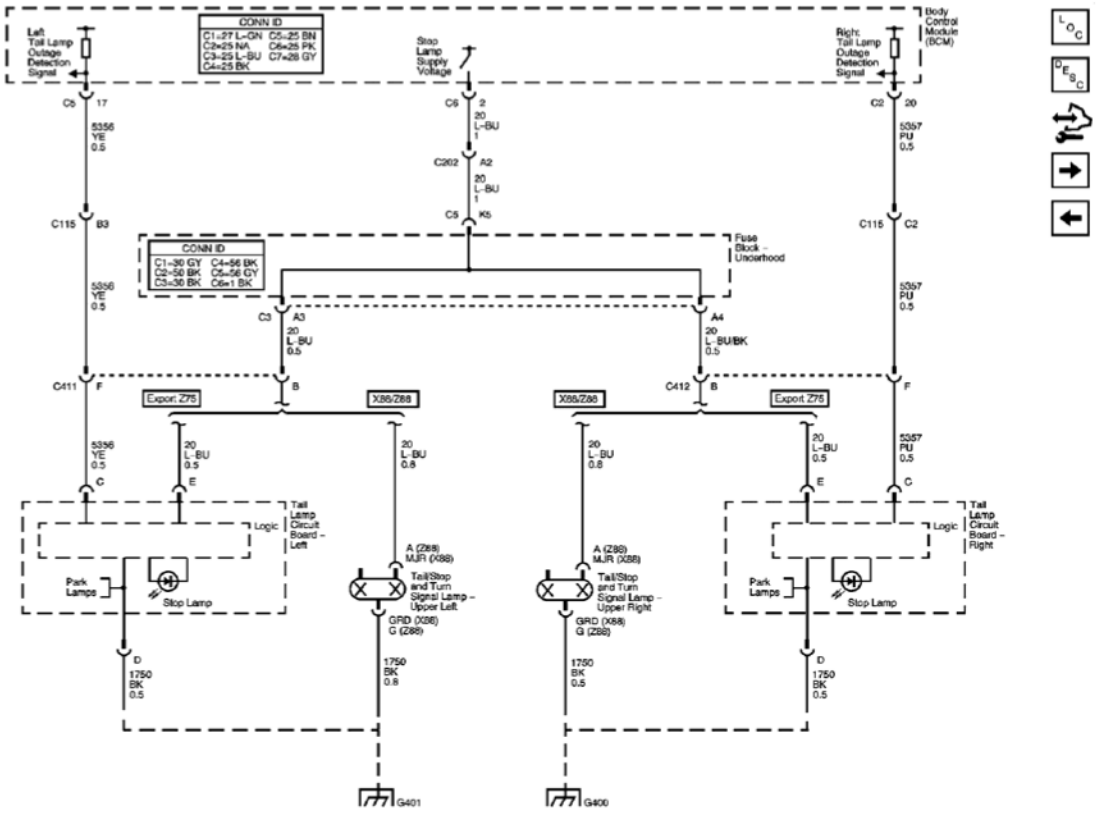



**Fig. 13: Stop Lamps - X88/Z88 and Export Z75 Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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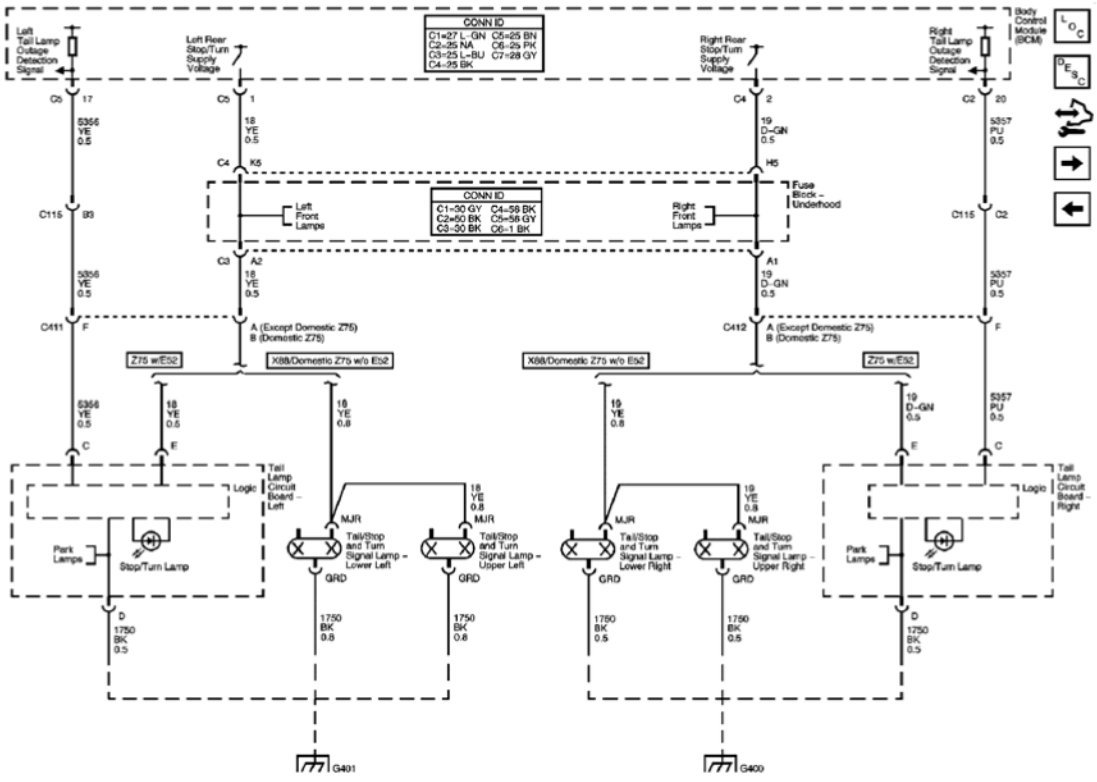



**Fig. 14: Stop Lamps - Domestic Z75 Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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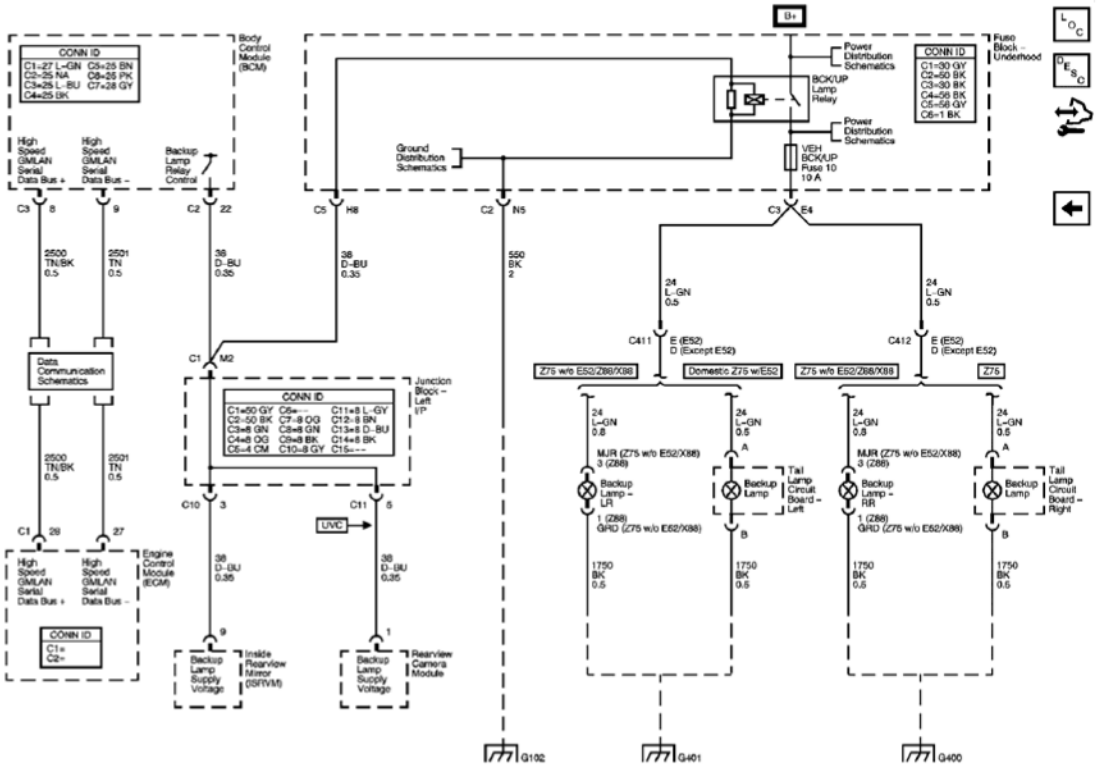



**Fig. 15: Backup Lamps Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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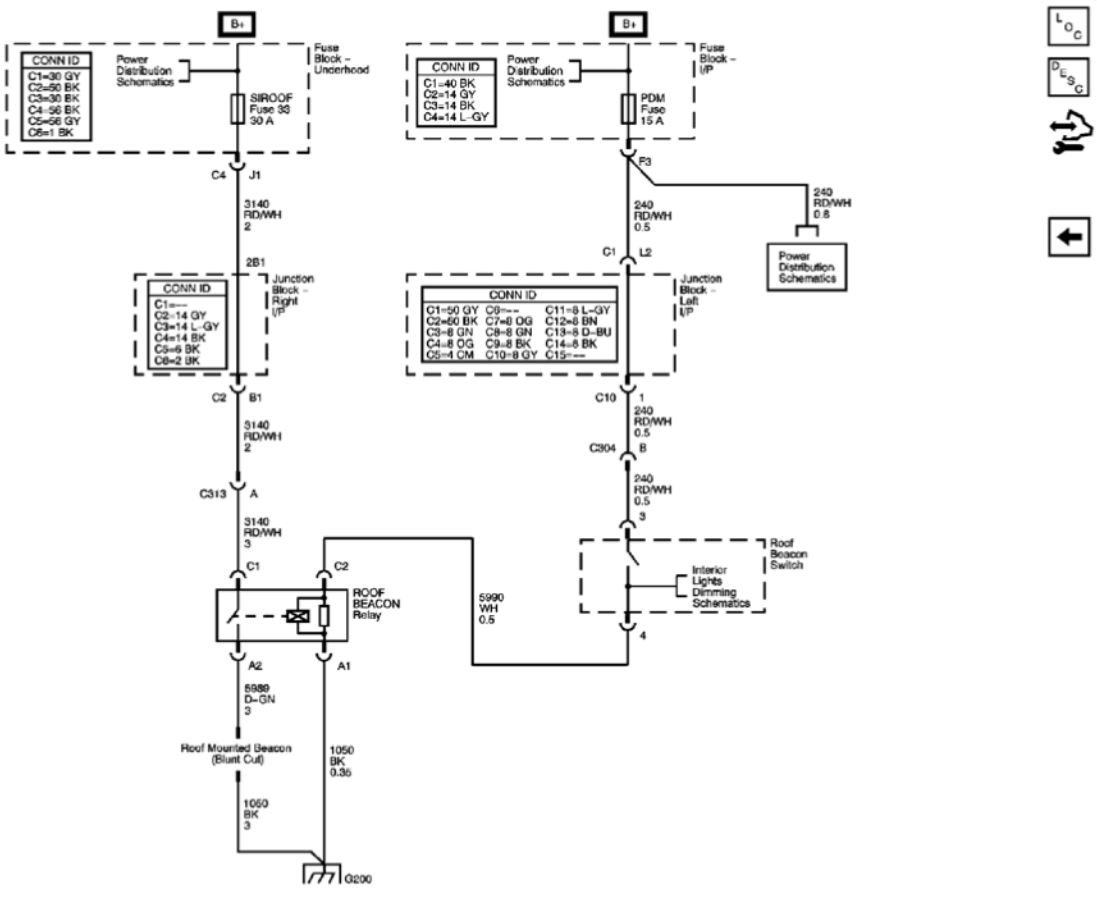



**Fig. 16: Roof Beacon - TRW/5G4 Schematic**
**Courtesy of GENERAL MOTORS CORP.**

## INTERIOR LIGHTS SCHEMATICS

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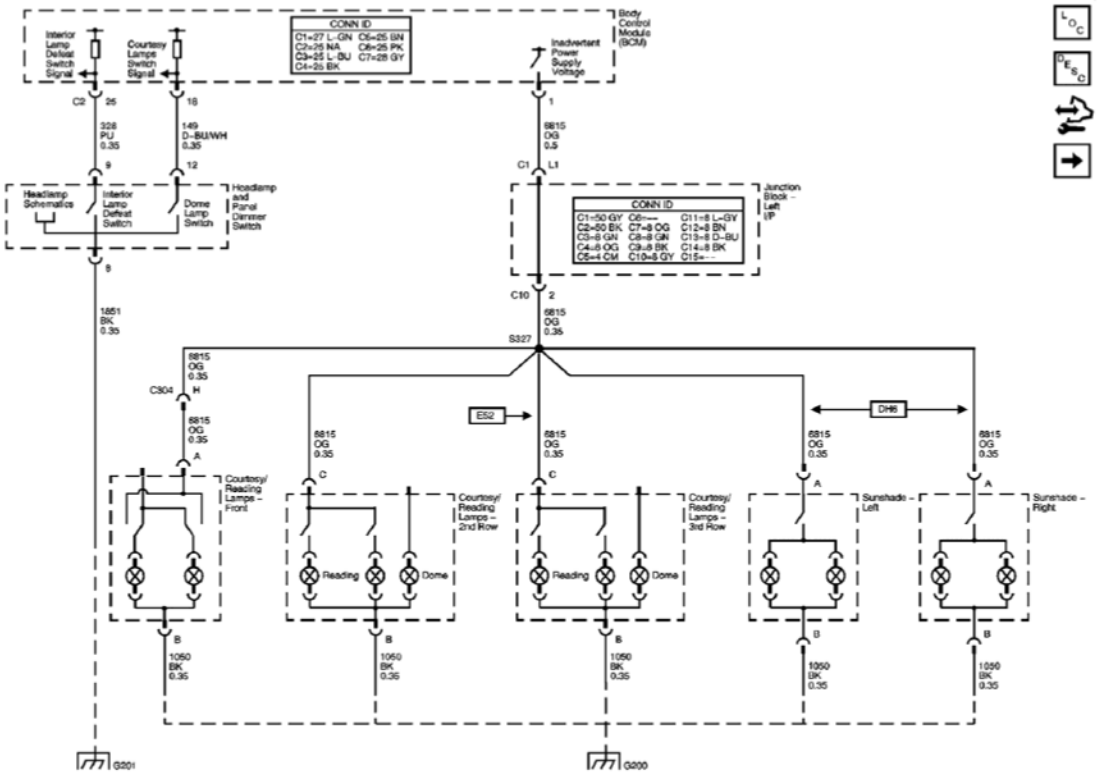



**Fig. 17: Inadvertent Lamp Controls Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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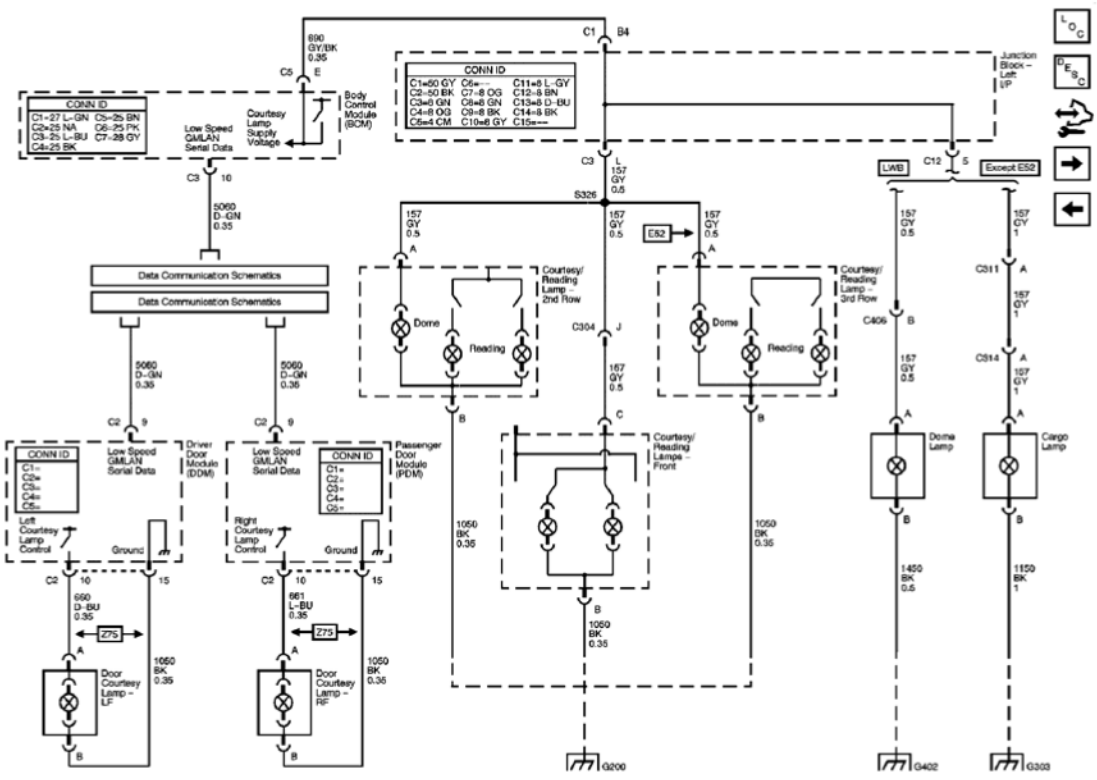



**Fig. 18: Courtesy Lamp Controls Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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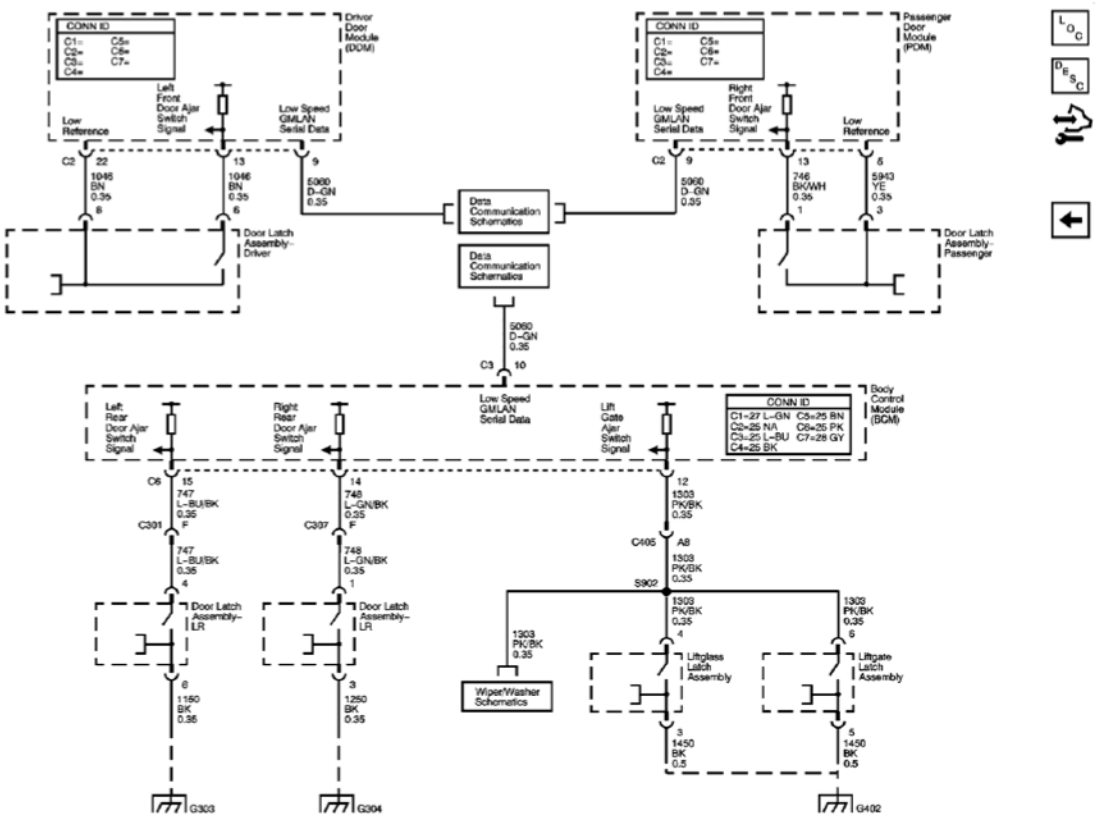



**Fig. 19: Door Jamb Switches Schematic**
**Courtesy of GENERAL MOTORS CORP.**

## INTERIOR LIGHTS DIMMING SCHEMATICS

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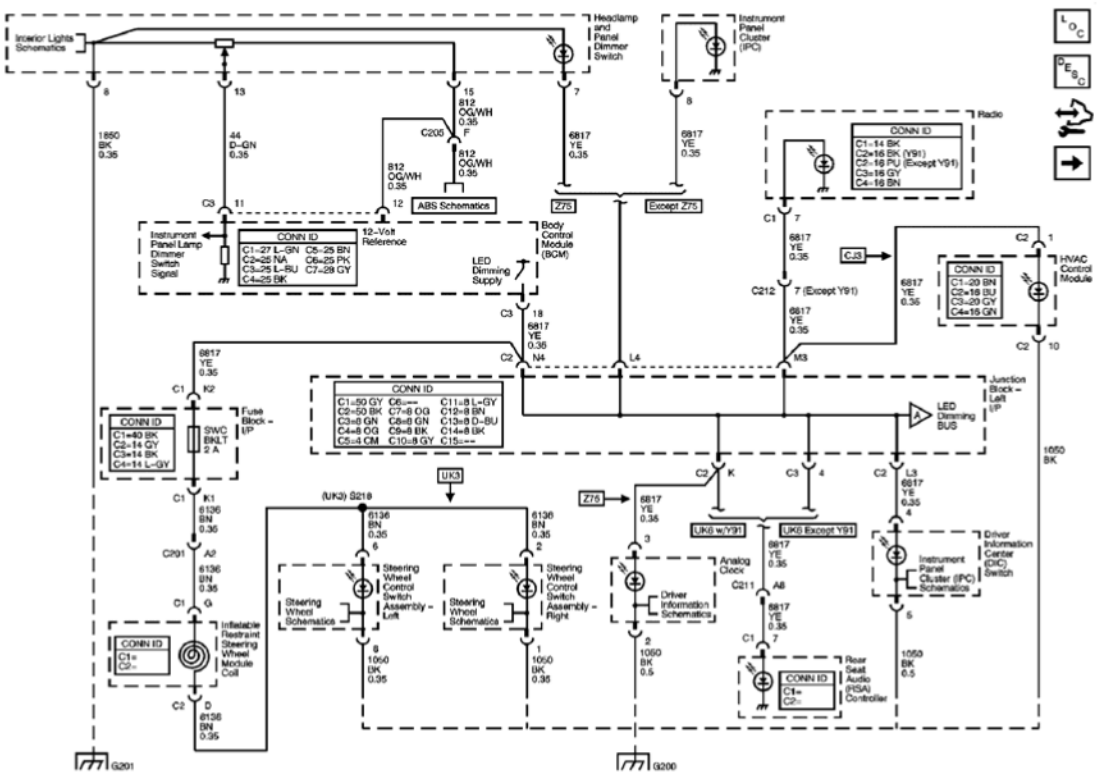



**Fig. 20: Dimming Control and LED Dimming - 1 of 3 Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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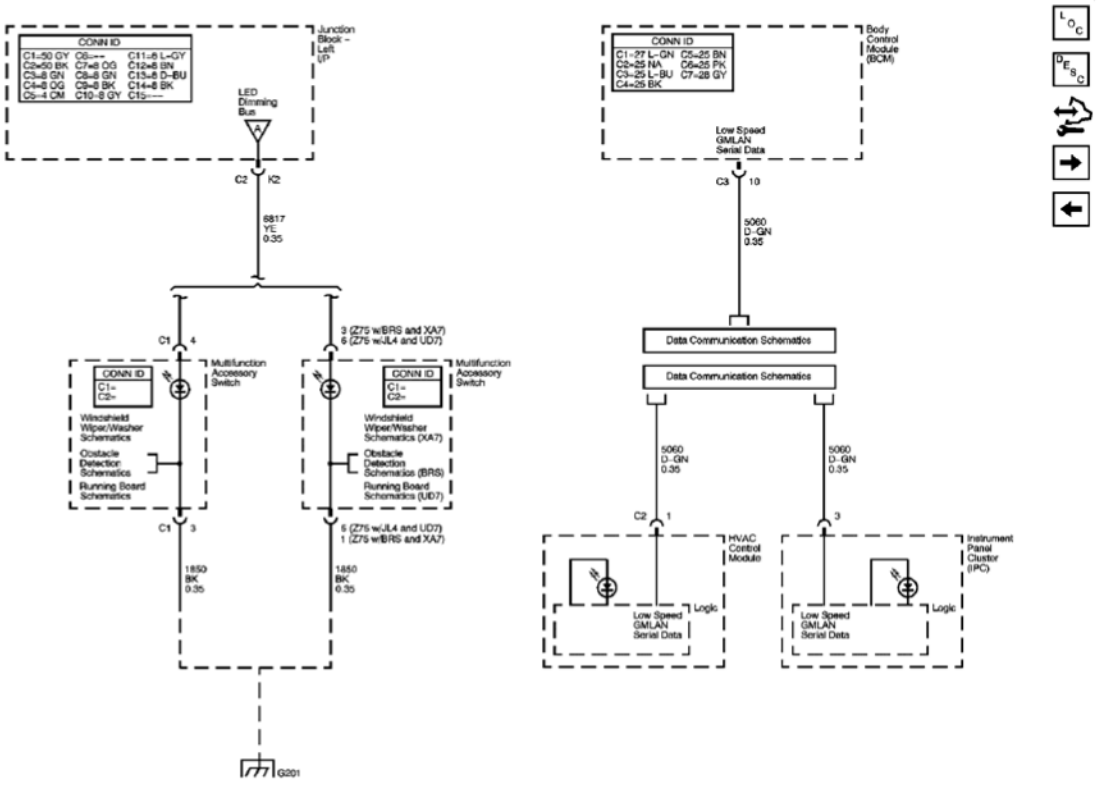



**Fig. 21: LED Dimming - 2 of 3 Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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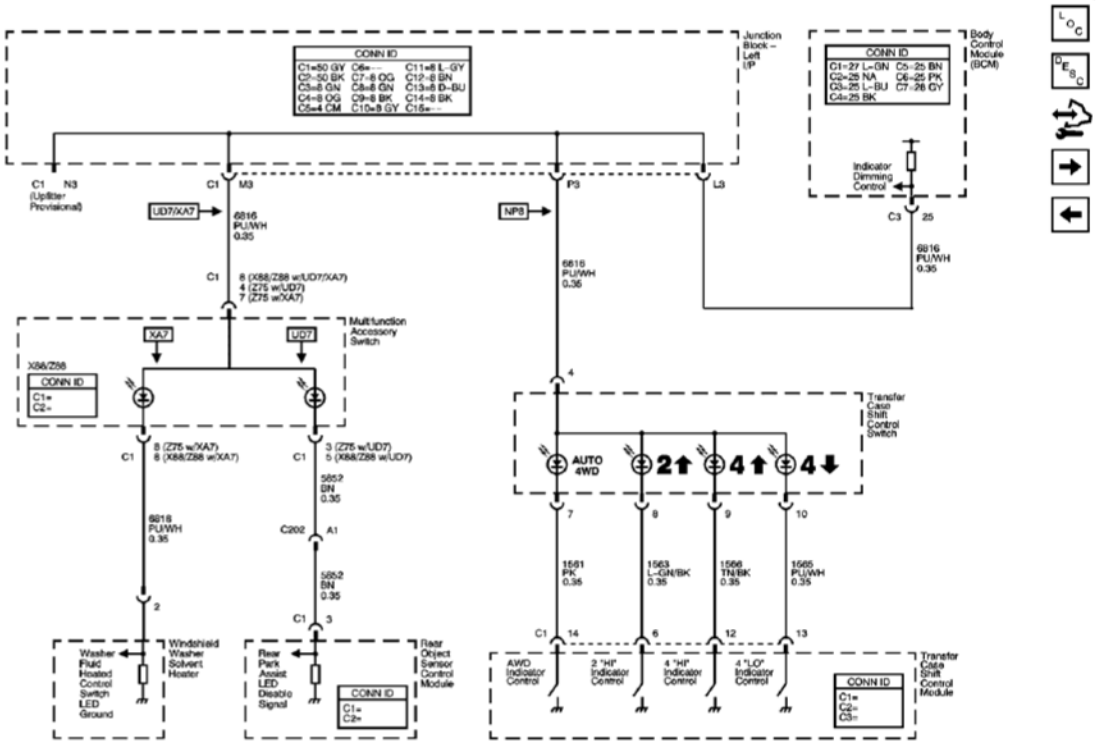



**Fig. 22: LED Dimming - 3 of 3 Schematic**
**Courtesy of GENERAL MOTORS CORP.**

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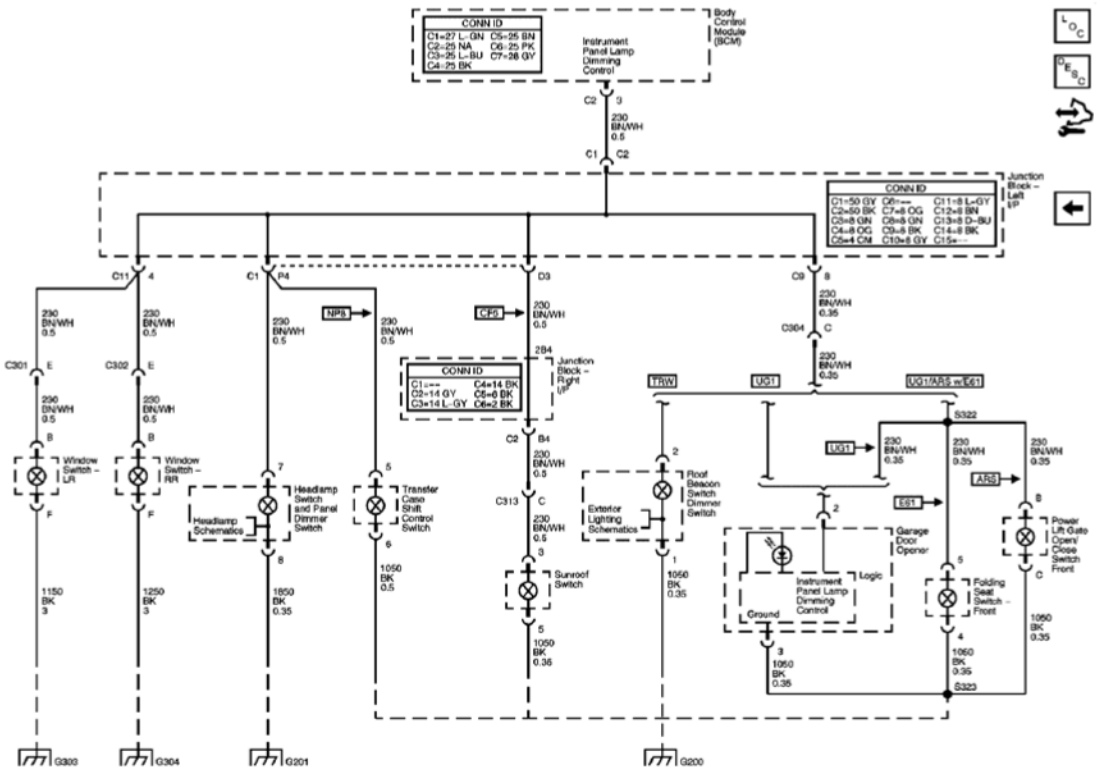



**Fig. 23: I/P Bulb Dimming Schematic**
**Courtesy of GENERAL MOTORS CORP.**

## COMPONENT LOCATOR

### LIGHTING SYSTEMS COMPONENT VIEWS

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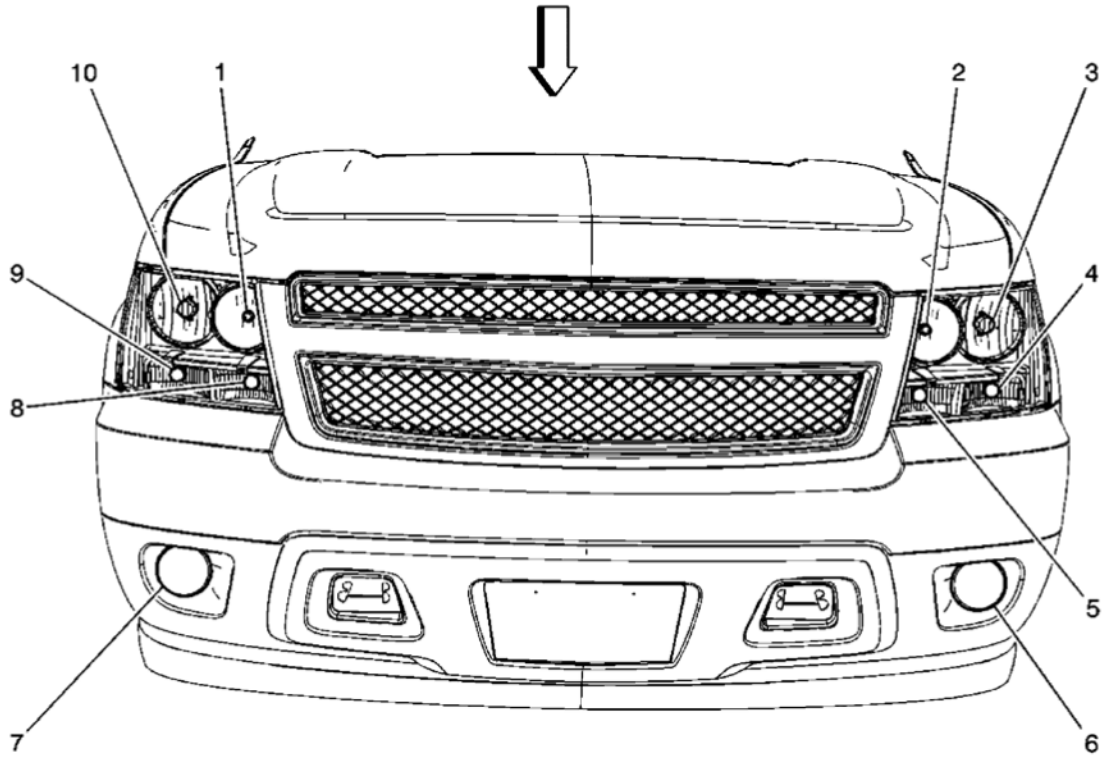



**Fig. 24: Front of the Vehicle (X88)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 24**

| Callout | Component Name |
|---|---|
| 1 | Headlamp - High Beam - Right |
| 2 | Headlamp - High Beam - Left |
| 3 | Headlamp - Low Beam - Left |
| 4 | Park/Turn Signal Lamp - Left |
| 5 | Daytime Running Lamp (DRL) - Left |
| 6 | Fog Lamp - LF |
| 7 | Fog Lamp - RF |
| 8 | Daytime Running Lamp (DRL) - Right |
| 9 | Park/Turn Signal Lamp - Right |
| 10 | Headlamp - Low Beam - Right |

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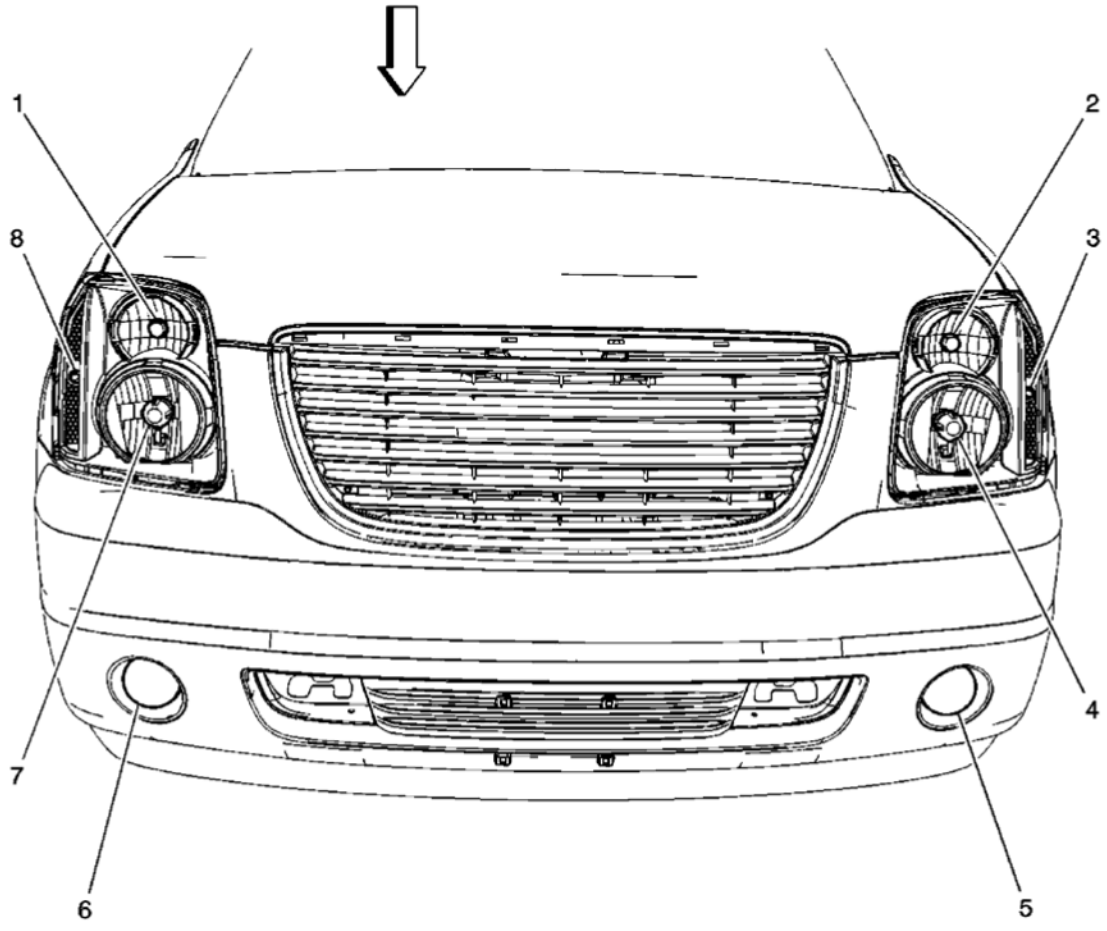



**Fig. 25: Front of the Vehicle (Z88)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 25**

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

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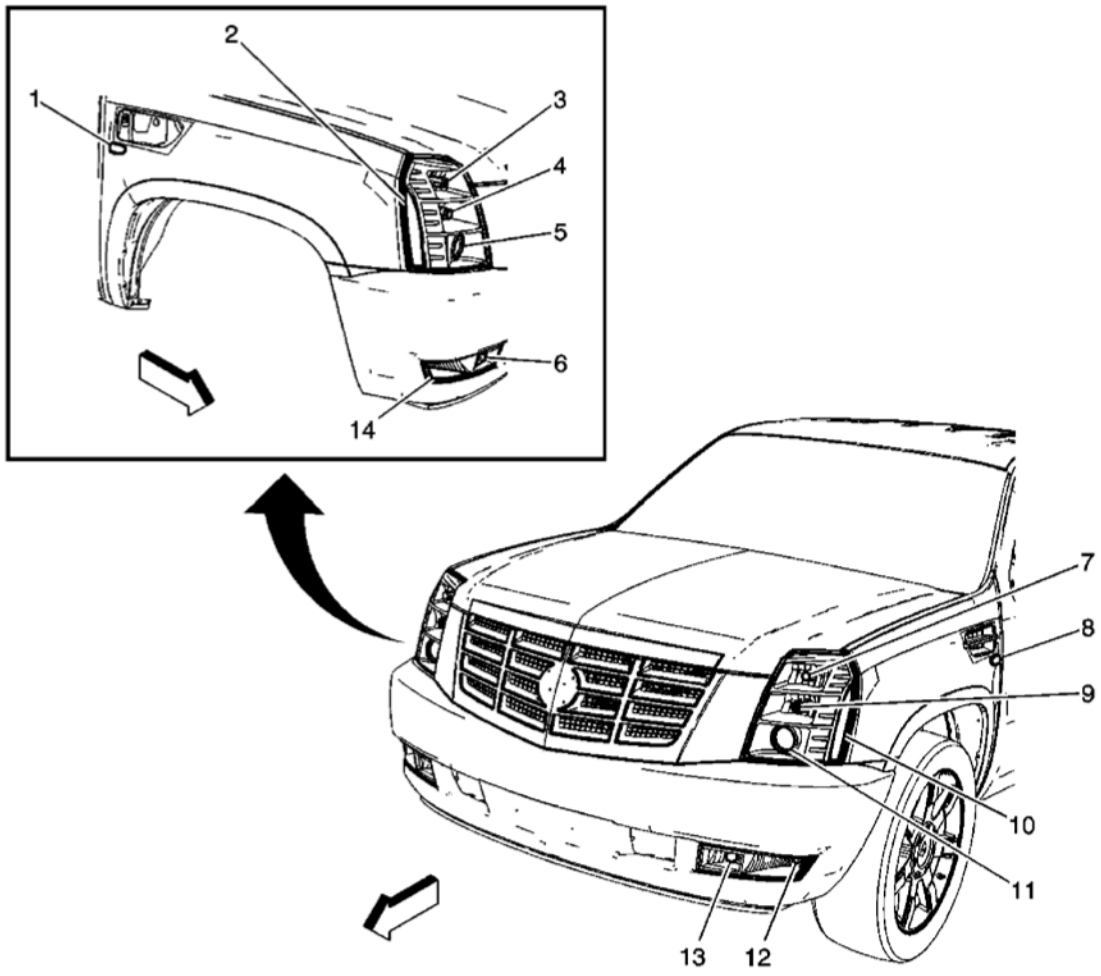



**Fig. 26: Front of the Vehicle (Z75)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 26**

| Callout | Component Name |
|---|---|
| 1 | Repeater Lamp - RF (TR2) |
| 2 | Marker Lamp - RF |
| 3 | Park Lamp - RF |
| 4 | Daytime Running Lamp (DRL) - Right |
| 5 | Headlamp - Right |
| 6 | Fog Lamp - RF |
| 7 | Park Lamp - LF |
| 8 | Repeater Lamp - LF (TR2) |
| 9 | Daytime Running Lamp (DRL) - Left |
| 10 | Marker Lamp - LF |
| 11 | Headlamp - Left |

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| | |
|---|---|
| 12 | Turn Signal Lamp - LF |
| 13 | Fog Lamp - LF |
| 14 | Turn Signal Lamp - RF |

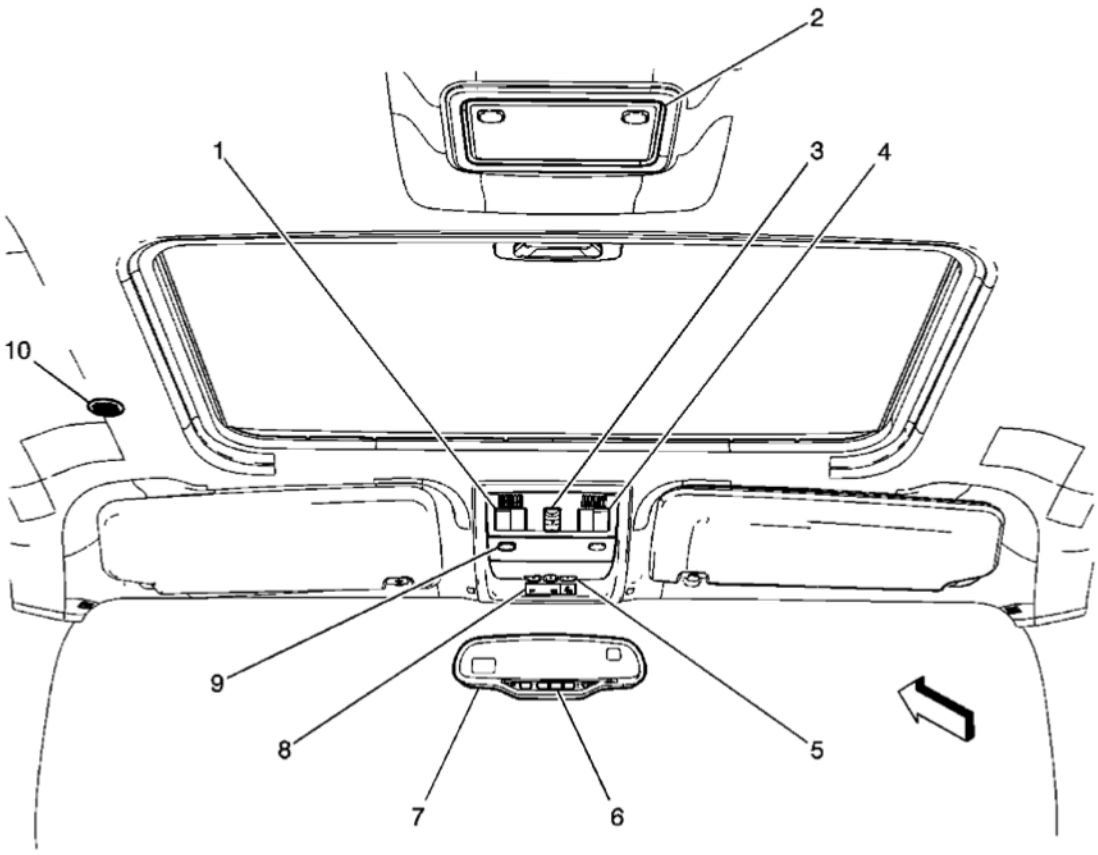



**Fig. 27: Top Front of the Passenger Compartment**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 27**

| Callout | Component Name |
|---|---|
| 1 | Sunroof Switch (CF5) |
| 2 | Courtesy/Reading Lamps - Second Row |
| 3 | Power Liftgate Switch (E61) |
| 4 | Folding Seat Switch - Front (ARS) |
| 5 | Garage Door Opener (UG1) |
| 6 | Onstar Button Assembly (UE1) |
| 7 | Inside Rearview Mirror (ISRVM) |
| 8 | Inflatable Restraint Passenger Air Bag ON/OFF Indicator |
| 9 | Courtesy/Reading Lamp - Front |
| 10 | Inside Air Temperature Sensor - Front (CJ2) |

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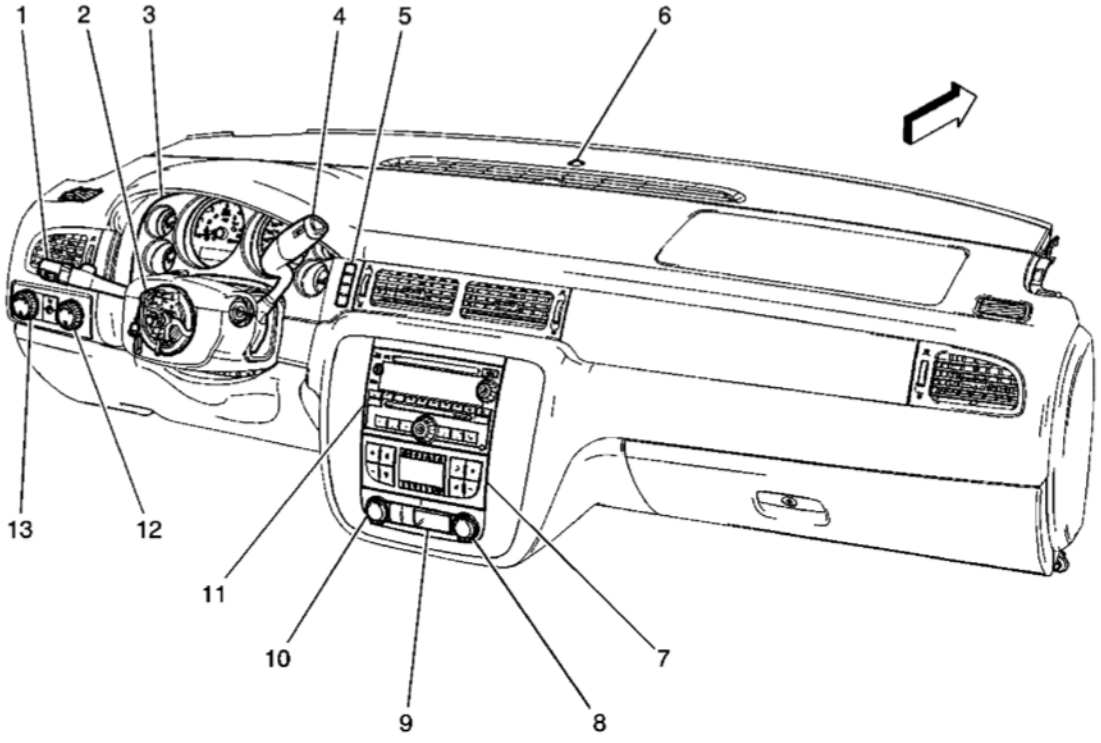



**Fig. 28: Front of the I/P (Except Z75)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 28**

| Callout | Component Name |
|---|---|
| 1 | Turn Signal Multifunction Switch |
| 2 | Inflatable Restraint Steering Wheel Module Coil |
| 3 | Instrument Panel Cluster (IPC) |
| 4 | Tow/Haul Switch |
| 5 | Driver Information Center (DIC) Switch |
| 6 | Ambient Light/Sunload Sensor Assembly (CJ2) or Ambient Light Sensor (CJ3) |
| 7 | HVAC Control Module |
| 8 | Auxiliary Power Outlet - Front 2 |
| 9 | I/P Multifunction Switch Assembly |
| 10 | Auxiliary Power Outlet - Front 1 |
| 11 | Radio |
| 12 | Transfer Case Shift Control Switch |
| 13 | Headlamp and Panel Dimmer Switch |

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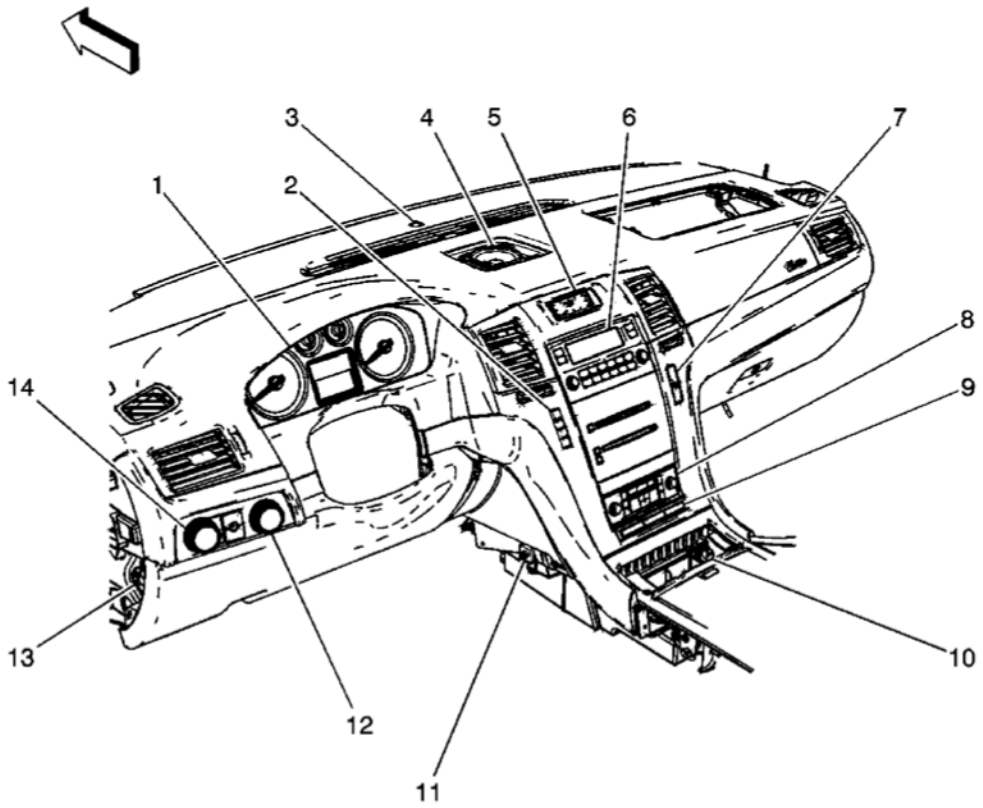



**Fig. 29: Front of the I/P (Z75)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 29**

| Callout | Component Name |
|---|---|
| 1 | Instrument Panel Cluster (IPC) |
| 2 | Driver Information Center (DIC) Switch |
| 3 | Ambient Light/Sunload Sensor Assembly (CJ2) |
| 4 | Speaker - Center |
| 5 | Analog Clock |
| 6 | Radio |
| 7 | Traction Control / Rear Object Detection Switch |
| 8 | HVAC Control Module |
| 9 | I/P Multifunction Switch Assembly |
| 10 | Auxiliary Power Outlet - Front 1 |
| 11 | Noise Compensation Microphone (Y91) |
| 12 | Transfer Case Shift Control Switch |

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| | |
|---|---|
| 13 | Fuse Block - I/P |
| 14 | Headlamp and Panel Dimmer Switch |

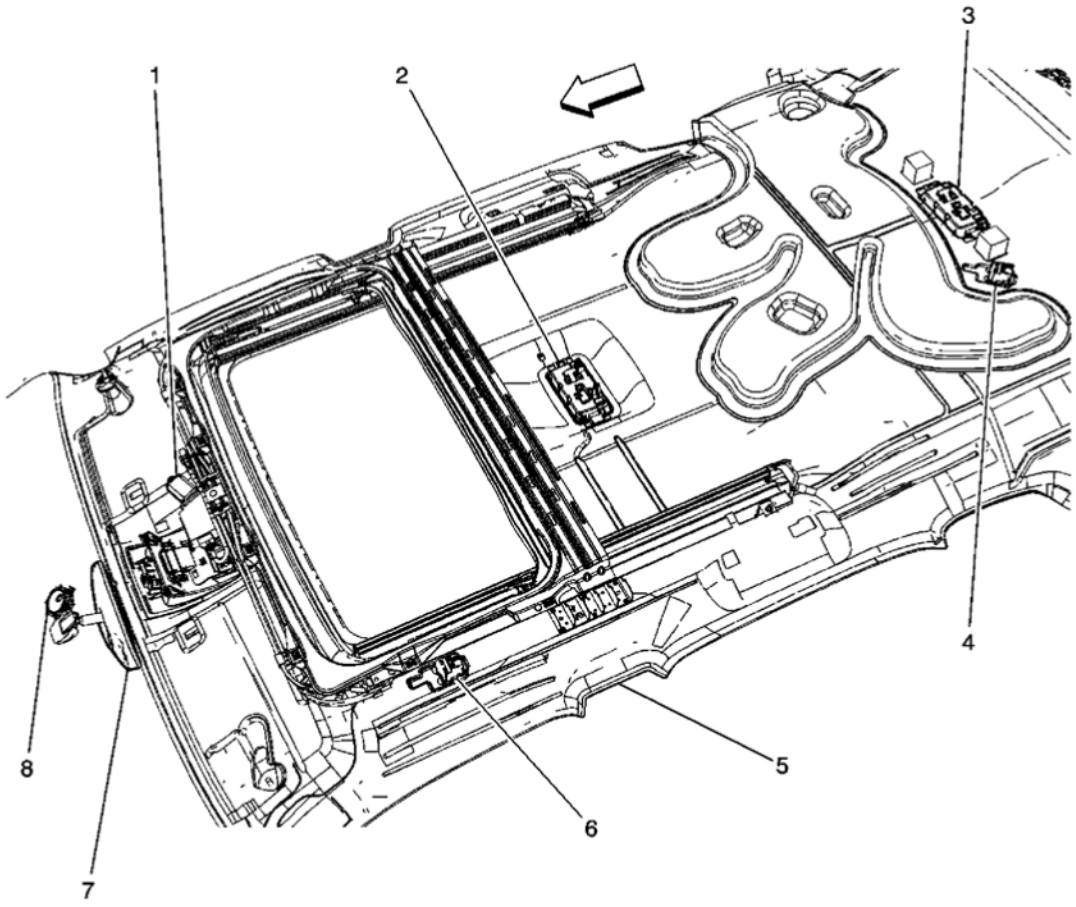



**Fig. 30: Above the Headliner**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 30**

| Callout | Component Name |
|---|---|
| 1 | Sunroof Module (CF5) |
| 2 | Courtesy/Reading Lamps - 2nd Row |
| 3 | Courtesy/Reading Lamps - 3rd Row |
| 4 | Inside Air Temperature Sensor - Rear (CJ2) |
| 5 | Headliner |
| 6 | Inside Air Temperature Sensor - Front (CJ2) |
| 7 | Inside Rearview Mirror (ISRVM) |
| 8 | Outside Moisture Sensor (CE1) |

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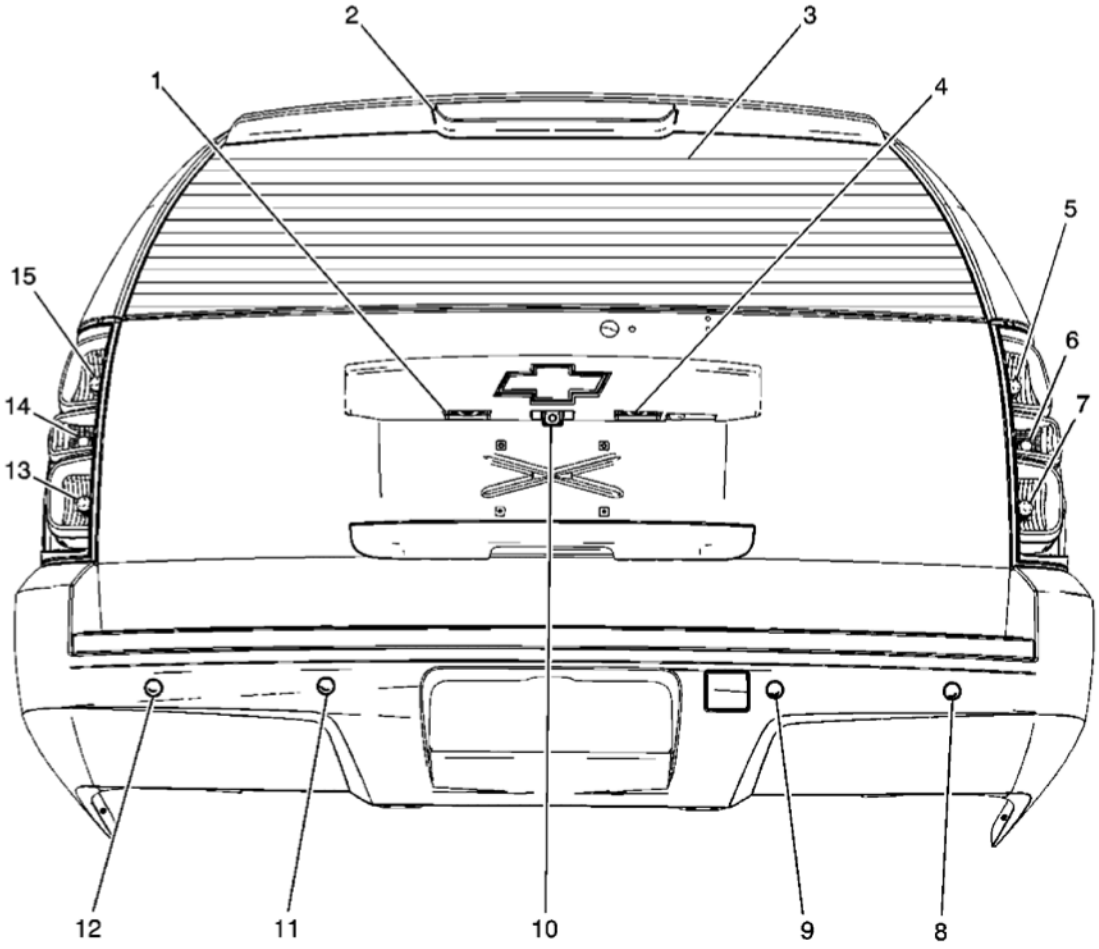



**Fig. 31: Rear of the Vehicle (X88 w/E52)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 31**

| Callout | Component Name |
|---|---|
| 1 | License Lamp - Left |
| 2 | Center High Mounted Stop Lamp (CHMSL) |
| 3 | Defogger Grid |
| 4 | License Lamp - Right |
| 5 | Tail/Stop Lamp - Right |
| 6 | Backup Lamp - Right |
| 7 | Tail/Turn Signal Lamp -Right |
| 8 | Object Sensor - RR Corner |
| 9 | Object Sensor - RR Middle |
| 10 | Rearview Camera (UVC) (E52) |
| 11 | Object Sensor - LR Middle |
| | |

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| | |
|---|---|
| 12 | Object Sensor - LR Corner |
| 13 | Tail/Turn Signal Lamp - Left |
| 14 | Backup Lamp - Left |
| 15 | Tail/Stop Lamp - Left |

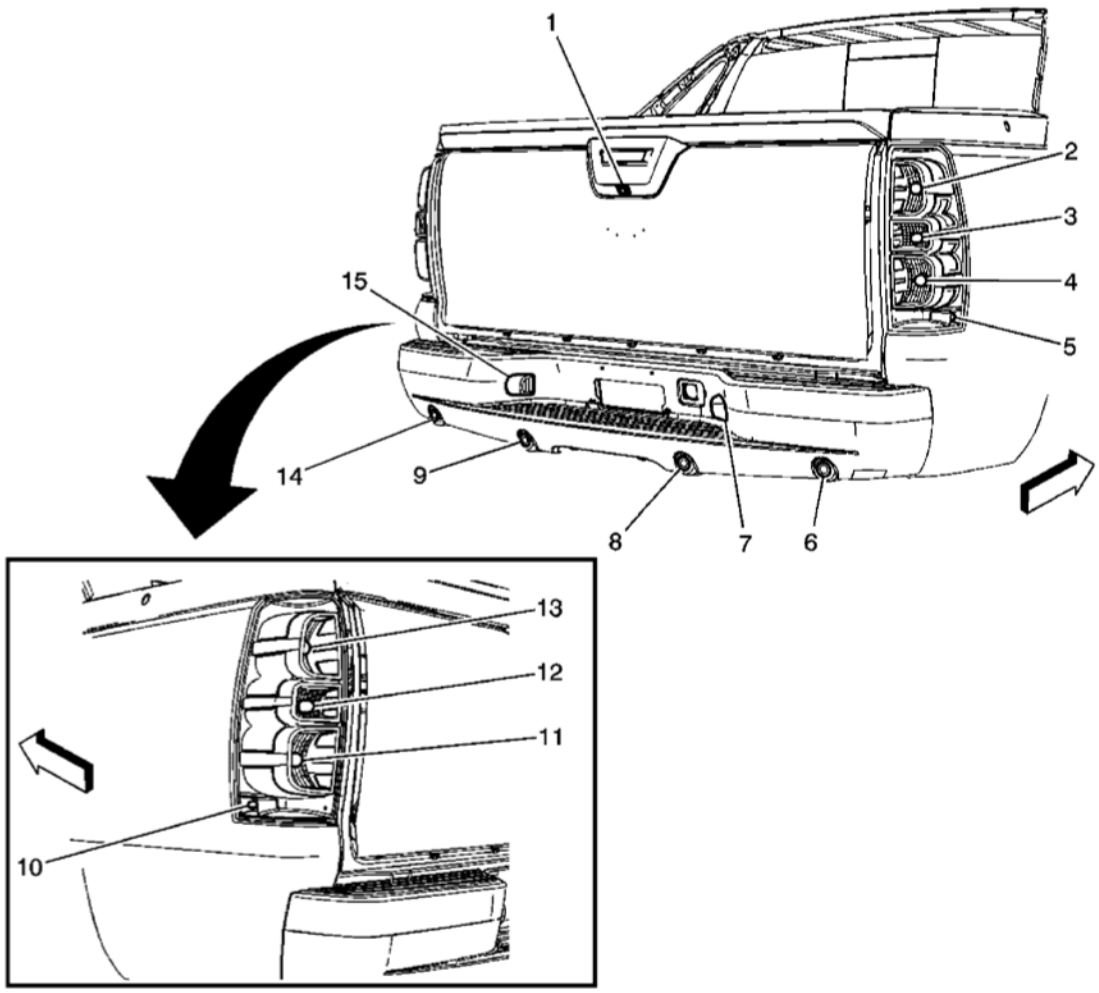



**Fig. 32: Rear of the Vehicle (X88 Except E52)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 32**

| Callout | Component Name |
|---|---|
| 1 | Rearview Camera (UVC) |
| 2 | Tail/Stop Lamp - Right |
| 3 | Backup Lamp - Right |
| 4 | Tail/Turn Signal Lamp - Right |
| 5 | Marker Lamp - RR |
| | |

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| | |
|---|---|
| 6 | Object Sensor - RR Corner |
| 7 | License Lamp - Right |
| 8 | Object Sensor - RR Middle |
| 9 | Object Sensor - LR Middle |
| 10 | Marker Lamp - LR |
| 11 | Tail/Turn Signal Lamp - Left |
| 12 | Backup Lamp - Left |
| 13 | Tail/Stop Lamp Left |
| 14 | Object Sensor - LR Corner |
| 15 | License Lamp - Left |

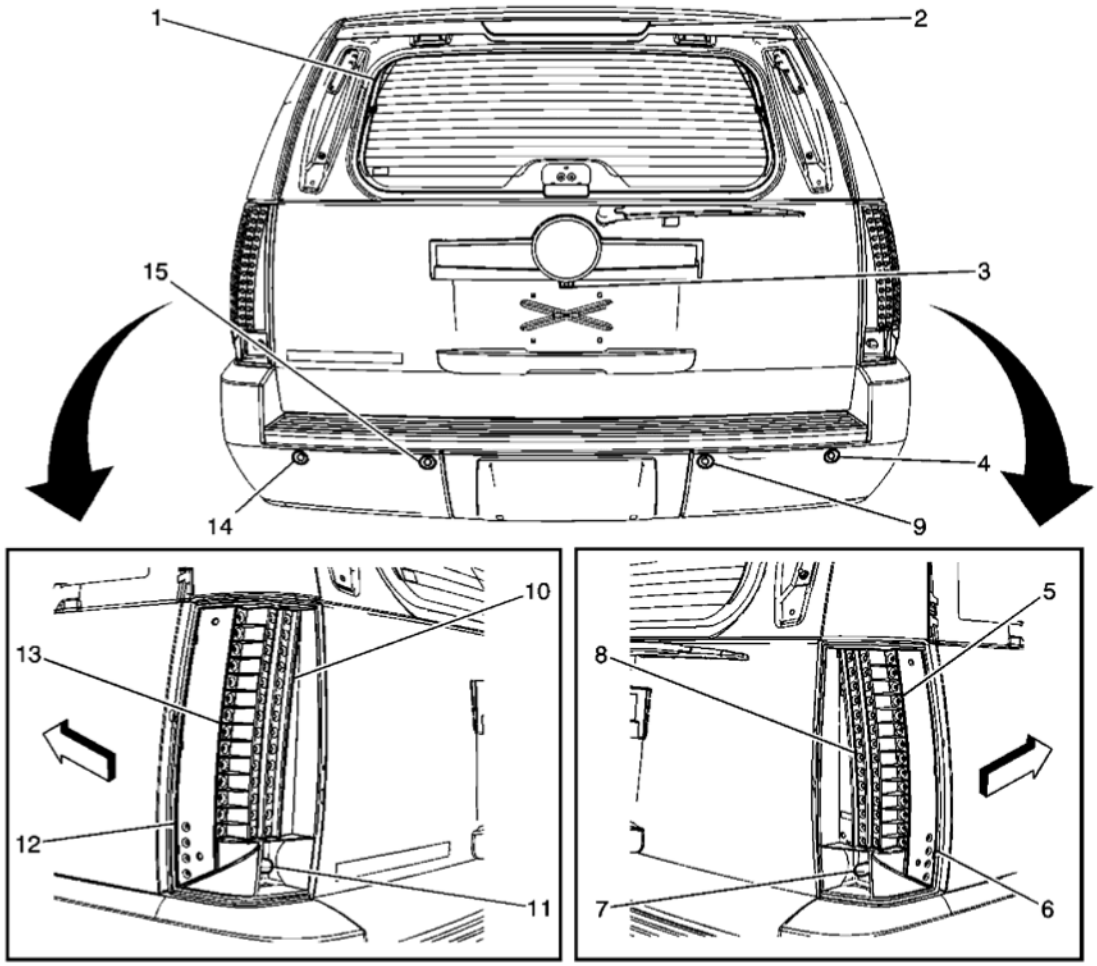


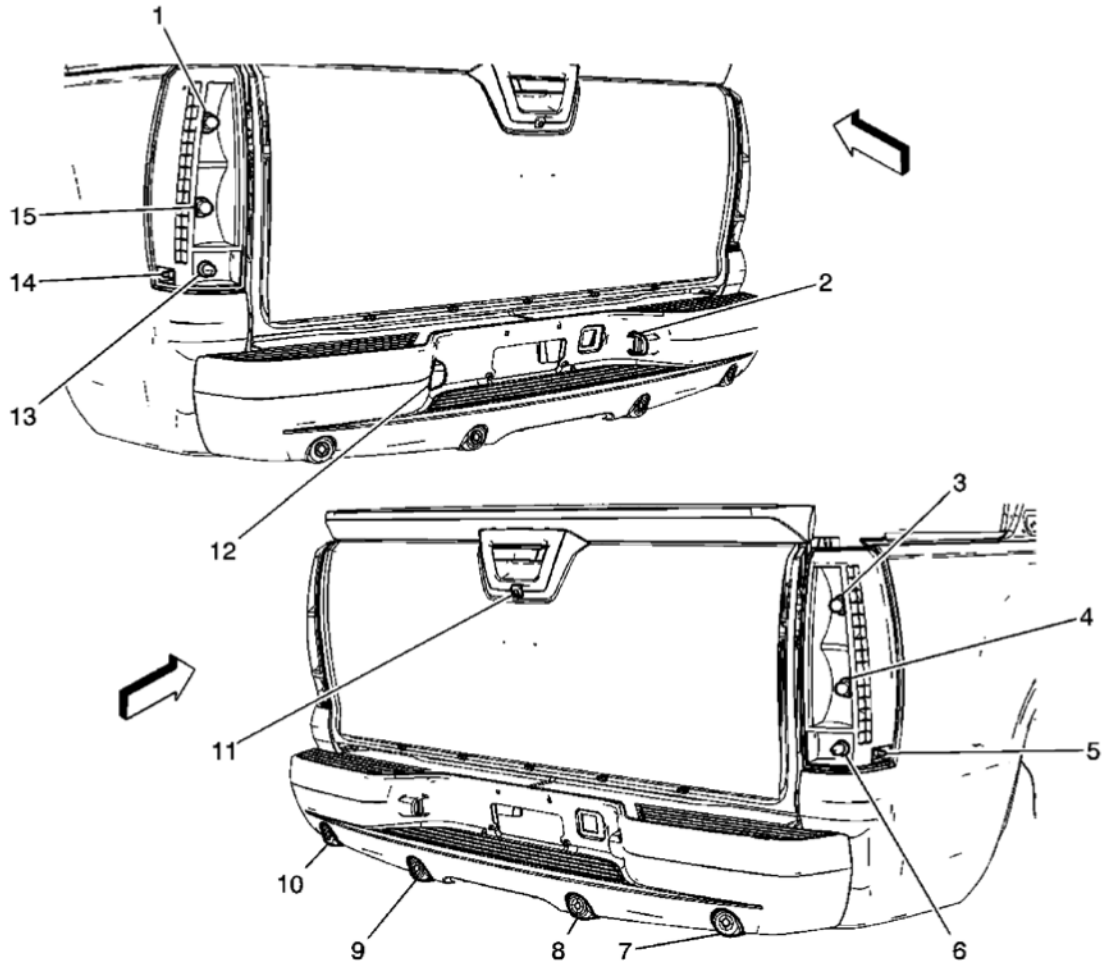

**Fig. 33: Rear of the Vehicle (Z75 w/E52)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 33**

| Callout | Component Name |
|---|---|

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| | |
|---|---|
| 1 | Defogger Grid |
| 2 | Center high Mounted Stop Lamp (CHMSL) |
| 3 | Rearview Camera (UVC) |
| 4 | Object Sensor - RR Corner |
| 5 | Tail Lamp Circuit Board - Right (Park) |
| 6 | Tail Lamp Circuit Board - Right (Marker) |
| 7 | Backup Lamp - RR |
| 8 | Tail Lamp circuit Board - Right (Stop/Turn) |
| 9 | Object Sensor - RR Middle |
| 10 | Tail Lamp Circuit Board - Left (Stop/Turn) |
| 11 | Backup Lamp - LR |
| 12 | Tail Lamp Circuit Board - Left (Marker) |
| 13 | Tail Lamp Circuit Board - Left (Park) |
| 14 | Object Sensor - LR Corner |
| 15 | Object Sensor - LR Middle |




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**Fig. 34: Rear of the Vehicle (Z75 w/o E52)**
**Courtesy of GENERAL MOTORS CORP.**

**Callouts For Fig. 34**

| Callout | Component Name |
|---|---|
| 1 | Tail / Stop and Turn Signal Lamp - Upper Left |
| 2 | License Lamp - Right |
| 3 | Tail / Stop and Turn Signal Lamp - Upper Right |
| 4 | Tail / Stop and Turn Signal Lamp - Lower Right |
| 5 | Marker Lamp - RR |
| 6 | Backup Lamp - Right |
| 7 | Object Sensor - RR Corner |
| 8 | Object Sensor - RR Middle |
| 9 | Object Sensor - LR Middle |
| 10 | Object Sensor - LR Corner |
| 11 | Rearview Camera (UVC) |
| 12 | License Lamp - Left |
| 13 | Backup Lamp - Left |
| 14 | Marker Lamp - LR |
| 15 | Tail / Stop and Turn Signal Lamp - Lower Left |

## LIGHTING SYSTEMS CONNECTOR END VIEWS

**Ambient Light/Sunload Sensor Assembly (CJ2)**

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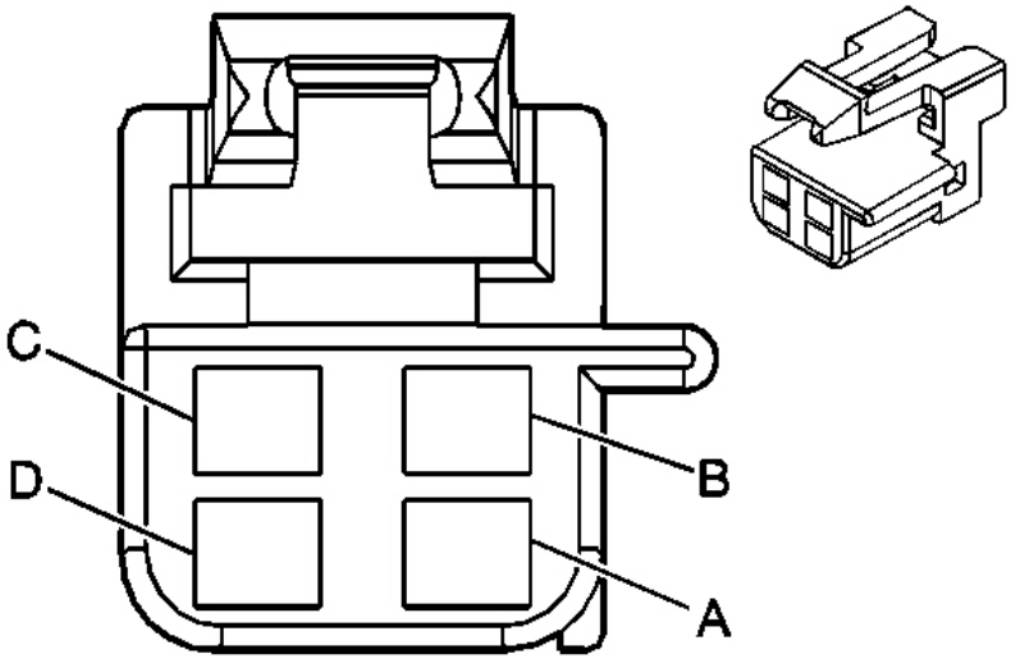



**Fig. 35: Ambient Light/Sunload Sensor Assembly (CJ2) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Ambient Light/Sunload Sensor Assembly (CJ2) Connector Parts Information**

**Connector Part Information**

- OEM: 12064760
- Service: 12085208
- Description: 4-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/Sunload Sensor Assembly (CJ2) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | L-BU/BK | 590 | Driver Sunload Sensor Signal |
| B | GY | 1548 | Passenger Sunload Sensor Signal |
| | | | |

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| | | | |
|---|---|---|---|
| C | BK/WH | 1851 | Ground |
| D | WH | 278 | Ambient Light Sensor Signal |

**Ambient Light Sensor (CJ3)**

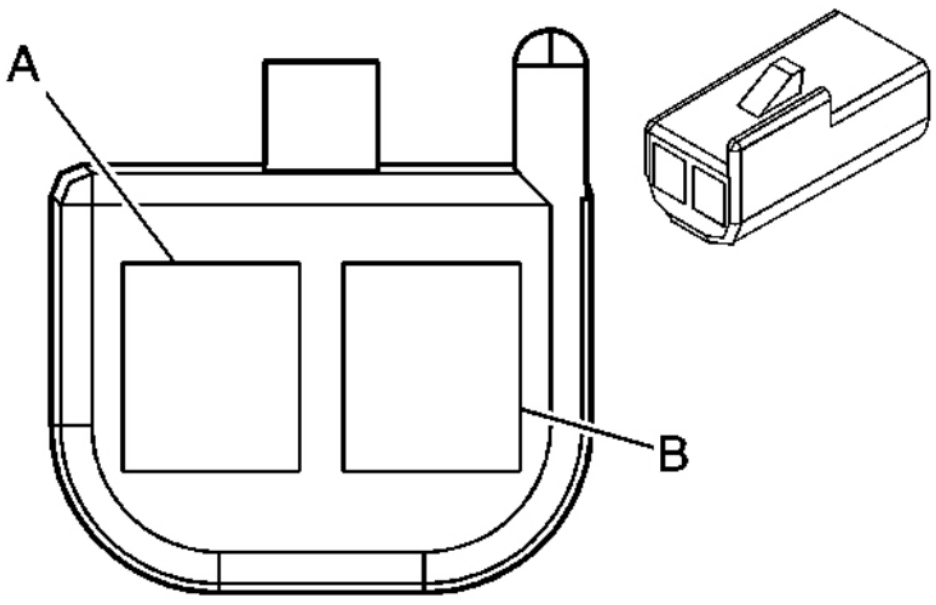



**Fig. 36: Ambient Light Sensor (CJ3) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Ambient Light Sensor (CJ3) Connector Parts Information**

**Connector Part 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)

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**Ambient Light Sensor (CJ3) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | WH | 278 | Ambient Light Sensor Signal |
| B | BK/WH | 1851 | Ground |

**Courtesy/Reading Lamp - Front**

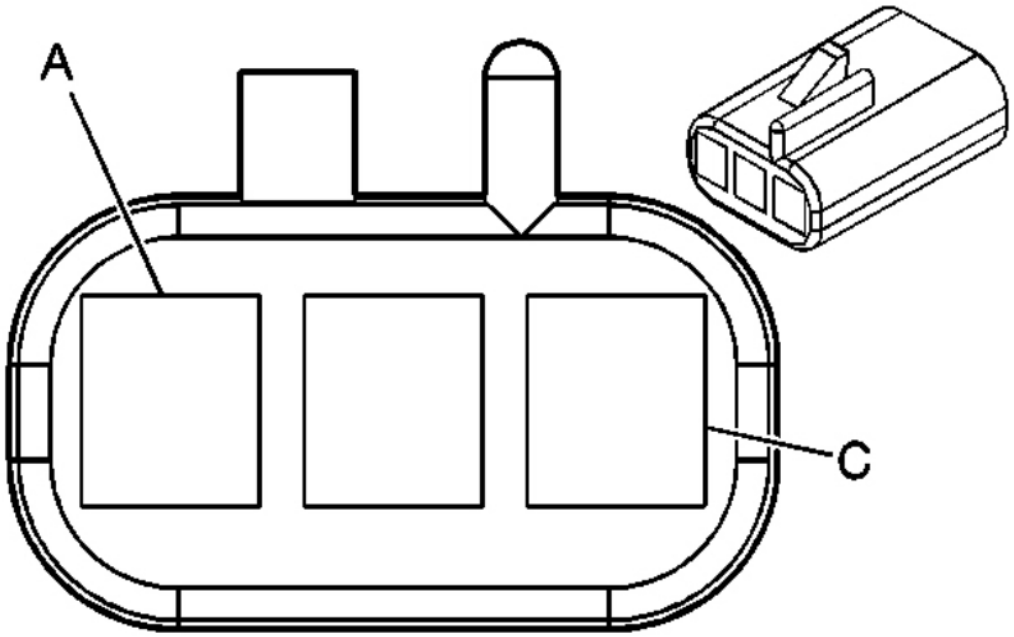



**Fig. 37: Courtesy/Reading Lamp - Front Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Courtesy/Reading Lamp - Front 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

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- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

**Courtesy/Reading Lamp - Front Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | OG | 6815 | Inadvertent Power Control |
| B | BK | 1050 | Ground |
| C | GY | 157 | Interior Lamp Control |

**Courtesy/Reading Lamps - 2nd Row**

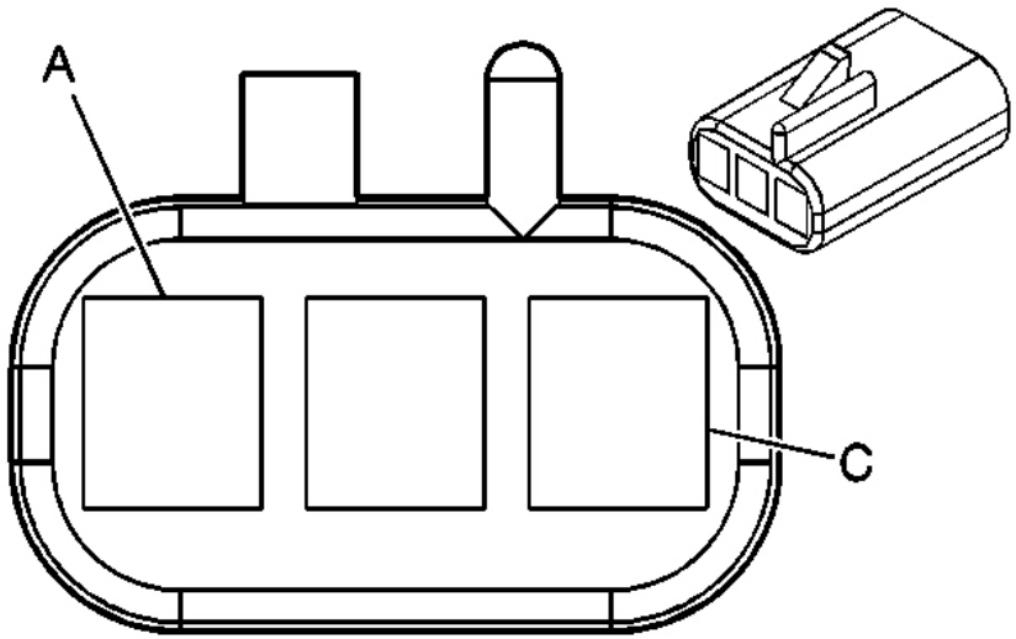



**Fig. 38: Courtesy/Reading Lamps - 2nd Row Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Courtesy/Reading Lamps - 2nd Row Connector Parts Information**

**Connector Part Information**

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

**Terminal Part Information**

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

**Courtesy/Reading Lamps - 2nd Row Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | GY | 157 | Interior Lamp Control |
| B | BK | 1050 | Ground |
| C | OG | 6815 | Inadvertent Power Control |

**Courtesy/Reading Lamps - 3rd Row (E52)**

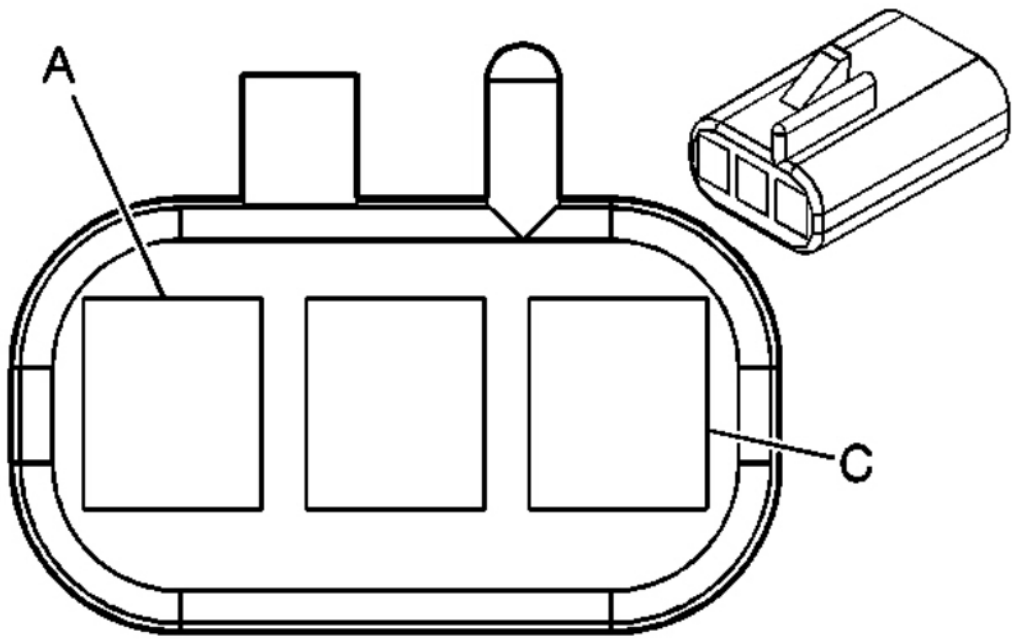



**Fig. 39: Courtesy/Reading Lamps - 3rd Row (E52) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Courtesy/Reading Lamps - 3rd Row (E52) Connector Parts Information**

**Connector Part Information**

- OEM: 12047781
- Service: 12101864

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- 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)

**Courtesy/Reading Lamps - 3rd Row (E52) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | GY | 157 | Interior Lamp Control |
| B | BK | 1050 | Ground |
| C | OG | 6815 | Inadvertent Power Control |

**Dome Lamp (LWB)**

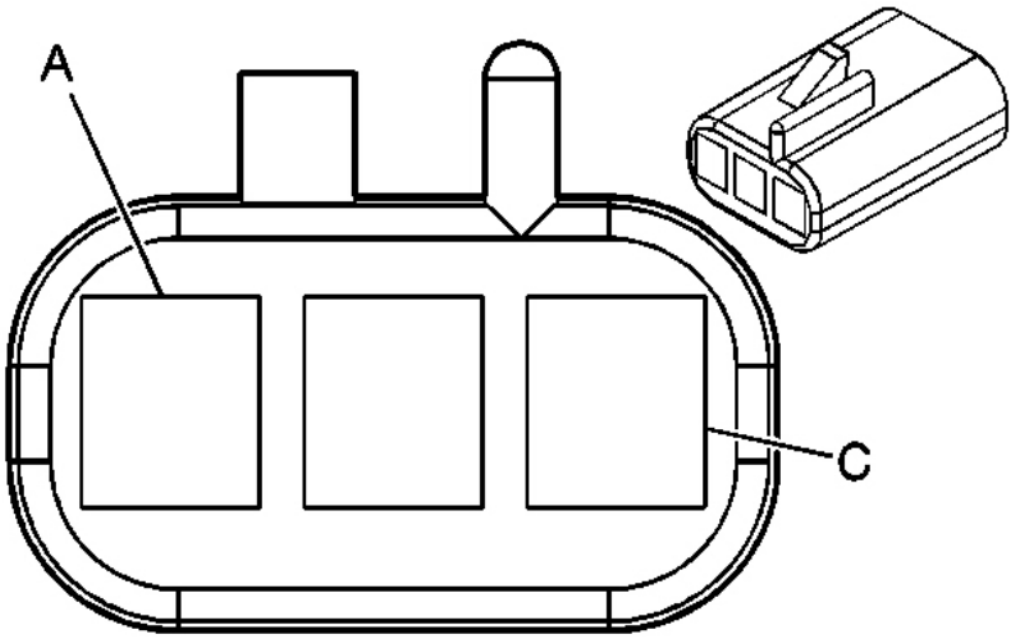



**Fig. 40: Dome Lamp (LWB) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Dome Lamp (LWB) Connector Parts Information**

**Connector Part Information**

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- 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)

**Dome Lamp (LWB) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | GY | 157 | Interior Lamp Control |
| B | BK | 1450 | Ground |

**Door Courtesy Lamp - LF**

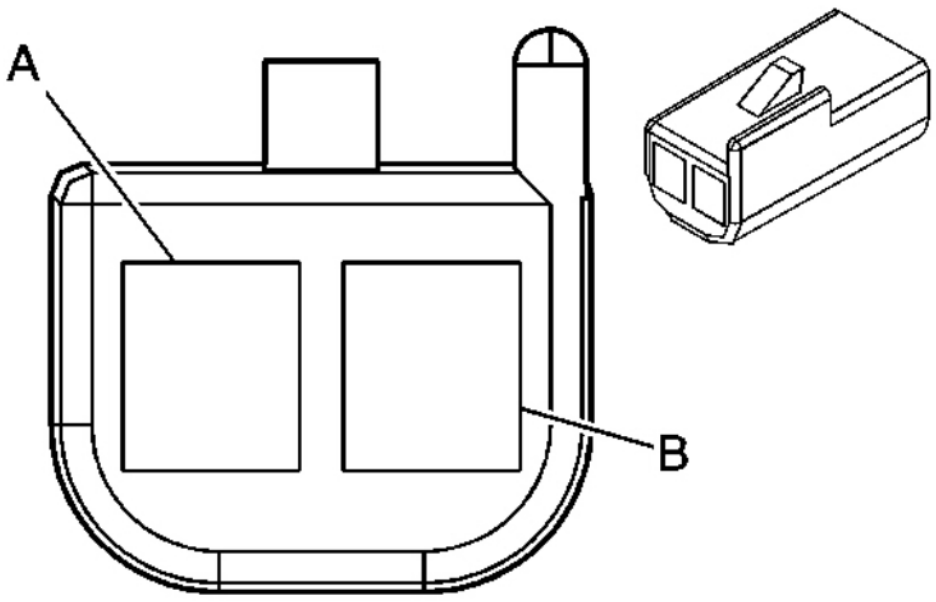



**Fig. 41: Door Courtesy Lamp - LF Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Door Courtesy Lamp - LF Connector Parts Information**

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**Connector Part 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)

**Door Courtesy Lamp - LF Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | D-BU | 660 | Left Courtesy Lamp Control |
| B | BK | 1050 | Ground |

**Door Courtesy Lamp - RF**

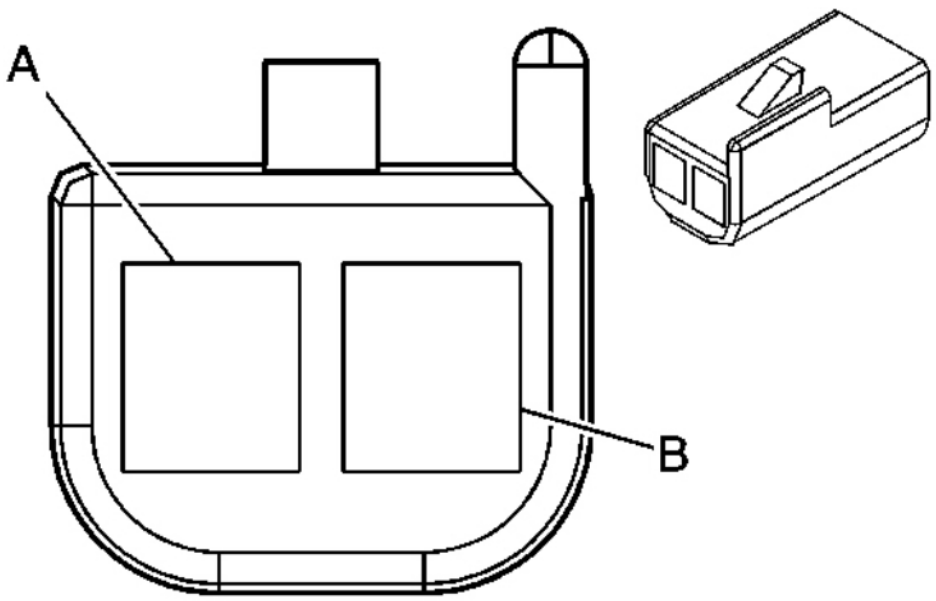



**Fig. 42: Door Courtesy Lamp - RF Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

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**Door Courtesy Lamp - RF Connector Parts Information**

**Connector Part 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)

**Door Courtesy Lamp - RF Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | L-BU | 661 | Right Courtesy Lamp Control |
| B | BK | 1050 | Ground |

**Fog Lamp - LF (X88/Z88)**

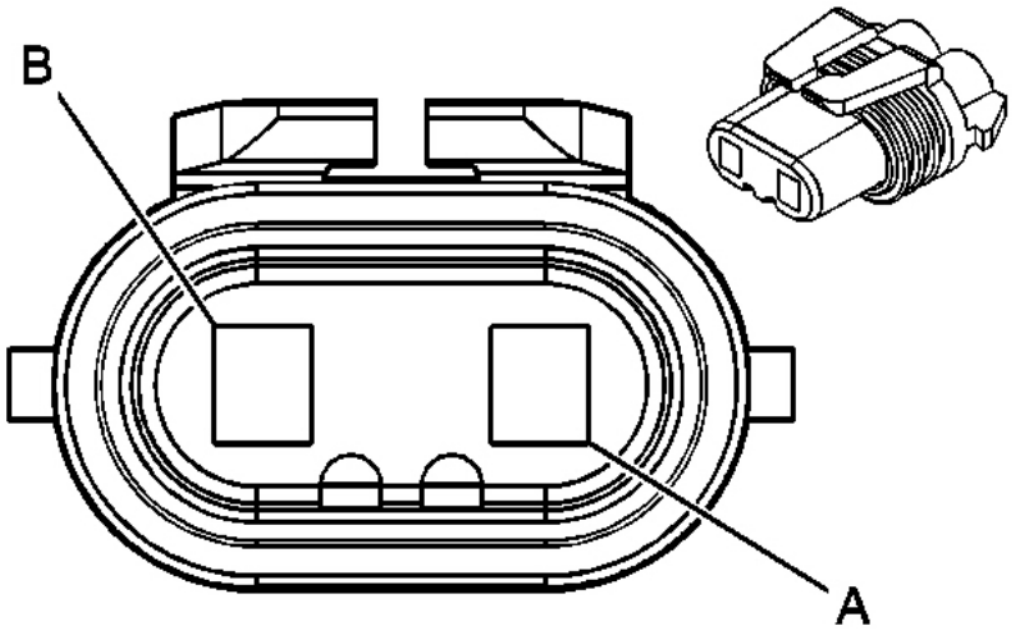



**Fig. 43: Fog Lamp - LF (X88/Z88) Connector End View**

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**Courtesy of GENERAL MOTORS CORP.**

### Fog Lamp - LF (X88/Z88) 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)

### Fog Lamp - LF (X88/Z88) Connector Terminal Identification

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | PU | 2234 | Front Fog Lamp Supply Voltage |
| B | BK | 150 | Ground |

### Fog Lamp - LF (Z75)

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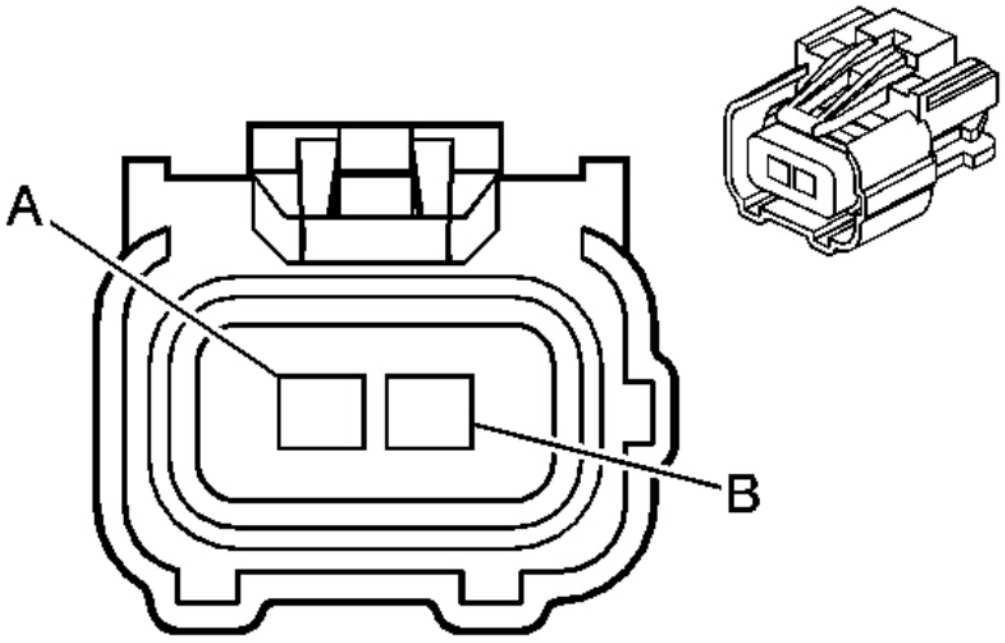



**Fig. 44: Fog Lamp - LF (Z75) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Fog Lamp - LF (Z75) Connector Parts Information**

**Connector Part Information**

- OEM: 15489797
- Service: 19149215
- Description: 2-Way F GT Flex Beam 150 Series, Sealed (BK)

**Terminal Part Information**

- Terminal/Tray: 12191812/19
- Core/Insulation Crimp: C/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

**Fog Lamp - LF (Z75) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | PU | 2234 | Front Fog Lamp Supply Voltage |
| B | BK | 150 | Ground |

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**Fog Lamp - RF (X88/Z88 w/T96)**

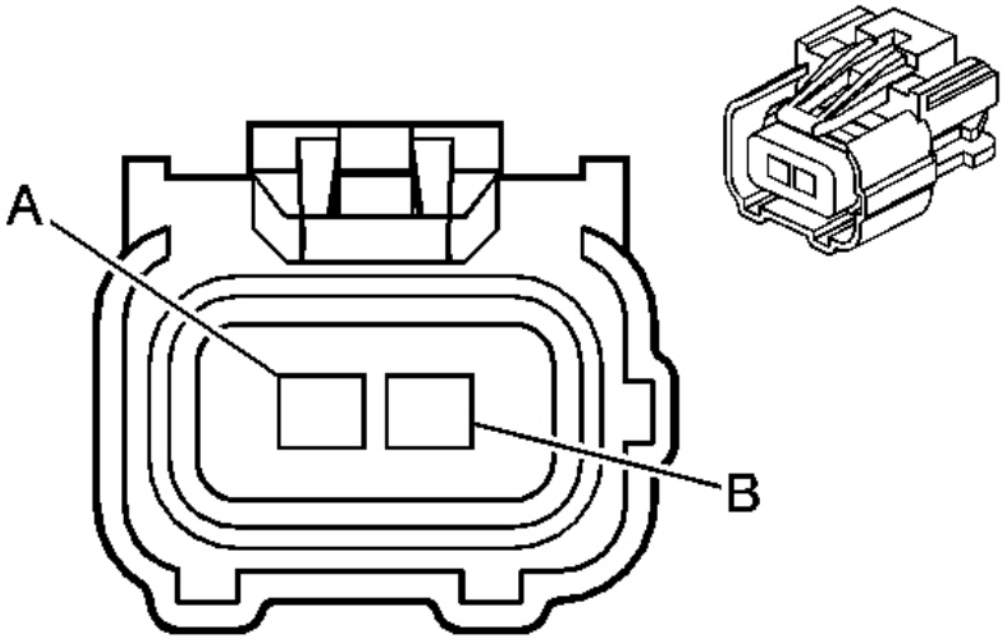



**Fig. 45: Fog Lamp - RF (X88/Z88 w/T96) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Fog Lamp - RF (X88/Z88 w/T96) Connector Parts Information**

**Connector Part Information**

- OEM: 15489797
- Service: 19149215
- Description: 2-Way F GT Flex Beam 150 Series, Sealed (BK)

**Terminal Part Information**

- Terminal/Tray: 12191812/19
- Core/Insulation Crimp: C/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

**Fog Lamp - RF (X88/Z88 w/T96) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | PU | 2234 | Front Fog Lamp Supply Voltage |

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| | | | |
|---|---|---|---|
| B | BK | 150 | Ground |

**Fog Lamp - RF (Z75)**

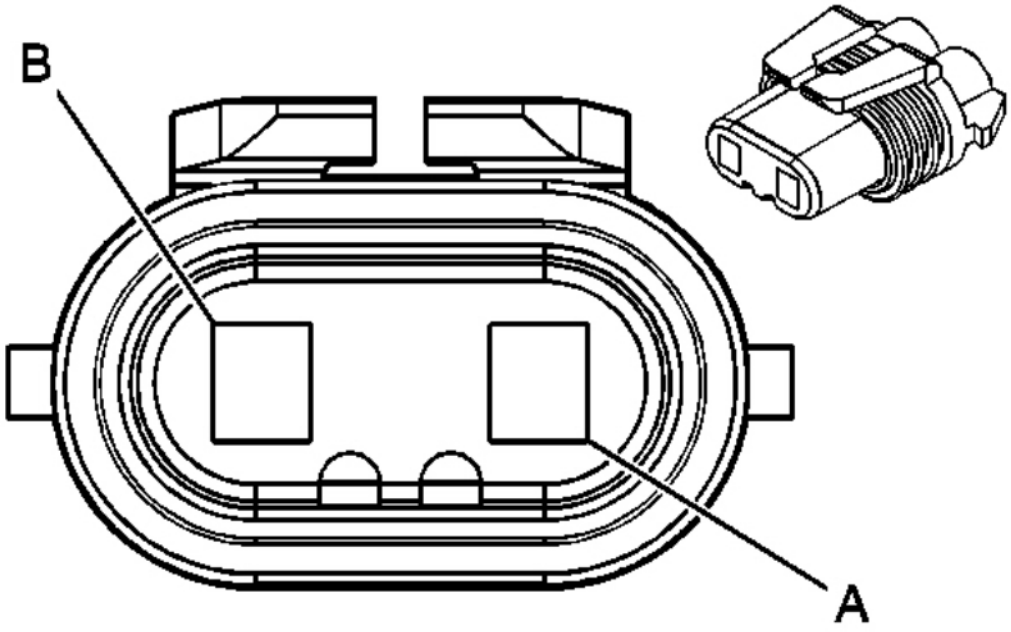



**Fig. 46: Fog Lamp - RF (Z75) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Fog Lamp - RF (Z75) 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)

**Fog Lamp - RF (Z75) Connector Terminal Identification**

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| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | PU | 2234 | Front Fog Lamp Supply Voltage |
| B | BK | 150 | Ground |

**Headlamp - Left (Z88)**

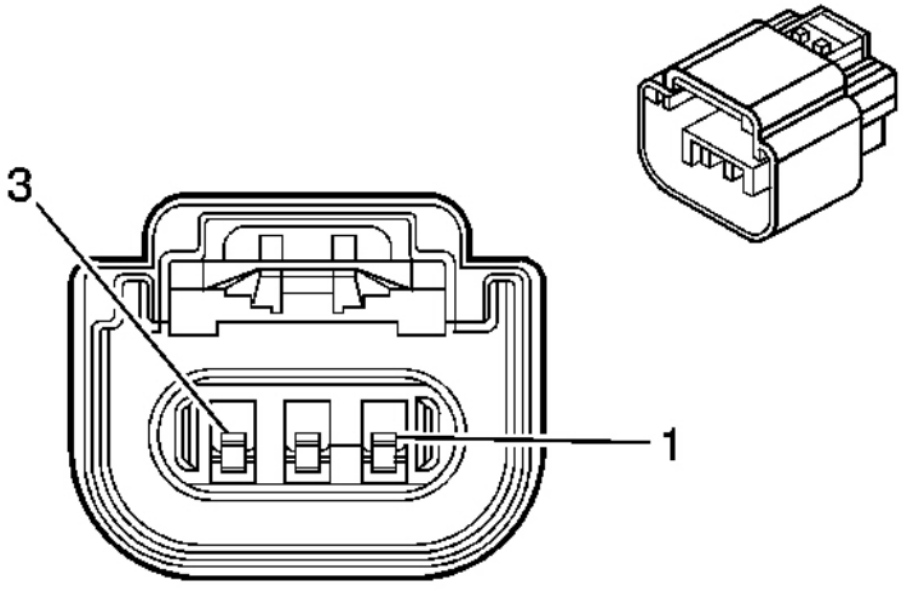



**Fig. 47: Headlamp - Left (Z88) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp - Left (Z88) Connector Parts Information**

**Connector Part Information**

- OEM: 13511996
- Service: 19149288
- Description: 3-Way F GT 150 Series, Sealed (GY)

**Terminal Part Information**

- Terminal/Tray: 12191819/8
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

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**Headlamp - Left (Z88) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| 1 | YE | 712 | Left Headlamp Low Beam Supply Voltage |
| 2 | BK | 150 | Ground |
| 3 | D-GN/WH | 711 | Left Headlamp High Beam Supply Voltage |

**Headlamp - Right (Z88)**

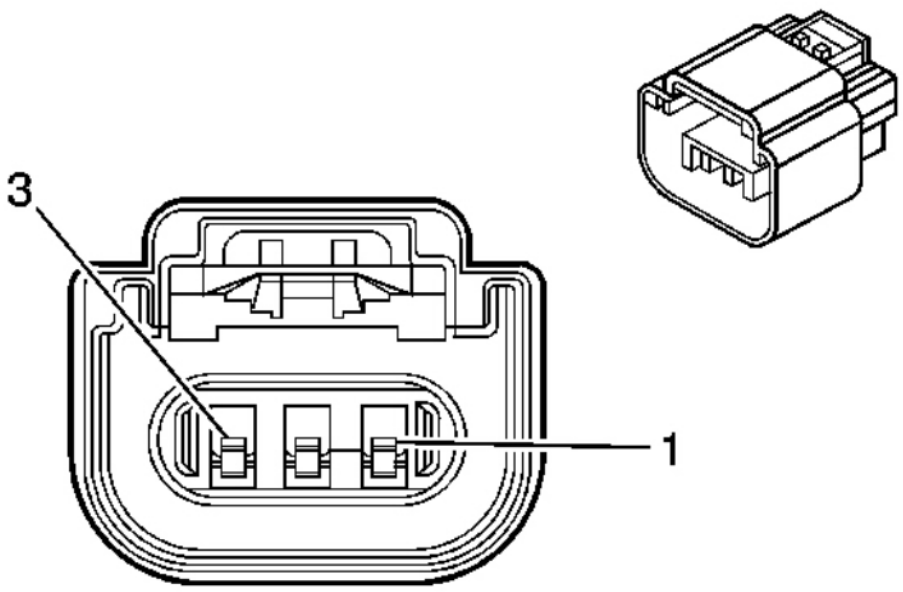



**Fig. 48: Headlamp - Right (Z88) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp - Right (Z88) Connector Parts Information**

**Connector Part Information**

- OEM: 13511996
- Service: See Catalog
- Description: 3-Way F GT 150 Series Sealed (GY)

**Terminal Part Information**

- Terminal/Tray: 12191819/8

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- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

**Headlamp - Right (Z88) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| 1 | TN/WH | 312 | Right Headlamp Low Beam Supply Voltage |
| 2 | BK | 250 | Ground |
| 3 | L-GN/BK | 311 | Right Headlamp High Beam Supply Voltage |

**Headlamp and Panel Dimmer Switch**

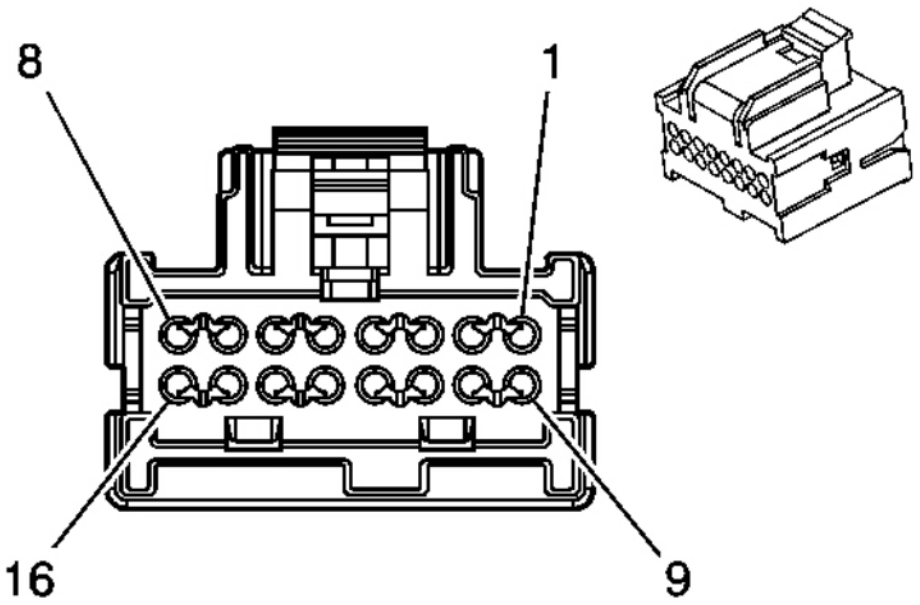



**Fig. 49: Headlamp and Panel Dimmer Switch Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp and Panel Dimmer Switch Connector Parts Information**

**Connector Part Information**

- OEM: 15416970
- Service: 22715969
- Description: 16-Way F Micro-Pack 64 Series (BK)

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**Terminal Part Information**

- Terminal/Tray: 15359541/4
- Core/Insulation Crimp: M/M
- Release Tool/Test Probe: 15381651-2/J-35616-64B (L-BU)

**Headlamp and Panel Dimmer Switch Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| 1 | WH | 103 | Headlamp Switch On Signal |
| 2 | L-BU | 13 | Headlamp Switch Park Lamp Signal |
| 3 | D-GN | 306 | Headlamp Switch Headlamps Off Signal |
| 4-5 | - | - | Not Used |
| 6 | L-BU | 187 | Rear Fog Lamp Switch Signal |
| 7 | BN/WH | 230 | Instrument Panel Lamp Dimming Control (X88/Z88) |
| | YE | 6817 | LED Backlight Dimming Control (Z75) |
| 8 | BK | 1850 | Ground |
| 9 | PU | 328 | Interior Lamp Switch Voltage Supply Voltage |
| 10 | OG | 192 | Front Fog Lamp Switch Signal |
| 11 | - | - | Not Used |
| 12 | D-BU/WH | 149 | Courtesy Lamp Supply Voltage |
| 13 | D-GN | 44 | Instrument Panel Lamps Dimmer Switch Signal |
| 14 | - | - | Not Used |
| 15 | OG/WH | 812 | 12-Volt Reference or I/P Dimming Voltage Reference |
| 16 | - | - | Not Used |

**License Lamp - Left**

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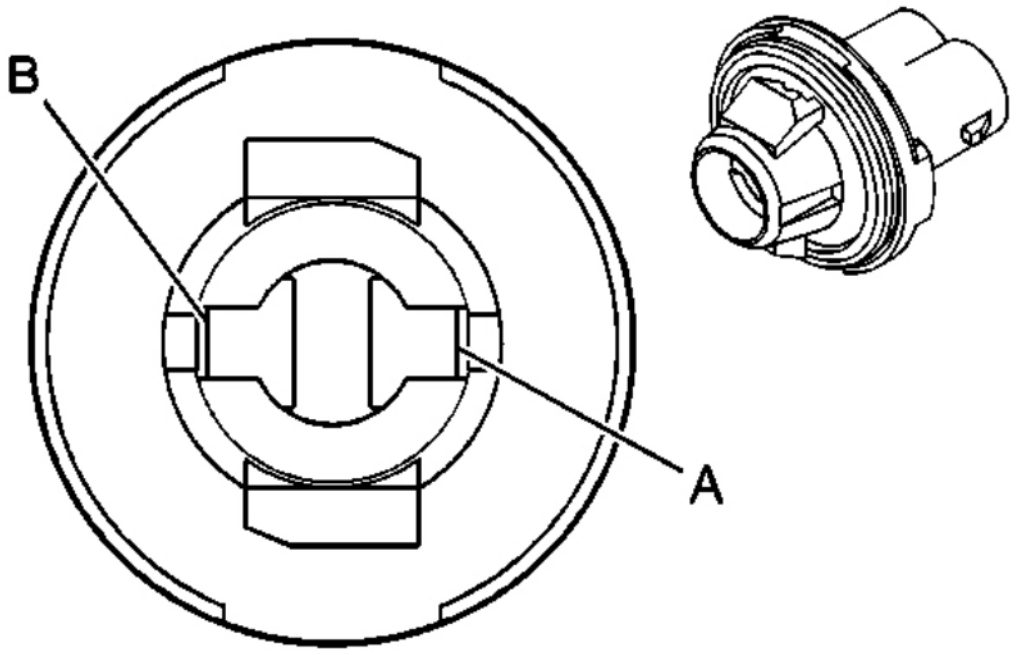



**Fig. 50: License Lamp - Left Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**License Lamp - Left Connector Parts Information**

**Connector Part Information**

- OEM: 12110053
- Service: 88986416
- Description: 2-Way F Lamp Socket Wedge Base W2 (D-GY)

**Terminal Part Information**

- Terminal/Tray: 12124471/5
- Core/Insulation Crimp: 2/3
- Release Tool/Test Probe: 12094430 / N/A

**License Lamp - Left Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | BN | 2509 | Left Rear Park Lamps Supply Voltage |
| B | BK | 1450 | Ground (E52) |

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| | | | |
|---|---|---|---|
| | BK | 1750 | Ground (Except E52) |

**License Lamp - Right**

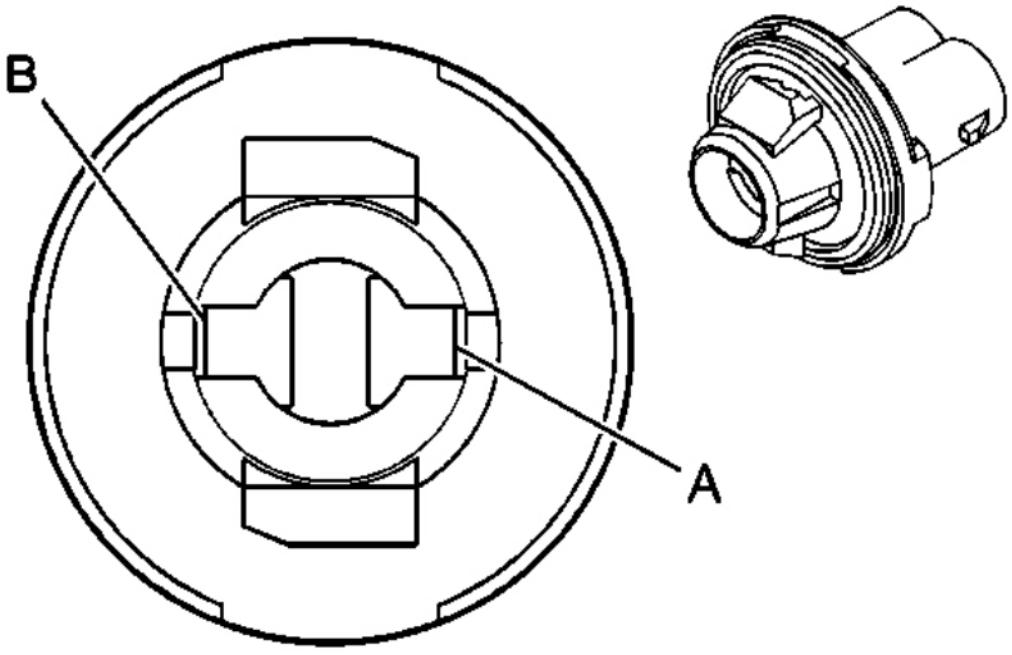



**Fig. 51: License Lamp - Right Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**License Lamp - Right Connector Parts Information**

**Connector Part Information**

- OEM: 12110053
- Service: 88986416
- Description: 2-Way F Lamp Socket Wedge Base W2 (D-GY)

**Terminal Part Information**

- Terminal/Tray: 12124471/5
- Core/Insulation Crimp: 2/3
- Release Tool/Test Probe: 12094430 / N/A

**License Lamp - Right Connector Terminal Identification**

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| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | BN | 2509 | Left Rear Park Lamps Supply Voltage |
| B | BK | 1450 | Ground (E52) |
| | BK | 1750 | Ground (Except E52) |

**Repeater Lamp - LF (Export)**

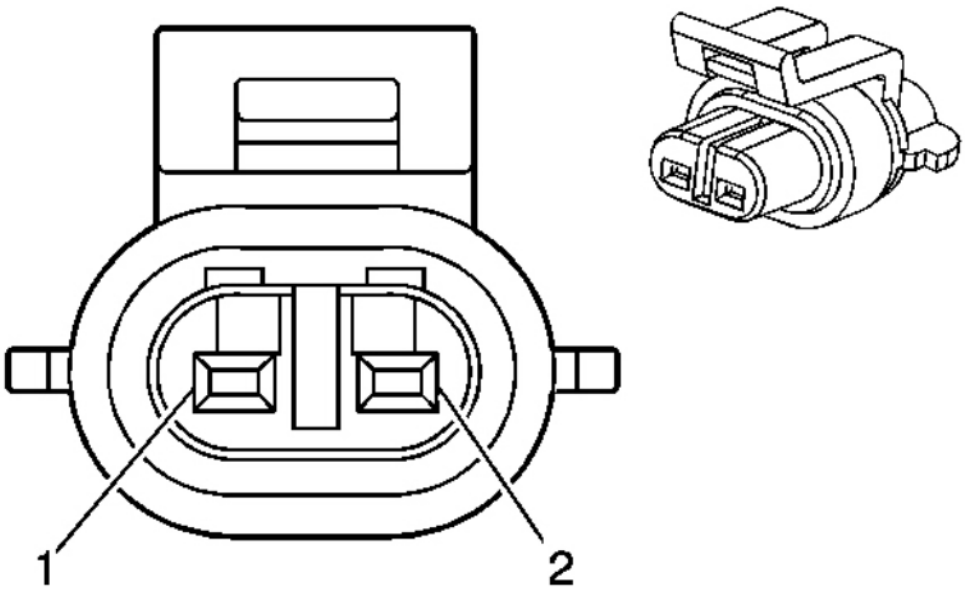



**Fig. 52: Repeater Lamp - LF (Export) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Repeater Lamp - LF (Export) Connector Parts Information**

**Connector Part Information**

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

**Terminal Part Information**

- Terminal/Tray: 12191819/8
- Core/Insulation Crimp: 2/A

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- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

**Repeater Lamp - LF (Export) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| 1 | YE/BK | 1334 | Left Rear Turn Signal Lamp Supply Voltage |
| 2 | BK | 150 | Ground |

**Repeater Lamp - RF (Export)**

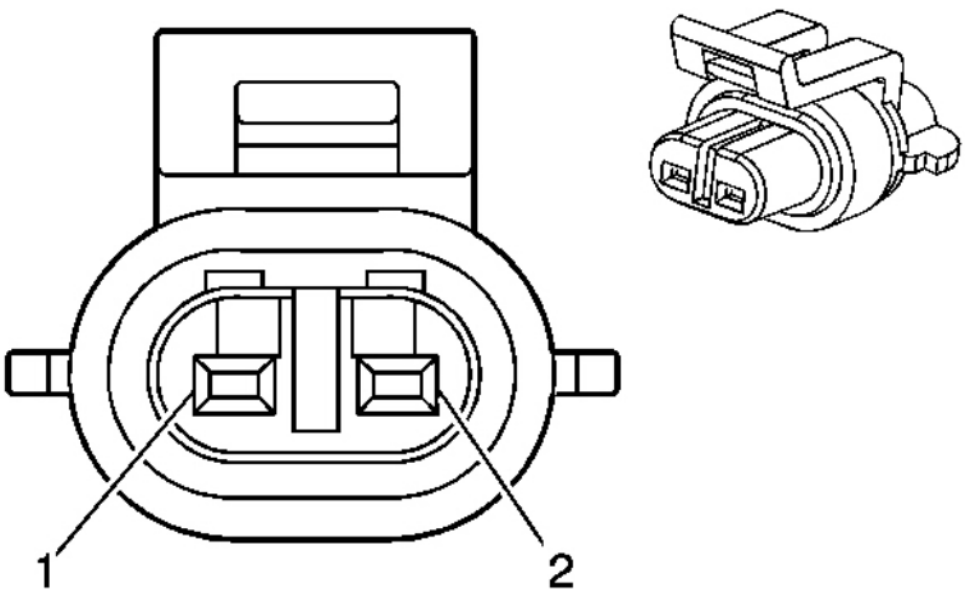



**Fig. 53: Repeater Lamp - RF (Export) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Repeater Lamp - RF (Export) Connector Parts Information**

**Connector Part Information**

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

**Terminal Part Information**

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- Terminal/Tray: 12191819/8
- Core/Insulation Crimp: 2/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

**Repeater Lamp - RF (Export) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| 1 | YE/BK | 1334 | Left Rear Turn Signal Lamp Supply Voltage |
| 2 | BK | 150 | Ground |

**Stop Lamp Switch**

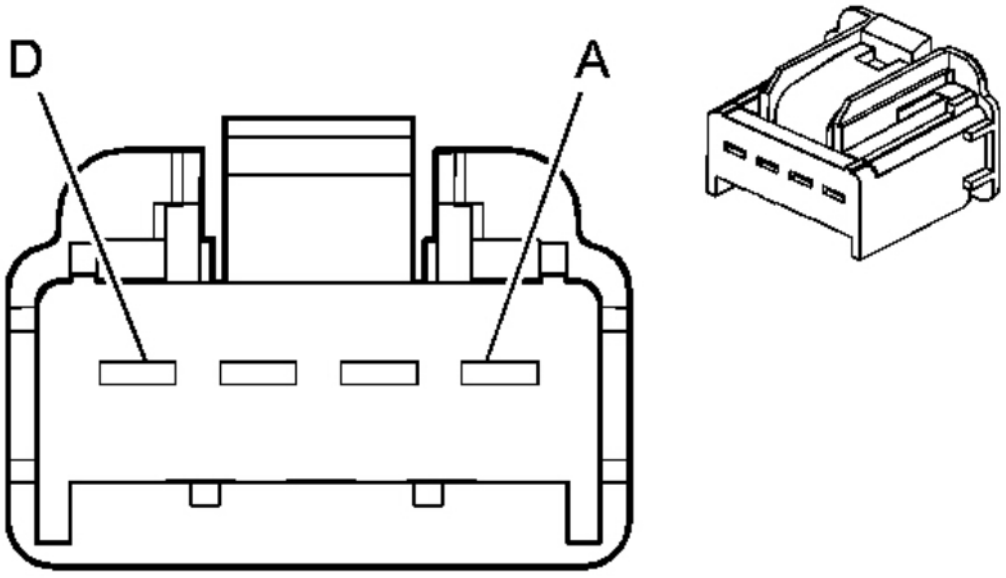



**Fig. 54: Stop Lamp Switch Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Stop Lamp Switch Connector Parts Information**

**Connector Part Information**

- OEM: 15466671
- Service: 19149301
- Description: 4-Way F GT 280 Series (L-GY)

**Terminal Part Information**

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- Terminal/Tray: 15304711/8
- Core/Insulation Crimp: E/A
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

**Stop Lamp Switch Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | L-BU/WH | 6311 | Cruise/ETC/TCC Brake Signal |
| B | PK | 239 | Ignition 1 Voltage |
| C | OG/WH | 812 | 12-Volt Reference or I/P Dimming Voltage Reference |
| D | PU | 7062 | Brake Pedal Switch Normally Closed Contact Signal |

**Sunshade - Left**

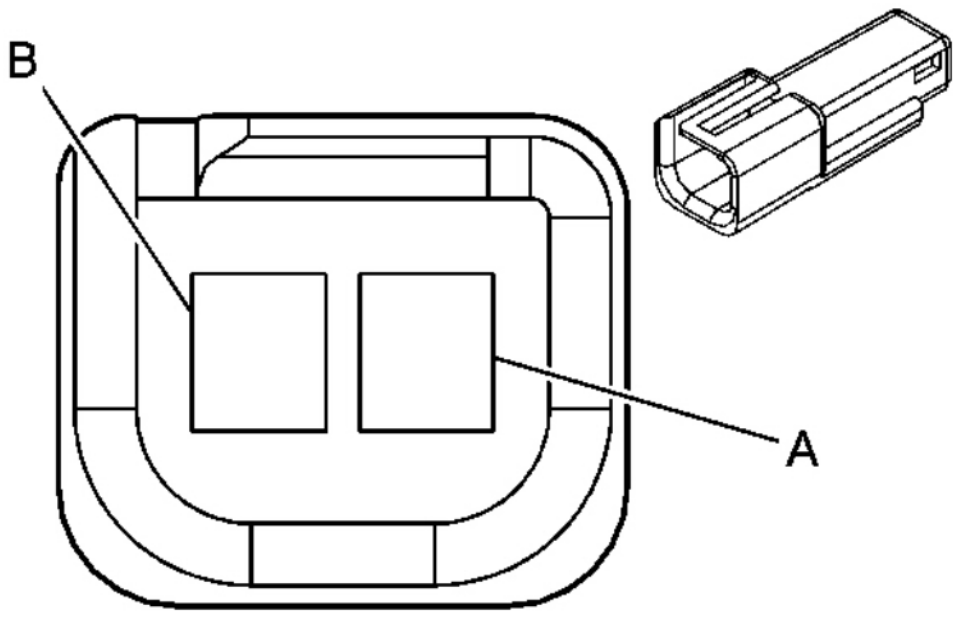



**Fig. 55: Sunshade - Left Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Sunshade - Left Connector Parts Information**

| Connector Part Information |
|---|

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

**Terminal Part Information**

- Terminal/Tray: 12047581/2
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-3 (GY)

**Sunshade - Left Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | OG | 6815 | Inadvertent Power Control |
| B | BK | 1050 | Ground |

**Sunshade - Right**

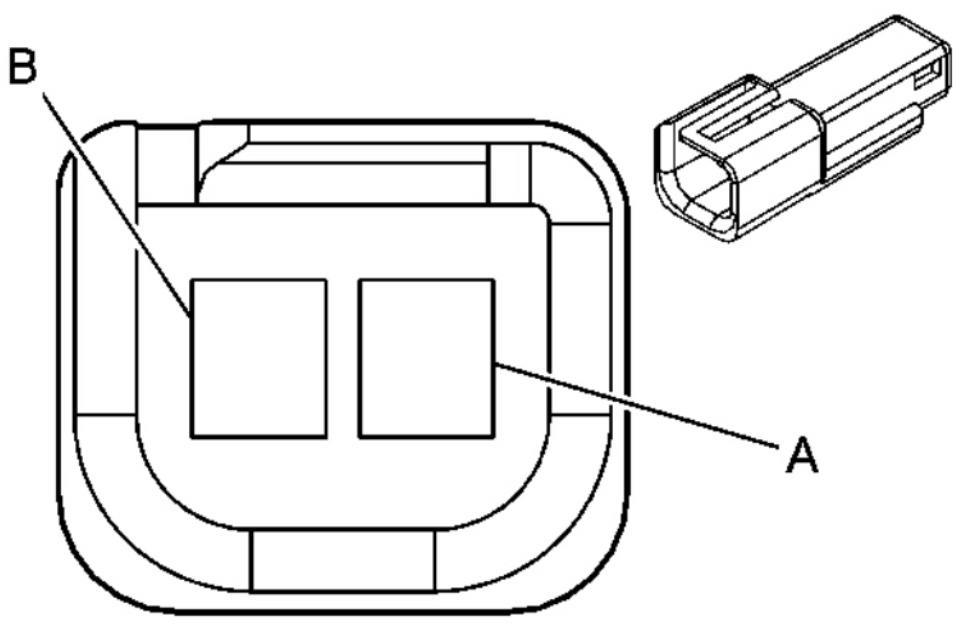



**Fig. 56: Sunshade - Right Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Sunshade - Right Connector Parts Information**

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**Connector Part Information**

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

**Terminal Part Information**

- Terminal/Tray: 12047581/2
- Core/Insulation Crimp: E/C
- Release Tool/Test Probe: 12094429/J-35616-3 (GY)

**Sunshade - Right Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | OG | 6815 | Inadvertent Power Control |
| B | BK | 1050 | Ground |

**Trailer Connector**

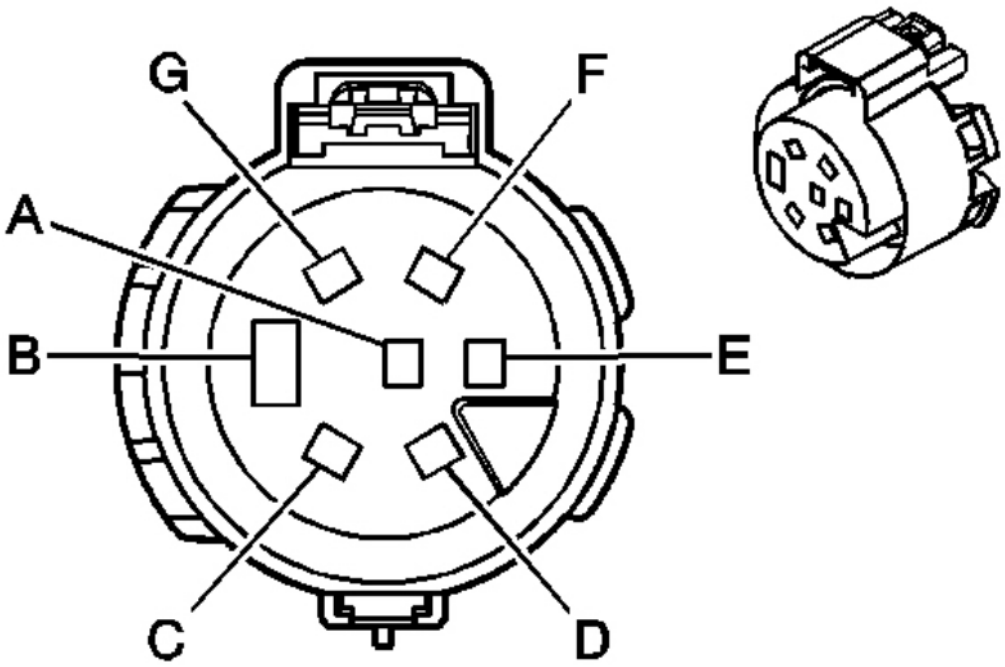



**Fig. 57: Trailer Connector End View**

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**Courtesy of GENERAL MOTORS CORP.**

**Trailer Connector Parts Information**

**Connector Part Information**

- OEM: 15354653
- Service: 15306164
- Description: 7-Way F Metri-Pack 280, Sealed (BK)

**Terminal Part Information**

- Pins: A, D, F, G
- Terminal/Tray: 12110847/4
- Core/Insulation Crimp: C/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

- Pins: B
- Terminal/Tray: 15305232/23
- Core/Insulation Crimp: B/3
- Release Tool/Test Probe: J-38125-11A/J-35616-42 (RD)

- Pins: C, E
- Terminal/Tray: 12110845/4
- Core/Insulation Crimp: F/5
- Release Tool/Test Probe: 15315247/J-35616-4A (PU)

**Trailer Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | L-GN | 1624 | Trailer Backup Lamp Supply Voltage |
| B | WH | 22 | Ground |
| C | D-BU | 47 | Trailer Auxiliary Supply Voltage |
| D | D-GN | 1619 | Trailer Right Rear Turn/Stop Lamp Supply Voltage |
| E | RD/BK | 742 | Battery Positive Voltage |
| F | BN | 2109 | Trailer Park Lamp Supply Voltage |
| G | YE | 1618 | Trailer Left Rear Turn/Stop Lamp Supply Voltage |

**Turn Signal Lamp - LF (Z75)**

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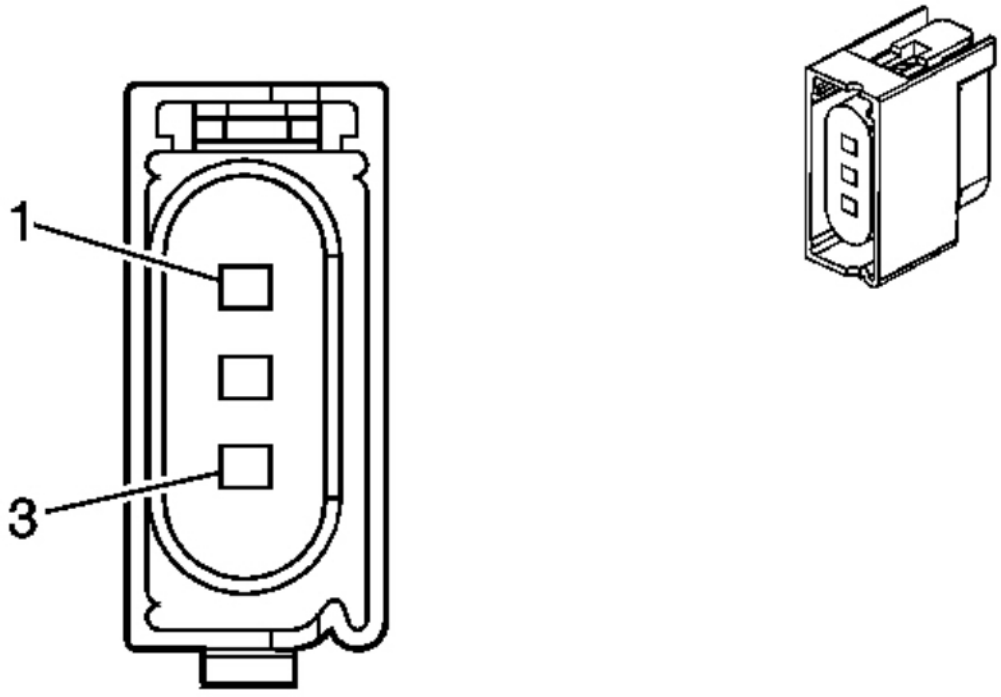



**Fig. 58: Turn Signal Lamp - LF (Z75) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Turn Signal Lamp - LF (Z75) Connector Parts Information**

**Connector Part Information**

- OEM: 15454375
- Service: 88988117
- Description: 3-Way F Axial Series (BN)

**Terminal Part Information**

- Terminal/Tray: 7116-4102-08/9
- Core/Insulation Crimp: E/1
- Release Tool/Test Probe: 12094430/J-35616-2A (GY)

**Turn Signal Lamp - LF (Z75) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| 1 | L-BU/WH | 1314 | Left Front Turn Signal Lamp Supply Voltage |

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| | | | |
|---|---|---|---|
| 2 | - | - | Not Used |
| 3 | BK | 150 | Ground |

**Turn Signal Lamp - RF (Z75)**

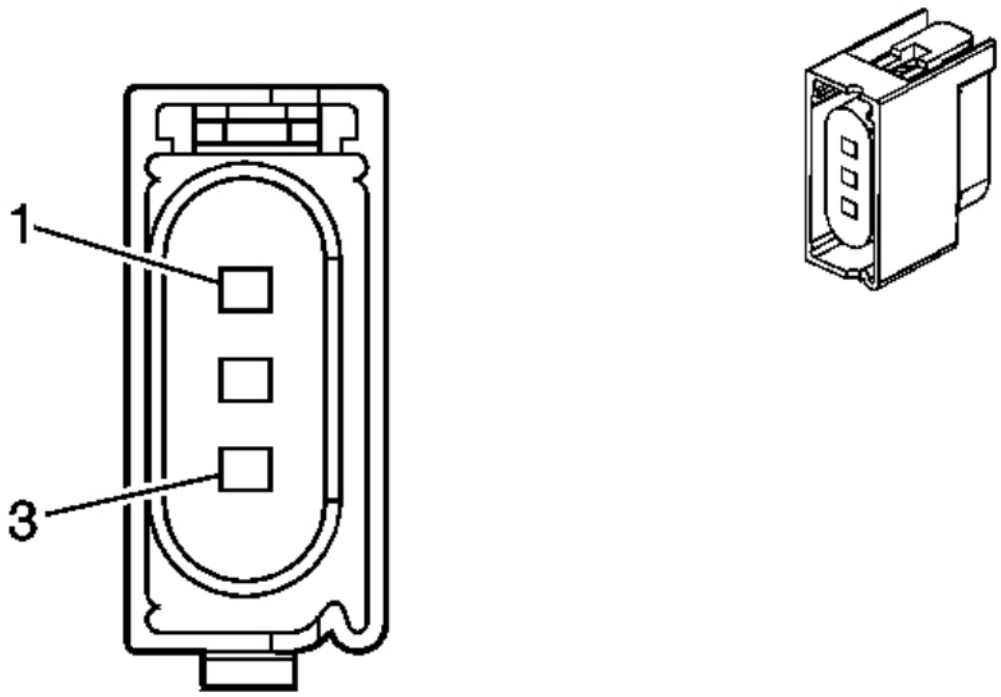



**Fig. 59: Turn Signal Lamp - RF (Z75) Connector End View**
**Courtesy of GENERAL MOTORS CORP.**

**Turn Signal Lamp - RF (Z75) Connector Parts Information**

**Connector Part Information**

- OEM: 15454375
- Service: 88988117
- Description: 3-Way F Axial Series (BN)

**Terminal Part Information**

- Terminal/Tray: 7116-4102-08/9
- Core/Insulation Crimp: E/1

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- Release Tool/Test Probe: 12094430/J-35616-2A (GY)

**Turn Signal Lamp - RF (Z75) Connector Terminal Identification**

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| 1 | L-BU/WH | 1314 | Left Front Turn Signal Lamp Supply Voltage |
| 2 | - | - | Not Used |
| 3 | BK | 150 | Ground |

## DIAGNOSTIC INFORMATION AND PROCEDURES

### DIAGNOSTIC CODE INDEX

### DIAGNOSTIC CODE INDEX

| DTC | Description |
|---|---|
| DTC B257A | Headlamp Switch Input Signal Mismatch |
| DTC B1395 | Voltage Threshold |
| DTC B2530 | Front Fog Lamp Control Circuit |
| DTC B2540 | Rear Fog Lamp Control Circuit |
| DTC B2545 | Backup Lamps Circuit |
| DTC B2555 | Passenger Compartment Lamp Control Circuit |
| DTC B2575 | Headlamp Control Circuit |
| DTC B2580 | Headlamp High Beam Control Circuit |
| DTC B2585 | Park Lamp Control Circuit |
| DTC B2600 | Daytime Running Lamp Control Circuit |
| DTC B2610 | Passenger Compartment Dimming 1 Circuit |
| DTC B2615 | Passenger Compartment Dimming 2 Circuit |
| DTC B2625 | Display Dimming Pulse Width Modulation (PWM) Output Circuit |
| DTC B2645 | Ambient Light Sensor Circuit |
| DTC B2652 | Passenger Compartment Dimming 3 |
| DTC B3445 | Stop Lamp Circuit |
| DTC B3600 | Voltage Threshold |
| DTC B3884 | Center High Mounted Stop Lamp (CHMSL) Circuit |
| DTC B3891 | Trailer Fog Lamps Circuit |

### DIAGNOSTIC STARTING POINT - LIGHTING SYSTEMS

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

- 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 diagnostic trouble codes (DTCs) and their status

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

## SCAN TOOL OUTPUT CONTROLS

### Body Control Module (BCM)

| Scan Tool Output Control | Additional Menu Selection(s) | Description |
|---|---|---|
| Backup Lamps | Exterior Lighting | The Body Control Module (BCM) activates the backup lamp relay when you select ON. The backup lamps illuminate for 5 seconds or until commanded OFF. |
| DRL | Exterior Lighting | The BCM activates the daytime running lamps (DRL) relay when you select ON. The DRL illuminate for 5 seconds or until commanded OFF. |
| Fog Lamps | Exterior Lighting | The BCM activates the fog lamps relay when you select ON. The fog lamps illuminate for 5 seconds or until commanded OFF. |
| High Beams | Exterior Lighting | The BCM activates the high beam relay when you select ON. The high beam headlamps illuminate for 5 seconds or until commanded OFF. |
| LF Turn Signal | Exterior Lighting | The BCM activates the left front turn signal lamps when you select ON. The turn signal lamps illuminate for 5 seconds or until commanded OFF. |
| Low Beams | Exterior Lighting | The BCM activates the low beam relay when you select ON. The low beam headlamps illuminate for 5 seconds or until commanded OFF. |
| LR Turn Signal | Exterior Lighting | The BCM activates the left rear turn signal lamps when you select ON. The lamp illuminates for 5 seconds or until commanded OFF. |
| Parking Lamps | Exterior Lighting | The BCM activates the park lamp relay when you select ON. The park lamps illuminate for 5 seconds or until commanded OFF. |
| RF Turn Signal | Exterior Lighting | The BCM activates the right front turn signal lamps when you select ON. The turn signal lamps illuminate for 5 seconds or until commanded OFF. |
| RR Turn Signal | Exterior Lighting | The BCM activates the right rear turn signal lamps when you select ON. The lamp illuminates for 5 seconds or until commanded OFF. |
| Courtesy Lamp | Interior Lighting | The BCM activates the interior lamps outputs for 5 seconds when you select ON. The dome, footwell, and courtesy lamps illuminate for 5 seconds or until commanded OFF. |
| Incandescent Dimming | Interior Lighting | The BCM activates the interior incandescent type component lamps from full dim to full bright for 5 seconds or until commanded OFF. |
| | | The BCM activates the interior LED type component lamps |

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| | | |
|---|---|---|
| LED Dimming | Interior Lighting | from full dim to full bright for 5 seconds or until commanded OFF. |

**Driver Door Switch**

| Scan Tool Output Control | Additional Menu Selection(s) | Description |
|---|---|---|
| Integrated Sw. Backlighting Test | Light Test | The driver door switch module activates the switch backlighting when you select ON. The switch backlighting illuminates for 10 seconds or until commanded OFF. |
| Non-Integrated Backlighting Test | Light Test | The driver door switch module activates the switch backlighting that is separate from the module when you select ON. The switch backlighting illuminates until commanded OFF. |
| Puddle/Courtesy Lamp | Light Test | The driver door switch module activates the puddle and courtesy lamps when you select ON. The lamps remain illuminated for 10 seconds or until commanded OFF. |

**Export Body Control Module (XBCM)**

| Scan Tool Output Control | Additional Menu Selection(s) | Description |
|---|---|---|
| Rear Fog Lamps | Output Controls | The XBCM activates the rear fog lamps when you select ON. The rear fog lamps illuminate until commanded OFF. |
| Trailer Fog Lamps | Output Controls | The XBCM activates the trailer fog lamps circuit when you select ON. The trailer fog lamps circuit remains energized until commanded OFF. |

**Instrument Panel Cluster (IPC)**

| Scan Tool Output Control | Additional Menu Selection(s) | Description |
|---|---|---|
| Dimming | Special Functions | The Instrument Panel Cluster (IPC) will dim the PRNDL and DIC display for 5 seconds or until commanded OFF. |

**Passenger Door Switch**

| Scan Tool Output Control | Additional Menu Selection(s) | Description |
|---|---|---|
| Integrated Sw. Backlighting Test | Light Test | The passenger door switch module activates the switch backlighting when you select ON. The switch backlighting illuminates for 10 seconds or until commanded OFF. |
| Non-Integrated Backlighting Test | Light Test | The passenger door switch module activates the switch backlighting that is separate from the module when you select ON. The switch backlighting illuminates until commanded OFF. |
| Puddle/Courtesy Lamp | Light Test | The passenger door switch module activates the puddle and courtesy lamps when you select ON. The lamps remain |

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| | | |
|---|---|---|
| | | illuminated for 10 seconds or until commanded OFF. |

## SCAN TOOL DATA LIST

### Body Control Module (BCM)

| Scan Tool Parameter | Data Display | Units Displayed | Typical Data Value |
|---|---|---|---|
| Operating Conditions: Ignition in the ON position, bright light applied to the ambient light sensor, park brake not set, headlamp switch in the OFF position, dome lamp switch in the OFF position, fog lamp switch in the OFF position, and all doors closed. | | | |
| Ambient Light Sensor | Exterior Lighting | Volts | Approximately 0.67 Volts |
| Ambient Light Status | Exterior Lighting | Night/ Day/ Unknown/ Invalid | Day |
| Auto Hdlp. Disable Sw. | Exterior Lighting | Inactive/Active | Inactive |
| Backup Lamps | Exterior Lighting | Off/On | Off |
| Courtesy Lamp PWM Cmd. | Interior Lighting | Percent | 0% |
| Cruise Ctrl. LED Dimming Cmd. | Interior Lighting | Percent | 2% |
| Ctsy. Lamp Actv. Reason | Interior Lighting | Off/Panic/Manual/Air Bag/Door Open/RFA/RFA Theft/Door Closed/Exit/Manual Defeat | Off |
| Dimming Control Reference | Interior Lighting | Volts | Approximately 3.0 Volts |
| Dimming Control Signal | Interior Lighting | Percent | Varies 9% - 100% |
| Dimming Control Signal | Interior Lighting | Volts | Varies 0.23 - 3.0 Volts |
| DRL Relay Command | Exterior Lighting | Off/On | Off |
| Flash to Pass Switch | Exterior Lighting | Inactive/Active | Inactive |
| Front Fog Lamp Relay Command | Exterior Lighting | Off/On | Off |
| Front Fog Lamp Switch | Exterior Lighting | Inactive/Active | Inactive |
| Hazard Lamp Switch | Exterior Lighting | Inactive/Active | Inactive |
| Headlamp Switch | Exterior Lighting | Inactive/Active | Inactive |
| High Beam Relay Command | Exterior Lighting | Off/On | Off |
| High Beam Select Switch | Exterior Lighting | Inactive/Active | Inactive |
| Incandescent Dimming PWM Cmd. | Interior Lighting | Percent | 0% |
| LED Dimming PWM Cmd. | Interior Lighting | Percent | 0% |
| Left Turn Signal Switch | Exterior Lighting | Inactive/Active | Inactive |
| LF Turn Signal | Exterior Lighting | Off/On | Off |
| LR Turn Signal | Exterior Lighting | Off/On | Off |
| Low Beam Relay Command | Exterior Lighting | Off/On | Off |
| Park Brake Switch | Inputs | Released/Applied | Released |

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| | | | |
|---|---|---|---|
| Park Lamp Relay Cmd. | Exterior Lighting | Off/On | Off |
| Park Lamp Switch | Exterior Lighting | Inactive/Active | Inactive |
| Right Turn Signal Switch | Exterior Lighting | Inactive/Active | Inactive |
| RF Turn Signal | Exterior Lighting | Off/On | Off |
| RR Turn Signal | Exterior Lighting | Off/On | Off |
| Stop Lamp Sw. Status | Exterior Lighting | Counts | 1023 Counts |
| Stop Lamp Relay Command | Exterior Lighting | Off/On | Off |

**Driver Door Switch**

| Scan Tool Parameter | Data Display | Units Displayed | Typical Data Value |
|---|---|---|---|
| **Operating Conditions: Ignition in the ON position, bright light applied to the ambient light sensor, park brake not set, headlamp switch in the OFF position, dome lamp switch in the OFF position, fog lamp switch in the OFF position, and all doors closed.** | | | |
| Driver Door Open Sw. | Inputs | Inactive/Active | Inactive |
| Memory Switch Backlight | Outputs | Percent | 0% |
| Window Switch Backlight | Outputs | Percent | 0% |

**Export Body Control Module (XBCM)**

| Scan Tool Parameter | Data Display | Units Displayed | Typical Data Value |
|---|---|---|---|
| **Operating Conditions: Ignition in the ON position, bright light applied to the ambient light sensor, park brake not set, headlamp switch in the OFF position, dome lamp switch in the OFF position, fog lamp switch in the OFF position, all doors closed, and trailer harness disconnected.** | | | |
| Battery Voltage | Data Display | Volts | Varies |
| Rear Fog Lamp Relay Cmd. | Data Display | Off/On | Off |
| Rear Fog Lamp Switch | Data Display | Inactive/Active | Inactive |
| Trailer Left Bulb Out Signal | Data Display | Counts | 0 Counts |
| Trailer Right Bulb Out Signal | Data Display | Counts | 0 Counts |
| Trailer Detection Input | Data Display | Off/On | Off |
| Trailer Fog Lamp Relay Cmd. | Data Display | Off/On | Off |

**Passenger Door Switch**

| Scan Tool Parameter | Data Display | Units Displayed | Typical Data Value |
|---|---|---|---|
| **Operating Conditions: Ignition in the ON position, bright light applied to the ambient light sensor, park brake not set, headlamp switch in the OFF position, dome lamp switch in the OFF position, fog lamp switch in the OFF position, and all doors closed.** | | | |
| Memory Switch Backlight | Outputs | Percent | 0% |
| Passenger Door Open Sw. | Inputs | Inactive/Active | Inactive |
| Window Switch Backlight | Outputs | Percent | 0% |

## SCAN TOOL DATA DEFINITIONS

The Scan Tool Data Definitions contains a brief description of all Lighting System related parameters available

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on the scan tool.

**Body Control Module (BCM) Exterior Lighting**

**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 displayed voltage decreases. In the Day state, a low voltage not less than approximately 0.67 volt is displayed and the daytime running lamps (DRL) will be active. In the Night state, a voltage up to approximately 4.52 volts is displayed and the headlamps will be active.

**Ambient Light Status**

The scan tool displays the state of the ambient light sensor based on the intensity of light detected. In the Day state, the daytime running lamps (DRL) will be active. In the Night state, the headlamps will be active.

**Auto Hdlp. Disable Sw.**

The scan tool displays the state of the momentary auto headlamp defeat position of the headlamp switch. The scan tool will display Active when the auto headlamp defeat switch position is momentarily selected.

**Backup Lamps**

The scan tool displays On when backup lamp operation is requested.

**DRL Relay Command**

The scan tool displays On when DRL mode is requested and the daytime running lamp (DRL) relay is activated.

**Flash to Pass Switch**

The scan tool displays Inactive/Active. When the multifunction switch is placed on the FTP position, the scan tool will display Active.

**Front Fog Lamp Relay Command**

The scan tool displays ON/OFF. When the fog lamp switch is placed in the ON position and fog lamp relay activation is requested, the scan tool will display ON.

**Front Fog Lamp Switch**

The scan tool displays Inactive/Active. When the front fog lamp switch is placed in the ON position, the scan tool will display Active.

**Hazard Lamp Switch**

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The scan tool displays Inactive/Active. When the hazard switch is placed in the ON position, the scan tool will display Active.

**Headlamp Switch**

The scan tool displays Inactive/Active. When the headlamp switch is placed in the OFF position, the scan tool will display Inactive.

**High Beam Relay Command**

The scan tool displays the commanded state of the high beam relay. When the headlamp dimmer switch is placed in the HIGH position and the relay is activated, the scan tool will display ON.

**High Beam Select Switch**

The scan tool displays Inactive/Active. When the headlamp dimmer switch is placed in the HIGH position, the scan tool will display Active.

**Left Turn Signal Switch**

The scan tool displays Inactive/Active. When the turn signal switch is placed in the LEFT turn position, the scan tool will display Active.

**LF Turn Signal**

The scan tool displays the commanded state of the left front turn signal. When the turn signal switch is placed in the LEFT turn position, the scan tool display will display On when the lamp is illuminated and Off during the off portion of the cycle.

**LR Turn Signal**

The scan tool displays the commanded state of the left rear turn signal. When the turn signal switch is placed in the LEFT turn position, the scan tool display will display On when the lamp is illuminated and Off during the off portion of the cycle.

**Low Beam Relay Command**

The scan tool displays the commanded state of the high beam relay. When the headlamp dimmer switch is placed in the LOW position and the relay is inactive, the scan tool will display ON.

**Park Lamp Relay Cmd.**

The scan tool displays the commanded state of the park lamp relay. When the headlamp switch is placed in the PARK position and the relay is activated, the scan tool will display ON.

**Park Lamp Switch**

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The scan tool displays Inactive/Active. When the headlamp switch is in the PARK position, the scan tool will display Active.

### Right Turn Signal Switch

The scan tool displays Inactive/Active. When the turn signal switch is placed in the RIGHT turn position, the scan tool will display Active.

### RF Turn Signal

The scan tool displays the commanded state of the right front turn signal. When the turn signal switch is placed in the RIGHT turn position, the scan tool display will display On when the lamp is illuminated and Off during the off portion of the cycle.

### RR Turn Signal

The scan tool displays the commanded state of the right rear turn signal. When the turn signal switch is placed in the RIGHT turn position, the scan tool display will display On when the lamp is illuminated and Off during the off portion of the cycle.

### Stop Lamp Sw. Status

The scan tool displays the state of the stop lamp switch. When the brake pedal is at rest and the stop lamp switch contacts are closed, the scan tool will display approximately 1023 counts. When the brake pedal is pressed and the stop lamp switch contacts are open, the scan tool will display 1 count.

### Stop Lamp Relay Command

The scan tool displays the commanded state of the stop lamp relay. When the brake is applied and the relay is activated, the scan tool will display ON.

#### Body Control Module (BCM) Inputs

### Park Brake Switch

The scan tool display Released/Applied. When the park brake is set, the scan tool will display Applied.

#### Body Control Module (BCM) Interior Lighting

### Courtesy Lamp PWM Cmd.

The scan tool displays the commanded duty cycle state of the courtesy lamps. When the courtesy lamps are activated the scan tool will display 100%.

### Cruise Ctrl. LED Dimming Cmd.

The scan tool displays the commanded duty cycle state of the cruise control switch LED indicator. The

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scan tool will display the percentage of illumination level based on the instrument panel (I/P) dimmer switch position.

**Ctsy. Lamp Actv. Reason**

The scan tool displays the condition of why the courtesy lamps have been activated. When the courtesy lamps are activated, the scan tool will display either Off, Panic, Manual, Air Bag, Door Open, RFA, RFA Theft, Door Closed, Exit, or Manual Defeat depending on which function requested courtesy lamp illumination.

**Dimming Control Reference**

The scan tool displays the reference voltage of the instrument panel (I/P) dimmer switch. When the instrument panel (I/P) dimmer switch is in the full dim position the scan tool will display approximately 3 volts. When the I/P dimmer switch is in the full bright position the scan tool will display approximately 3 volts.

**Dimming Control Signal**

The scan tool displays the percentage of the voltage signal output of the instrument panel (I/P) dimmer switch. When the I/P dimmer switch is in the full dim position the scan tool will display 8%. When the I/P dimmer switch is in the full bright position the scan tool will display 100%.

**Dimming Control Signal**

The scan tool displays the voltage output of the instrument panel (I/P) dimmer switch. When the I/P dimmer switch is in the full dim position the scan tool will display approximately 0.23 volt. When the I/P dimmer switch is in the full bright position the scan tool will display approximately 3 volts.

**Incandescent Dimming PWM Cmd.**

The scan tool displays the pulse width modulation (PWM) percentage of the incandescent backlighting voltage signal output of the instrument panel (I/P) dimmer switch. When the I/P dimmer switch is in the full dim position the scan tool will display approximately 28%. When the I/P dimmer switch is in the full bright position the scan tool will display 100%.

**LED Dimming PWM Cmd.**

The scan tool displays the pulse width modulation (PWM) percentage of the LED backlighting voltage signal output of the instrument panel (I/P) dimmer switch. When the I/P dimmer switch is in the full dim position the scan tool will display approximately 5%. When the I/P dimmer switch is in the full bright position the scan tool will display 100%.

**Body Control Module (BCM) Outputs**

**Brake Applied Output Signal**

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The scan tool displays ON/OFF. When the brake switch is applied, the scan tool will display ON.

**Driver Door Switch Inputs**

### Driver Door Open Sw.

The scan tool displays Inactive/Active. When the driver door is open, the scan tool will display Active.

**Driver Door Switch Outputs**

### Memory Switch Backlight

The scan tool displays the percentage of the memory seat switch backlighting level based on the instrument panel (I/P) dimmer switch position. When the I/P dimmer switch is in the full dim position the scan tool will display approximately 5%. When the I/P dimmer switch is in the full bright position the scan tool will display approximately 60%.

### Window Switch Backlight

The scan tool displays the percentage of the window switch backlighting level based on the instrument panel (I/P) dimmer switch position. When the I/P dimmer switch is in the full dim position the scan tool will display approximately 5%. When the I/P dimmer switch is in the full bright position the scan tool will display approximately 60%.

**Export Body Control Module (XBCM) Data Display**

### Battery Voltage

The scan tool displays the battery voltage input to the XBCM.

### Rear Fog Lamp Relay Command

The scan tool displays ON/OFF. When the rear fog lamp switch is placed in the ON position and rear fog lamp relay activation is requested, the scan tool will display ON.

### Rear Fog Lamp Switch

The scan tool displays Inactive/Active. When the rear fog lamp switch is placed in the ON position, the scan tool will display Active.

### Trailer Left Bulb Out Signal

The scan tool displays counts. When the XBCM detects that a trailer is connected and that a left trailer bulb is inoperative, the scan tool will display 0 counts. When the XBCM detects that a trailer is connected and that a left trailer bulb is operative, the scan tool will display 255 counts.

### Trailer Right Bulb Out Signal

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The scan tool displays counts. When the XBCM detects that a trailer is connected and that a right trailer bulb is inoperative, the scan tool will display 0 counts. When the XBCM detects that a trailer is connected and that a right trailer bulb is operative, the scan tool will display 255 counts.

### Trailer Detection Input

The scan tool displays ON/OFF. When a trailer is connected to the vehicle and a voltage signal is received through the trailer harness to the XBCM, the scan tool will display ON.

### Trailer Fog Lamp Relay Command

The scan tool displays ON/OFF. When the rear fog lamp switch is placed in the ON position and trailer rear fog lamp relay activation is requested, the scan tool will display ON.

#### Passenger Door Switch Inputs

### Passenger Door Open Sw.

The scan tool displays Inactive/Active. When the passenger door is open, the scan tool will display Active.

#### Passenger Door Switch Outputs

### Memory Switch Backlight

The scan tool displays the percentage of the memory seat switch backlighting level based on the instrument panel (I/P) dimmer switch position. When the I/P dimmer switch is in the full dim position the scan tool will display approximately 5%. When the I/P dimmer switch is in the full bright position the scan tool will display approximately 60%.

### Window Switch Backlight

The scan tool displays the percentage of the window switch backlighting level based on the I/P dimmer switch position. When the I/P dimmer switch is in the full dim position the scan tool will display approximately 5%. When the I/P dimmer switch is in the full bright position the scan tool will display approximately 60%.

## DTC B257A

#### DTC Descriptor

### DTC B257A 00

Headlamp Switch Input Signal Mismatch

#### Diagnostic Fault Information

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Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B257A**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Headlamp Switch Off | B257A 00 | 2 and 4 | 4 | - |
| Park Lamp Switch On | B257A 00 | B257A 00 | 3 | - |
| Headlamp Switch On | B257A 00 | 1 | 1 | - |
| Headlamp Switch Ground | - | 1,3, and 4 | - | - |

1. Headlamps Inoperative Low and High Beams
2. Headlamps Always On Low or High Beam
3. Park, License, and Tail Lamps Inoperative
4. Daytime Running Lamps (DRL) Defeat Inoperative

**Circuit/System Description**

When the headlamp switch is in the AUTO position, the body control module (BCM) receives a ground signal through the headlamp switch headlamps OFF signal circuit and no signal on the headlamp switch headlamp ON signal circuit and headlamp switch park lamps ON signal circuit. When the headlamp switch is in the PARK or HEAD position, the BCM receives no signal through the headlamp switch headlamps OFF signal circuit and a ground signal through the headlamp switch headlamp ON signal circuit and headlamp switch park lamps ON signal circuit.

**Conditions for Running the DTC**

The ignition is ON.

**Conditions for Setting the DTC**

The BCM receives a mismatched signal between the headlamp switch headlamps OFF signal circuit, the headlamps switch headlamps ON signal circuit, and the headlamp switch parklamps signal circuit.

**Action Taken When the DTC Sets**

The BCM disregards the headlamp switch input and defaults to automatic headlamp function.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

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## 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 Output Controls
- Scan Tool Data List
- Scan Tool Data Definitions

**Circuit/System Verification**

Ignition ON, headlamp switch to PARK, just the park lamps should illuminate. Headlamp switch to HEAD, the park lamps and headlamps should illuminate.

**Circuit/System Testing**

**DTC B257A**

| Circuit | AUTO | PARK | HEAD |
|---|---|---|---|
| Headlamp Switch Headlamps Off Signal BCM Terminal 17 | Ground | Open | Open |
| Headlamp Switch Park Lamps Signal BCM Terminal 8 | Open | Ground | Ground |
| Headlamp Switch Headlamps On Signal BCM Terminal 12 | Open | Open | Ground |

1. Ignition OFF, disconnect the BCM connector C2 and start with the headlamp switch in the AUTO position. Use the chart above to determine when and where a ground signal should be present. Test each connector circuit listed in the chart for the proper signal.
2. If voltage is present on any circuit, test that circuit for a short to voltage.
    - If the circuit/connections test normal, replace the headlamp and panel dimmer switch.
3. If no ground signals are present, test the headlamp switch ground circuit for an open.
    - If the circuit/connections test normal, replace the headlamp and panel dimmer switch.
4. If all signal functions of the headlamp and panel dimmer switch circuits test normal, replace the BCM.

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#### Repair Procedures

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

- **Headlamp Switch Replacement**
- **Control Module References** for BCM replacement, setup, and programming

### DTC B1395

#### DTC Descriptors

### DTC B1395 03

Voltage Below Threshold

### DTC B1395 07

Voltage Above Threshold

#### Diagnostic Fault Information

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

### DTC B1395

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| I/P Dimming Voltage Reference | B1395 03 and B3600 03 | B1395 03, B2652 00, and B3600 03 | B1395 07 | B1395 03, B1395 07 |

#### Circuit/System Description

Voltage for the interior backlighting components is supplied from the body control module (BCM). The BCM applies a voltage reference through the instrument panel (I/P) dimming voltage reference circuit to the interior lamp dimming switch, which is part of the headlamp switch. When the dimming switch is placed in the desired position, the dimmed voltage setting is applied from the interior lamp dimming switch through the I/P dimming control circuit to the BCM. The BCM then applies the dimmed voltage to the I/P lamps supply voltage circuit and they dim to the correct level.

#### Conditions for Running the DTC

The ignition is ON.

#### Conditions for Setting the DTC

##### B1395 03

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The BCM detects a voltage that is lower than 0.33 volt on the I/P dimming voltage reference circuit.

**B1395 07**

The BCM detects a voltage that is greater than 4.97 volts on I/P dimming voltage reference circuit.

**B3600 03**

The BCM detects a voltage that is lower than 0.10 volt on the I/P dimming control circuit.

**Action Taken When the DTC Sets**

- The I/P lamps are dim or not illuminated.
- The I/P lamps will not dim.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Interior Lights Dimming 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

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Ignition ON, cover the ambient light sensor. Vary the interior lamp dimming switch from dim to full bright. The I/P lamps should dim and then become full bright.

#### Circuit/System Testing

1. Clear the DTC.
2. Use a scan tool to monitor the Dimming Control Reference Signal data parameter in the BCM data list.
   - If less than 0.33 volt, test the I/P dimming voltage reference circuit for a short to ground or an open/high resistance. If the circuit/connections test normal, replace the BCM.
   - If greater than 4.97 volts, test the I/P dimming voltage reference circuit for a short to voltage. If the circuit/connections test normal, replace the BCM.
3. If the voltage is correct and all circuits/connections test normal, replace the headlamp switch.

#### Repair Procedures

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

- **Headlamp Switch Replacement**
- **Control Module References** for BCM replacement, setup, and programming

### DTC B2530

#### DTC Descriptor

### DTC B2530 00

Front Fog Lamp Control Circuit

#### Diagnostic Fault Information

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

### DTC B2530

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Front Fog Lamp Relay Control Circuit | 1 | 2 | B2530 00 | - |
| 1. Fog Lamps Always On<br>2. Fog Lamps Inoperative | | | | |

#### Circuit/System Description

Voltage is applied at all times to the fog lamp relay. When the fog lamp switch is placed in the ON position, a ground signal is applied to the body control module (BCM) through the fog lamp switch signal circuit. The BCM then applies a ground to the front fog lamp control circuit. This engages the fog lamp relay and applies voltage through the FOG LAMP fuse to the front fog lamps.

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**Conditions for Running the DTC**

- The ignition is ON.
- Park lamps must be ON and the fog lamps must be commanded ON.

**Conditions for Setting the DTC**

The BCM detects a short to voltage on the front fog lamp control circuit.

**Action Taken When the DTC Sets**

The front fog lamps do not illuminate.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Fog Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, activate the Fog Lamps output control on the scan tool. The Front Fog Lamp Relay Command parameter in the data list should display On and the front fog lamps should illuminate.

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**Circuit/System Testing**

1. Ignition OFF, disconnect the BCM connector C4.
2. Ignition ON, test for voltage at the BCM harness connector terminal 11.
   - If voltage is present, test the control circuit for a short to voltage. If all circuits/connections test normal, replace the underhood fuse block.
   - If voltage is not present, replace the BCM.

**Repair Procedures**

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

- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for BCM replacement, setup, and programming

## DTC B2540

**DTC Descriptors**

### DTC B2540 02

Rear Fog Lamp Control Circuit Short to Ground

### DTC B2540 05

Rear Fog Lamp Control Circuit Short to Battery or Open

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2540**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Rear Fog Lamp Switch Signal Circuit | B2540 02 | B2540 05 | B2540 05 | - |
| Rear Fog Lamp Ground Circuit | - | B2540 05 | - | - |
| Rear Fog Lamp Switch Signal Circuit | 1 | 2 | - | - |
| Rear Fog Lamp Switch Ground Circuit | - | 2 | - | - |
| 1. Fog Lamp Always On - Rear<br>2. Fog Lamp Inoperative -- Rear | | | | |

**Circuit/System Description**

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When the rear fog lamp switch is placed in the ON position, ground is applied to the auxiliary body control module (XBCM) through the rear fog lamp switch circuit. The XBCM then applies voltage on the rear fog lamp control circuit to the rear fog lamp.

**Conditions for Running the DTC**

The ignition is ON. Park lamps must be ON and the rear fog lamps must be commanded ON.

**Conditions for Setting the DTC**

The body control module (BCM) detects an open, short to ground, or short to voltage on the rear fog lamp control circuit while trying to apply a voltage to the circuit.

**Action Taken When the DTC Sets**

The rear fog lamps do not illuminate.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Fog Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

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**Circuit/System Verification**

Ignition ON, activate the rear fog lamps in the output control with a scan tool. The Rear Fog Lamp Relay Cmd. data parameter should display ON and the rear fog lamps should illuminate.

**Circuit/System Testing**

1. Inspect the rear fog lamp bulb for an open or shorted filament.
    - If the bulb is inoperable, replace the bulb.
2. Park lamp switch OFF, clear the DTC and test the rear fog lamp control circuit for a short to voltage, short to ground, open, or high resistance.
    - If all circuits/connections test normal, replace the XBCM.

**Repair Procedures**

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

- **Rear Fog Lamp Bulb Replacement (Cadillac Export)**
- **Control Module References** for XBCM replacement, setup, and programming

## DTC B2545

**DTC Descriptor**

### DTC B2545 00

Backup Lamps Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

### DTC B2545

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Backup Lamps Voltage Supply | B2545 00 | 1 | 2 | - |
| 1. Backup Lamps Inoperative<br>2. Backup Lamps Always On | | | | |

**Circuit/System Description**

When the PRNDL is placed in the REVERSE position, a signal is sent to the body control module (BCM). The BCM then applies voltage through the backup lamps relay control circuit to the BACK/UP lamp relay in the underhood fuse block, inside rearview mirror, and rearview camera module. The BACK/UP lamp relay then illuminates the backup lamps.

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**Conditions for Running the DTC**

- The ignition is ON.
- The backup lamps must be commanded ON.

**Conditions for Setting the DTC**

The BCM detects a short to ground on the backup lamp relay control circuit when the backup lamps are being commanded ON.

**Action Taken When the DTC Sets**

The backup lamps do not illuminate.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Exterior Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, activate the Backup Lamps output control on the scan tool. The Backup Lamps parameter in the

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data list should display On and the backup lamps should illuminate.

**Circuit/System Testing**

1. Ignition OFF, disconnect the underhood fuse block connector C 5, inside rearview mirror, and rearview camera module (if equipped) that are in the circuit.
2. Ignition OFF, disconnect the BCM harness connector C2 and test for a ground signal at the connector terminal 22.
    - If the circuit exhibits a ground signal, repair the short to ground in the control circuit.
3. Reconnect the inside rearview mirror and test the BCM harness connector C2, terminal 22 again for ground.
    - If the circuit now exhibits a ground signal of 20 ohms or less, replace the inside rearview mirror.
4. Reconnect the underhood fuse block connector and test the BCM harness connector C2, terminal 22 again for ground.
    - If the circuit now exhibits a ground signal of 20 ohms or less, replace the underhood fuse block.
5. If equipped, reconnect the rearview camera module and test the BCM harness connector C2, terminal 22 again for ground.
    - If the circuit now exhibits a ground signal of 20 ohms or less, replace the rearview camera module.

- If the circuit does not exhibit a ground, replace the BCM.

**Repair Procedures**

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

- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for BCM, inside rearview mirror, and rearview camera module replacement, setup, and programming

## DTC B2555

**DTC Descriptors**

### DTC B2555 01

Passenger Compartment Lamp Control Circuit Short to Battery

### DTC B2555 02

Passenger Compartment Lamp Control Circuit Short to Ground

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

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## DTC B2555

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Left Courtesy Lamp Control Circuit | B2555 02 | 1 | B2555 01 | - |
| Right Courtesy Lamp Control Circuit | B2555 02 | 1 | B2555 01 | - |
| 1. Courtesy Lamps Inoperative | | | | |

### Circuit/System Description

When the body control module (BCM) signals for courtesy lamp operation, a message is sent over the GM LAN serial data circuit to the driver door and passenger door switches. The driver door switch and passenger door switch the applies battery voltage to the left and right courtesy lamp control circuits illuminating the door courtesy lamps. The driver door and passenger door switches also provide ground to the lamps.

### Conditions for Running the DTC

- Battery voltage must be between 9-16 volts.
- A message is sent from the BCM over the GM LAN serial data circuit to the driver door and passenger door switches to active the door courtesy lamps.

### Conditions for Setting the DTC

- DTC B2555 01 will set when the driver or passenger door switch detects a short to voltage in the courtesy lamp control circuit.
- DTC B2555 02 will set when the driver or passenger door switch detects a short to ground in the courtesy lamp control circuit.

### Action Taken When the DTC Sets

- When DTC B2555 01 is present, the door courtesy lamps will remain illuminated.
- When DTC B2555 02 is present, the door courtesy lamps will be inoperative.

### Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- A scan tool CLEAR DTCs command is issued for that switch module.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

### Reference Information

#### Schematic Reference

## Interior Lights Schematics

#### Connector End View Reference

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**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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Testing**

1. Disconnect the driver or passenger door harness connector C2 as applicable.
2. Connect a test lamp between the courtesy lamp control circuit terminal 10 at the door harness connector and ground.
    - If the test lamp illuminates, locate and repair a short to voltage in the courtesy lamp control circuit.
    - If the test lamp does not illuminate, locate and repair a short to ground in the courtesy lamp control circuit.
3. If circuits test OK, replace the driver or passenger door switch as applicable.

**Repair Procedures**

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

**Control Module References** for driver or passenger door switch replacement, setup, and programming.

**DTC B2575**

**DTC Descriptor**

**DTC 2575 00**

Headlamp Control Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2575**

| | | | | |
|---|---|---|---|---|

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| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Headlamp Low Beam Relay Control Circuit | 2 | 1 | B2575 00 | - |
| 1. Headlamps Inoperative - Low Beams<br>2. Headlamps Always On - Low Beams | | | | |

**Circuit/System Description**

The low beam headlamps are controlled by the body control module (BCM). The BCM grounds the headlamp low beam relay control circuit in order to energize the LO BEAM relay coil. The LO BEAM relay then sends voltage to the low beam headlamps.

**Conditions for Running the DTCs**

- The headlamps are commanded ON.
- The headlamp dimmer switch must be in the low beam position.

**Condition for Setting the DTC**

The headlamp low beam relay control circuit is shorted to voltage.

**Action Taken When the DTC Sets**

The BCM turns off the headlamp low beam relay control for the remainder of the ignition cycle.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**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**

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- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

**Scan Tool Reference**

- **Scan Tool Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, activate the Low Beam output control on the scan tool. The Low Beam Relay Command parameter in the data list should display On and the low beam headlamps should illuminate.

**Circuit/System Testing**

1. Ignition OFF, disconnect the BCM connector C5.
2. Ignition ON, test for voltage at the BCM harness connector terminal 23.
    - If voltage is present, test the control circuit for a short to voltage. If all circuits/connections test normal, replace the underhood fuse block.
    - If voltage is not present, replace the BCM.

**Repair Procedures**

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

- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for BCM replacement, setup, and programming

**DTC B2580**

**DTC Descriptor**

**DTC B2580 00**

Headlamp High Beam Control Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2580**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|

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| | | | | |
|---|---|---|---|---|
| Headlamp High Beam Relay Control Circuit | 2 | 1 | B2580 00 | - |
| 1. Headlamps Inoperative - High Beams<br>2. Headlamps Always On - High Beams | | | | |

**Circuit/System Description**

Voltage is applied at all times to the high beam headlamp relay from battery voltage. When the multifunction switch is placed in either the FTP or HIGH position, ground is applied to the body control module (BCM). The BCM then applies a ground to the headlamp high beam relay control circuit. This engages the relay and applies voltage through the HI HEADLAMP fuses to both left and right high beam headlamps.

**Conditions for Running the DTC**

- The headlamps are commanded ON.
- Headlamp dimmer switch must be in the high beam position.

**Conditions for Setting the DTC**

The BCM detects a short to voltage on the headlamp high beam relay control circuit.

**Action Taken When the DTC Sets**

The high beam headlamps are inoperative.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**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**

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- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

**Scan Tool Reference**

- **Scan Tool Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, activate the High Beam output control on the scan tool. The High Beam Relay Command parameter in the data list should display On and the high beam headlamps should illuminate.

**Circuit/System Testing**

1. Ignition OFF, disconnect the BCM connector C4.
2. Ignition ON, test for voltage at the BCM harness connector terminal 16.
    - If voltage is present, test the control circuit for a short to voltage. If all circuits/connections test normal, replace the underhood fuse block.
    - If voltage is not present, replace the BCM.

**Repair Procedures**

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

- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for BCM replacement, setup, and programming

**DTC B2585**

**DTC Descriptor**

**DTC B2585 00**

Park Lamp Control Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2585**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|

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| | | | | |
|---|---|---|---|---|
| Park Lamp Relay Control Circuit | 1 | 2 | B2585 00 | - |

1. Park, License, and Tail Lamps Always On
2. Park, License, and Tail Lamps Inoperative

**Circuit/System Description**

Voltage is applied at all times to the park lamp relay from battery voltage. When the headlamp switch is placed in the PARK position and the body control module (BCM) commands the park lamps ON, the BCM then applies a ground to the park lamp relay control circuit. This engages the relay and applies voltage through the park lamp fuses and to all the park, license, and tail lamps.

**Conditions for Running the DTC**

- The Ignition is ON.
- The park lamps must be commanded ON by the BCM.

**Conditions for Setting the DTC**

The BCM detects a short to voltage on the park lamp relay control circuit.

**Action Taken When the DTC Sets**

All park, license, and tail lamps are inoperative.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Exterior Lights Schematics**

**Connector End View Reference**

**Lighting Systems Connector End Views**

**Electrical Information Reference**

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

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- **Wiring Repairs**

**Scan Tool Reference**

- **Scan Tool Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, activate the Parking Lamp output control on the scan tool. The Park Lamp Relay Command parameter in the data list should display On and the park lamps should illuminate.

**Circuit/System Testing**

1. Ignition OFF, disconnect the BCM connector C5.
2. Ignition ON, test for voltage at the BCM harness connector terminal 24.
    - If voltage is present, test the control circuit for a short to voltage. If all circuits/connections test normal, replace the underhood fuse block.
    - If voltage is not present, replace the BCM.

**Repair Procedures**

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

- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for BCM replacement, setup, and programming

**DTC B2600**

**DTC Descriptor**

**DTC B2600 00**

Daytime Running Lamp Control Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2600**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| DRL Relay Control Circuit | 1 | 2 | B2600 00 | - |

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1. Daytime Running Lamps (DRL) Always On
2. Daytime Running Lamps (DRL) Inoperative

**Circuit/System Description**

The daytime running lamps (DRL) are controlled by the body control module (BCM). The BCM grounds the DRL relay control circuit in order to energize the DRL relay coil. The DRL relay then sends voltage to the dedicated DRL or low beam headlamps.

**Conditions for Running the DTCs**

- The headlamp switch is OFF.
- The park brake is unapplied.
- The engine is running.

**Conditions for Setting the DTC**

The DRL relay control circuit is shorted to voltage.

**Action Taken When the DTC Sets**

The BCM turns off the DRL relay control for the remainder of the ignition cycle.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**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**

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### Scan Tool Reference

- **Scan Tool Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

#### Circuit/System Verification

Block the drive wheels. Carefully supply sufficient light to simulate daylight conditions to the ambient light sensor. With the engine running, headlamp switch in AUTO, and the park brake released, the DRL should illuminate.

#### Circuit/System Testing

1. Ignition OFF, disconnect the BCM connector C4.
2. Ignition ON, test for voltage at the BCM harness connector terminal 23.
    - If voltage is present, test the control circuit for a short to voltage. If all circuits/connections test normal, replace the underhood fuse block.
    - If voltage is not present, replace the BCM.

#### Repair Procedures

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

- **Underhood Electrical Center or Junction Block Replacement**
- **Control Module References** for BCM replacement, setup, and programming

### DTC B2610

#### DTC Descriptors

**DTC B2610 00**

Passenger Compartment Dimming 1 Circuit

**DTC B2610 01**

Passenger Compartment Dimming 1 Circuit Short to Battery

**DTC B2610 02**

Passenger Compartment Dimming 1 Circuit Short to Ground

**DTC B2610 04**

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Passenger Compartment Dimming 1 Circuit Open

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2610**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| LED Dimming Supply | B2610 00 or B2610 02 | B2610 00 or B2610 04 | B2610 00 or B2610 01 | - |
| LED Backlighting Ground | - | 1 | - | - |
| 1. Interior Backlighting Inoperative | | | | |

**Circuit/System Description**

When the instrument panel lamps dimmer switch is activated, a variable voltage signal is applied through the LED dimmer switch signal circuit to the body control module (BCM). The BCM then applies a message on the low speed GMLAN serial data communication circuit to the door switches to illuminate the switch backlighting. The BCM, driver door switch, and passenger door switch then applies a variable voltage signal through the LED dimming supply circuit to the components on that circuit.

**Conditions for Running the DTC**

The ignition is ON.

**Conditions for Setting the DTC**

The BCM, driver door switch, and passenger door switch detects a short to voltage, short to ground, or an open on the LED dimming supply circuit.

**Action Taken When the DTC Sets**

The BCM, driver door switch, and passenger door switch will cease attempts to dim or illuminate the LED lamps.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Interior Lights Dimming Schematics**

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**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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition and park lamps ON, vary the interior lamp dimming switch from dim to full bright. The LED lamps should dim and then become full bright.

**Circuit/System Testing**

1. Park lamps OFF, disconnect all of the LED dimming supply circuit lamp components on the circuit.
2. Park lamps ON, verify that DTC B2610 00, B2610 01, and DTC B2610 02 does not reset.
    - If the DTC resets, test for a short to voltage, short to ground, or an open in the LED dimming supply circuit. If the circuit/connections test normal, replace the BCM, driver door switch, and passenger door switch as applicable.
3. Reconnect each component one at a time and test for DTC B2610 00, B2610 01 and DTC B2610 02.
    - If the DTC resets, replace that particular component.

- If the DTC does not reset, replace the BCM.

**Repair Procedures**

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

- Refer to the appropriate replacement procedure for the component causing the condition.
- **Control Module References** for BCM, driver door switch, and passenger door switch replacement, setup, and programming

### DTC B2615

**DTC Descriptors**

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**DTC B2615 00**

Passenger Compartment Dimming 2 Circuit

**DTC B2615 01**

Passenger Compartment Dimming 2 Circuit Short to Battery

**DTC B2615 02**

Passenger Compartment Dimming 2 Circuit Short to Ground

**DTC B2615 04**

Passenger Compartment Dimming 2 Circuit Open

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2615**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Courtesy Lamps Voltage Supply | B2615 00 or B2615 02 | B2615 00 or B2615 04 | B2615 00 or B2615 01 | - |
| Courtesy Lamp Ground | - | 1 | - | - |
| 1. Courtesy Lamps Inoperative | | | | |

**Circuit/System Description**

Voltage for the courtesy lamps is supplied from body control module (BCM), driver door switch, and passenger door switch. When a door is opened, a signal is applied to the door module. The door module then applies a message on the low speed GMLAN serial data communication circuit to the BCM to activate the courtesy lamps. The BCM then applies voltage to the courtesy lamps voltage supply circuit and the components on that circuit.

**Conditions for Running the DTC**

The ignition is ON, the BCM, driver door switch, and passenger door switch attempt to illuminate the courtesy lamps.

**Conditions for Setting the DTC**

The BCM, driver door switch, or passenger door switch detects a short to ground, short to voltage, or open on the courtesy lamp voltage supply circuit.

**Action Taken When the DTC Sets**

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The BCM, driver door switch, and passenger door switch cease attempts to illuminate the courtesy lamps.

#### Conditions for Clearing the DTC

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

#### Reference Information

##### Schematic Reference

**Interior Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

#### Circuit/System Verification

Ignition ON, activate the Courtesy Lamps output control with the scan tool. The interior courtesy lamps should illuminate.

#### Circuit/System Testing

1. Ignition OFF, disconnect all the courtesy lamps voltage supply circuit lamp components on the circuit.
2. Verify that DTC B2615 00, B2615 01, DTC B2615 02, and/or DTC B2615 04 does not reset.
    - If the DTC resets, test for a short to voltage, short to ground, or an open in the courtesy lamps supply voltage circuit. If the circuit/connections test normal, replace the BCM, driver door switch, and passenger door switch as applicable.
3. Reconnect each component one at a time and test for DTC B2615 00, B2615 01, DTC B2615 02, and/or DTC B2615 04.

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- If the DTC resets, replace that particular component.

- If the DTC does not reset, replace the BCM.

**Repair Procedures**

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

- Refer to the appropriate replacement procedure for the component causing the condition.
- **Control Module References** for BCM, driver door switch, and passenger door switch replacement, setup, and programming

## DTC B2625

**DTC Descriptor**

### DTC B2625 00

Display Dimming Pulse Width Modulation (PWM) Output Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2625**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| LED Indicator Dimming Supply | B2625 00 | B2625 00 | B2625 00 | - |

**Circuit/System Description**

When the interior lamps dimming switch is activated, a variable voltage signal is applied through the instrument panel lamps dimmer switch signal circuit to the body control module (BCM). The BCM then applies a variable voltage signal through the LED indicator dimming supply circuit to the components on the circuit.

**Conditions for Running the DTC**

The ignition is ON.

**Conditions for Setting the DTC**

The BCM receives a ground signal on the LED indicator dimming supply circuit.

**Action Taken When the DTC Sets**

The BCM cease attempt to dim or illuminate the LED indicator lamps.

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#### Conditions for Clearing the DTC

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

#### Reference Information

##### Schematic Reference

**Interior Lights Dimming 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

#### Circuit/System Verification

Ignition ON, headlamp switch to PARK, vary the interior lamp dimming switch from dim to full bright. The LED lamps should dim and then become full bright.

#### Circuit/System Testing

1. Ignition OFF, park lamps OFF, disconnect all the LED indicator dimming supply circuit lamp components on the circuit. Verify DTC B2625 does not set.
    - If the DTC resets, test for a short to voltage, short to ground, or an open in the LED indicator dimming supply voltage circuit. If the circuit/connections test normal, replace the BCM, driver door switch, and passenger door switch as applicable.
2. Reconnect each component one at a time and test for the DTC B2625.
    - If the DTC resets, replace that particular component.

- If the DTC does not reset, replace the BCM.

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#### Repair Procedures

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

- Refer to the appropriate replacement procedure for the component causing the condition.
- **Control Module References** for BCM replacement, setup, and programming

### DTC B2645

#### DTC Descriptors

### DTC B2645 03

Ambient Light Sensor Circuit Below Threshold

### DTC B2645 07

Ambient Light Sensor Circuit Above Threshold

#### Diagnostic Fault Information

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

### DTC B2645

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Ambient Light Sensor Signal Circuit | B2645 03 | B2645 07 | B2645 07 | B2645 03 or B2645 07 |
| Ambient Light Sensor Ground Circuit | - | B2645 07 | - | B2645 03 or B2645 07 |

#### Circuit/System Description

The ambient light sensor is used to monitor outside lighting conditions. The ambient light sensor provides a voltage signal that will vary depending on outside lighting conditions. The body control module (BCM) provides a 5-volt reference signal to the ambient light sensor. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lights (DRL) or automatic lamp control (ALC) when the headlamp switch is in the AUTO position. In daylight conditions, the BCM will command the DRLs ON. In low light conditions, when the headlamps switch is in AUTO position, the BCM will command the low beam headlamps ON.

#### Conditions for Running the DTC

Battery voltage must be between 9-16 volts.

#### Conditions for Setting the DTC

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**B2645 03**

The DTC will set when the BCM detects voltage is below 0.196 volt in the ambient light sensor signal circuit.

**B2645 07**

The DTC will set when the BCM detects voltage is above 4.9 volts in the ambient light sensor signal circuit or if the ambient light sensor ground circuit is open.

**Action Taken When the DTC Sets**

When DTC B2645 03 or B2645 07 is present, the ALC will default to ON.

**Conditions for Clearing the DTC**

- The condition responsible for setting the DTC no longer exists.
- You issue a scan tool CLEAR DTCs command.
- A history DTC will clear once 100 consecutive malfunction-free ignition cycles have occurred.

**Reference Information**

**Schematic Reference**

**Exterior Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Testing**

1. Ignition OFF, disconnect the ambient light sensor.
2. Ignition ON, monitor the Ambient Light Sensor parameter in the BCM data list with a scan tool.

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- If the scan tool parameter is less than 0.2 volt, test for a short to ground in the ambient light sensor signal circuit. If a short to ground is not found, replace the BCM.
- If the scan tool parameter is greater than 4.9 volts, test for an open or short to voltage in the ambient light sensor signal circuit or an open in the ambient light sensor ground circuit. If any of those conditions are not found, replace the ambient light sensor.

**Repair Procedures**

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

- **Ambient Light Sensor Replacement**
- **Control Module References** for BCM replacement, setup, and programming

## DTC B2652

**DTC Descriptor**

## DTC B2652 00

Passenger Compartment Dimming 3

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B2652**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Instrument Panel Lamps Dimming Control | B2652 00 | B2652 00 | B2652 00 | - |

**Circuit/System Description**

The body control module (BCM) applies a 12-volt reference voltage through the headlamp and panel dimmer switch 12-volt reference circuit to the headlamp and panel dimmer switch. When the dimming switch is placed in the desired position, the dimmed voltage setting is applied from the headlamp and panel dimmer switch through the instrument panel (I/P) lamp dimming switch signal circuit to the BCM. The BCM then applies the dimmed voltage to the I/P lamp dimming control circuit and the components on the circuit.

**Conditions for Running the DTC**

The ignition is ON.

**Conditions for Setting the DTC**

The BCM receives an open, voltage, or ground signal on the I/P lamp dimming control circuit.

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#### Action Taken When the DTC Sets

The I/P lamps are not illuminated.

#### Conditions for Clearing the DTC

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

#### Reference Information

##### Schematic Reference

**Interior Lights Dimming 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

#### Circuit/System Verification

Ignition ON and park lamps ON, vary the headlamp and panel dimmer switch from dim to full bright. The I/P lamps should dim and then become full bright.

#### Circuit/System Testing

1. Ignition OFF, park lamps OFF, disconnect all of the lamp components on the I/P lamp dimming control circuit. Verify DTC B2652 00 does not set.
    - If the DTC resets, test for a short to voltage, short to ground, or an open in the I/P lamp dimming control circuit and for an open in the dimmer switch 5-volt reference circuit. If the circuit/connections test normal, replace the BCM.

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2. Reconnect each component one at a time and test for the DTC B2652 00.
    - If the DTC resets, replace that particular component.

- If the DTC does not reset, replace the BCM.

**Repair Procedures**

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

- Refer to the appropriate replacement procedure for the component causing the condition.
- **Control Module References** for BCM replacement, setup, and programming

## DTC B3445

**DTC Descriptor**

### DTC B3445 00

Stop Lamp Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

### DTC B3445

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Stop Lamp Supply Voltage | B3445 00 | 1 | 2 | - |
| 1. Stop Lamps Inoperative<br>2. Stop Lamps Always On | | | | |

**Circuit/System Description**

When the brake pedal is applied, the brake pedal switch normally closed contact signal circuit voltage is interrupted to the body control module (BCM). The BCM then applies a voltage to the stop lamp supply voltage circuit to the stop lamps.

**Conditions for Running the DTC**

- The ignition is ON.
- The stop lamps must be commanded ON.

**Conditions for Setting the DTC**

The BCM detects a short to ground in the stop lamp supply voltage circuit when the stop lamps are commanded

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ON.

**Action Taken When the DTC Sets**

The stop lamps do not illuminate.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Exterior Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, press the brake pedal. The stop lamps should illuminate.

**Circuit/System Testing**

1. Disconnect the stop lamps and test the individual stop lamp assemblies for internal shorts between all terminals.
    - If a short between terminals is found, replace the stop lamp socket or circuit board as applicable.
2. Test the stop lamp supply voltage circuit for a short to ground.

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- If all circuits/connections test normal, replace the BCM.

**Repair Procedures**

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

- **Tail Lamp Bulb Replacement (Cadillac)** or **Tail Lamp Bulb Replacement (Tahoe, Avalanche)** or **Tail Lamp Bulb Replacement (Yukon)**
- **Control Module References** for BCM replacement, setup, and programming

## DTC B3600

**DTC Descriptors**

### DTC B3600 03

Voltage Below Threshold

### DTC B3600 07

Voltage Above Threshold

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B3600**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Instrument Panel Lamp Dimmer Switch Signal | B3600 03 | B3600 03 | B3600 07 | B3600 03 or B3600 07 |
| Reference Voltage | B1395 03 and B3600 07 | B1395 03 and B3600 07 | B1395 07 | B1395 03, B1395 07 and B3600 03, B3600 07 |

**Circuit/System Description**

Voltage for the interior backlighting components is supplied from the body control module (BCM). The BCM applies a voltage reference through the 12-volt reference circuit to the headlamp and panel dimmer switch. When the dimming switch is placed in the desired position, the dimmed voltage setting is applied from the headlamp and panel dimmer switch through the instrument panel (I/P) lamp dimmer switch signal circuit to the BCM. The BCM then applies the dimmed voltage to the lamp supply voltage circuits and they are dimmed to the correct level.

**Conditions for Running the DTC**

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The ignition is ON.

**Conditions for Setting the DTC**

**B3600 03**

The BCM detects a voltage that is lower than 0.10 volt on the I/P lamp dimmer switch signal circuit.

**B3600 07**

The BCM detects a voltage that is higher than 4.97 volts on the I/P lamp dimmer switch signal circuit.

**Action Taken When the DTC Sets**

The I/P lamps are not illuminated.

**Conditions for Clearing the DTC**

The BCM clears this code from current when the fault is removed from the system.

**Reference Information**

**Schematic Reference**

**Interior Lights Dimming 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, headlamp switch to HEAD, vary the interior lamp dimming switch from dim to full bright. The I/P lamps should dim and then become full bright.

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**Circuit/System Testing**

1. Ignition ON and clear the DTC. Use the scan tool Incandescent Dimming output control to adjust the dimming level of the I/P lamps from low to high.
   - If the lamps cannot be controlled with the scan tool, replace the BCM.
2. Monitor the Dimming Control Signal voltage parameter in the scan tool BCM data list while adjusting the dimmer switch from high to low.
3. If the voltage is above 4.97 volts, test for a short to voltage in the I/P lamp dimmer switch signal circuit.
   - If the circuit/connections test normal, replace the headlamp and panel dimmer switch.
4. If the voltage drops below 0.10 volt, test for a short to ground, open, or high resistance in the I/P lamp dimmer switch signal circuit.
   - If the circuit/connections test normal, replace the headlamp and panel dimmer switch.

**Repair Procedures**

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

- **Headlamp Switch Replacement**
- **Control Module References** for BCM replacement, setup, and programming

## DTC B3884

**DTC Descriptor**

### DTC B3884 00

Center High Mounted Stop Lamp (CHMSL) Circuit

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B3884**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| CHMSL Supply Voltage | B3884 00 | 1 | 2 | - |
| 1. Stop Lamps Inoperative<br>2. Stop Lamps Always On | | | | |

**Circuit/System Description**

When the brake pedal is applied, the brake pedal switch normally closed contact signal circuit voltage is interrupted to the body control module (BCM). The BCM then applies a voltage to the CHMSL supply voltage circuit to the center high mounted stop lamp (CHMSL).

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**Conditions for Running the DTC**

- The ignition is ON.
- The stop lamps must be commanded ON.

**Conditions for Setting the DTC**

The BCM detects a short to ground in the CHMSL supply voltage circuit when the stop lamps are commanded ON.

**Action Taken When the DTC Sets**

The CHMSL does not illuminate.

**Conditions for Clearing the DTC**

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

**Reference Information**

**Schematic Reference**

**Exterior Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

**Circuit/System Verification**

Ignition ON, press the brake pedal. The CHMSL should illuminate.

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**Circuit/System Testing**

1. Disconnect the CHMSL and test for internal shorts between all terminals of the CHMSL assembly.
   - If a short between terminals is found, replace the CHMSL.
2. Test the CHMSL supply voltage circuit for a short to ground.
   - If all circuits/connections test normal, replace the BCM.

**Repair Procedures**

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

- **High Mounted Stop Lamp Replacement (Yukon)** or **High Mounted Stop Lamp Replacement (Escalade)** or **High Mounted Stop Lamp Replacement (Avalanche)**
- **Control Module References** for BCM replacement, setup, and programming

## DTC B3891

**DTC Descriptors**

### DTC B3891 02

Trailer Fog Lamps Circuit Short to Ground

### DTC B3891 05

Trailer Fog Lamps Circuit Short to Battery or Open

**Diagnostic Fault Information**

Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.

**DTC B3891**

| Circuit | Short to Ground | Open/High Resistance | Short to Voltage | Signal Performance |
|---|---|---|---|---|
| Rear Fog Lamp Switch Signal Circuit | B3891 02 | B3891 05 | B3891 05 | - |
| Rear Fog Lamp Ground Circuit | - | B3891 05 | - | - |
| Rear Fog Lamp Switch Signal Circuit | 1 | 2 | - | - |
| Rear Fog Lamp Switch Ground Circuit | - | 2 | - | - |
| 1. Fog Lamp Always On - Rear<br>2. Fog Lamp Inoperative - Rear | | | | |

**Circuit/System Description**

When the rear fog lamp switch is placed in the ON position, ground is applied to the auxiliary body control

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module (XBCM) through the rear fog lamp switch circuit. The XBCM then applies voltage on the trailer fog lamp circuit to the trailer rear fog lamp.

#### Conditions for Running the DTC

The ignition is ON. Park lamps must be ON and the rear fog lamps must be commanded ON.

#### Conditions for Setting the DTC

The body control module (BCM) detects an open, short to ground, or short to voltage on the trailer rear fog lamp circuit while trying to apply a voltage to the circuit.

#### Action Taken When the DTC Sets

The trailer rear fog lamps do not illuminate.

#### Conditions for Clearing the DTC

- The conditions for setting the DTC are no longer present.
- A history DTC clears after 100 malfunction-free ignition cycles.
- The BCM receives the clear code command from the scan tool.

#### Reference Information

##### Schematic Reference

**Fog Lights 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 Output Controls**
- **Scan Tool Data List**
- **Scan Tool Data Definitions**

#### Circuit/System Verification

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Ignition ON, activate with a scan tool the Trailer Fog Lamps output control for the XBCM. The Rear Fog Lamp Relay Cmd. data parameter should display ON and the trailer rear fog lamps should illuminate.

#### Circuit/System Testing

1. Inspect the trailer rear fog lamp bulb for an open or shorted filament.
    - If the bulb is inoperable, replace the bulb.
2. Park lamp switch OFF, clear the DTC, test the trailer rear fog lamp circuit for a short to voltage, short to ground, an open, or high resistance.
    - If all circuits/connections test normal, replace the XBCM.

#### Repair Procedures

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

**Control Module References** for XBCM replacement, setup, and programming

### SYMPTOMS - LIGHTING SYSTEMS

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 in order to familiarize yourself with the system functions. Refer to the following:
    - **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 **Checking Aftermarket Accessories** .
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

#### Intermittent

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**

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- Backup Lamps Inoperative
- Clearance Lamps Inoperative
- Courtesy Lamps Always On
- Courtesy Lamps Inoperative
- Daytime Running Lamps (DRL) Always On
- Daytime Running Lamps (DRL) Defeat Inoperative
- Daytime Running Lamps (DRL) Inoperative (Z88) or Daytime Running Lamps (DRL) Inoperative (X88 and Z75)
- Exterior Courtesy Lamp(s) Always On
- Exterior Courtesy Lamp(s) Inoperative
- Fog Lamp Indicator Inoperative
- Fog Lamp Indicator Inoperative - Rear
- Fog Lamps Always On
- Fog Lamps Inoperative
- Rear Fog Lamps Always On
- Rear Fog Lamps Inoperative
- Hazard Lamps Always On
- Hazard Lamps Inoperative
- Headlamps Always On - Low or High Beam
- Headlamps Inoperative - High Beams
- Headlamps Inoperative - Low Beams (High Intensity Discharge (HID)) or Headlamps Inoperative - Low Beams (Standard)
- Headlamps Inoperative - Low and High Beams
- Headlamps Inoperative - Flash to Pass
- High Beam Indicator Always On
- High Beam Indicator Inoperative
- Interior Backlighting Does Not Dim
- Interior Backlighting Inoperative
- Park, License, and Tail Lamps Always On
- Park, License, and Tail Lamps Inoperative
- Reading Lamp(s) Inoperative
- Roof Beacon Lamp Always On
- Roof Beacon Lamp Inoperative
- Stop Lamps Always On
- Stop Lamps Inoperative
- Turn Signal Lamps and/or Indicators Always On or Flashing
- Turn Signal Lamps and/or Indicators Inoperative
- Vanity Mirror Lamp(s) Inoperative

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## BACKUP LAMPS ALWAYS ON

**Backup Lamps Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the backup lamps are always ON.<br>Do the backup lamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Use the scan tool to check if there are any codes set in the current or history Powertrain DTC Information.<br>Are any codes present? | Go to the Diagnostic System Check in the appropriate Transmission Section | Go to **Step 4** |
| 4 | Test the backup lamp supply voltage and backup lamp relay control circuit for a short to voltage. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 7** | Go to **Step 5** |
| 5 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 7** | Go to **Step 6** |
| 6 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 7** | - |
| 7 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## BACKUP LAMPS INOPERATIVE

**Backup Lamps Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the backup lamps are inoperative.<br>Do the backup lamps operate normally? | Go to **Testing for Intermittent** | |

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|---|---|---|---|
| | | **Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Is only one backup lamp inoperative? | Go to **Step 5** | Go to **Step 4** |
| 4 | Use the scan tool to check if there are any codes set in the current or history Powertrain DTC Information. Are any codes present? | Go to **Diagnostic System Check - Vehicle** | Go to **Step 6** |
| 5 | Test the backup lamp supply voltage and ground circuit for an open or high resistance. Refer to **Circuit Testing** and **Wiring Repairs** . Did you find and correct a condition? | Go to **Step 10** | Go to **Step 8** |
| 6 | Test the following circuits for an open, high resistance, or a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• Backup lamp supply voltage<br>• Backup lamp relay control<br>• Backup lamp relay ground<br>Did you find and correct a condition? | Go to **Step 10** | Go to **Step 7** |
| 7 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Circuit Testing** and **Wiring Repairs** . Did you find and correct the condition? | Go to **Step 10** | Go to **Step 9** |
| 8 | Replace the affected backup lamp bulb. Refer to **Tail Lamp Bulb Replacement (Cadillac)** or **Tail Lamp Bulb Replacement (Tahoe, Avalanche)** or **Tail Lamp Bulb Replacement (Yukon)**. Did you complete the replacement? | Go to **Step 10** | - |
| 9 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming. Did you complete the replacement? | Go to **Step 10** | - |
| 10 | Operate the system in order to verify the repair. Did you correct the condition? | System OK | Go to **Step 3** |

## CLEARANCE LAMPS INOPERATIVE

**Clearance Lamps Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |

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| 2 | Turn ON the park lamps.<br>Do the clearance lamps illuminate? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Are the park lamps illuminated? | Go to **Step 4** | Go to **Park, License, and Tail Lamps Inoperative** |
| 4 | Are all clearance lamps inoperative? | Go to **Step 7** | Go to **Step 5** |
| 5 | Test the clearance lamp supply voltage and ground circuit for an open or high resistance. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 6** |
| 6 | Inspect for poor connections at the harness connector of the clearance lamp. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 8** |
| 7 | Repair the interior park lamps supply voltage circuit of the clearance lamps for a short to ground, a high resistance, or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 9** | - |
| 8 | Replace the affected clearance lamp bulb.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## COURTESY LAMPS ALWAYS ON

**Courtesy Lamps Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Interior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views, Data Communication Connector End Views , or Master Electrical Component List** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the courtesy/dome lamps are always ON.<br>Do the courtesy/dome lamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Test for a short to voltage on the courtesy lamp supply voltage circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 4** |
| | 1. Ensure that the instrument panel lamp dimmer | | |

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| 4 | switch is in the minimum brightness position.<br>2. Inspect for the following related body control module (BCM), driver door switch, and passenger door switch data parameters. Refer to **Scan Tool Data List** and **Scan Tool Data Definitions** for typical values and definitions:<br>• Ctsy. Lamp Actv. Reason<br>• Driver Door Open Sw.<br>• Passenger Door Open Sw.<br>Was a problem found? | Go to **Step 5** | Go to **Step 9** |
| 5 | Disconnect and test the switches of the affected input circuit for proper continuity in the open and closed positions. Refer to **Testing for Continuity** .<br>Is continuity correct in both positions? | Go to **Step 6** | Go to **Step 7** |
| 6 | Test the signal circuits of the affected input switches for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 8** |
| 7 | Inspect for poor connections at the harness connector of the affected switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 10** |
| 8 | Inspect for poor connections at the harness connector of the module in the affected circuit. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>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 BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 12** |
| 10 | Replace the malfunctioning switch in the affected circuit.<br>Did you complete the replacement? | Go to **Step 13** | - |
| 11 | Replace the module in the affected circuit. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 13** | - |
| 12 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 13** | - |
| | Operate the system in order to verify the repair. | | |

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| 13 | Did you correct the condition? | System OK | Go to **Step 3** |

## COURTESY LAMPS INOPERATIVE

### Courtesy Lamps Inoperative

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Interior Lights Schematics** or **Body Control System Schematics** **Connector End View Reference: Lighting Systems Connector End Views**, **Data Communication Connector End Views** , or **Master Electrical Component List** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the courtesy/dome lamps are inoperative. Do the courtesy/dome lamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Are all courtesy lamps inoperative? | Go to **Step 5** | Go to **Step 4** |
| 4 | Test the voltage supply and ground circuits of the inoperative lamp for an open or high resistance. Refer to **Circuit Testing** and **Wiring Repairs** . Did you find and correct the condition? | Go to **Step 16** | Go to **Step 14** |
| 5 | Are the courtesy lamps inoperative from a specific switch only? | Go to **Step 6** | Go to **Step 11** |
| 6 | Inspect the following related body control module (BCM), driver door switch, passenger door switch data parameters. Refer to **Scan Tool Data List** and **Scan Tool Data Definitions** for typical values and definitions:<br>• Ctsy. Lamp Actv. Reason<br>• Driver Door Open Sw.<br>• Passenger Door Open Sw.<br>Was a problem found? | Go to **Step 7** | Go to **Step 10** |
| 7 | Disconnect and test the switches of the affected input circuit for proper continuity in the open and closed positions. Refer to **Testing for Continuity** . Is continuity correct in both positions? | Go to **Step 8** | Go to **Step 9** |
| | Test the signal and ground circuits of the affected input circuit for the following conditions:<br>• An open<br>• A short to ground | | |

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| 8 | • High resistance<br>Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 10** |
| 9 | Inspect for poor connections at the harness connector of the affected switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 12** |
| 10 | Inspect for poor connections at the harness connector of the module in the affected circuit. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 13** |
| 11 | Inspect for poor connections at the harness connector of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 15** |
| 12 | Replace the switch in the affected circuit.<br>Did you complete the replacement? | Go to **Step 16** | - |
| 13 | Replace the module in the affected circuit. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 16** | - |
| 14 | Replace the inoperative bulb.<br>Did you complete the repair? | Go to **Step 16** | - |
| 15 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 16** | - |
| 16 | Operate the system in order to verify the repair.<br>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: Headlights/Daytime Running Lights (DRL) Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |

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|---|---|---|---|
| 2 | 1. Carefully supply sufficient light to the ambient light sensor.<br>2. Place the headlamps in the AUTO position.<br>3. Start the engine.<br><br>Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | Remove the DRL fuse in the underhood fuse block.<br>Do the DRL turn OFF? | Go to **Step 4** | Go to **Step 7** |
| 4 | 1. Reinstall the DRL fuse.<br>2. Use the scan tool to observe the DRL Relay Command parameter while switching the headlamp switch back and forth several times between AUTO and HEAD.<br><br>Does the DRL parameter change states as expected? | Go to **Step 5** | Go to **Step 6** |
| 5 | Inspect for poor connections at the harness connector of the underhood fuse block. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 10** | Go to **Step 8** |
| 6 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 10** | Go to **Step 9** |
| 7 | Repair the DRL supply voltage circuit. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 10** | - |
| 8 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the replacement? | Go to **Step 10** | - |
| 9 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 10** | - |
| 10 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## DAYTIME RUNNING LAMPS (DRL) DEFEAT INOPERATIVE

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

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication** | | | |

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| Connector End Views | | | |
|---|---|---|---|
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Carefully supply sufficient light to the ambient light sensor.<br>2. Start the engine.<br>3. With the headlamps in the AUTO position, toggle the daytime running lamps (DRL) defeat switch several times.<br><br>Does the system operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | With a scan tool, command the DRL ON and OFF several times.<br>Do the DRL operate as expected? | Go to **Step 4** | Go to **Step 6** |
| 4 | Test the DRL On/Off signal circuit of the body control module (BCM) for a high resistance, an open, or a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 5** |
| 5 | Inspect for poor connections at the harness connector of the headlamp switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>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 **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 8** |
| 7 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 8 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## DAYTIME RUNNING LAMPS (DRL) INOPERATIVE (Z88)

**Daytime Running Lamps (DRL) Inoperative (Z88)**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics** | | | |

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| Connector End View Reference: Master Electrical Component List | | | |
|---|---|---|---|
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Carefully supply sufficient light to the ambient light sensor.<br>2. Place the headlamps in the AUTO position.<br>3. Start the engine.<br><br>Do the low beam headlamp bulbs illuminate? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | With a scan tool, observe the DRL Relay Command parameter in the body control module (BCM) data list. Does the scan tool display On? | Go to **Step 4** | Go to **Step 7** |
| 4 | Test the DRL supply voltage circuit for an open, high resistance, or short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 5** |
| 5 | Inspect for poor connections at the harness connector of the underhood fuse block. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 6** |
| 6 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the repair? | Go to **Step 9** | - |
| 7 | Inspect for poor connections at the harness connector of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 8** |
| 8 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## DAYTIME RUNNING LAMPS (DRL) INOPERATIVE (X88 AND Z75)

### Daytime Running Lamps (DRL) Inoperative (X88 and Z75)

| Step | Action | Yes | No |
|---|---|---|---|
| Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics<br>Connector End View Reference: Lighting Systems Connector End Views or Data Communication Connector End Views | | | |

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| | | | |
|---|---|---|---|
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Carefully supply sufficient light to the ambient light sensor.<br>2. Place the headlamps in the AUTO position.<br>3. Start the engine.<br><br>Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | Is only one daytime running lamp (DRL) inoperative? | Go to **Step 4** | Go to **Step 5** |
| 4 | Test the supply and ground circuits of the affected lamp for a high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 17** | Go to **Step 16** |
| 5 | 1. Ensure the park brake is not set.<br>2. Install a scan tool.<br>3. Turn ON the ignition, with the engine OFF.<br>4. With the scan tool, observe the Park Brake Switch parameter in the Body Control Module (BCM) data list.<br><br>Does the scan tool display RELEASED? | Go to **Step 7** | Go to **Step 6** |
| 6 | Test the signal circuit of the park brake switch for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 17** | Go to **Step 11** |
| 7 | 1. Turn OFF the ignition.<br>2. Connect a 10-amp fused jumper wire between battery positive voltage and the DRL supply voltage circuit terminal of the DRL fuse.<br><br>Do the DRL illuminate? | Go to **Step 8** | Go to **Step 12** |
| 8 | 1. Restart the engine.<br>2. Test the DRL relay control circuit of the DRL relay for a ground signal. Refer to **Circuit Testing** .<br><br>Is a ground signal present? | Go to **Step 15** | Go to **Step 9** |
| 9 | Test the DRL relay control circuit for an open or high resistance. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 17** | Go to **Step 10** |
| | Inspect for poor connections at the harness connector | | |

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|---|---|---|---|
| 10 | of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 17** | Go to **Step 13** |
| 11 | Inspect for poor connections at the harness connector of the park brake switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 17** | Go to **Step 14** |
| 12 | Repair the DRL supply voltage circuit. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 17** | - |
| 13 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 17** | - |
| 14 | Replace the park brake switch. Refer to **Park Brake Warning Lamp Switch Replacement** .<br>Did you complete the replacement? | Go to **Step 17** | - |
| 15 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the replacement? | Go to **Step 17** | - |
| 16 | Replace the inoperative DRL.<br>Did you complete the replacement? | Go to **Step 17** | - |
| 17 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## EXTERIOR COURTESY LAMP(S) ALWAYS ON

**Exterior Courtesy Lamp(s) Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Interior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Ensure that all doors are closed and the interior courtesy lamps turn OFF.<br>Do the exterior courtesy lamps remain illuminated? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | Test the door exterior courtesy lamp ground circuit for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 6** | Go to **Step 4** |
| | Inspect for poor connections at the harness connector | | |

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|---|---|---|---|
| 4 | of the driver door switch or passenger door switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** . Did you find and correct the condition? | Go to **Step 6** | Go to **Step 5** |
| 5 | Replace the driver door switch or passenger door switch. Refer to **Control Module References** for replacement, setup, and programming. Did you complete the replacement? | Go to **Step 6** | - |
| 6 | Operate the system in order to verify the repair. Did you correct the condition? | System OK | Go to **Step 3** |

## EXTERIOR COURTESY LAMP(S) INOPERATIVE

**Exterior Courtesy Lamp(s) Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Interior Lights Schematics Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Open any door. Do the exterior courtesy lamps operate correctly? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | Do the interior courtesy lamps illuminate? | Go to **Step 4** | Go to **Courtesy Lamps Inoperative** |
| 4 | 1. Disconnect the outside rearview (OSRV) mirror connector from the driver door switch or passenger door switch.<br>2. Test for continuity between the door exterior courtesy lamp supply voltage circuit and the door exterior courtesy lamp ground circuit of the OSRV mirror connector. Refer to **Testing for Continuity** .<br>Is continuity present? | Go to **Step 6** | Go to **Step 5** |
| 5 | Inspect the bulb for an open filament. Is the bulb good? | Go to **Step 7** | Go to **Step 8** |
| 6 | Inspect for poor connections at the harness connector of the driver door switch or passenger door switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** . Did you find and correct the condition? | Go to **Step 11** | Go to **Step 9** |
| | Test for a short to ground or an open in the affected door exterior courtesy lamp supply voltage circuit and | | |

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| | | | |
|---|---|---|---|
| 7 | inspect for poor connections at the harness connector of the OSRV mirror. Refer to **Circuit Testing** , **Wiring Repairs** , **Testing for Intermittent Conditions and Poor Connections** , and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 10** |
| 8 | Replace the bulb. Refer to **Courtesy Lamp Replacement - Exterior**.<br>Did you complete the replacement? | Go to **Step 11** | - |
| 9 | Replace the driver door switch or passenger door switch. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 11** | - |
| 10 | Replace the OSRV mirror. Refer to **Mirror Replacement - Power** .<br>Did you complete the replacement? | Go to **Step 11** | - |
| 11 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## FOG LAMP INDICATOR INOPERATIVE

**Fog Lamp Indicator Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Fog Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the fog lamp indicator is inoperative.<br>Does the fog lamp indicator operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Do the fog lamps operate normally? | Go to **Step 4** | Go to **Symptoms - Lighting Systems** |
| 4 | Replace the fog lamp switch. Refer to **Fog Lamp Switch Replacement**.<br>Did you complete the replacement? | Go to **Step 5** | - |
| 5 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## FOG LAMP INDICATOR INOPERATIVE - REAR

**Fog Lamp Indicator Inoperative - Rear**

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

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| | | | |
|---|---|---|---|
| **Schematic Reference: Fog Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the rear fog lamp indicator is inoperative.<br>Does the rear fog lamp indicator operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Does the rear fog lamp operate normally? | Go to **Step 4** | Go to **Symptoms - Lighting Systems** |
| 4 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**.<br>Did you complete the replacement? | Go to **Step 5** | - |
| 5 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

**FOG LAMPS ALWAYS ON**

**Fog Lamps Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Fog Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the front fog lamps are always ON.<br>Do the front fog lamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Remove the FOG LAMP fuse in the underhood fuse block.<br>Do the front fog lamps turn OFF? | Go to **Step 4** | Go to **Step 7** |
| 4 | 1. Ensure that the front fog lamp switch is in the OFF position.<br>2. Test for a ground signal at the front fog lamp relay control circuit terminal in the underhood fuse block. Refer to **Circuit Testing** .<br>Was a ground signal found? | Go to **Step 5** | Go to **Step 9** |
| 5 | Test the front fog lamp relay control circuit for a short to ground. Refer to **Circuit Testing** and **Wiring** | | |

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| | **Repairs** .<br>Did you find and correct the condition? | Go to **Step 10** | Go to **Step 6** |
| 6 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 10** | Go to **Step 8** |
| 7 | Repair the short to voltage in the front fog lamp supply voltage circuit. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 10** | - |
| 8 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 10** | - |
| 9 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the repair? | Go to **Step 10** | - |
| 10 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## FOG LAMPS INOPERATIVE

### Fog Lamps Inoperative

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Fog Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the front fog lamps are inoperative.<br>Do the front fog lamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Is only one front fog lamp inoperative? | Go to **Step 4** | Go to **Step 6** |
| 4 | Inspect the inoperative bulb and socket for an open filament or poor terminal contact and repair or replace as necessary. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 5** |
| 5 | Test the ground circuit of the inoperative lamp for a high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs**<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 15** |

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| 6 | With the engine OFF, turn the key to RUN and the headlamp switch to PARK.<br>Do the park lamps illuminate? | Go to **Step 7** | Go to **Park, License, and Tail Lamps Inoperative** |
| 7 | Inspect the FOG LAMP fuse.<br>Is the fuse open? | Go to **Step 14** | Go to **Step 8** |
| 8 | 1. Place the front fog lamp switch in the ON position.<br>2. Test for a ground signal at the front fog lamp relay control circuit terminal in the underhood fuse block connector. Refer to **Circuit Testing** .<br>Was a ground signal present? | Go to **Step 11** | Go to **Step 9** |
| 9 | Test the front fog lamp switch signal and ground circuits for an open or high resistance. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 19** | Go to **Step 10** |
| 10 | 1. Remove the fog lamp switch.<br>2. Place a fused jumper between the fog lamp switch signal and ground connector terminals.<br>3. Test for a ground signal at the front fog lamp relay control circuit terminal in the underhood fuse block. Refer to **Circuit Testing** .<br>Was a ground signal present? | Go to **Step 18** | Go to **Step 12** |
| 11 | Test for an open or high resistance in the front fog lamp supply voltage circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 19** | Go to **Step 17** |
| 12 | Test the fog lamp relay control circuit for an open high resistance or a short to voltage. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 13** |
| 13 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 16** |
| 14 | Repair the short to ground in the fog lamp supply circuit of the inoperative lamp. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 19** | - |
| 15 | Repair the fog lamp supply circuit of the inoperative lamp. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 19** | - |

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| 16 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 19** | - |
| 17 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the repair? | Go to **Step 19** | - |
| 18 | Replace the front fog lamp switch. Refer to **Fog Lamp Switch Replacement**.<br>Did you complete the repair? | Go to **Step 19** | - |
| 19 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## REAR FOG LAMPS ALWAYS ON

**Rear Fog Lamps Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Fog Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the rear fog lamp is always ON.<br>Does the rear fog lamp operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Use the scan tool to monitor the rear fog lamp switch input in the auxiliary body control module (XBCM) data list while depressing the switch several times.<br>Does the scan tool indicate that the switch is ACTIVE at all times? | Go to **Step 4** | Go to **Step 5** |
| 4 | Test for a short to ground in the rear fog lamp switch signal circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 8** |
| 5 | Test for a short to voltage in the rear fog lamp supply voltage circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 9** | Go to **Step 6** |
| 6 | Inspect for poor connections at the harness connector of the XBCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 7** |

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| 7 | Replace the XBCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 8 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**.<br>Did you complete the repair? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## REAR FOG LAMPS INOPERATIVE

**Rear Fog Lamps Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Fog Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the rear fog lamp is inoperative.<br>Does the rear fog lamp operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Inspect for an open rear fog lamp bulb filament or poor connections/corroded terminals at the lamp socket. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find a condition? | Go to **Step 8** | Go to **Step 4** |
| 4 | Use the scan tool to monitor the rear fog lamp switch input in the auxiliary body control module (XBCM) data list while depressing the switch several times.<br>Does the scan tool parameter change from Active to Inactive? | Go to **Step 6** | Go to **Step 5** |
| 5 | Test for an open or high resistance in the rear fog lamp switch signal circuit and fog lamp switch ground circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 10** |
| 6 | Test for an open or high resistance in the rear fog lamp supply voltage circuit and fog lamp ground circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 11** | Go to **Step 7** |
| 7 | Inspect for poor connections at the harness connector of the auxiliary body control module (XBCM). Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** . | | |

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| | Did you find and correct the condition? | Go to **Step 11** | Go to **Step 9** |
| 8 | Clean the socket terminals and/or replace the rear fog lamp bulb. Refer to **Rear Fog Lamp Bulb Replacement (Cadillac Export)**.<br>Did you complete the repair? | Go to **Step 11** | - |
| 9 | Replace the XBCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 11** | - |
| 10 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**.<br>Did you complete the repair? | Go to **Step 11** | - |
| 11 | Operate the system in order to verify the repair.<br>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: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Turn OFF the hazard flashers.<br>Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | With a scan tool, monitor the Hazard Lamp Switch data parameter in the Body Control Module (BCM) data list while pressing the switch several times.<br>Does the scan tool always display Active? | Go to **Step 4** | Go to **Step 6** |
| 4 | Test the hazard switch signal circuit for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 5** |
| 5 | Inspect for poor connections at the harness connector of the multifunction switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>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 **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 8** |

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| 7 | Replace the multifunction switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the replacement? | Go to **Step 9** | - |
| 8 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## HAZARD LAMPS INOPERATIVE

### Hazard Lamps Inoperative

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Turn ON the hazard flashers.<br>Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | 1. Turn ON the ignition with the engine OFF.<br>2. Turn ON each turn signal.<br><br>Do the turn signals function properly? | Go to **Step 4** | Go to **Turn Signal Lamps and/or Indicators Inoperative** |
| 4 | With a scan tool, monitor the Hazard Lamp Switch data parameter in the Body Control Module (BCM) data list while pressing the switch several times.<br>Does the scan tool display Active and Inactive? | Go to **Step 8** | Go to **Step 5** |
| 5 | Test the hazard switch signal circuit for an open, high resistance or short to voltage. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 6** |
| 6 | Test the ground circuit of the multifunction switch for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 7** |
| 7 | Inspect for poor connections at the harness connector of the multifunction switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 9** |
| | Inspect for poor connections at the harness connector | | |

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| 8 | of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 10** |
| 9 | Replace the multifunction switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the replacement? | Go to **Step 11** | - |
| 10 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 11** | - |
| 11 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## HEADLAMPS ALWAYS ON - LOW OR HIGH BEAM

### Headlamps Always On - Low or High Beam

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Place the headlamp switch in the OFF position.<br>Do the high and low beam headlamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Are only the high beam headlamps always ON? | Go to **Step 4** | Go to **Step 8** |
| 4 | Disconnect the headlamp dimmer switch.<br>Do the high beam headlamps remain ON? | Go to **Step 5** | Go to **Step 10** |
| 5 | Test the following circuits for a short to ground as applicable. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• The headlamp dimmer switch signal<br>• The headlamp switch flash to pass (FTP) signal<br>Did you find and correct a condition? | Go to **Step 18** | Go to **Step 6** |
| 6 | Remove the HI HEADLAMP-LT and HI HEADLAMP-RT fuses from the underhood fuse block.<br>Do the high beam headlamps remain ON? | Go to **Step 12** | Go to **Step 7** |
| | With a scan tool, monitor the High Beam Relay Command data parameter in the body control module | | |

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| 7 | (BCM) data list.<br>Does the scan tool display On? | Go to **Step 11** | Go to **Step 15** |
| 8 | Remove the HID-LT and HID-RT fuses from the underhood fuse block.<br>Do the low beam headlamps remain always ON? | Go to **Step 13** | Go to **Step 9** |
| 9 | With a scan tool, monitor the Low Beam Relay Command data parameter in the body control module (BCM) data list.<br>Does the scan tool display On? | Go to **Step 11** | Go to **Step 16** |
| 10 | Inspect for poor connections at the harness connector of the headlamp dimmer switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 18** | Go to **Step 17** |
| 11 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 18** | Go to **Step 14** |
| 12 | Repair the short to voltage in the right or left high beam headlamp supply voltage circuit. Refer to **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 18** | - |
| 13 | Repair the short to voltage in the right or left low beam headlamp supply voltage circuit. Refer to **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 18** | - |
| 14 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 18** | - |
| 15 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the repair? | Go to **Step 18** | - |
| 16 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the repair? | Go to **Step 18** | - |
| 17 | Replace the headlamp dimmer switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the repair? | Go to **Step 18** | - |
| 18 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

**HEADLAMPS INOPERATIVE - HIGH BEAMS**

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**Headlamps Inoperative - High Beams**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Place the headlamp switch in the ON position.<br>2. Place the dimmer switch in the high beam position.<br><br>Do the high beam headlamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Is only one high beam headlamp inoperative? | Go to **Step 4** | Go to **Step 5** |
| 4 | Test the high beam headlamp supply voltage circuit for high resistance, an open or a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 8** |
| 5 | 1. Place the headlamp switch in the HEAD position.<br>2. Place the headlamp dimmer switch in the high beam position.<br>3. With a scan tool, monitor the High Beam Relay Command data parameter in the body control module (BCM) data list.<br><br>Does the scan tool display On? | Go to **Step 13** | Go to **Step 6** |
| 6 | Test the headlamp dimmer switch signal and ground circuits for an open or high resistance. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 15** | Go to **Step 7** |
| 7 | 1. Place the headlamp switch in the HEAD position.<br>2. Connect a fused jumper from ground to the headlamp dimmer switch signal terminal of the headlamp dimmer switch connector.<br><br>Do the high beam headlamps illuminate? | Go to **Step 9** | Go to **Step 10** |
| 8 | Inspect for poor connections at the harness connector of the inoperative bulb. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 11** |
| | Inspect for poor connections at the harness connector | | |

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|---|---|---|---|
| 9 | of the headlamp dimmer switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 14** |
| 10 | Inspect for poor connections at the harness connector of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 12** |
| 11 | Replace the high beam bulb. Refer to **Headlamp Bulb Replacement (Cadillac)** or **Headlamp Bulb Replacement (Tahoe, Avalanche)** or **Headlamp Bulb Replacement (Yukon)**.<br>Did you complete the replacement? | Go to **Step 15** | - |
| 12 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 15** | - |
| 13 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the replacement? | Go to **Step 15** | - |
| 14 | Replace the headlamp dimmer switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the repair? | Go to **Step 15** | - |
| 15 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## HEADLAMPS INOPERATIVE - LOW BEAMS (HIGH INTENSITY DISCHARGE (HID))

**Headlamps Inoperative - Low Beams (High Intensity Discharge (HID))**

| Step | Action | Yes | No |
|---|---|---|---|
| **CAUTION:**<br>**The high intensity discharge system produces high voltage and current. To reduce the risk of severe shocks and burns:**<br>• **Never open the high intensity discharge system ballast or the arc tube assembly starter.**<br>• **Never probe between the high intensity discharge system ballast output connector and the arc tube assembly.**<br>**Schematic Reference: Headlights/Daytime Running Lights (DRL) SchematicsConnector End View Reference: Lighting Systems Connector End Views or Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| | 1. Place the headlamp switch in the ON position. | | |

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|---|---|---|---|
| 2 | 2. Place the dimmer switch in the low beam position.<br><br>Do the low beam headlamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Is only one low beam headlamp inoperative? | Go to **Step 4** | Go to **Step 8** |
| 4 | 1. Disconnect the forward lamps harness connector from the inoperative headlamp ballast.<br>2. Ensure that the headlamp switch is in the HEAD position.<br>3. Ensure that the headlamp dimmer switch is in the LOW BEAM position.<br>4. Test the battery positive voltage circuit of the inoperative headlamp before the ballast connector for high resistance, an open or a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br><br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 5** |
| 5 | Test the headlamp low beam supply voltage circuit of the inoperative headlamp before the ballast connector for high resistance, an open or a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 6** |
| 6 | Test the ground circuit of the inoperative headlamp before the ballast connector for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 7** |
| 7 | Install a known good headlamp bulb. Refer to **Headlamp Bulb Replacement (Cadillac)** or **Headlamp Bulb Replacement (Tahoe, Avalanche)** or **Headlamp Bulb Replacement (Yukon)**.<br>Does the lamp operate properly? | Go to **Step 19** | Go to **Step 12** |
| 8 | 1. Place the headlamp switch in the HEAD position.<br>2. Place the headlamp dimmer switch in the low beam position.<br>3. With a scan tool, monitor the Low Beam Relay Command data parameter in the body control module (BCM) data list.<br><br>Does the scan tool display On? | Go to **Step 17** | Go to **Step 9** |
| | 1. Disconnect the multifunction switch.<br>2. Place the headlamp switch in the HEAD | | |

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| 9 | position.<br>Do the low beam headlamps illuminate? | Go to **Step 13** | Go to **Step 10** |
| 10 | Test the headlamp dimmer switch signal circuit for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 11** |
| 11 | Test the headlamp switch flash to pass signal circuit for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 14** |
| 12 | Inspect for poor connections at the harness connector of the ballast. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 15** |
| 13 | Inspect for poor connections at the harness connector of the headlamp dimmer switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 18** |
| 14 | Inspect for poor connections at the harness connector of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 19** | Go to **Step 16** |
| 15 | Replace the headlamp ballast. Refer to **High Intensity Discharge Headlamp Ballast Replacement**.<br>Did you complete the replacement? | Go to **Step 19** | - |
| 16 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 19** | - |
| 17 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the replacement? | Go to **Step 19** | - |
| 18 | Replace the headlamp dimmer switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the repair? | Go to **Step 19** | - |
| 19 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## HEADLAMPS INOPERATIVE - LOW BEAMS (STANDARD)

### Headlamps Inoperative - Low Beams (Standard)

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| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Lighting Systems Diagnostic System Check? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Place the headlamp switch in the ON position.<br>2. Place the dimmer switch in the low beam position.<br><br>Do the low beam headlamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Is only one low beam headlamp inoperative? | Go to **Step 4** | Go to **Step 5** |
| 4 | Test the headlamp low beam supply voltage and ground circuits for high resistance, an open or a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 9** |
| 5 | 1. Place the headlamp switch in the HEAD position.<br>2. Place the headlamp dimmer switch in the low beam position.<br>3. With a scan tool, monitor the Low Beam Relay Command data parameter in the body control module (BCM) data list.<br><br>Does the scan tool display On? | Go to **Step 14** | Go to **Step 6** |
| 6 | Disconnect the multifunction switch.<br>Do the low beam headlamps illuminate? | Go to **Step 7** | Go to **Step 11** |
| 7 | Test the headlamp dimmer switch signal circuit for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 16** | Go to **Step 8** |
| 8 | Test the headlamp switch flash to pass signal circuit for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 16** | Go to **Step 10** |
| 9 | Inspect for poor connections at the harness connector of the inoperative bulb. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 12** |
| | Inspect for poor connections at the harness connector of the headlamp dimmer switch. Refer to **Testing for** | | |

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|---|---|---|---|
| 10 | **Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 15** |
| 11 | Inspect for poor connections at the harness connector of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 16** | Go to **Step 13** |
| 12 | Replace the inoperative bulb. Refer to **Headlamp Bulb Replacement (Cadillac)** or **Headlamp Bulb Replacement (Tahoe, Avalanche)** or **Headlamp Bulb Replacement (Yukon)**.<br>Did you complete the replacement? | Go to **Step 16** | - |
| 13 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 16** | - |
| 14 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the replacement? | Go to **Step 16** | - |
| 15 | Replace the headlamp dimmer switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the repair? | Go to **Step 16** | - |
| 16 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## HEADLAMPS INOPERATIVE - LOW AND HIGH BEAMS

### Headlamps Inoperative - Low and High Beams

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Place the headlamp switch in the ON position.<br>2. Change the dimmer switch position from the high to low beam positions several times.<br>Does the headlamp system operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| | Are both high and low beam headlamps inoperative? | | Go to **Headlamps Inoperative - Low Beams (High Intensity Discharge** |

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|---|---|---|---|
| 3 | | Go to **Step 4** | **(HID))** or **Headlamps Inoperative - Low Beams (Standard)** or Go to **Headlamps Inoperative - High Beams** |
| 4 | With a scan tool, observe the headlamp switch data parameter in the body control module (BCM) data list. Does the scan tool indicate ACTIVE? | Go to **Step 7** | Go to **Step 5** |
| 5 | Connect a test lamp between the ground circuit of the headlamp switch connector and battery positive voltage. Does the test lamp illuminate? | Go to **Step 6** | Go to **Step 9** |
| 6 | Test the headlamps switch headlamps on signal circuit of the headlamp switch for a high resistance, an open, or a short to voltage. Refer to **Circuit Testing** and **Wiring Repairs** . Did you find and correct the condition? | Go to **Step 12** | Go to **Step 8** |
| 7 | Inspect for poor connections to the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** . Did you find and correct the condition? | Go to **Step 12** | Go to **Step 10** |
| 8 | Inspect for poor connections to the headlamp switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** . Did you find and correct the condition? | Go to **Step 12** | Go to **Step 11** |
| 9 | Repair the ground circuit of the headlamp switch. Refer to **Wiring Repairs** . Did you complete the repair? | Go to **Step 12** | - |
| 10 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming. Did you complete the replacement? | Go to **Step 12** | - |
| 11 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**. Did you complete the replacement? | Go to **Step 12** | - |
| 12 | Operate the system in order to verify the repair. Did you correct the condition? | System OK | Go to **Step 3** |

## HEADLAMPS INOPERATIVE - FLASH TO PASS

**Headlamps Inoperative - Flash to Pass**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics** | | | |

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|---|---|---|---|
| **Connector End View Reference: Lighting Systems Connector End Views or Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Place the headlamp switch in the ON position.<br>2. Place the dimmer switch in the low beam position.<br>3. Turn ON the flash to pass switch.<br><br>Do the high beam headlamps illuminate momentarily? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | 1. Place the headlamp switch in the ON position.<br>2. Connect a fused jumper from ground to the headlamp switch flash to pass signal circuit terminal of the headlamp dimmer switch connector.<br><br>Do the high beam headlamps illuminate? | Go to **Step 6** | Go to **Step 4** |
| 4 | Test the headlamp switch flash to pass signal circuit for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 5** |
| 5 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>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 dimmer switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 8** |
| 7 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 8 | Replace the headlamp dimmer switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the repair? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## HIGH BEAM INDICATOR ALWAYS ON

### High Beam Indicator Always On

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| Step | Action | Yes | No |
|---|---|---|---|
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Turn the ignition switch to the RUN position.<br>2. Turn the headlamp switch to the ON position.<br>3. Place the multifunction headlamp dimmer switch to the low beams position.<br>Does the high beam indicator turn OFF as expected? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Do the high beam headlamps turn OFF as expected? | Go to **Step 4** | Go to **Symptoms - Lighting Systems** |
| 4 | Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 6** | Go to **Step 5** |
| 5 | Replace the IPC. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 6** | - |
| 6 | Operate the system in order to verify the repair.<br>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 **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Turn the ignition switch to the RUN position.<br>2. Turn the headlamp switch to the ON position.<br>3. Place the multifunction headlamp dimmer switch to the high beams position.<br>Do the high beam indicator function properly? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Do the high beam headlamps function properly? | Go to **Step 4** | Go to **Symptoms - Lighting Systems** |
| 4 | Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 6** | Go to **Step 5** |
| 5 | Replace the IPC. Refer to **Control Module References** for replacement, setup, and programming. | | |

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| | Did you complete the replacement? | Go to **Step 6** | - |
| 6 | Operate the system in order to verify the repair.<br>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 Reference: Interior Lights Dimming Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the interior backlighting does not dim.<br>Does the interior backlighting operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Use the scan tool output controls to operate the interior backlighting.<br>Can you control the dimming level of an activated control switch indicator with the scan tool? | Go to **Step 4** | Go to **Step 5** |
| 4 | Test for an open, high resistance, short to voltage, or short to ground in the following circuits. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• The 12-volt reference<br>• The instrument panel lamp dimmer switch signal<br>• The indicator dimming control<br>• The instrument panel lamp dimming control<br>Did you find and correct a condition? | Go to **Step 10** | Go to **Step 6** |
| 5 | Test for a short to voltage in the LED dimming circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct a condition? | Go to **Step 10** | Go to **Step 7** |
| 6 | Inspect for poor connections at the harness connector of the headlamp switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 10** | Go to **Step 8** |
| 7 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Testing for Intermittent Conditions and Poor Connections** | | |

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| | and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 10** | Go to **Step 9** |
| 8 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**.<br>Did you complete the replacement? | Go to **Step 10** | - |
| 9 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 10** | - |
| 10 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## INTERIOR BACKLIGHTING INOPERATIVE

### Interior Backlighting Inoperative

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Interior Lights Dimming Schematics** or **Body Control System Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the interior backlighting is inoperative.<br>Does the interior backlighting operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Are all of the interior backlighting lamps inoperative? | Go to **Step 5** | Go to **Step 4** |
| 4 | Test for an open or high resistance in the following circuits of the inoperative lamp. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• The instrument panel lamps dimming control<br>• The LED dimming supply<br>• The indicator dimming control<br>• The ground<br>Did you find and correct a condition? | Go to **Step 13** | Go to **Step 8** |
| 5 | Are any of the body control module supply voltage fuses open? | Go to **Step 6** | Go to **Step 7** |
| 6 | Test the affected battery positive voltage supply circuit to the body control module (BCM) for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 10** |

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|---|---|---|---|
| 7 | Test for a short to ground, open, or high resistance in one of the following circuits. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• The instrument panel lamps dimming control<br>• The LED dimming supply<br>• The indicator dimming control<br>• The headlamp and panel dimmer 12-volt reference<br>• The headlamp and panel dimmer instrument panel lamps dimmer switch signal<br>• The headlamp and panel dimmer switch ground<br>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 lamp. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>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. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 12** |
| 10 | Repair the short to ground in one of the following circuits. Refer to **Wiring Repairs** .<br>• The instrument panel lamps dimming control<br>• The LED dimming supply<br>• The indicator dimming control<br>• The headlamp and panel dimmer 12-volt reference<br>Did you complete the repair? | Go to **Step 13** | - |
| 11 | Replace the affected lamp or internal lamp component.<br>Did you complete the replacement? | Go to **Step 13** | - |
| 12 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 13** | - |
| 13 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

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## PARK, LICENSE, AND TAIL LAMPS ALWAYS ON

**Park, License, and Tail Lamps Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the park, license and tail lamps are always ON.<br>Do the park, license and tail lamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Remove and reinstall each park lamp fuse one at a time.<br>Do all of the park lamps turn OFF when a particular fuse is removed? | Go to **Step 9** | Go to **Step 4** |
| 4 | 1. Ensure that the headlamp switch is in the AUTO position and there is sufficient light to the ambient light sensor.<br>2. With a scan tool, monitor the Park Lamp Relay Command in the body control module (BCM) data list.<br><br>Does the scan tool display Off? | Go to **Step 5** | Go to **Step 10** |
| 5 | Use the scan tool to check the BCM park lamp switch input data.<br>Does the scan tool display Inactive? | Go to **Step 8** | Go to **Step 6** |
| 6 | Test for a short to ground in the park lamp switch signal circuit. Refer to **Circuit Testing Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 7** |
| 7 | Inspect for poor connections at the harness connector of the headlamp switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>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 **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 12** |
| 9 | Repair the short to voltage in the affected park lamp supply voltage circuit. Refer to **Wiring Repairs** . | | |

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| | Did you complete the repair? | Go to **Step 13** | - |
| 10 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the repair? | Go to **Step 13** | - |
| 11 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**.<br>Did you complete the repair? | Go to **Step 13** | - |
| 12 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 13** | - |
| 13 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## PARK, LICENSE, AND TAIL LAMPS INOPERATIVE

**Park, License, and Tail Lamps Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the park, license and tail lamps are inoperative.<br>Do the park, license and tail lamps operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Are all park, license, and tail lamps inoperative? | Go to **Step 6** | Go to **Step 4** |
| 4 | Test the supply circuit of the inoperative lamp for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 5** |
| 5 | Test the ground circuit of the inoperative lamp for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 11** |
| 6 | 1. Ensure that the headlamp switch is in the ON position.<br>2. With a scan tool, monitor the Park Lamp Relay Command in the body control module (BCM) data list.<br><br>Does the scan tool display On? | Go to **Step 12** | Go to **Step 7** |

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| 7 | Use the scan tool to monitor the BCM park lamp switch input data.<br>Does the scan tool display Active? | Go to **Step 10** | Go to **Step 8** |
| 8 | Test for an open or high resistance in the park lamp switch signal circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 9** |
| 9 | Inspect for poor connections at the harness connector of the headlamp switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 13** |
| 10 | Inspect for poor connections at the harness connector of the BCM. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 14** |
| 11 | Replace the inoperative bulb.<br>Did you complete the replacement? | Go to **Step 15** | - |
| 12 | Replace the underhood fuse block. Refer to **Underhood Electrical Center or Junction Block Replacement** .<br>Did you complete the repair? | Go to **Step 15** | - |
| 13 | Replace the headlamp switch. Refer to **Headlamp Switch Replacement**.<br>Did you complete the repair? | Go to **Step 15** | - |
| 14 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 15** | - |
| 15 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## READING LAMP(S) INOPERATIVE

**Reading Lamp(s) Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Interior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Turn ON the reading lamps.<br>Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |

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| 3 | Test the inadvertent power supply voltage circuit of the reading lamp for a short to ground, high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 8** | Go to **Step 4** |
| 4 | Test the ground circuit of the reading lamp for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 8** | Go to **Step 5** |
| 5 | Inspect the inoperative bulb for an open filament.<br>Is the bulb good? | Go to **Step 7** | Go to **Step 6** |
| 6 | Replace the inoperative bulb. Refer to **Dome Lamp Replacement**.<br>Did you complete the replacement? | Go to **Step 8** | - |
| 7 | Replace the dome lamp. Refer to **Dome Lamp Replacement**.<br>Did you complete the replacement? | Go to **Step 6** | - |
| 8 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## ROOF BEACON LAMP ALWAYS ON

**Roof Beacon Lamp Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Upfitter Provision Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the roof beacon lamp is always ON.<br>Does the roof beacon lamp operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Disconnect the roof beacon relay.<br>Does the roof beacon lamp turn OFF? | Go to **Step 4** | Go to **Step 6** |
| 4 | 1. Reconnect the roof beacon relay.<br>2. Disconnect the roof beacon switch.<br><br>Does the roof beacon lamp turn OFF? | Go to **Step 7** | Go to **Step 5** |
| 5 | Test the hazard switch signal circuit of the roof beacon switch for a short to voltage. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 9** | Go to **Step 8** |
| | Repair the hazard flasher signal circuit of the roof | | |

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| 6 | beacon relay for a short to voltage. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 9** | - |
| 7 | Replace the roof beacon switch.<br>Did you complete the replacement? | Go to **Step 9** | - |
| 8 | Replace the roof beacon relay. Refer to **Relay Replacement (Attached to Wire Harness)** or **Relay Replacement (Within an Electrical Center)** .<br>Did you complete the replacement? | Go to **Step 9** | - |
| 9 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## ROOF BEACON LAMP INOPERATIVE

**Roof Beacon Lamp Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Upfitter Provision Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Verify that the roof beacon lamp is inoperative.<br>Does the roof beacon lamp operate normally? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | 1. Place the roof beacon switch in the ON position.<br>2. Connect a test lamp between the power and ground circuits of the roof beacon lamp connector.<br>Does the test lamp illuminate? | Go to **Step 8** | Go to **Step 4** |
| 4 | Test the ground circuit of the roof beacon lamp for a high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 5** |
| 5 | 1. Remove the roof beacon switch.<br>2. Place a fused jumper between the hazard switch signal and battery positive voltage circuits of the roof beacon switch connector terminals.<br>Does the roof beacon lamp illuminate? | Go to **Step 9** | Go to **Step 6** |
| | Test the following circuits for a high resistance, open or a short to ground: | | |

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|---|---|---|---|
| 6 | • Battery positive voltage circuit of the switch<br>• Battery positive voltage circuit of the relay<br>• Hazard switch signal circuit of the relay<br>• Hazard flasher signal circuit of the relay<br><br>Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 7** |
| 7 | Test the ground circuit of the roof beacon relay for a high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 11** | Go to **Step 10** |
| 8 | Replace the bulb or lamp assembly. Refer to upfitter instructions.<br>Did you complete the replacement? | Go to **Step 11** | - |
| 9 | Replace the roof beacon switch.<br>Did you complete the replacement? | Go to **Step 11** | - |
| 10 | Replace the roof beacon relay. Refer to **Relay Replacement (Attached to Wire Harness)** or **Relay Replacement (Within an Electrical Center)** .<br>Did you complete the replacement? | Go to **Step 11** | - |
| 11 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## STOP LAMPS ALWAYS ON

**Stop Lamps Always On**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Depress the brake pedal.<br>Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | 1. Disconnect the stop lamp switch.<br>2. Connect a fused jumper between the stop lamp switch harness terminals C and D.<br><br>Do the brake lamps center high mount stop lamp (CHMSL) remain illuminated? | Go to **Step 4** | Go to **Step 7** |

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| | | | |
|---|---|---|---|
| 4 | Disconnect the body control module (BCM) connector C 6.<br>Do the brake lamps remain illuminated? | Go to **Step 9** | Go to **Step 5** |
| 5 | Disconnect the BCM connector C 5.<br>Does the CHMSL remain illuminated? | Go to **Step 10** | Go to **Step 6** |
| 6 | Test the following circuits for an open or short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• The brake pedal switch normally closed contact signal circuit<br>• The brake switch 12 volt reference circuit<br>• The battery positive voltage circuit to the BCM at connector C 4, terminal 4<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 8** |
| 7 | Inspect for poor connections at the harness connector of the stop lamp switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>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 **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 13** | Go to **Step 12** |
| 9 | Repair the short to voltage in the stop lamp supply voltage circuit. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 13** | - |
| 10 | Repair the short to voltage in the CHMSL supply voltage circuit. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 13** | - |
| 11 | Replace the stop lamp switch. Refer to **Stop Lamp Switch Replacement (Adjustable Pedal)** or **Stop Lamp Switch Replacement (Non-Adjustable Pedal)**.<br>Did you complete the replacement? | Go to **Step 13** | - |
| 12 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 13** | - |
| 13 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

**STOP LAMPS INOPERATIVE**

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**Stop Lamps Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Observe the stop lamps while pressing the brake pedal. Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | Are all the stop lamps inoperative? | Go to **Step 6** | Go to **Step 4** |
| 4 | Test the supply voltage circuit of the inoperative lamp for high resistance, an open, or a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 14** | Go to **Step 5** |
| 5 | Test the ground circuit of the inoperative lamp for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 14** | Go to **Step 8** |
| 6 | Disconnect the stop lamp switch.<br>Did the stop lamps illuminate? | Go to **Step 9** | Go to **Step 7** |
| 7 | Test for the following conditions. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• A short to voltage in the brake pedal switch normally closed contact signal circuit<br>• An open, high resistance, or short to ground in the stop lamp supply voltage circuit<br>• An open, high resistance, or short to ground in the center high mount stop lamp (CHMSL) supply voltage circuit<br>Did you find and correct the condition? | Go to **Step 14** | Go to **Step 10** |
| 8 | Inspect for poor connections at the harness connector of the bulb or high mount stop lamp. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 14** | Go to **Step 11** |
| 9 | Inspect for poor connections at the harness connector of the switch. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 14** | Go to **Step 12** |

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| 10 | Inspect for poor connections at the harness connector of the body control module (BCM). Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 14** | Go to **Step 13** |
| 11 | Replace the stop lamp. Refer to **Tail Lamp Bulb Replacement (Cadillac)** or **Tail Lamp Bulb Replacement (Tahoe, Avalanche)** or **Tail Lamp Bulb Replacement (Yukon)** or **High Mounted Stop Lamp Replacement (Yukon)** or **High Mounted Stop Lamp Replacement (Escalade)** or **High Mounted Stop Lamp Replacement (Avalanche)**.<br>Did you complete the replacement? | Go to **Step 14** | - |
| 12 | Replace the stop lamp switch. Refer to **Stop Lamp Switch Replacement (Adjustable Pedal)** or **Stop Lamp Switch Replacement (Non-Adjustable Pedal)**.<br>Did you complete the replacement? | Go to **Step 14** | - |
| 13 | Replace the BCM. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 14** | - |
| 14 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

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

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

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Master Electrical Component List** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Turn the ignition to the ON position, with the engine OFF.<br>2. Activate the right and left turn signal lamps.<br><br>Do the turn signal lamps and indicators operate properly? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | 1. Place the turn signal switch in the OFF position.<br>2. Place the hazard warning switch in the OFF position.<br><br>Are only the turn signal indicators always ON? | Go to **Step 11** | Go to **Step 4** |
| 4 | Are all 4 of the turn signals lamps flashing? | Go to **Hazard** | |

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|---|---|---|---|
| | | **Lamps Always On** | Go to **Step 5** |
| 5 | Is only one lamp on at all times? | Go to **Step 6** | Go to **Step 7** |
| 6 | Test for a short to battery positive voltage in the turn signal voltage circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 12** | Go to **Step 9** |
| 7 | Disconnect the multifunction turn signal switch.<br>Do the turn signal lamps turn OFF? | Go to **Step 10** | Go to **Step 8** |
| 8 | Test for a short to ground in the either turn signal switch signal circuit. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 12** | Go to **Step 9** |
| 9 | Replace the body control module (BCM), driver door switch, or passenger door switch as applicable. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 12** | - |
| 10 | Replace the multifunction turn signal switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Did you complete the replacement? | Go to **Step 12** | - |
| 11 | Replace the instrument panel cluster (IPC). Refer to **Instrument Cluster Replacement (Cadillac)** or **Instrument Cluster Replacement (Except Cadillac)** .<br>Did you complete the repair? | Go to **Step 12** | - |
| 12 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 2** |

## TURN SIGNAL LAMPS AND/OR INDICATORS INOPERATIVE

### Turn Signal Lamps and/or Indicators Inoperative

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Exterior Lights Schematics**<br>**Connector End View Reference: Master Electrical Component List** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | 1. Turn the ignition switch to the ON position.<br>2. Activate the left and right turn signals.<br><br>Do the turn signals and indicators operating properly? | Go to **Testing for Intermittent Conditions and Poor Connections** | Go to **Step 3** |
| 3 | Is only one lamp inoperative? | Go to **Step 4** | Go to **Step 6** |
| | Place a test lamp between the supply voltage and ground circuits at the inoperative lamp socket or | | |

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| | | | |
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| 4 | connector.<br>Does the test lamp illuminate when the turn signal is activated? | Go to **Step 14** | Go to **Step 5** |
| 5 | Test for an open or high resistance in the supply voltage circuit or ground circuit of the inoperative lamp. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 10** |
| 6 | With a scan tool, activate each turn signal with the body control module (BCM) output control function.<br>Do all lamps operate correctly? | Go to **Step 8** | Go to **Step 7** |
| 7 | Are only the instrument panel (I/P) turn signal indicators inoperative? | Go to **Step 11** | Go to **Step 9** |
| 8 | Test for one of the following conditions. Refer to **Circuit Testing** and **Wiring Repairs** .<br>• An open, high resistance, or short to voltage in either turn signal switch signal circuit<br>• An open or high resistance in the turn signal switch ground circuit<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 12** |
| 9 | Test for a short to ground in the supply voltage circuits of the inoperable lamps. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 10** |
| 10 | Test for a poor connection at the harness connector at the BCM, driver door switch, or passenger door switch as applicable. Refer to **Testing for Intermittent Conditions and Poor Connections** and **Connector Repairs** .<br>Did you find and correct the condition? | Go to **Step 15** | Go to **Step 13** |
| 11 | Replace the instrument panel cluster (IPC). Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the replacement? | Go to **Step 15** | - |
| 12 | Replace the multifunction turn signal switch. Refer to **Turn Signal Multifunction Switch Replacement** .<br>Is the replacement complete? | Go to **Step 15** | - |
| 13 | Replace the BCM, driver door switch, or passenger door switch as applicable. Refer to **Control Module References** for replacement, setup, and programming.<br>Did you complete the repair? | Go to **Step 15** | - |
| 14 | Replace the inoperative turn signal lamp. Refer to the appropriate replacement procedure. | | |

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| | Did you complete the repair? | Go to **Step 15** | - |
| 15 | 1. Connect all connectors and components that were previously disconnected.<br>2. Verify that the turn signal lamps and indicators operate properly.<br><br>Do the turn signal lamps and indicators operate properly? | System OK | Go to **Step 3** |

## VANITY MIRROR LAMP(S) INOPERATIVE

**Vanity Mirror Lamp(s) Inoperative**

| Step | Action | Yes | No |
|---|---|---|---|
| **Schematic Reference: Interior Lights Schematics**<br>**Connector End View Reference: Lighting Systems Connector End Views** or **Data Communication Connector End Views** | | | |
| 1 | Did you perform the Diagnostic System Check - Vehicle? | Go to **Step 2** | Go to **Diagnostic System Check - Vehicle** |
| 2 | Turn ON the vanity mirror lamp.<br>Does the system operate normally? | Go to **Testing for Electrical Intermittents** | Go to **Step 3** |
| 3 | Are all of the reading, visor and instrument panel (I/P) compartment lamps inoperative? | Go to **Step 4** | Go to **Step 6** |
| 4 | Are any of the TBC Fuses open? | Go to **Step 5** | Go to **Step 6** |
| 5 | Test the battery positive voltage circuit of the body control module (BCM) for a short to ground. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 12** | Go to **Step 9** |
| 6 | Test the inadvertent power supply voltage circuit of the vanity lamp for a short to ground, high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 12** | Go to **Step 7** |
| 7 | Test the ground circuit of the vanity lamp for high resistance or an open. Refer to **Circuit Testing** and **Wiring Repairs** .<br>Did you find and correct the condition? | Go to **Step 12** | Go to **Step 8** |
| 8 | Inspect the inoperative bulb for an open filament.<br>Is the bulb good? | Go to **Step 11** | Go to **Step 10** |
| 9 | Repair the inadvertent power supply voltage circuit for a short to ground. Refer to **Wiring Repairs** .<br>Did you complete the repair? | Go to **Step 12** | - |
| 10 | Replace the inoperative bulb. | | |

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| | | | |
|---|---|---|---|
| | Did you complete the replacement? | Go to **Step 12** | - |
| 11 | Replace the sunshade. Refer to **Sunshade Replacement** .<br>Did you complete the replacement? | Go to **Step 12** | - |
| 12 | Operate the system in order to verify the repair.<br>Did you correct the condition? | System OK | Go to **Step 3** |

## REPAIR INSTRUCTIONS

### STOP LAMP SWITCH REPLACEMENT (ADJUSTABLE PEDAL)

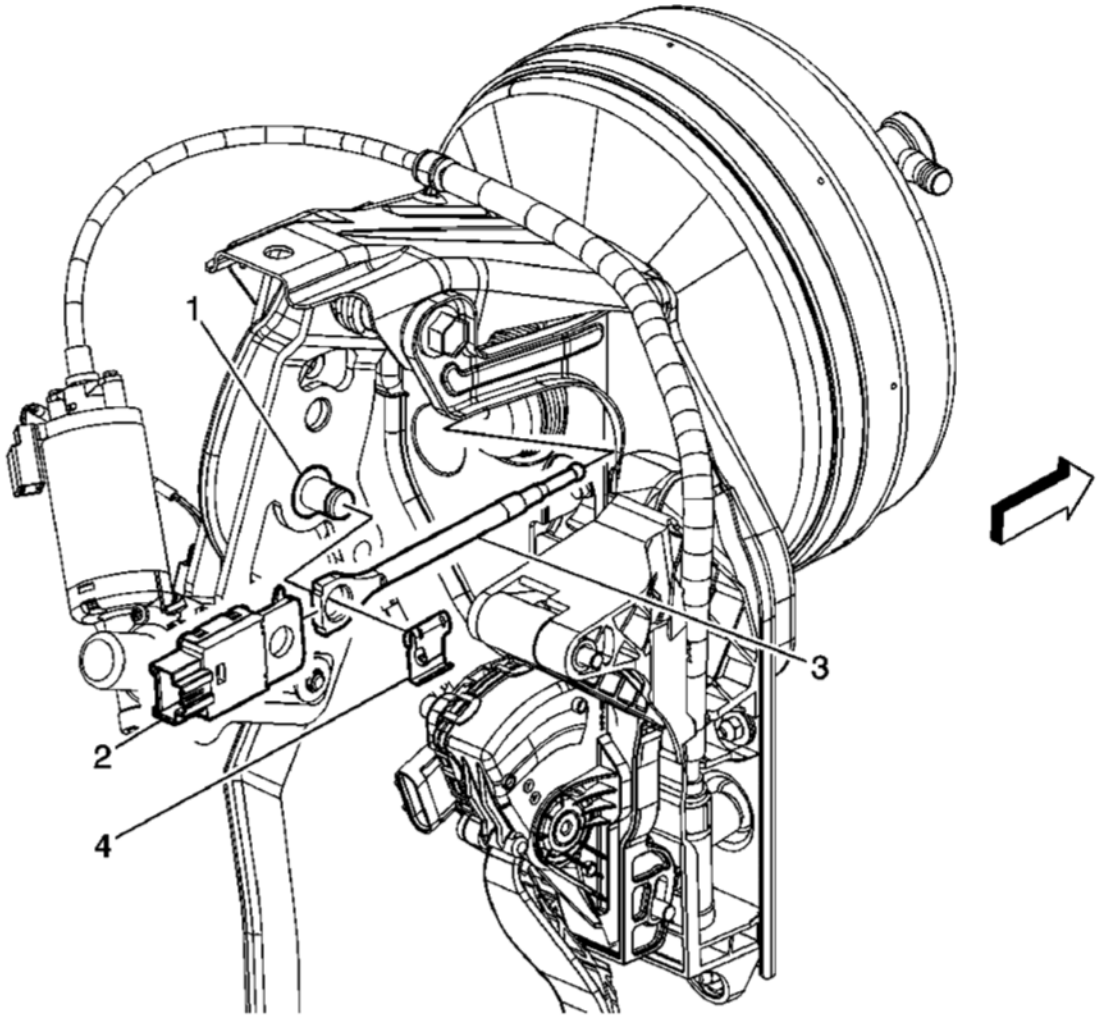



**Fig. 60: View Of Stop Lamp Switch Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Stop Lamp Switch Replacement (Adjustable Pedal)**

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| Callout | Component Name |
|---|---|
| 1 | Brake Pedal Pin |
| 2 | Stop Lamp Switch Assembly<br>**Tip:** Disconnect electrical connector. |
| 3 | Brake Booster Push Rod |
| 4 | Stop Lamp Switch Assembly Retainer |

**STOP LAMP SWITCH REPLACEMENT (NON-ADJUSTABLE PEDAL)**

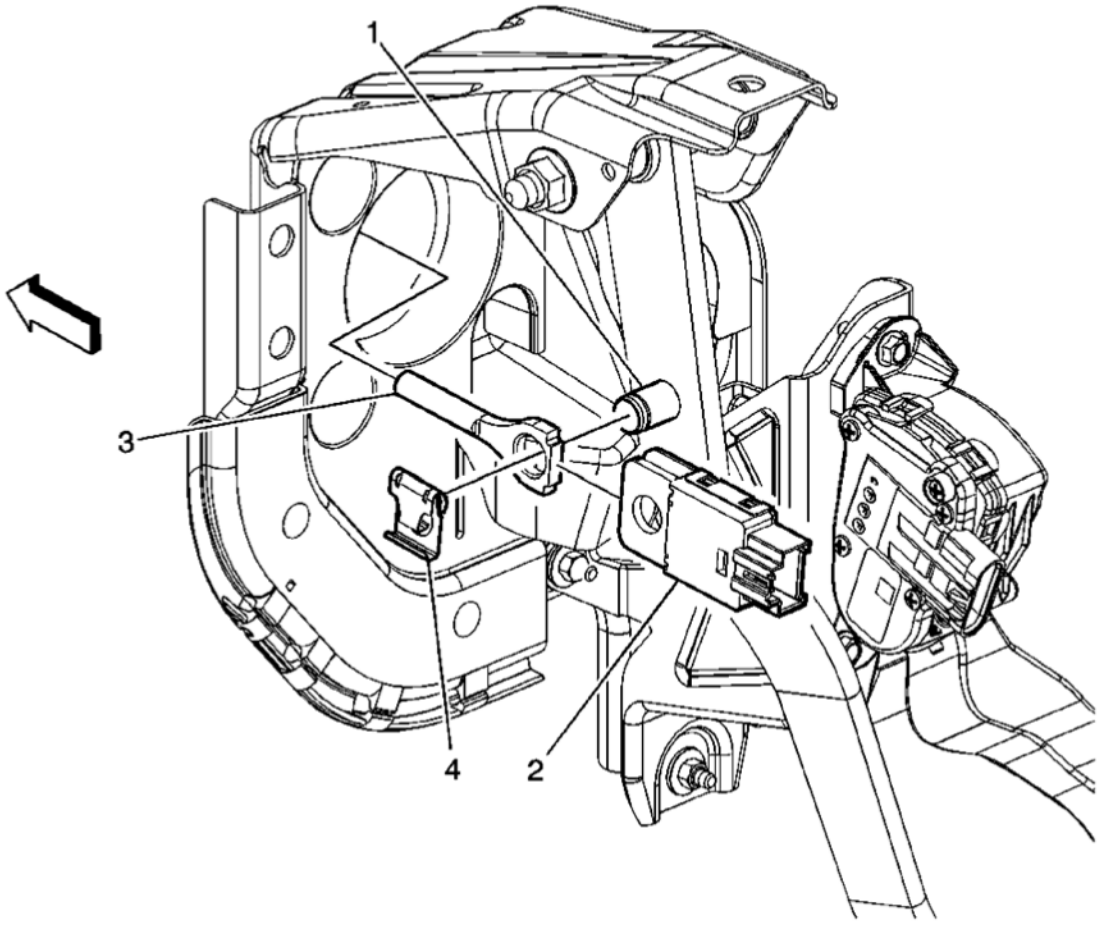



**Fig. 61: View Of Stop Lamp Switch Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Stop Lamp Switch Replacement (Non-Adjustable Pedal)**

| Callout | Component Name |
|---|---|
| 1 | Brake Pedal Pin |
| 2 | Stop Lamp Switch Assembly<br>**Tip:** Disconnect electrical connector. |
| | |

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| | |
|---|---|
| 3 | Brake Booster Push Rod |
| 4 | Stop Lamp Switch Assembly Retainer |

## BRAKE PEDAL POSITION SENSOR REPLACEMENT

**Removal Procedure**

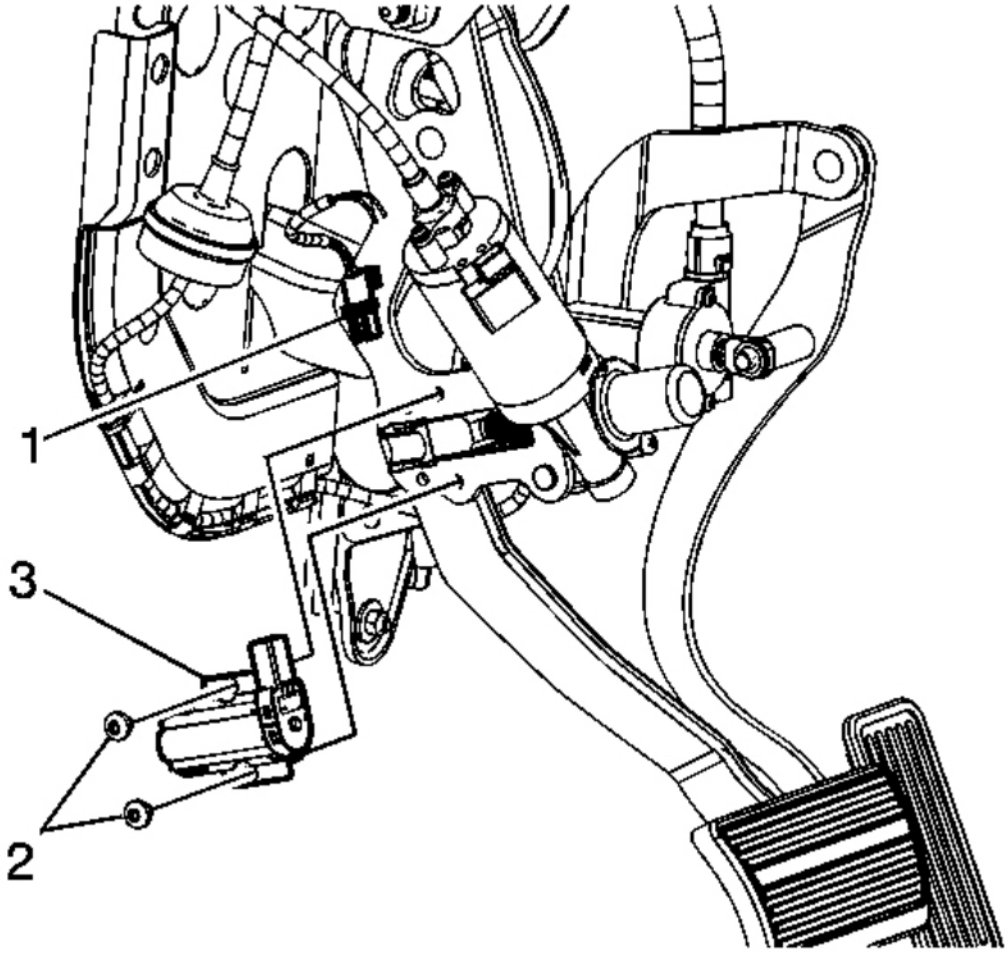



**Fig. 62: View Of Brake Pedal Position Sensor Electrical Connector, Brake Pedal Position Sensor & Bolts**
**Courtesy of GENERAL MOTORS CORP.**

1. Remove the driver knee bolster. Refer to **Knee Bolster Replacement (Cadillac)** or **Knee Bolster Replacement (Except Cadillac)** .

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2. Remove the fuse block cover.
3. Disconnect the brake pedal position sensor electrical connector (1).
4. Remove the brake pedal position sensor bolts (2).
5. Remove the brake pedal position sensor (3) from the vehicle.

**Installation Procedure**

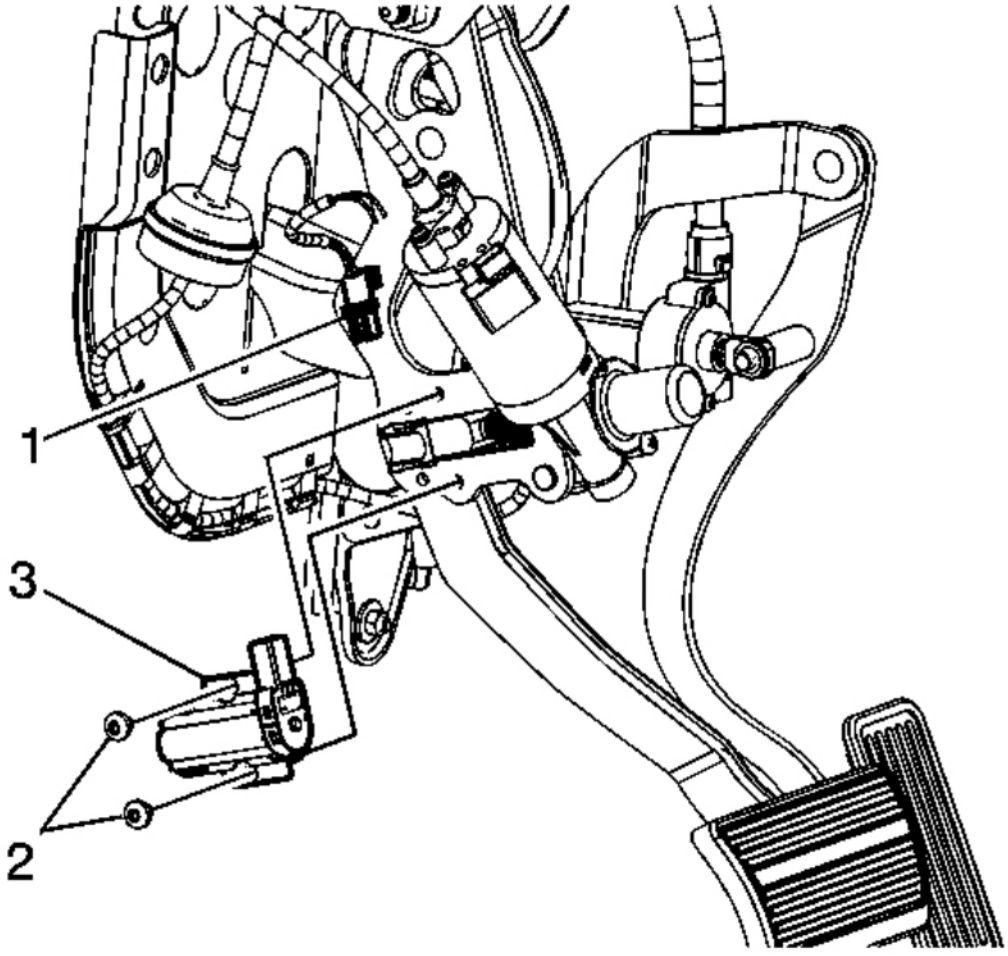



**Fig. 63: View Of Brake Pedal Position Sensor Electrical Connector, Brake Pedal Position Sensor & Bolts**
**Courtesy of GENERAL MOTORS CORP.**

1. Install the brake pedal position sensor (3) to the vehicle.

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**NOTE: Refer to Fastener Notice in Cautions and Notices.**

2. Install the brake pedal position sensor bolts (2).

   **Tighten:** Tighten the bolts to 9 N.m (80 lb in).

3. Connect the brake pedal position sensor electrical connector (1).
4. Install the fuse block cover.
5. Install the driver knee bolster. Refer to **Knee Bolster Replacement (Cadillac)** or **Knee Bolster Replacement (Except Cadillac)** .

## HEADLAMP SWITCH REPLACEMENT

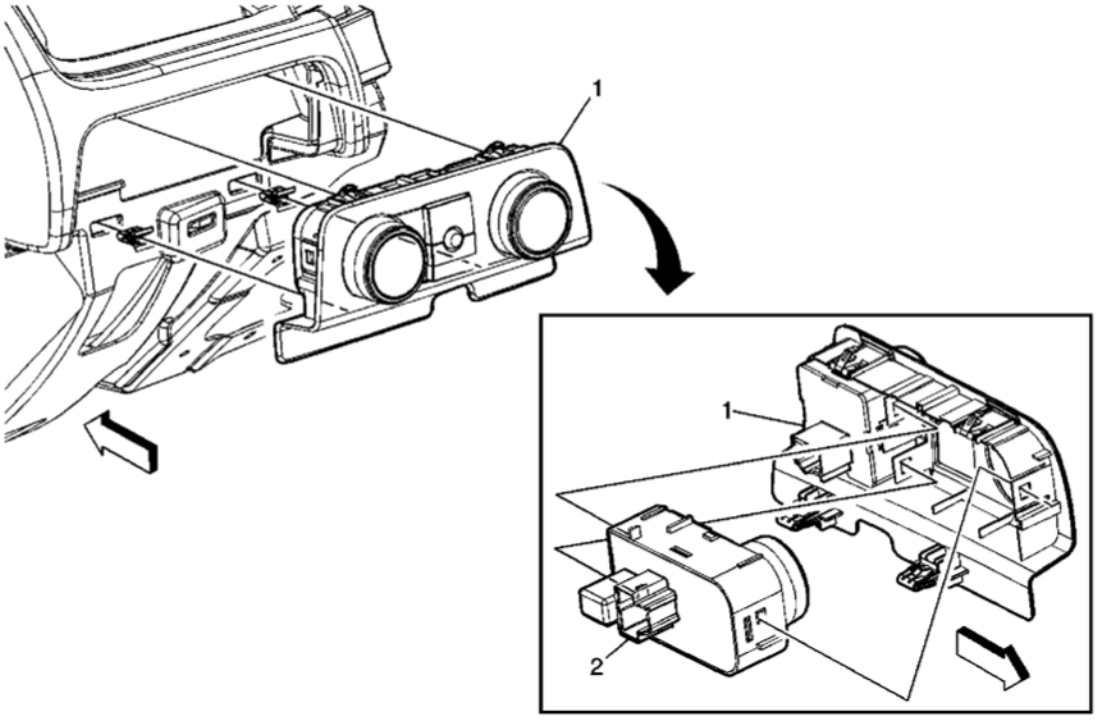



**Fig. 64: View Of Headlamp Switch Trim Plate Assembly, Dimmer & Dome Lamp Switch Assembly**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp Switch Replacement**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications** . | |
| 1 | Headlamp Switch Trim Plate Assembly<br>Refer to **Headlamp Switch Bezel Replacement** . |
| 2 | Headlamp and I/P Lamp Dimmer and Dome Lamp Switch Assembly |

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## FOG LAMP SWITCH REPLACEMENT

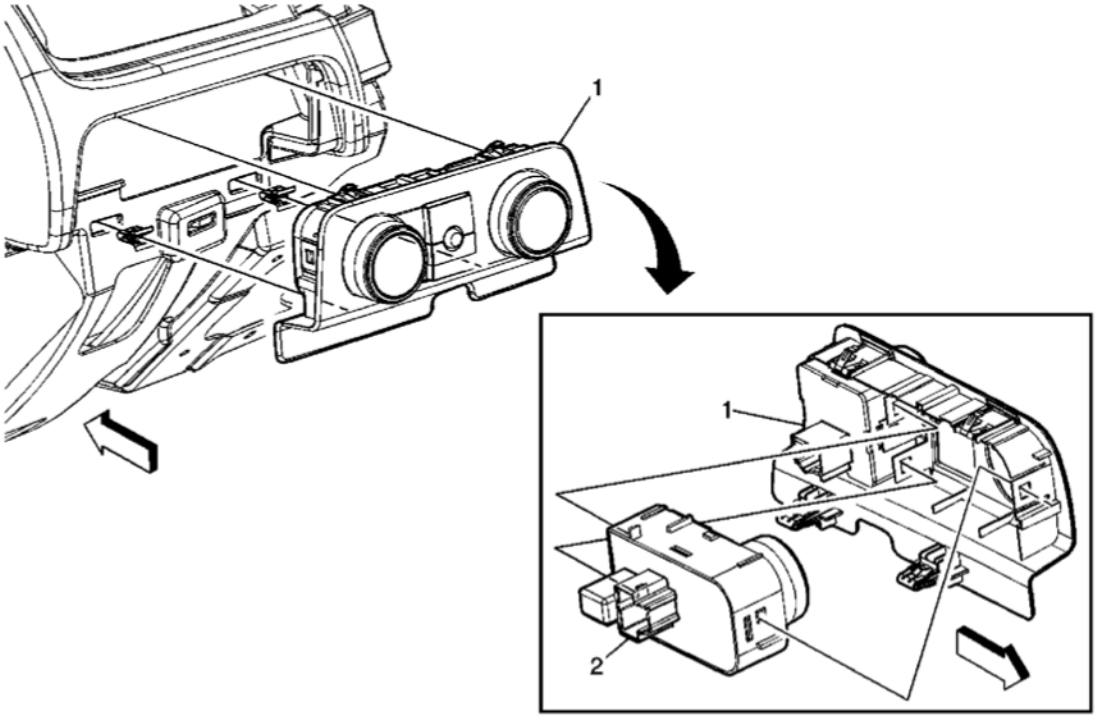



**Fig. 65: View Of Headlamp Switch Trim Plate Assembly, Dimmer & Dome Lamp Switch Assembly**
**Courtesy of GENERAL MOTORS CORP.**

**Fog Lamp Switch Replacement**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications** . | |
| 1 | Headlamp Switch Trim Plate Assembly<br>Refer to **Headlamp Switch Bezel Replacement** . |
| 2 | Headlamp and I/P Lamp Dimmer and Dome Lamp Switch Assembly<br>**Tip:** Fog lamp switch is an integral part of the headlamp switch and the unit must therefore be replaced in whole. |

## AMBIENT LIGHT SENSOR REPLACEMENT

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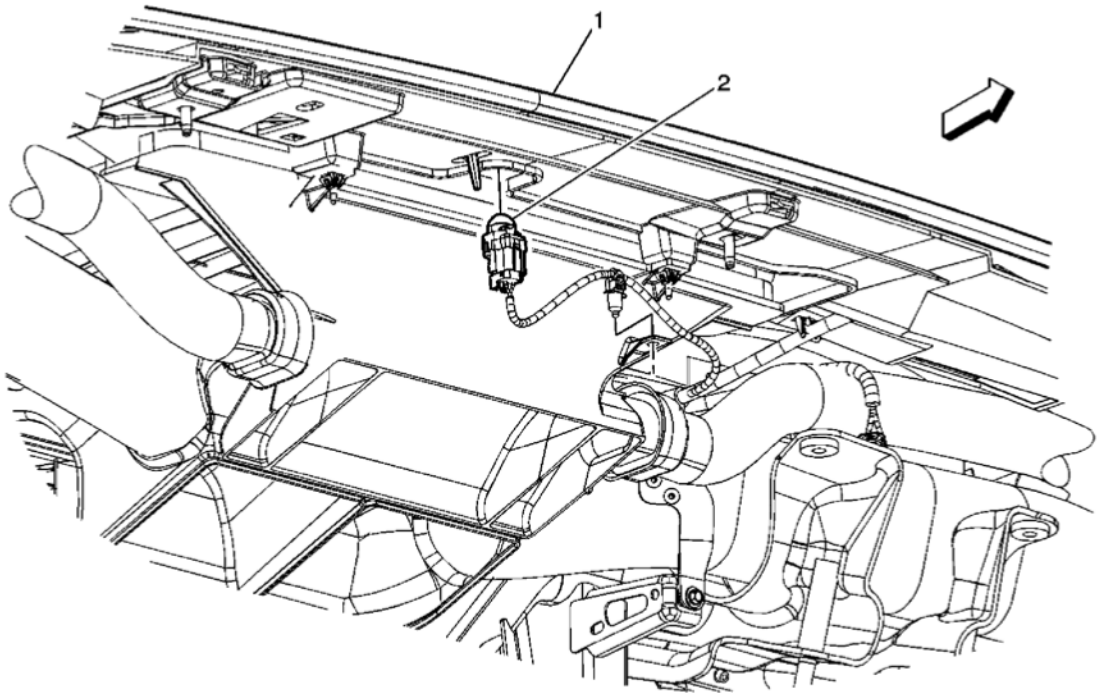



**Fig. 66: View Of Instrument Panel Trim Panel & Headlamp Auto Control Ambient Light Sensor Assembly**
**Courtesy of GENERAL MOTORS CORP.**

**Ambient Light Sensor Replacement**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications** . | |
| 1 | Instrument Panel Trim Panel<br><br>**NOTE:**<br>**Refer to Instrument Panel Upper Trim Panel with Windshield Defroster Nozzle Grille Replacement (Cadillac) or Instrument Panel Upper Trim Panel with Windshield Defroster Nozzle Grille Replacement (Except Cadillac) .** |
| 2 | Headlamp Auto Control Ambient Light Sensor Assembly<br>**Tip:**<br><br>1. Twist and pull down to remove.<br>2. Disconnect electrical connector. |

**DOME AND READING LAMP BULB REPLACEMENT (DOME LAMP)**

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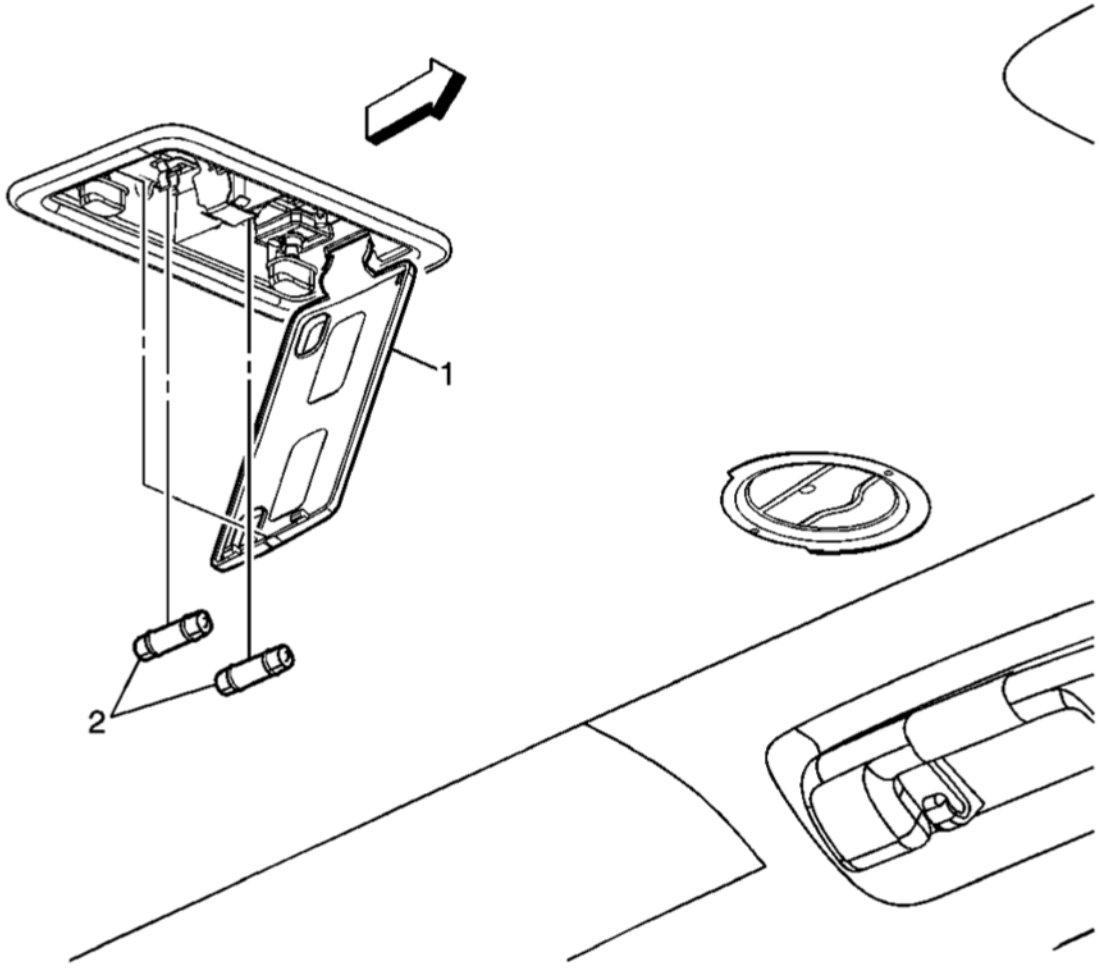



**Fig. 67: View Of Dome Lamp Lens & Bulbs**
**Courtesy of GENERAL MOTORS CORP.**

**Dome and Reading Lamp Bulb Replacement (Dome Lamp)**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications** . | |
| 1 | Dome Lamp Lens |
| 2 | Dome Lamp Bulb (Qty: 2) |

**DOME AND READING LAMP BULB REPLACEMENT (OVERHEAD CONSOLE)**

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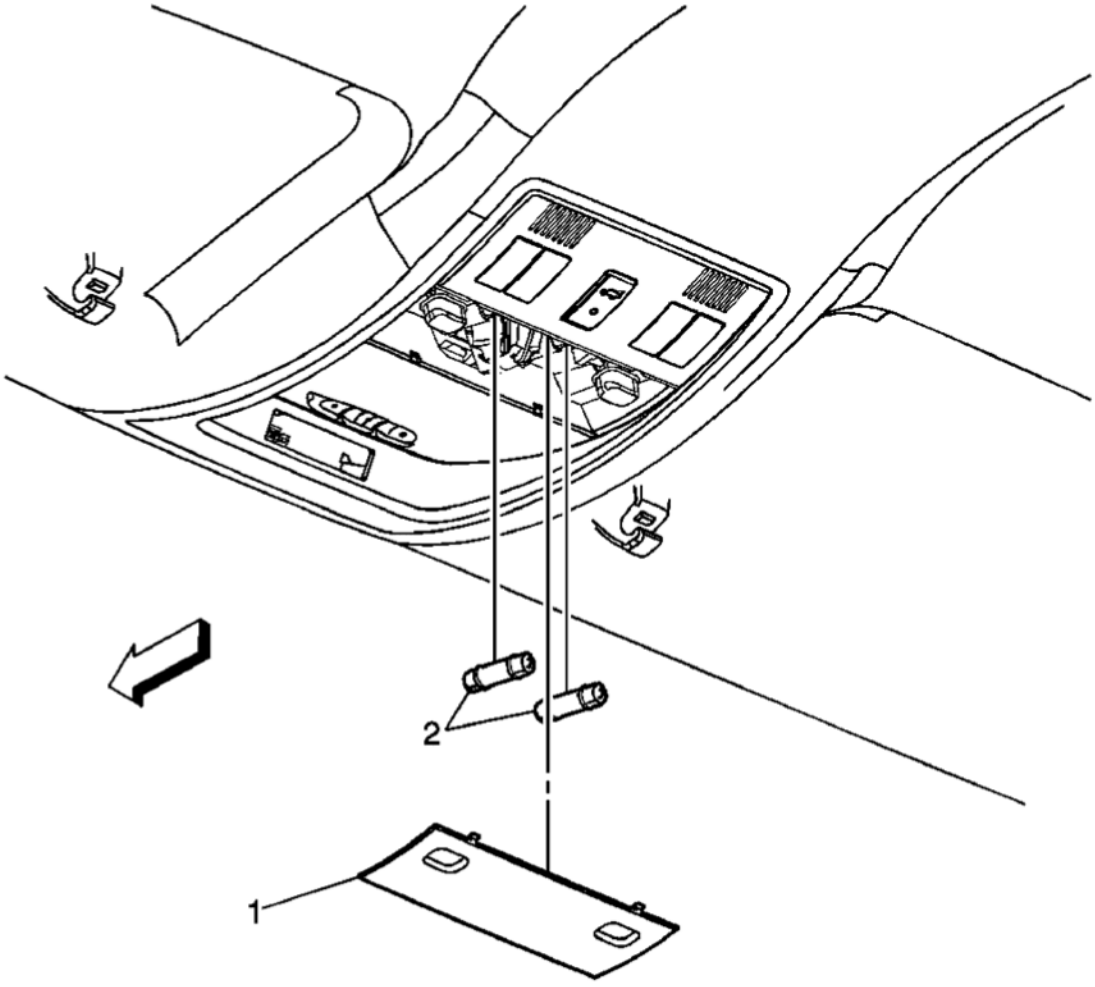



**Fig. 68: View Of Dome Lamp Lens & Bulbs**
**Courtesy of GENERAL MOTORS CORP.**

**Dome and Reading Lamp Bulb Replacement (Overhead Console)**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications** . | |
| 1 | Dome Lamp Lens |
| 2 | Dome Lamp Bulb (Qty: 2) |

**COURTESY LAMP REPLACEMENT - EXTERIOR**

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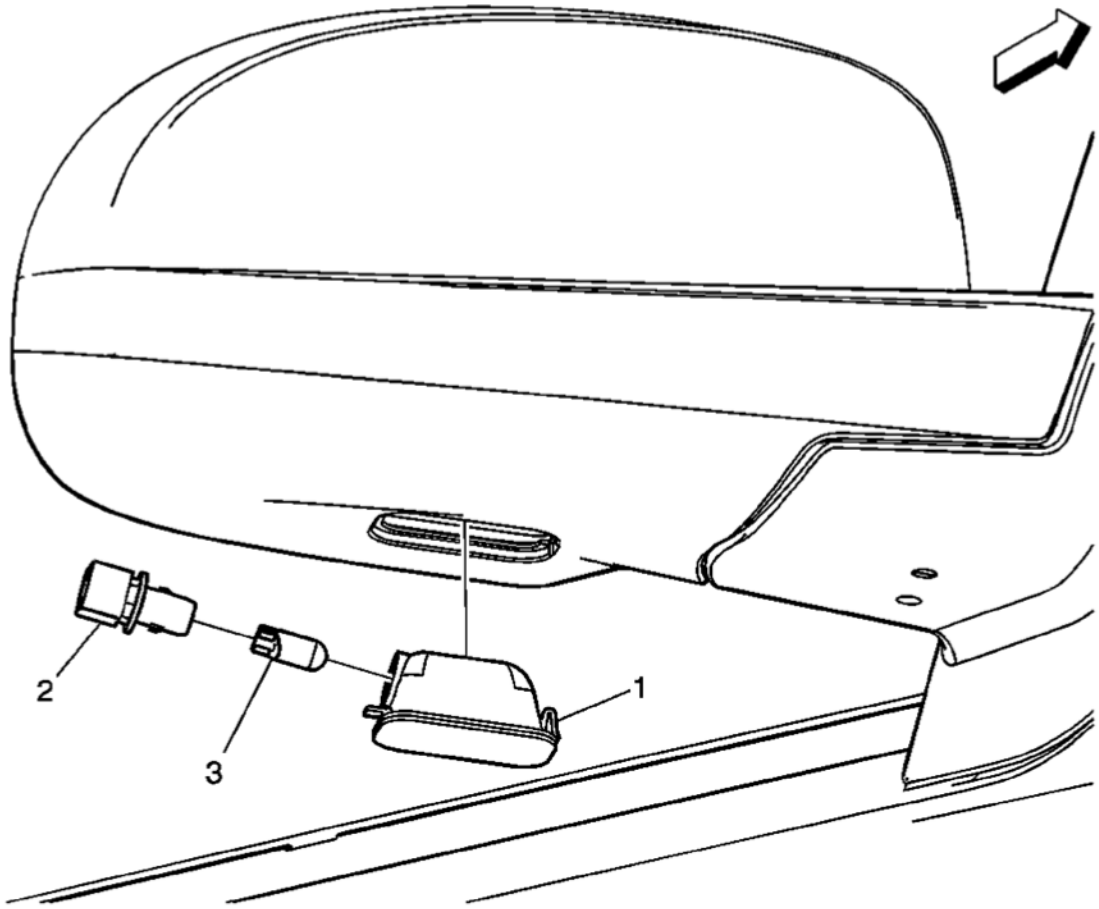



**Fig. 69: View Of Exterior Courtesy Lamp Assembly, Socket & Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Courtesy Lamp Replacement - Exterior**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications**. | |
| 1 | Exterior Courtesy Lamp Assembly<br>**Tip:**<br>1. Use a flat-bladed tool to pry off assembly starting at end closest to door. Tilt assembly end and pull down to release.<br>2. Disconnect electrical connector. |
| 2 | Exterior Courtesy Lamp Socket<br>**Tip:** Twist and pull to release. |
| 3 | Exterior Courtesy Lamp Bulb |

**DOOR COURTESY LAMP AND REFLECTOR REPLACEMENT**

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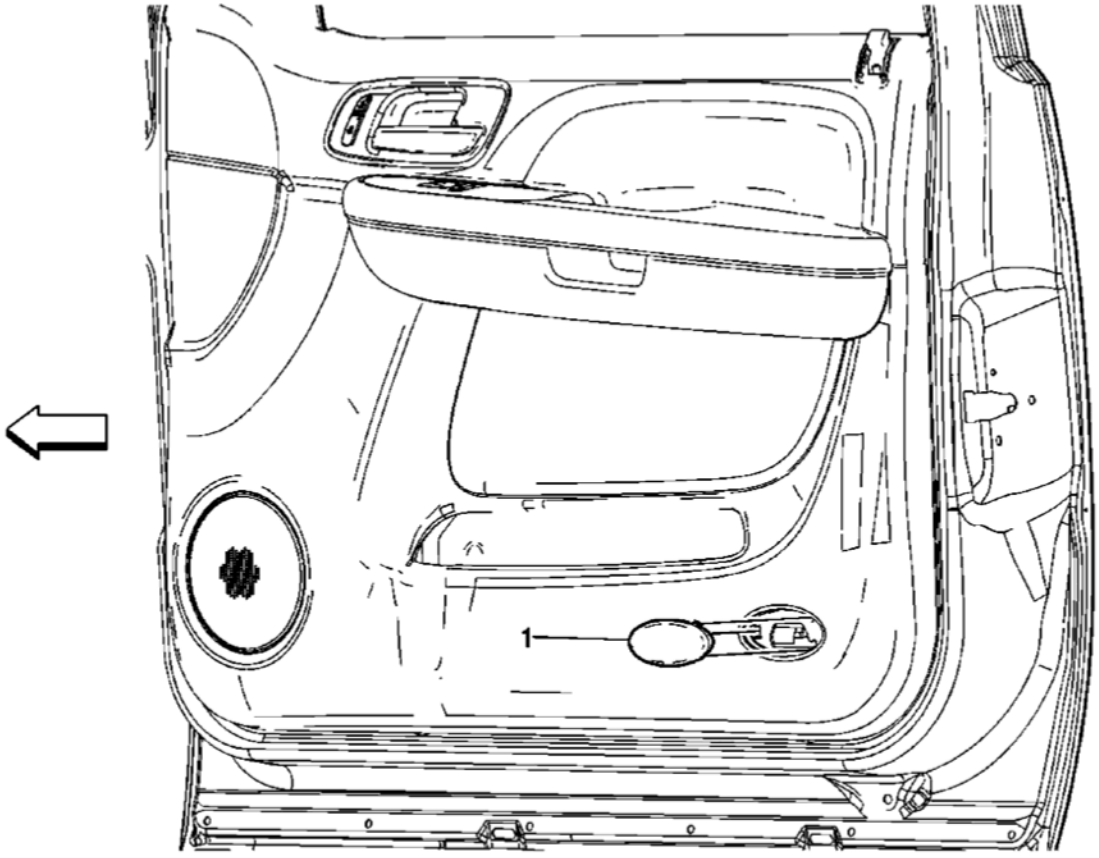



**Fig. 70: View Of Door Courtesy Lamp/Reflector Assembly**
**Courtesy of GENERAL MOTORS CORP.**

**Door Courtesy Lamp and Reflector Replacement**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications** . | |
| 1 | Door Courtesy Lamp/Reflector Assembly<br>**Tip:**<br>1. Gently push assembly toward front edge of door.<br>2. Lift rear of assembly from door using a small flat-bladed tool.<br>3. Remove courtesy lamp/reflector from door panel. |

**DOME LAMP REPLACEMENT**

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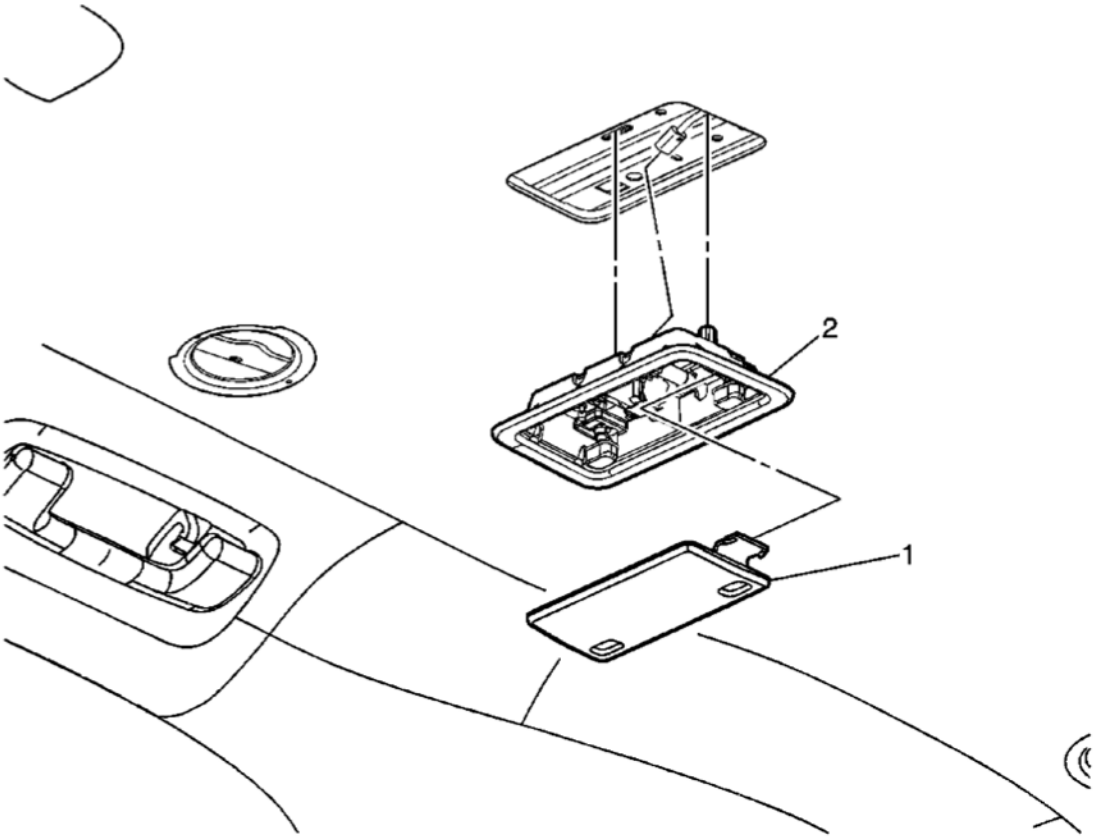



**Fig. 71: View Of Dome Lamp Lens & Housing**
**Courtesy of GENERAL MOTORS CORP.**

**Dome Lamp Replacement**

| Callout | Component Name |
|---|---|
| **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications** . | |
| 1 | Dome Lamp Lens<br>**Tip:** Using a flat-bladed tool pry down on right side of lens to avoid damaging tab. |
| 2 | Dome Lamp Housing<br>**Tip:** Disconnect electrical connector. |

**HEADLAMP REPLACEMENT (NON HID)**

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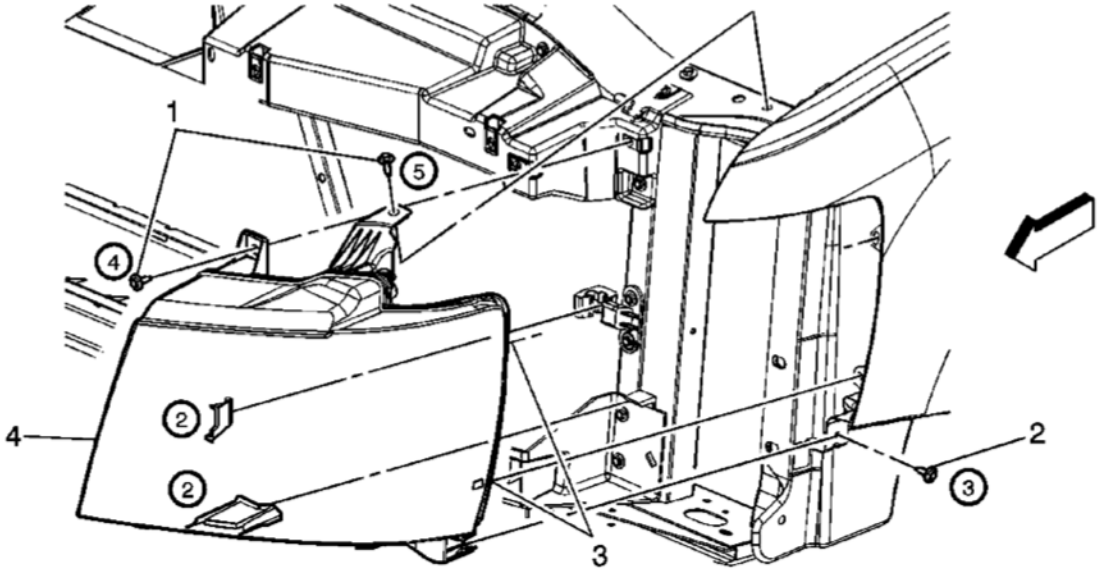



**Fig. 72: View Of Headlamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp Replacement (Non HID)**

| Callout | Component Name |
|---|---|

**Preliminary Procedures**

1. Remove the 2 forward screws (1).
2. Remove the 2 wheelhouse to washer container pushpins (LH only).
3. Open the hood.
4. Remove the underhood beauty panel (Cadillac only).
5. Remove the 6 upper fascia/grille bolts all the way to latch.
6. Remove the lower rear fascia bolt from the support bracket.
7. Loosen the 2 fascia to fender bolts from the bottom of fascia.
8. Pull the outboard end of the front fascia straight outboard until it disengages from the fender attachment bracket.
9. Pull the fascia forward and downward to allow enough clearance to remove the headlamp assembly.
10. Remove the cross-car lower outboard headlamp attachment bolt.
11. Remove the 2 remaining upper headlamp attachment bolts.
12. Loosen the cross-car lower outboard headlamps attachment bolts.
13. Grasp the headlamp at the upper inboard and lower outboard corners and pull the lamp straight forward until it disengages from the snap feature.
14. Pull the outboard side of the headlamp forward until the locating pins disengage from the fender.
15. Rock and cam the headlamp out of the vehicle.

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| | |
|---|---|
| 16. Disconnect the electrical harness connector. | |
| 1 | Headlamp Screw (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 6 N.m (53 lb in) |
| 2 | Headlamp Screw<br><br>**Tighten:** 6 N.m (53 lb in) |
| 3 | Headlamp Assembly Alignment Tabs (Qty: 2)<br>**Tip:** Pull to release the tabs on the back of the headlamp assembly. |
| 4 | Headlamp Assembly<br>**Tip:** Disconnect the electrical connectors. |

## HEADLAMP REPLACEMENT (YUKON)

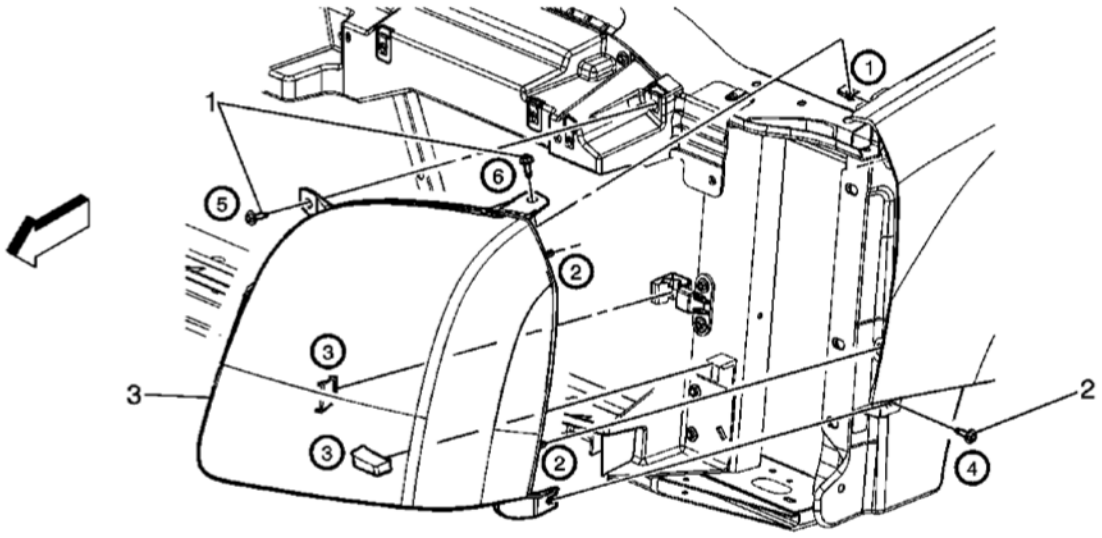



**Fig. 73: View Of Headlamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

### Headlamp Replacement (Yukon)

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br><br>1. Remove the 2 forward wheelhouse liner screws.<br>2. Remove the 2 washer container push pins.<br>3. Open the hood. | |

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4. Remove the 6 upper fascia bolts right to the hood latch mechanism.
5. Remove the lower rear fascia bolt from the support bracket.
6. Loosen the 2 fascia to fender bolts from under the fascia.
7. Pull the outboard end of the front fascia straight outboard until it disengages from the fender attachment bracket.
8. Pull the fascia forward and downward to allow enough clearance to remove the headlamp assembly.
9. Loosen the lower outboard attachment bolts.
10. Remove the 2 upper headlamp bolts.
11. Grasp the headlamp at the upper inboard and lower outboard side and pull the headlamp forward to disengage the locating tab.
12. Pull the outboard side of the headlamp forward until the 2 locating pins disengage from the radiator support.
13. Disconnect the forward lamp harness connector.

| | |
|---|---|
| 1 | Headlamp Bolts (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 6 N.m (53 lb in)<br><br>**Tip:** Secure the headlamp using the sequence as listed. |
| 2 | Headlamp Bolt<br><br>**Tighten:** 6 N.m (53 lb in)<br><br>**Tip:** Loosen the lower outer fender bolt but do not remove. |
| 3 | Headlamp Assembly<br>**Tip:** Upon assembly, align the 2 outer locating pins and one inner alignment tab to the radiator support prior to applying pressure to the lamp in order to seat the lamp. |

**HEADLAMP REPLACEMENT (TAHOE, AVALANCHE)**

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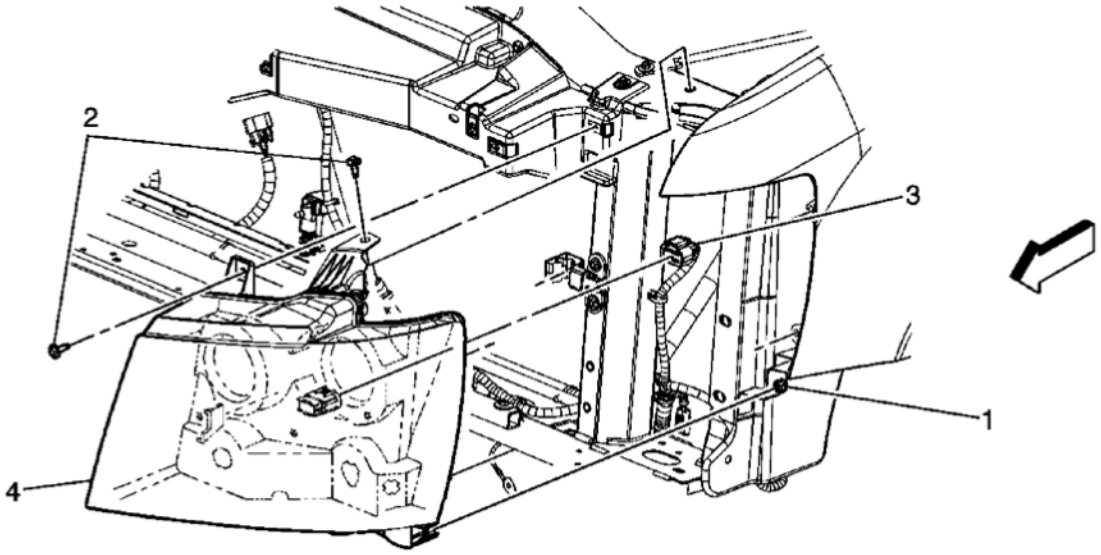



**Fig. 74: View Of Headlamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp Replacement (Tahoe, Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br>1. Remove the 2 forward wheelhouse liner screws.<br>2. Remove the 2 washer container push pins.<br>3. Open the hood.<br>4. Remove the upper fascia bolts right to the hood latch mechanism on the side the headlamp is being serviced.<br>5. Remove the lower rear fascia bolt from the support bracket.<br>6. Loosen the 2 fascia to fender bolts from under the fascia.<br>7. Pull the outboard end of the front fascia straight outboard until it disengages from the fender attachment bracket.<br>8. Pull the fascia forward and downward to allow enough clearance to remove the headlamp assembly.<br>9. Remove the 2 upper headlamp bolts.<br>10. Grasp the headlamp at the upper inboard and lower outboard side and pull the headlamp forward to disengage from the locating pin from the radiator support.<br>11. Pull the outboard side of the headlamp forward until the locating pin is disengage from the radiator support.<br>12. Disconnect the electrical harness connector. | |
| | Headlamp Screw (Qty: 2) |

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| | |
|---|---|
| 1 | **NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 6 N.m (53 lb in) |
| 2 | Headlamp Bolts<br><br>**Tighten:** 6 N.m (53 lb in) |
| 3 | Forward Lamp Harness Electrical Connector |
| 4 | Headlamp Assembly<br>**Tip:** Upon re-assembly, align the center locating tab along with the outer locating pin prior to applying inward pressure to the headlamp assembly. |

**HEADLAMP REPLACEMENT (CADILLAC ESCALADE)**

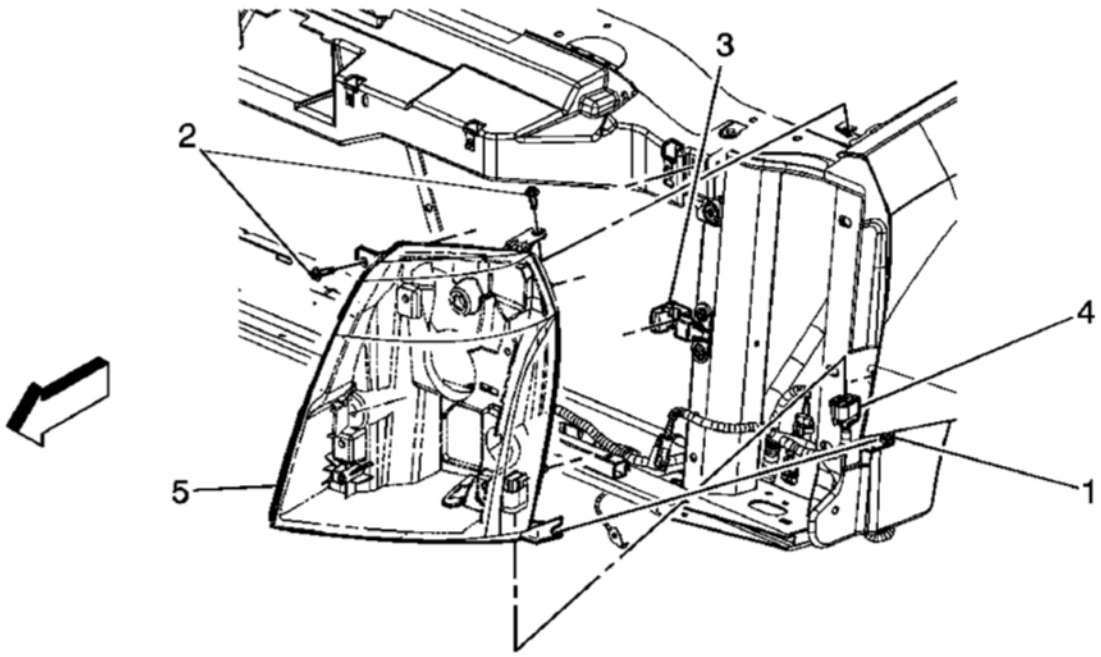



**Fig. 75: View Of Headlamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp Replacement (Cadillac Escalade)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br><br>1. Remove the 2 forward wheelhouse liner screws.<br>2. Remove the 2 washer container push pins.<br>3. Open the hood. | |

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4. Remove the underhood radiator grille re-enforcement support panel. Refer to **Support Replacement - Radiator Grille Reinforcement** .
5. Remove the upper fascia bolts right to the hood latch mechanism.
6. Remove the lower rear fascia bolt from the support bracket.
7. Loosen the 2 fascia to fender bolts from under the fascia.
8. Pull the outboard end of the front fascia straight outboard until it disengages from the fender attachment bracket.
9. Pull the fascia forward and downward to allow enough clearance to remove the headlamp assembly.
10. Loosen the lower outboard attachment bolts.
11. Remove the 2 upper headlamp bolts.
12. Grasp the headlamp at the upper inboard and lower outboard side and pull the headlamp forward to disengage from the snap feature,
13. Pull the outboard side of the headlamp forward until the locating pins disengage from the radiator support.
14. Disconnect the electrical harness connector.

| | |
|---|---|
| 1 | Headlamp Lower Screw<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 6 N.m (53 lb in) |
| 2 | Headlamp Screws (Qty: 2)<br><br>**Tighten:** 6 N.m (53 lb in) |
| 3 | Headlamp Bracket<br>**Tip:** Pull to release the headlamp tab from the bracket. |
| 4 | Forward Lamp Harness Electrical Connector |
| 5 | Headlamp Assembly |

## HIGH INTENSITY DISCHARGE HEADLAMP BALLAST REPLACEMENT

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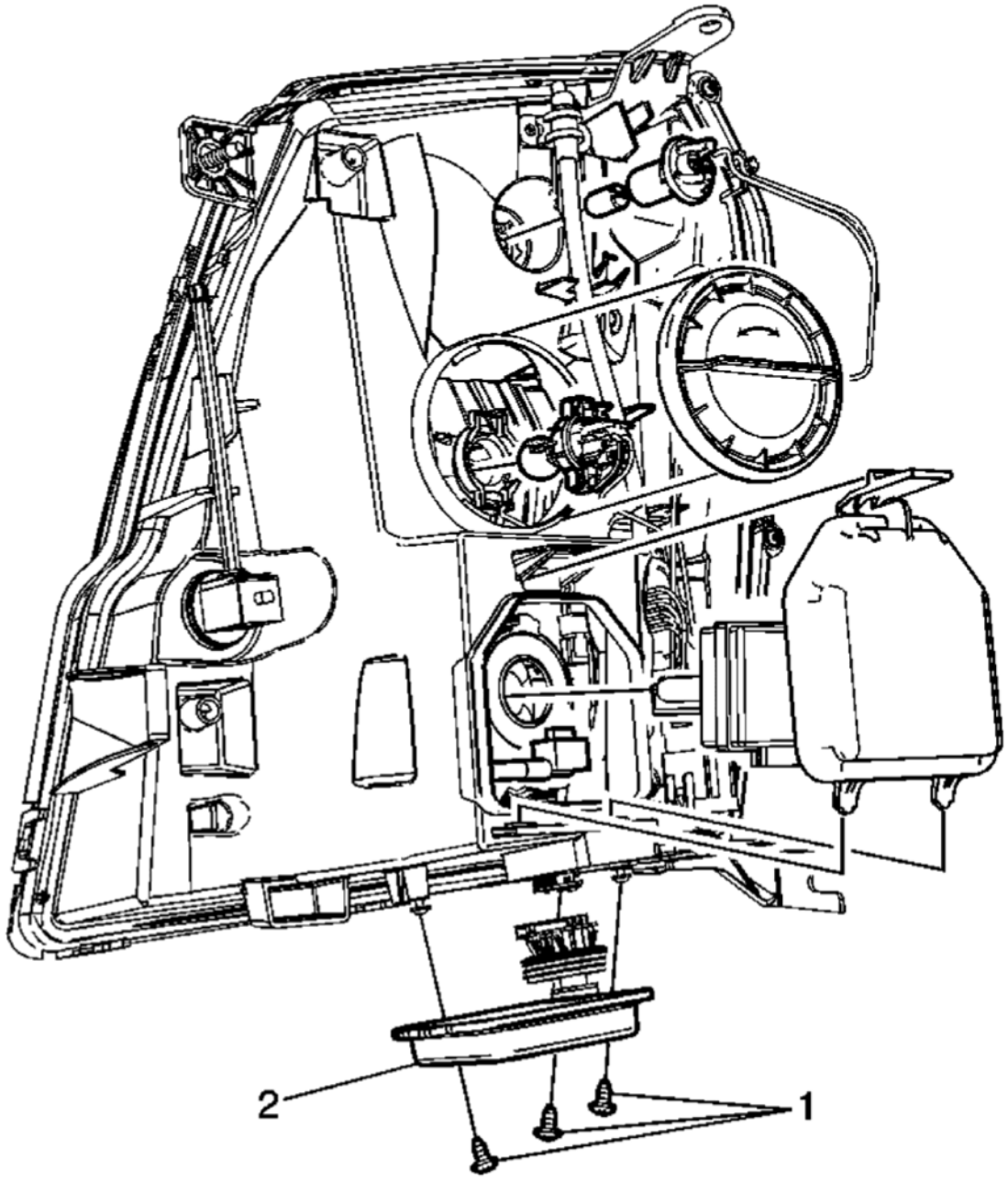



**Fig. 76: View Of Headlamp Ballast Assembly & Screws**
**Courtesy of GENERAL MOTORS CORP.**

**High Intensity Discharge Headlamp Ballast Replacement**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |

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| | |
|---|---|
| 1 | Headlamp Ballast Assembly Screws (Qty: 3)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 2 | Headlamp Ballast Assembly |

**HEADLAMP BULB REPLACEMENT (CADILLAC)**

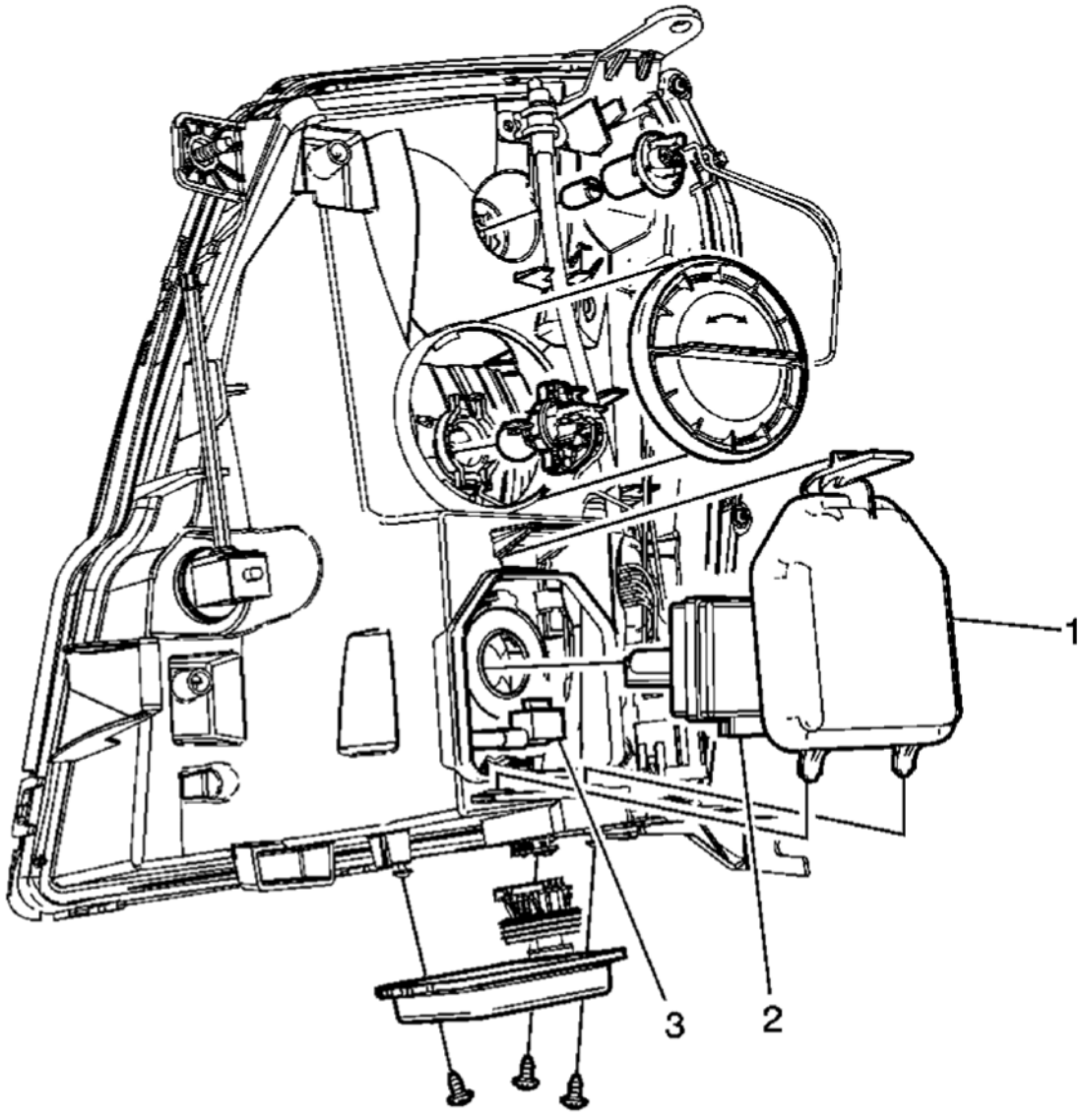



**Fig. 77: View Of Headlamp Bulb Assembly, Access Cover & Connector**
**Courtesy of GENERAL MOTORS CORP.**

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**Headlamp Bulb Replacement (Cadillac)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Headlamp Bulb Assembly Access Cover |
| 2 | Headlamp Bulb Assembly |
| 3 | Headlamp Bulb Connector |

**HEADLAMP BULB REPLACEMENT (TAHOE, AVALANCHE)**

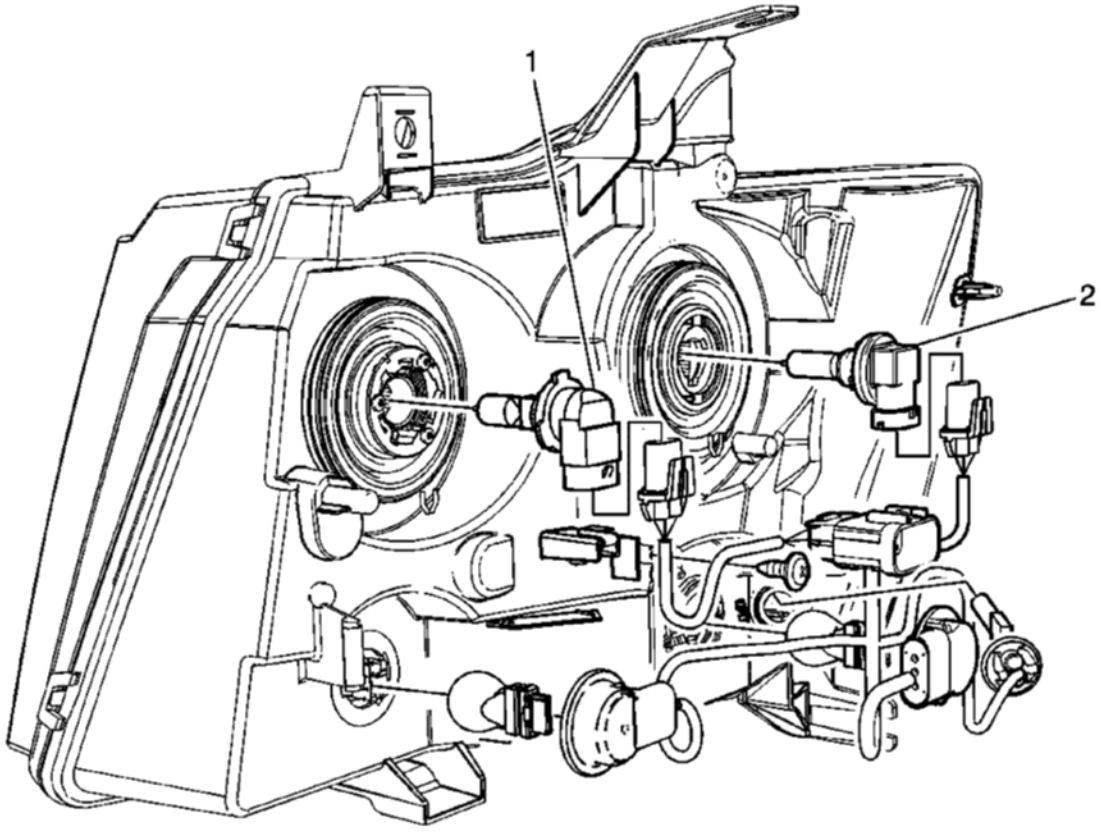



**Fig. 78: View Of Low Beam Bulb & High Beam Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp Bulb Replacement (Tahoe, Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac** | |

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| | |
|---|---|
| **Escalade)**. | |
| 1 | Low Beam Bulb |
| 2 | High Beam Bulb |

## HEADLAMP BULB REPLACEMENT (YUKON)

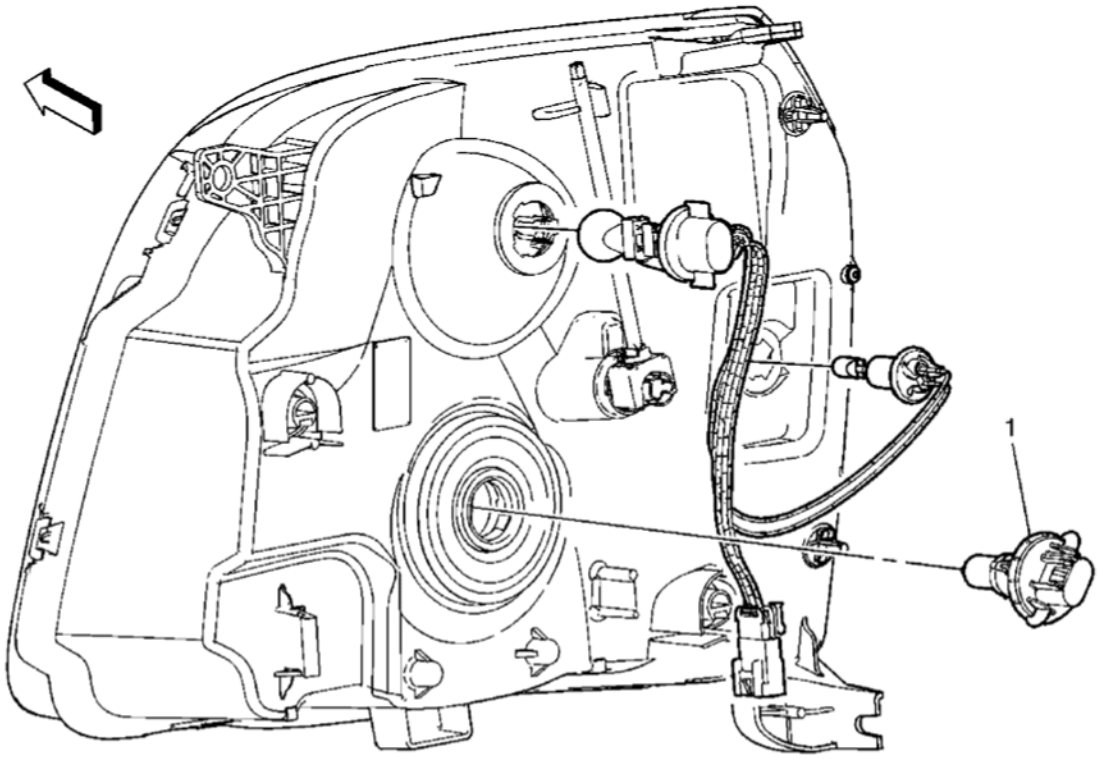



**Fig. 79: View Of High Low Beam Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Headlamp Bulb Replacement (Yukon)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | High Low Beam Bulb |

## HEADLAMP AIMING (TAHOE/YUKON)

Headlamp aiming is done with the low beam lamps. The high beam lamps will be correctly aimed if the low beam lamps are aimed properly.

**Screen Method for Headlamp Aiming (Visual Aim)**

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The screen method requires an area set up specifically for headlamp aim.

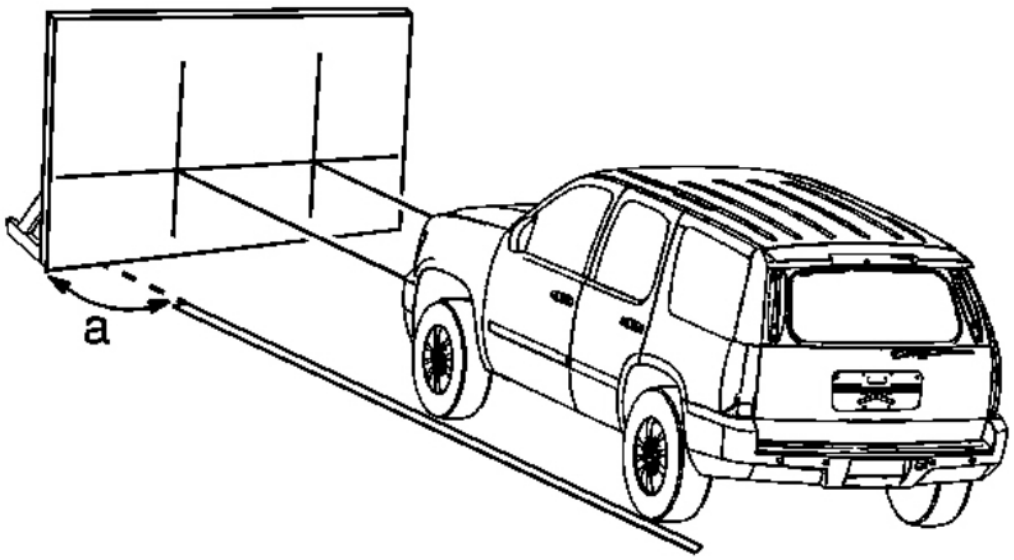



**Fig. 80: Screen Method For Headlamp Aiming (Visual Aim)**
**Courtesy of GENERAL MOTORS CORP.**

The area should consist of a level surface large enough to allow for a vehicle and an additional 7.62 m (25 ft) as measured from the face of the headlamps to the aiming screen.

The screen should be a wall or other flat surface at least 1.52 m (5 ft) high by 3.66 m (12 ft) wide with a matte white surface well shaded from extraneous light, and 90 degrees to the floor (a). The screen should be provided with a permanent vertical reference line 0.61 m (2 ft) from the left edge of the screen, 2 laterally adjustable vertical tapes, and one vertically adjustable horizontal tape.

After the aiming screen has been set up and located, paint or tape a reference line on the floor 15.24 m (50 ft) from the vertical reference line on the screen. This line should be perpendicular to the aiming screen and a mark placed at 7.62 m (25 ft) from the screen.

**Headlamp Aiming Procedure**

1. Align the left tires of the vehicle with the reference line extending from the screen with the headlamps aligned with the reference line.
2. Remove any snow, ice or mud from the vehicle.
3. The vehicle should be fully assembled and all other work stopped while the headlamp aiming is being done.

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4. The vehicle should contain cargo or be loaded to represent normal vehicle use.
5. Tires should be properly inflated.
6. Rock the vehicle to stabilize the suspension.
7. Measure from the floor to the center of the lamp bulb on the vehicle. Some lamps have an aim dot marked on the lens.
8. At the screen, measure from the floor and place the horizontal tape at the measured distance.

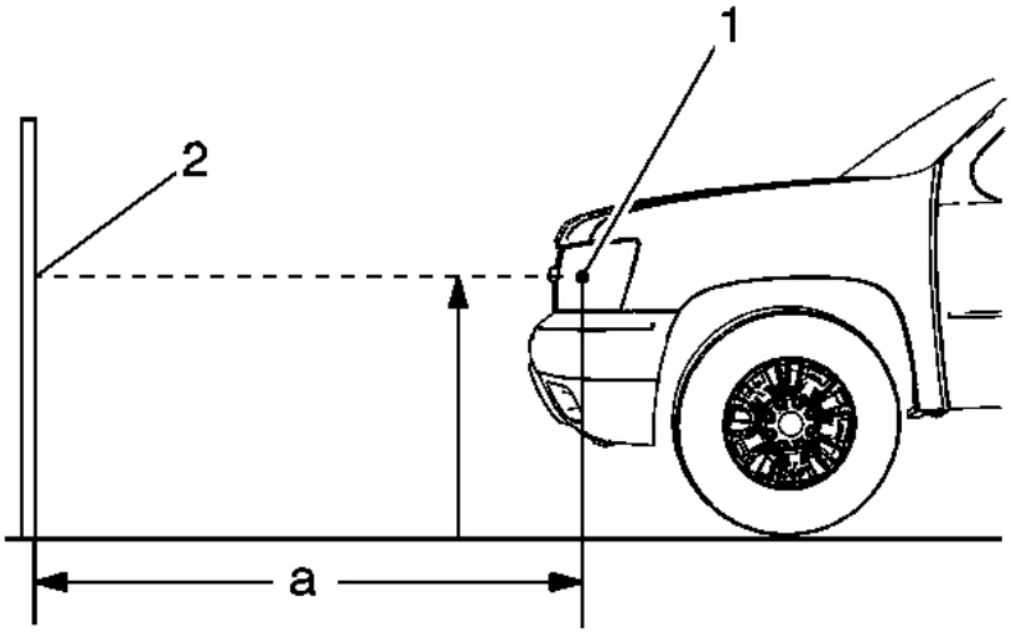



**Fig. 81: View Of Left Headlamp Bulb Centerline & Measured Distance**
**Courtesy of GENERAL MOTORS CORP.**

9. Measure from the reference line on the floor to the left headlamp bulb centerline (1).
10. At the screen, measure from the reference line and place the vertical tape at the measured distance (2).
11. Measure from the reference line on the floor to the right headlamp bulb centerline.
12. At the screen, measure from the reference line and place the vertical tape at the measured distance.
13. Turn the headlamps ON.
14. Block the light from projecting onto the screen from the passenger side headlamp. This will allow the cutoff in the beam pattern from the drivers side to be more pronounced for easier aim verification.

**IMPORTANT: DO NOT cover the headlamp, this may cause excessive heat build up.**

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15. On this vehicle you will be verifying the aim of the vertical cutoff on the right side of the lamp vertical bulb centerline as it is projected onto the aim board.
16. If the location of the cutoff projected onto the board differs from figure 4 then an adjustment to the beam pattern location is necessary.

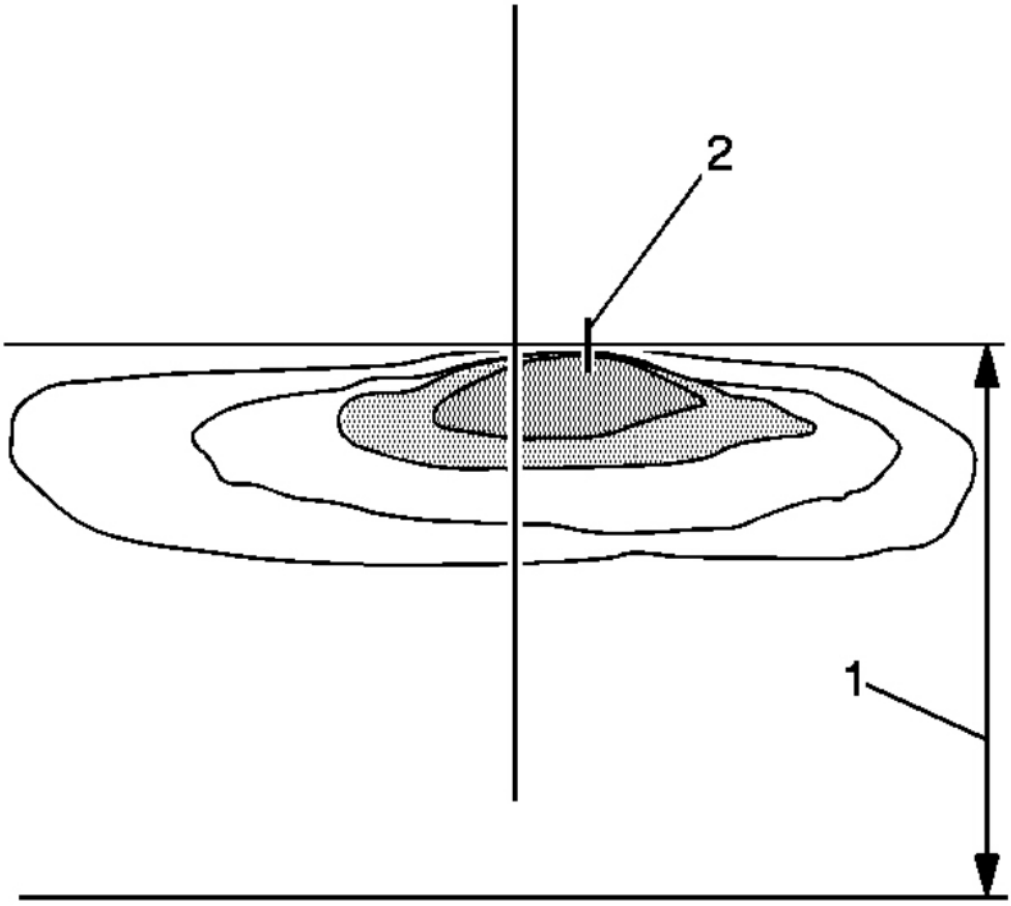



**Fig. 82: Measuring Horizontal Axis**
**Courtesy of GENERAL MOTORS CORP.**

17. Turn the vertical aim adjuster of the headlamp so the position of the cutoff projected onto the screen is at 0 degrees below the horizontal tapeline and at 2.0 degrees (10.467 in) of the vertical tapeline (2).
18. Verify proper aim location using figure 4 as a reference.
19. Repeat the aiming procedure for the passengers side headlamp while blocking the light from projecting onto the screen from the drivers side headlamp.

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## HEADLAMP AIMING (ESCALADE)

Headlamp aiming is done with the low beam lamps. The high beam lamps will be correctly aimed if the low beam lamps are aimed properly.

**Screen Method for Headlamp Aiming (Visual Aim)**

The screen method requires an area set up specifically for headlamp aim.

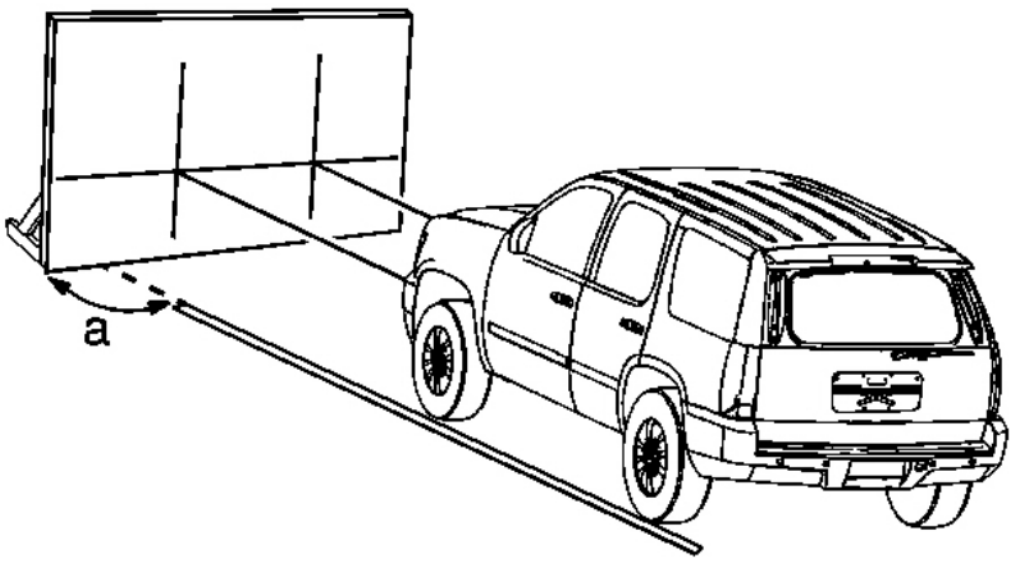



**Fig. 83: Screen Method for Headlamp Aiming (Visual Aim)**
**Courtesy of GENERAL MOTORS CORP.**

The area should consist of a level surface large enough to allow for a vehicle and an additional 7.62 m (25 ft) as measured from the face of the headlamps to the aiming screen.

The screen should be a wall or other flat surface at least 1.52 m (5 ft) high by 3.66 m (12 ft) wide with a matte white surface well shaded from extraneous light, and 90 degrees to the floor (a). The screen should be provided with a permanent vertical reference line 0.61 m (2 ft) from the left edge of the screen, 2 laterally adjustable vertical tapes, and one vertically adjustable horizontal tape.

After the aiming screen has been set up and located, paint or tape a reference line on the floor 15.24 m (50 ft) from the vertical reference line on the screen. This line should be perpendicular to the aiming screen and a mark placed at 7.62 m (25 ft) from the screen.

**Headlamp Aiming Procedure**

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1. Align the left tires of the vehicle with the reference line extending from the screen with the headlamps aligned with the reference line.
2. Remove any snow, ice or mud from the vehicle.
3. The vehicle should be fully assembled and all other work stopped while the headlamp aiming is being done.
4. The vehicle should contain cargo or be loaded to represent normal vehicle use.
5. Tires should be properly inflated.
6. Rock the vehicle to stabilize the suspension.
7. Measure from the floor to the center of the lamp bulb on the vehicle. Some lamps have an aim dot marked on the lens.
8. At the screen, measure from the floor and place the horizontal tape at the measured distance.

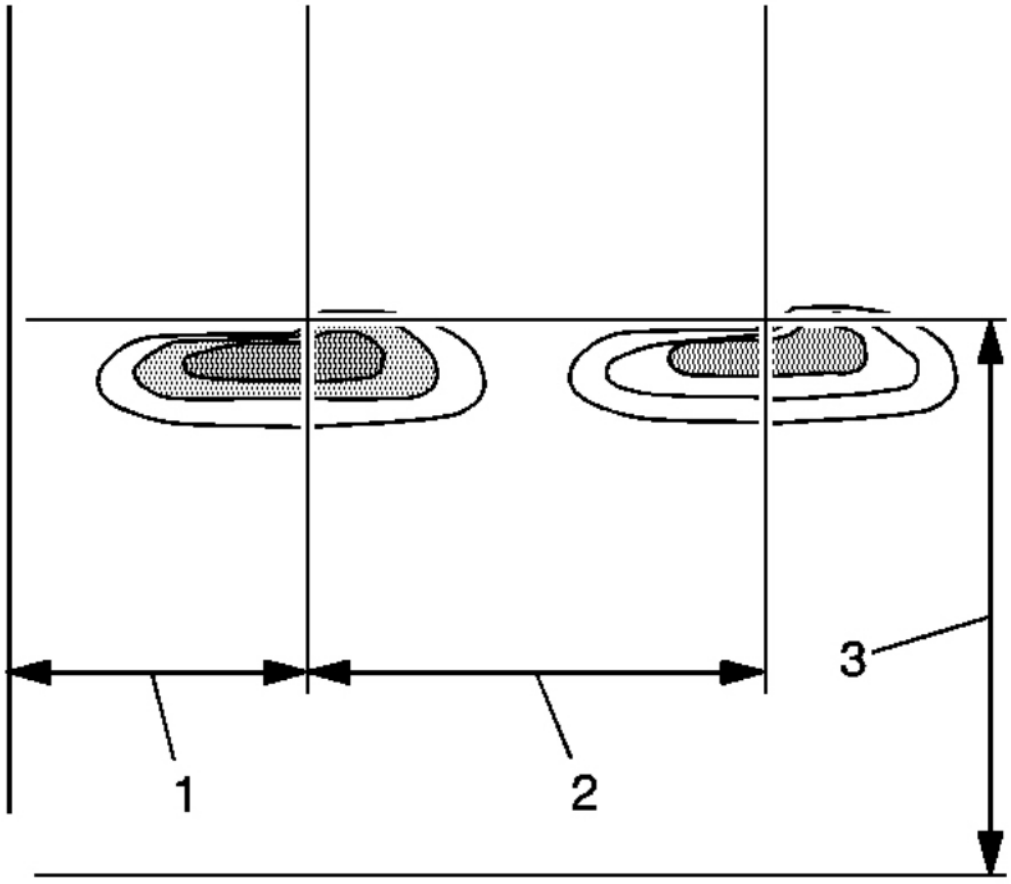



**Fig. 84: View Of Headlamp Bulb Centerlines**

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**Courtesy of GENERAL MOTORS CORP.**

9. Measure from the reference line on the floor to the left headlamp bulb centerline (1).
10. At the screen, measure from the reference line and place the vertical tape at the measured distance.
11. Measure from the reference line on the floor to the right headlamp bulb centerline (3).
12. At the screen, measure from the reference line and place the vertical tape at the measured distance.
13. Turn the headlamps ON.
14. Block the light from projecting onto the screen from the passenger side headlamp. This will allow the cutoff in the beam pattern from the drivers side to be more pronounced for easier aim verification.

**IMPORTANT: DO NOT cover the headlamp, this may cause excessive heat build up.**

15. On this vehicle you will be verifying the aim of the vertical cutoff on the left side of the lamp vertical bulb centerline as it is projected onto the aim board.
16. If the location of the cutoff projected onto the board differs, an adjustment to the beam pattern location is necessary.

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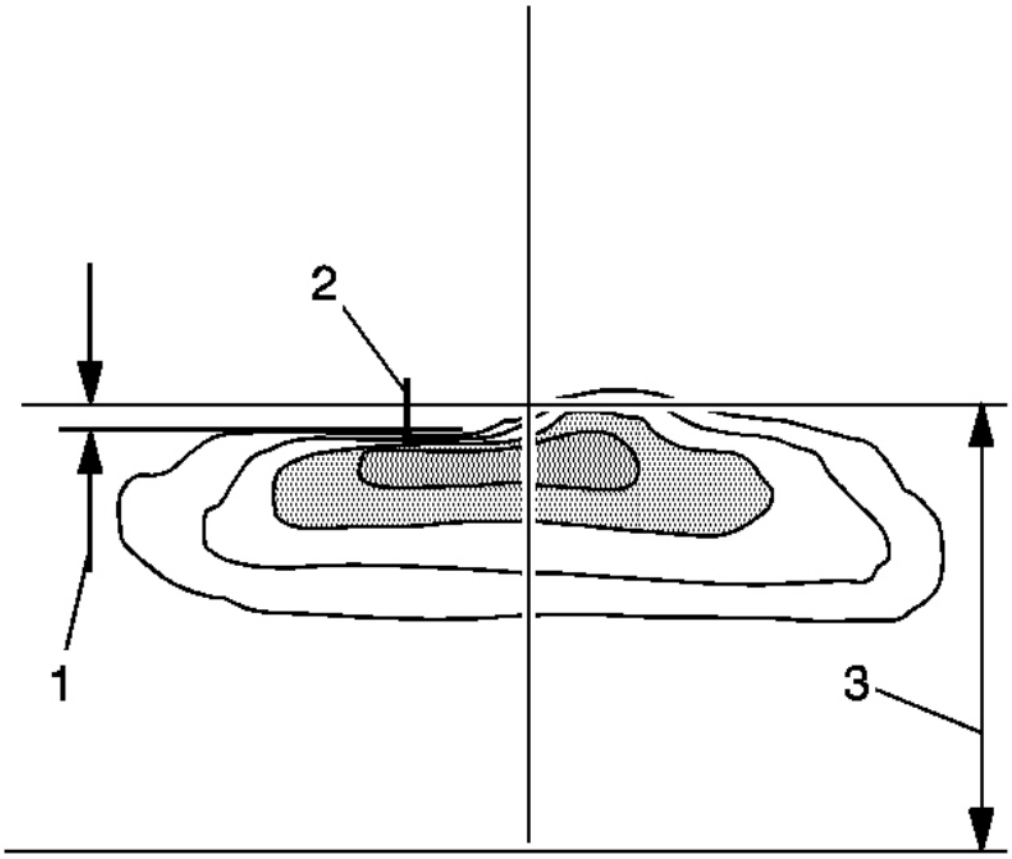



**Fig. 85: Measuring Headlamp Horizontal Access**
**Courtesy of GENERAL MOTORS CORP.**

17. Turn the vertical aim adjuster of the headlamp so the position of the cutoff projected onto the screen is at 0.4 degrees (2.09 in) below the horizontal tapeline (1) and at 2.5 degrees (13.098 in) of the vertical tapeline (2).
18. Verify proper aim location.
19. Repeat the aiming procedure for the passengers side headlamp while blocking the light from projecting onto the screen from the drivers side headlamp.

**FRONT FOG LAMP REPLACEMENT (TAHOE, AVALANCHE)**

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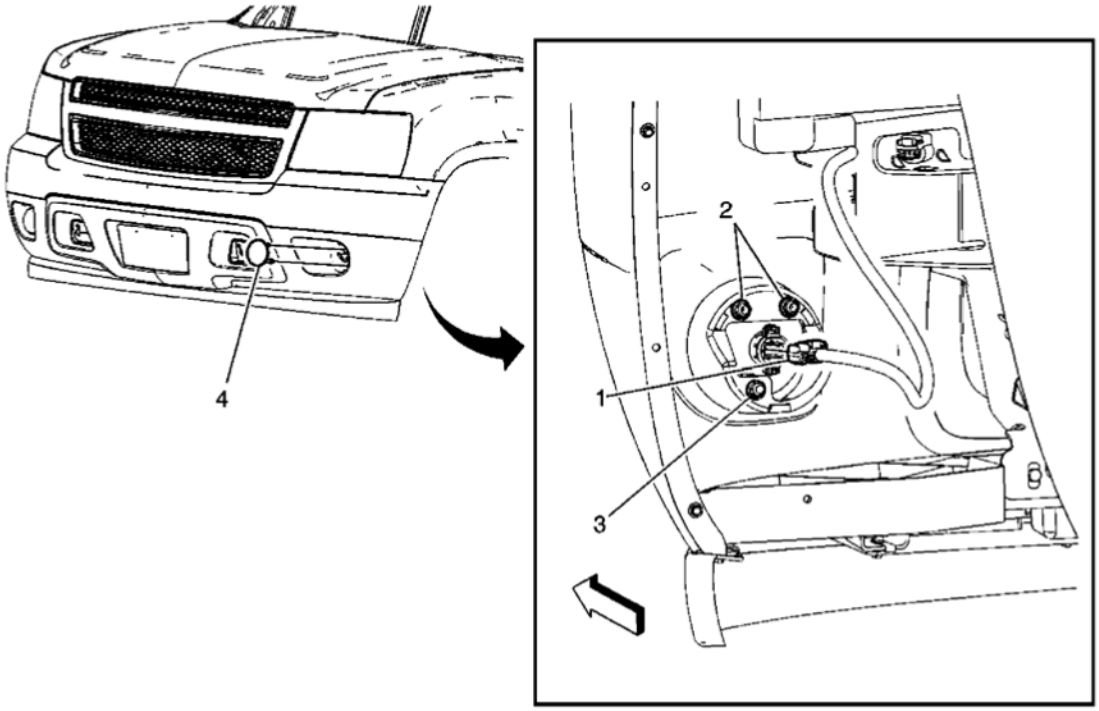



**Fig. 86: View Of Fog Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Front Fog Lamp Replacement (Tahoe, Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br>1. Remove either the LF or RF wheelhouse liner. Refer to **Front Wheelhouse Liner Replacement** .<br>2. From the inside of the front bumper fascia, using a blunt instrument, pinch the retainers and push outward on the 2 upper mounting studs for the fog lamp.<br>3. Using the same blunt instrument, pinch the retainers and push outward on the lower adjustment screw for the fog lamp. | |
| 1 | Forward Lamp Harness Electrical Connector<br>**Tip:** Disconnect the electrical connector from the fog lamp socket. |
| 2 | Fog Lamp Upper Retention Studs (Qty: 2)<br>**Tip:** Ensure the retainers are repositioned into the front bumper fascia mounting holes prior to the installation of the new fog lamp. |
| 3 | Fog Lamp Adjuster Screw<br>**Tip:** Adjust/aim the front fog lamps after the new fog lamps have been installed. Refer to **Fog Lamp Aiming (Tahoe/Yukon)**. |
| 4 | Fog Lamp Assembly<br>**Tip:** Remove the bulb from the lamp assembly and transfer as necessary. |

**FRONT FOG LAMP REPLACEMENT (YUKON)**

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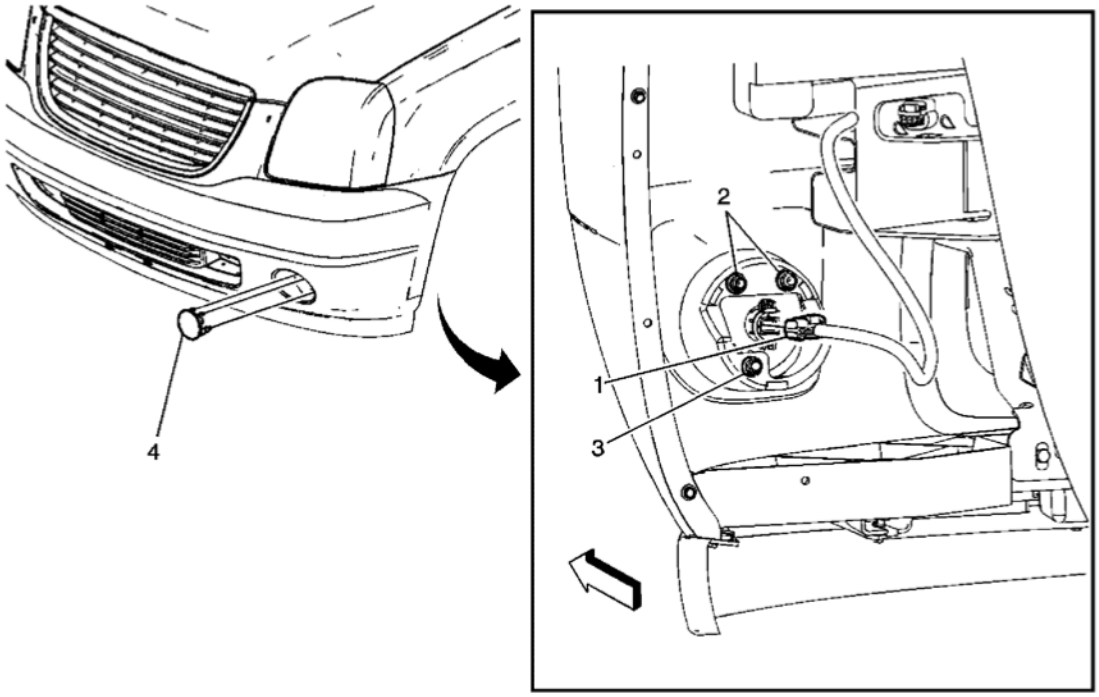



**Fig. 87: View Of Fog Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Front Fog Lamp Replacement (Yukon)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br>1. Remove either the LF or RF wheelhouse liner. Refer to **Front Wheelhouse Liner Replacement** .<br>2. From the inside of the front bumper fascia, using a blunt instrument, pinch the retainers and push outward on the 2 upper mounting studs for the fog lamp.<br>3. Using the same blunt instrument, pinch the retainer and push outward on the lower adjustment screw for the fog lamp. | |
| 1 | Forward Lamp Harness Electrical Connector<br>**Tip:** Disconnect the electrical connector from the fog lamp bulb socket. |
| 2 | Fog Lamp Upper Retention Studs (Qty: 2)<br>**Tip:** Ensure the retainers are repositioned into the front bumper fascia mounting holes prior to the installation of the new fog lamp if they become dislodged during the removal of the lamp. |
| 3 | Fog Lamp Adjuster Screw<br>**Tip:** Adjust/aim the front fog lamps after the new fog lamps have been installed. Refer to **Fog Lamp Aiming (Tahoe/Yukon)**. |
| 4 | Fog Lamp Assembly<br>**Tip:** Remove the bulb socket from the lamp assembly and transfer as necessary. |

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## FRONT FOG LAMP REPLACEMENT (ESCALADE)

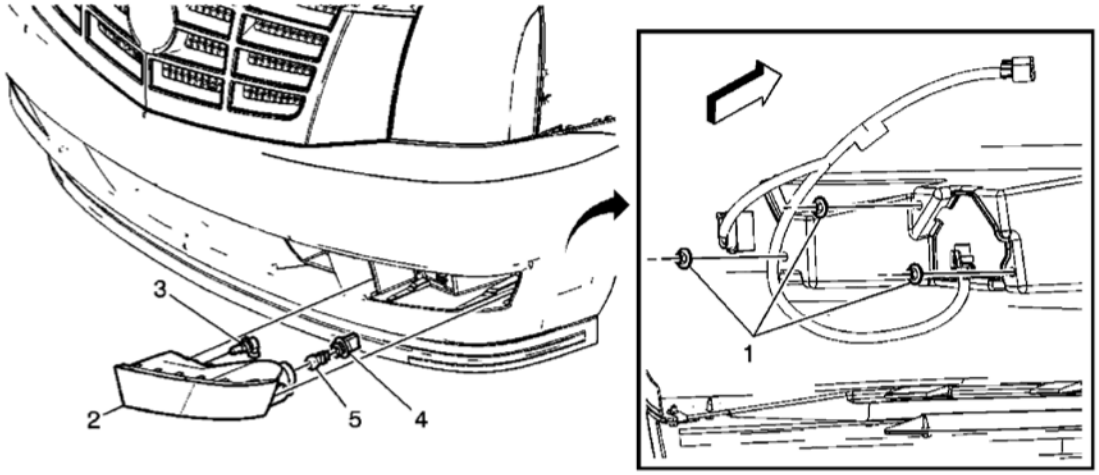



**Fig. 88: View Of Front Fog Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Front Fog Lamp Replacement (Escalade)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br>1. Remove the front lower bumper filler. Refer to **Bumper Filler Replacement - Front Side (All Utility, Avalanche, Cadillac EXT)** or **Bumper Filler Replacement - Front Side (Z71)** .<br>2. Disconnect the electrical connectors for the front park turn signal lamp and the front fog lamp sockets.<br>3. The bulbs can be removed after the lamp housing has been removed from the front bumper fascia. | |
| 1 | Nuts (Qty: 3)<br>**NOTE:**<br>**Refer to Fastener Notice .**<br>**Tighten:** 10 N.m (89 lb in) |
| 2 | Front Fog Lamp Assembly<br>**Tip:** Remove the lamp assembly from the front side of the lower bumper fascia. |
| 3 | Fog Lamp Bulb<br>**CAUTION:**<br>**Refer to Halogen Bulb Caution .**<br>**Tip:** Rotate the bulb socket counterclockwise in order to remove. |

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| | |
|---|---|
| 4 | Park, Turn Signal Lamp Bulb Socket<br>**Tip:** Rotate the bulb socket counterclockwise in order to remove. |
| 5 | Park, Turn Signal Lamp Bulb<br>**Tip:** Pull the bulb straight from the socket. |

**FRONT FOG LAMP BULB REPLACEMENT (YUKON)**

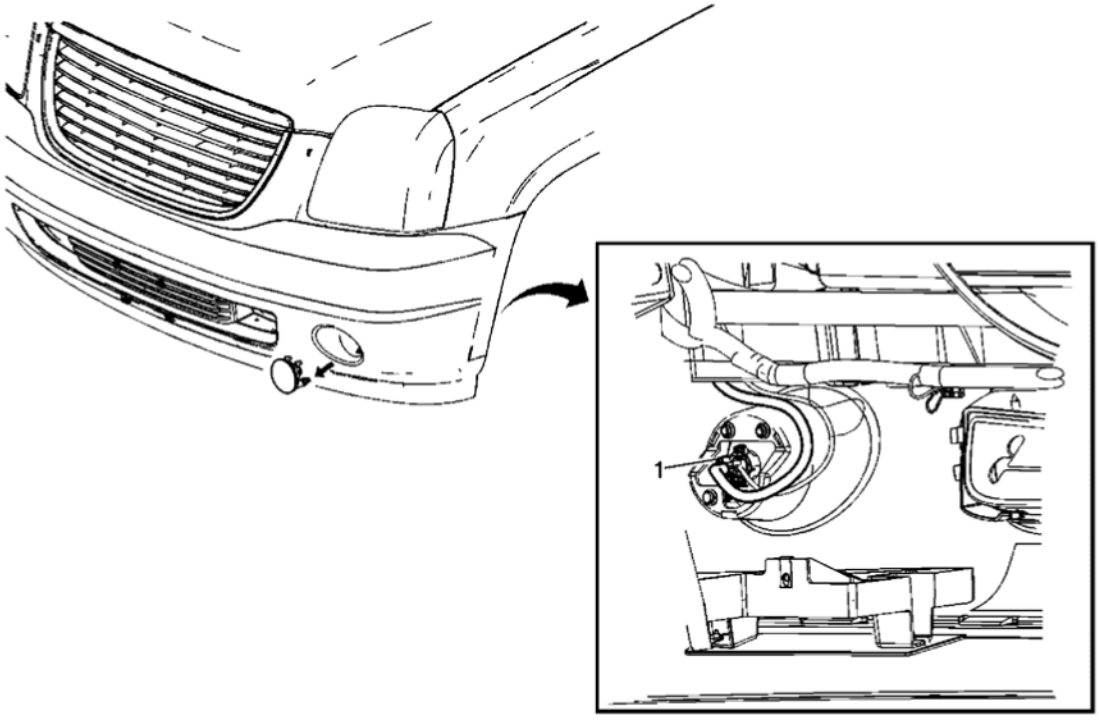



**Fig. 89: View Of Fog Lamp & Connector**
**Courtesy of GENERAL MOTORS CORP.**

**Front Fog Lamp Bulb Replacement (Yukon)**

| Callout | Component Name |
|---|---|
| 1 | Fog Lamp Connector<br>**Tip:** Twist the bulb socket counterclockwise and remove the fog lamp bulb. |

**FRONT FOG LAMP BULB REPLACEMENT (ESCALADE)**

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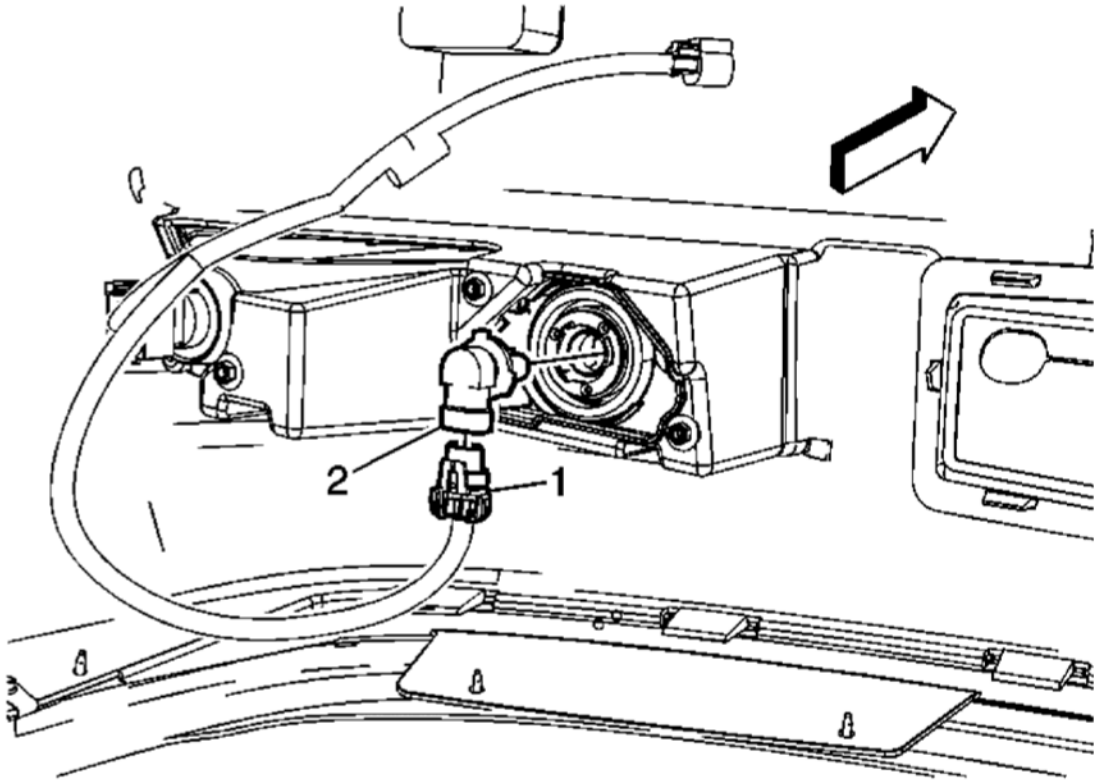



**Fig. 90: View Of Fog Lamp Bulb & Electrical Connector**
**Courtesy of GENERAL MOTORS CORP.**

**Front Fog Lamp Bulb Replacement (Escalade)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br>1. Remove the front lower bumper filler. Refer to **Bumper Filler Replacement - Front Side (All Utility, Avalanche, Cadillac EXT)** or **Bumper Filler Replacement - Front Side (Z71)** .<br>2. Disconnect the electrical connector for the front fog lamp. | |
| 1 | Forward Lamp Harness Electrical Connector |
| 2 | **CAUTION:**<br>**Refer to Halogen Bulb Caution .**<br><br>Fog Lamp Bulb**Tip:** Rotate the bulb socket counterclockwise in order to remove the bulb socket from the fog lamp housing. |

**REAR FOG LAMP REPLACEMENT (CADILLAC EXPORT)**

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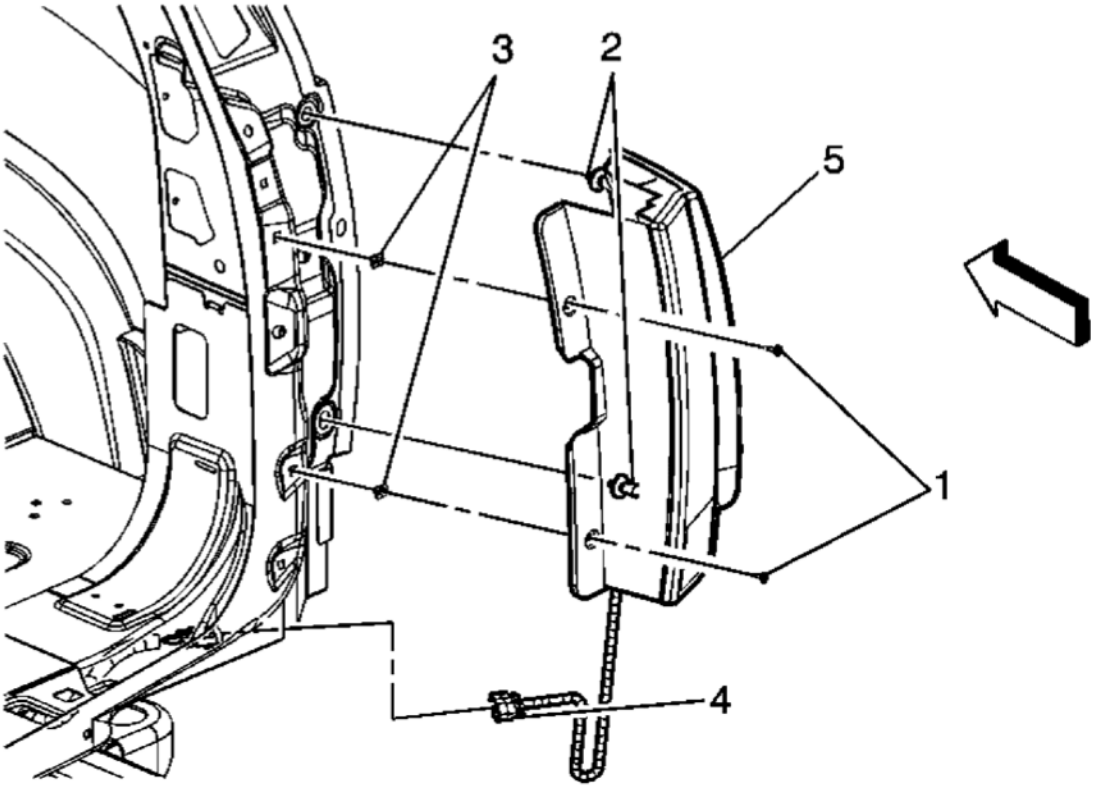



**Fig. 91: View Of Tail Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Rear Fog Lamp Replacement (Cadillac Export)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Open the liftgate in order to access the left tail lamp assembly screws. | |
| 1 | Tail Lamp Assembly Screws (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 2 | Tail Lamp Assembly Locator Pins (Qty: 2)<br>**Tip:** Upon tail lamp removal, some effort is needed to disengage the locating pins from the rear body panel retainer nuts. |
| 3 | Tail Lamp Retainer Nuts (Qty: 2) |
| 4 | Tail Lamp Wiring Harness Assembly Connector |
| 5 | Tail Lamp Assembly<br>**Tip:** |

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| | |
|---|---|
| | 1. The bottom bulb in the left tail lamp is the rear fog lamp bulb and will have a red lens. This is an export only item.<br>2. Upon installation, push inward on the tail lamp in order to seat the 2 locating pins. |

**REAR FOG LAMP BULB REPLACEMENT (CADILLAC EXPORT)**

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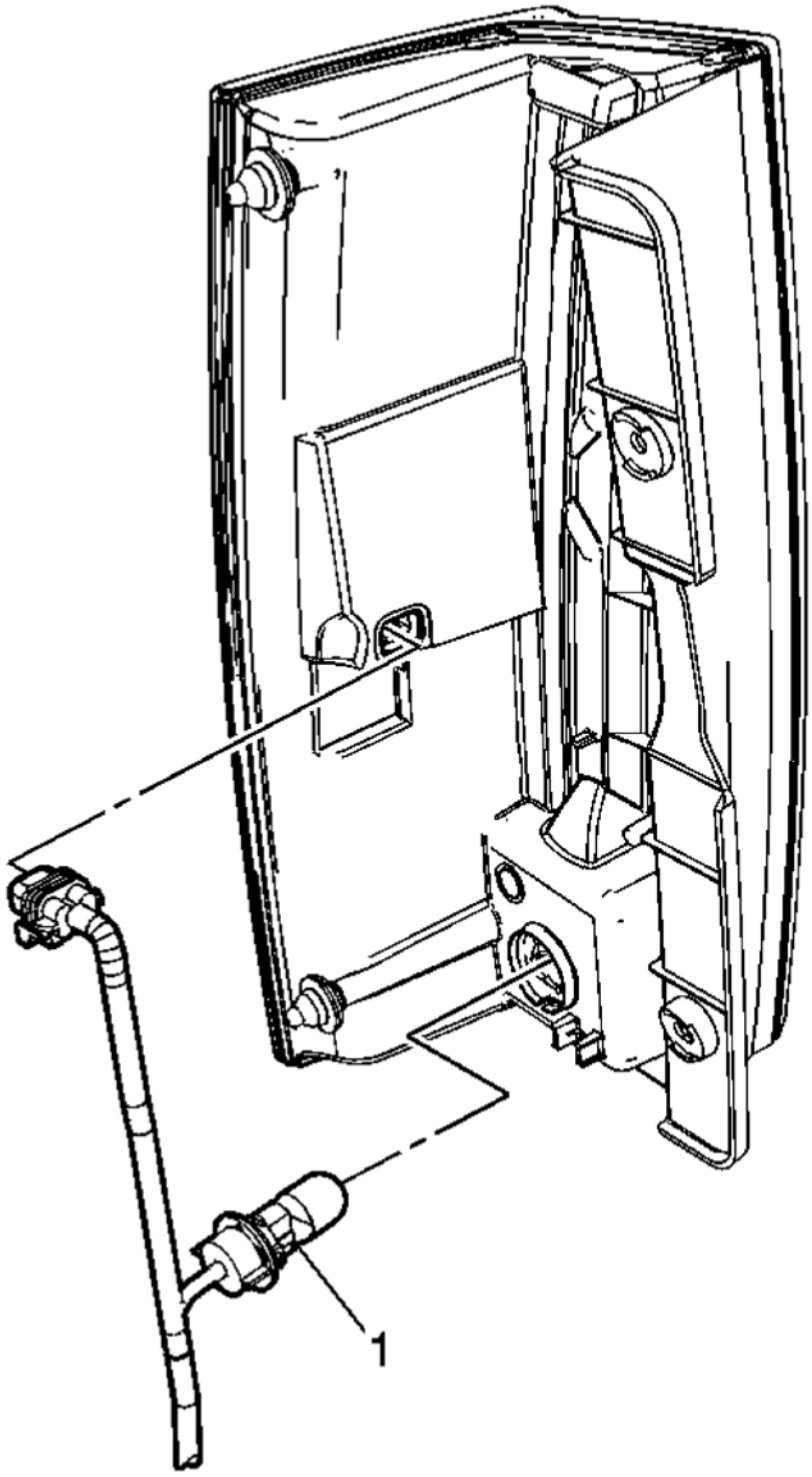



**Fig. 92: View Of Rear Fog Lamp Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Rear Fog Lamp Bulb Replacement (Cadillac Export)**

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| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the left rear tail lamp. Refer to **Tail Lamp Replacement (Cadillac)** or **Tail Lamp Replacement (Tahoe/Yukon)** or **Tail Lamp Replacement (Avalanche)**. | |
| 1 | Rear Fog Lamp Bulb |

## FOG LAMP AIMING (TAHOE/YUKON)

The front fog lamps must be aimed for proper illumination of the road. The front fog lamp aim should be checked when a new front fog lamp assembly is installed, or if service or repairs in the front end area may have disturbed the front fog lamp mounting.

### Preparation Procedure

**IMPORTANT: Horizontal aim is not adjustable on this vehicle. Vertical aim is adjusted by an adjusting screw located on the bottom 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. Park the vehicle on a level surface.
3. Stop all unnecessary operations or work on the vehicle that affect the vehicle trim.
4. Close the doors and ensure that the vehicle has no load other than the driver.
5. Stabilize the suspension by rocking the vehicle sideways.
6. Ensure that the fuel level is 1/2 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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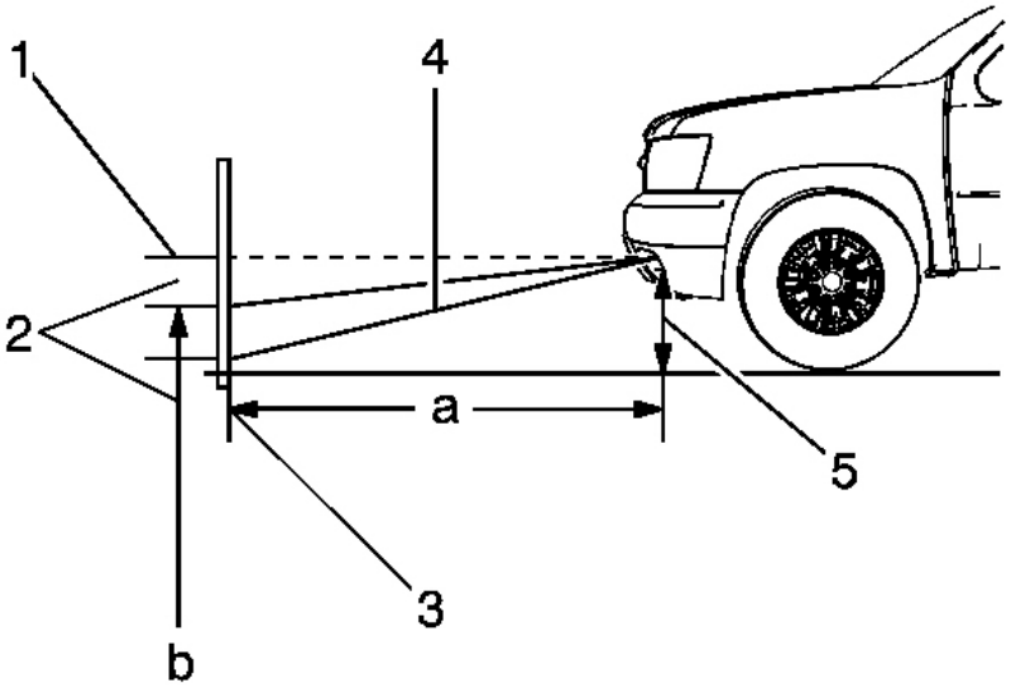



**Fig. 93: Fog Lamp Aiming Procedure**
**Courtesy of GENERAL MOTORS CORP.**

1. Park the vehicle on a level surface 7.6 m (25 ft) (3) away from a wall or other flat surface.
2. Measure the distance from the floor to the center of the fog lamp (5).
3. Using this measurement, mark the horizontal centerline of the fog lamp (1) on the flat surface directly in front of the vehicle.
4. Remove the front portion of the front wheel liner in order to access the adjusting screw.
5. Turn ON the fog lamps.
6. Reach inside of the front portion of the fender liner in order to access the fog lamp vertical adjustment screw on the bottom of the fog lamp.
7. Adjust the fog lamp so that the top edge of the fog lamp beam pattern is 100 mm (4 in) below the horizontal centerline (2).
8. Turn OFF the fog lamps.
9. Secure the forward edge of the front fender liner.

## DAYTIME RUNNING LAMP BULB REPLACEMENT (CADILLAC)

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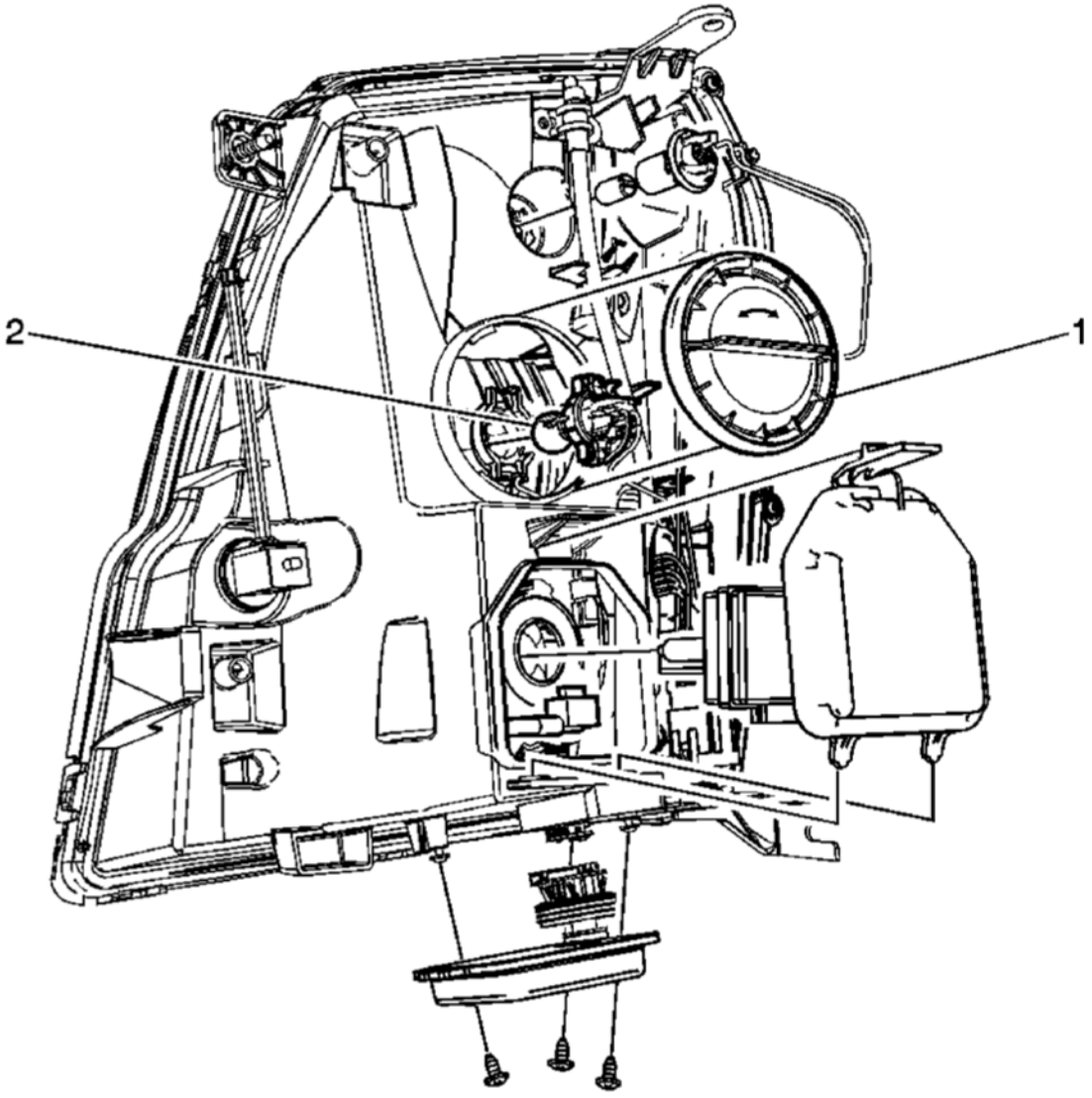



**Fig. 94: View Of Daytime Running Lamp Bulb & Access Cover**
**Courtesy of GENERAL MOTORS CORP.**

**Daytime Running Lamp Bulb Replacement (Cadillac)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Daytime Running Lamp Bulb Access Cover |
| 2 | Daytime Running Lamp Bulb |

**DAYTIME RUNNING LAMP BULB REPLACEMENT (GMC)**

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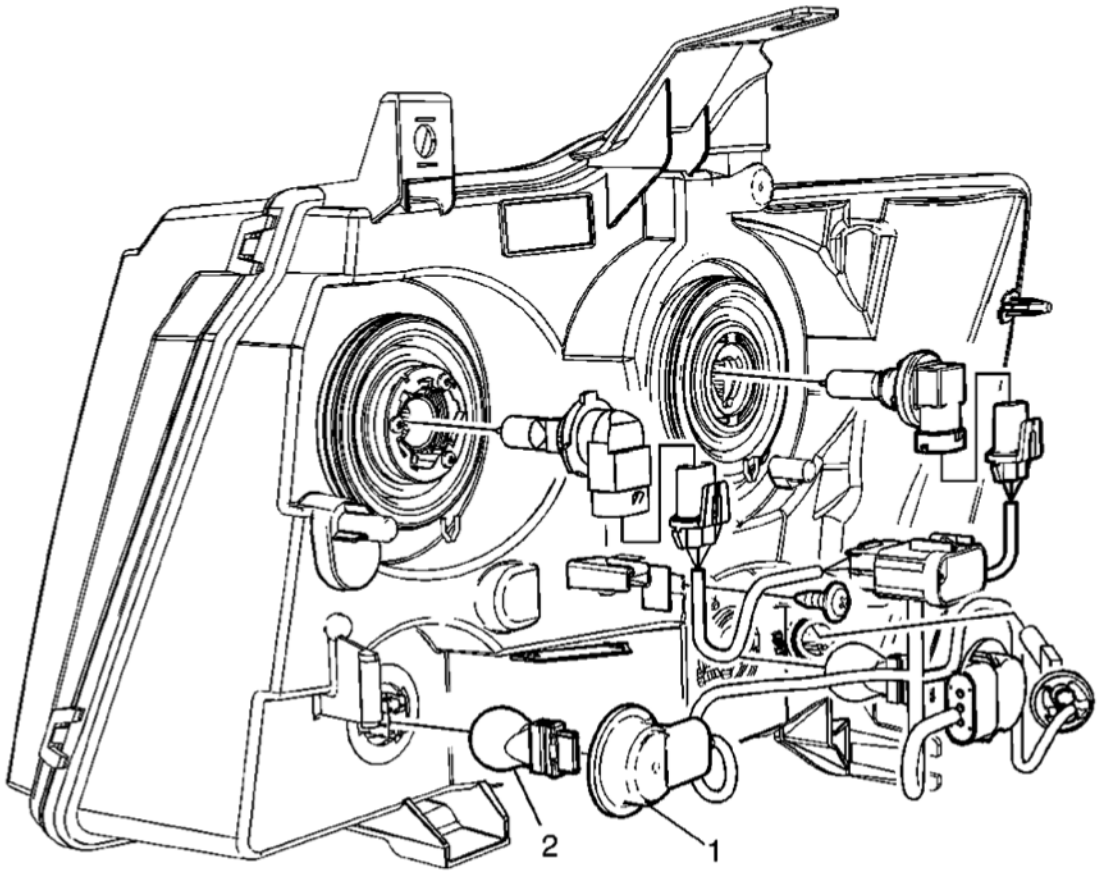



**Fig. 95: View Of Daytime Running Lamp Bulb & Connector**
**Courtesy of GENERAL MOTORS CORP.**

**Daytime Running Lamp Bulb Replacement (GMC)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp assembly. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Daytime Running Lamp Connector |
| 2 | Daytime Running Lamp Bulb |

**REPEATER LAMP REPLACEMENT (ESCALADE)**

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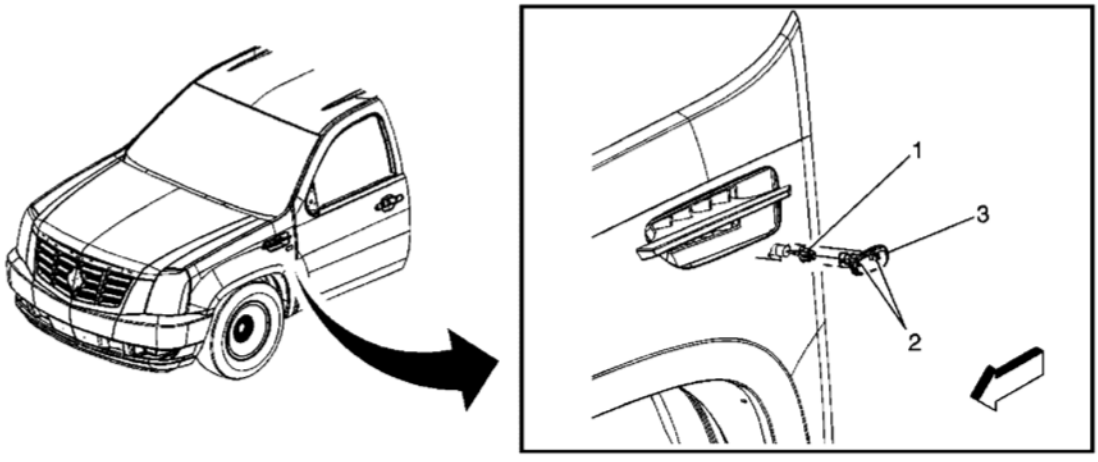



**Fig. 96: View Of Repeater Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Repeater Lamp Replacement (Escalade)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the front wheelhouse assembly. Refer to **Front Wheelhouse Liner Replacement** . | |
| 1 | Repeater Lamp Connector |
| 2 | Repeater Lamp Tabs (Qty: 2)<br>**Tip:** Release the tabs securing the repeater to the fender. |
| 3 | Repeater Lamp Assembly |

**MARKER LAMP REPLACEMENT - FRONT SIDE (TAHOE, AVALANCHE)**

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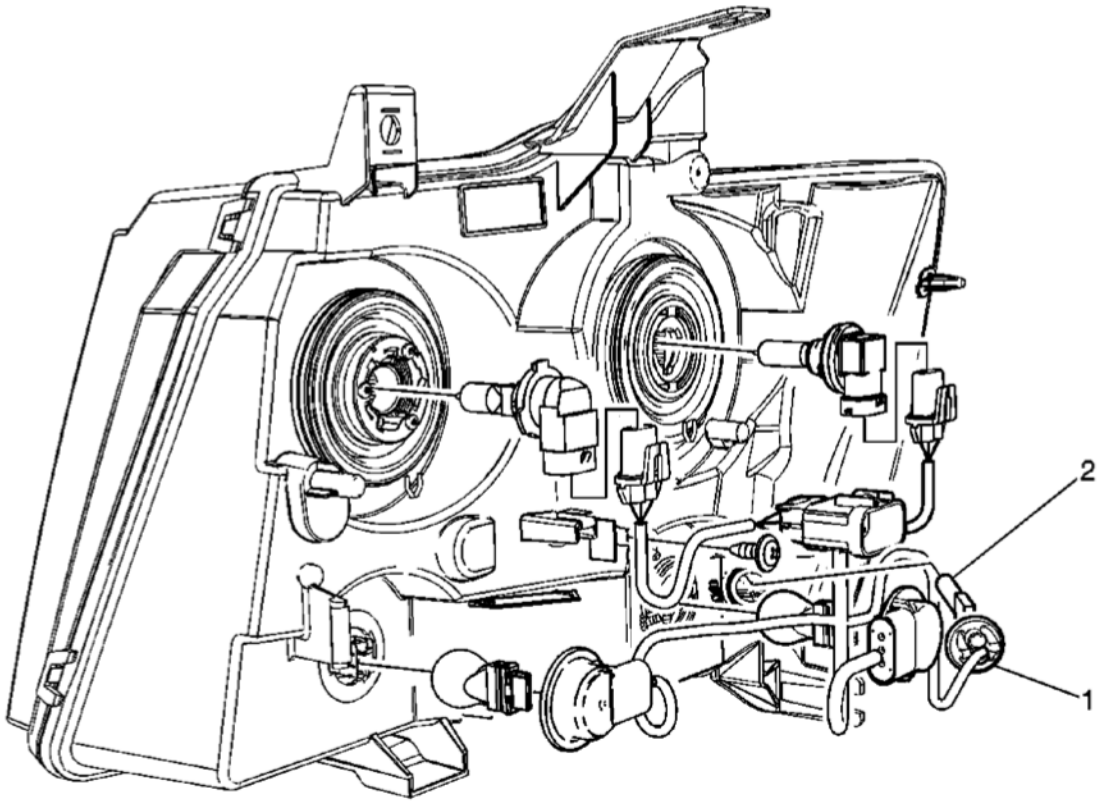



**Fig. 97: View Of Front Side Marker Bulb & Socket**
**Courtesy of GENERAL MOTORS CORP.**

**Marker Lamp Replacement - Front Side (Tahoe, Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp assembly. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Front Side Marker Bulb Socket |
| 2 | Front Side Marker Bulb |

**MARKER LAMP REPLACEMENT - FRONT SIDE (YUKON)**

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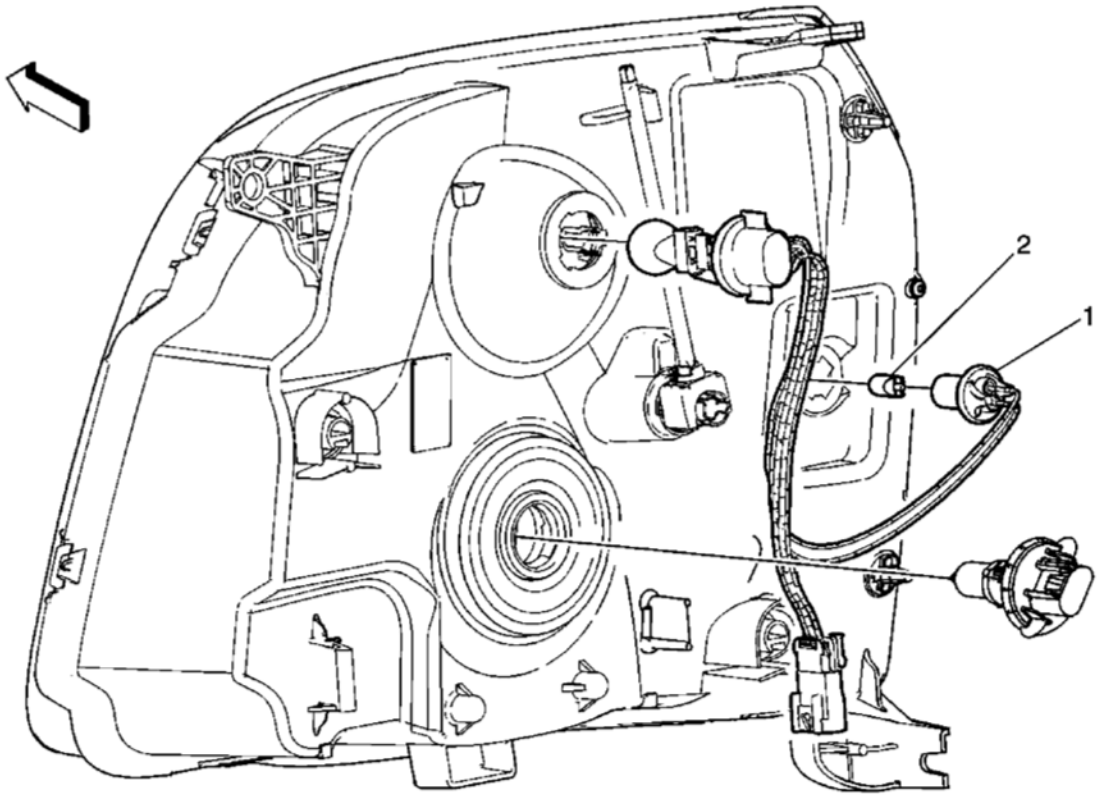



**Fig. 98: View Of Front Side Marker Bulb & Connector**
**Courtesy of GENERAL MOTORS CORP.**

**Marker Lamp Replacement - Front Side (Yukon)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Front Side Marker Bulb Connector |
| 2 | Front Side Marker Bulb |

**PARK/TURN SIGNAL LAMP REPLACEMENT (TAHOE, AVALANCHE)**

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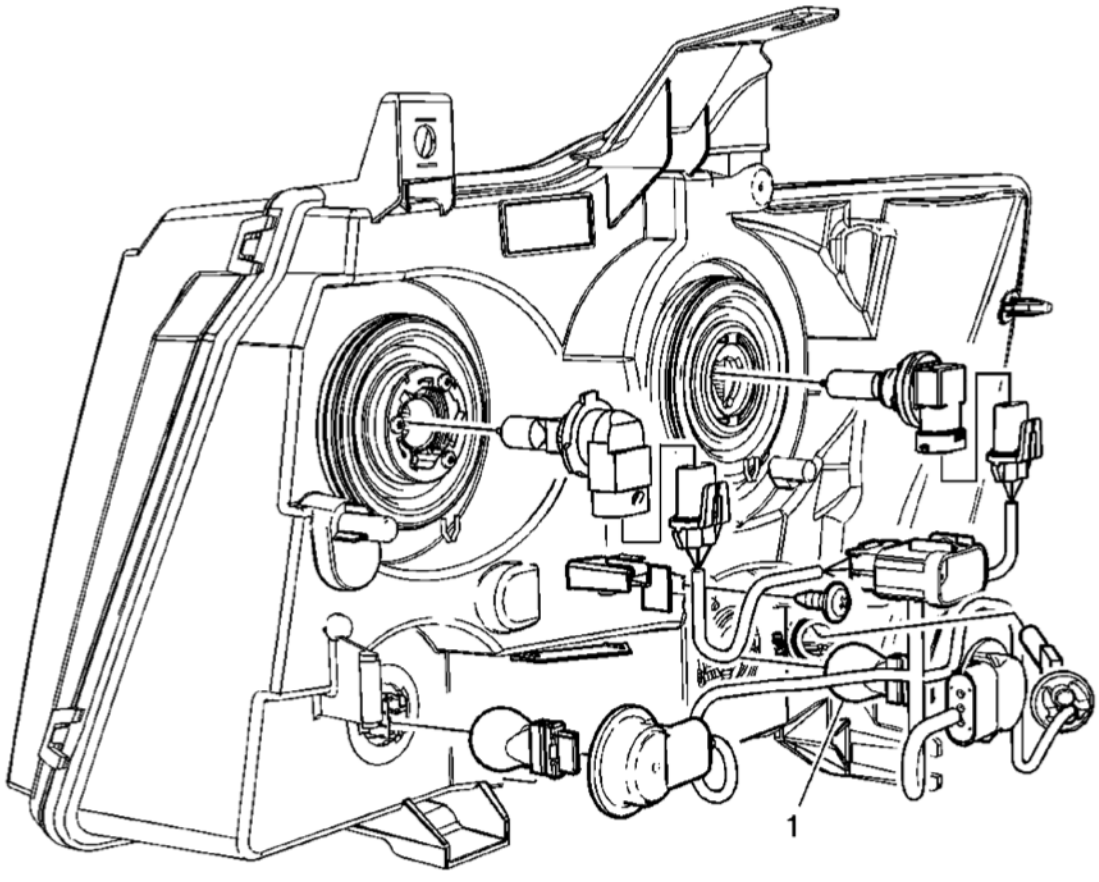



**Fig. 99: View Of Park Turn Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Park/Turn Signal Lamp Replacement (Tahoe, Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Park Turn Bulb |

**PARK/TURN SIGNAL LAMP REPLACEMENT (YUKON)**

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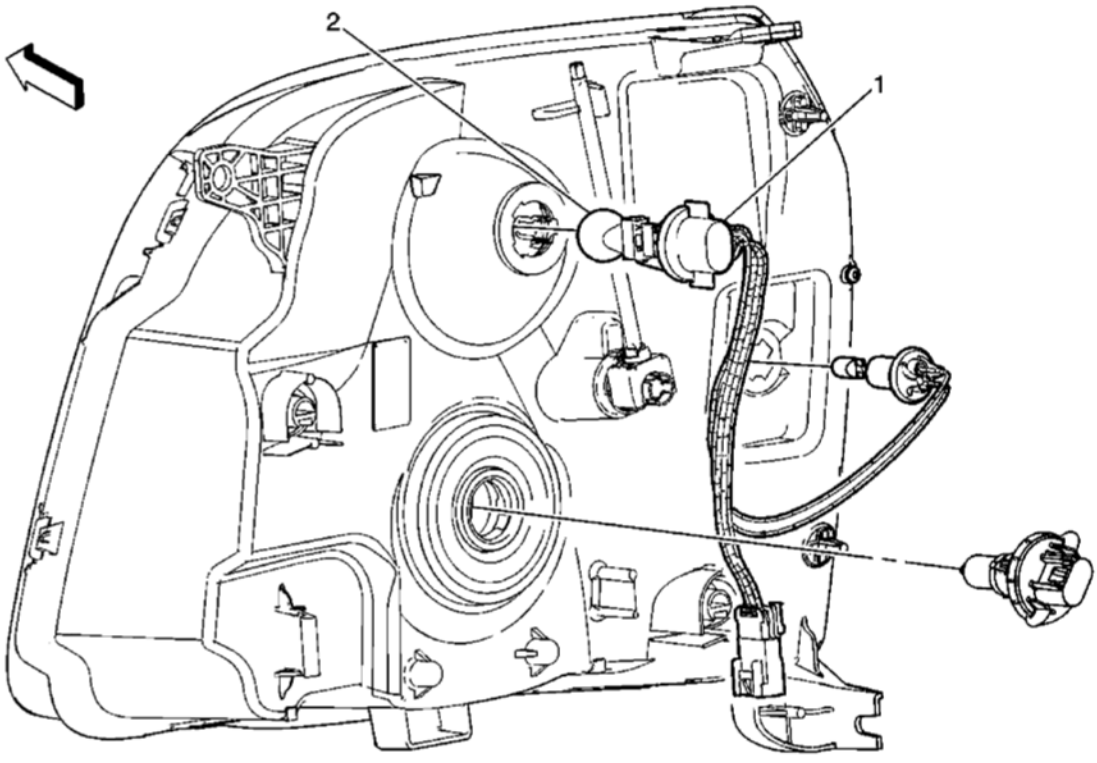



**Fig. 100: View Of Park Turn Bulb & Connector**
**Courtesy of GENERAL MOTORS CORP.**

**Park/Turn Signal Lamp Replacement (Yukon)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Park Turn Bulb Connector |
| 2 | Park Turn Bulb |

**PARK/TURN SIGNAL LAMP BULB REPLACEMENT (CADILLAC)**

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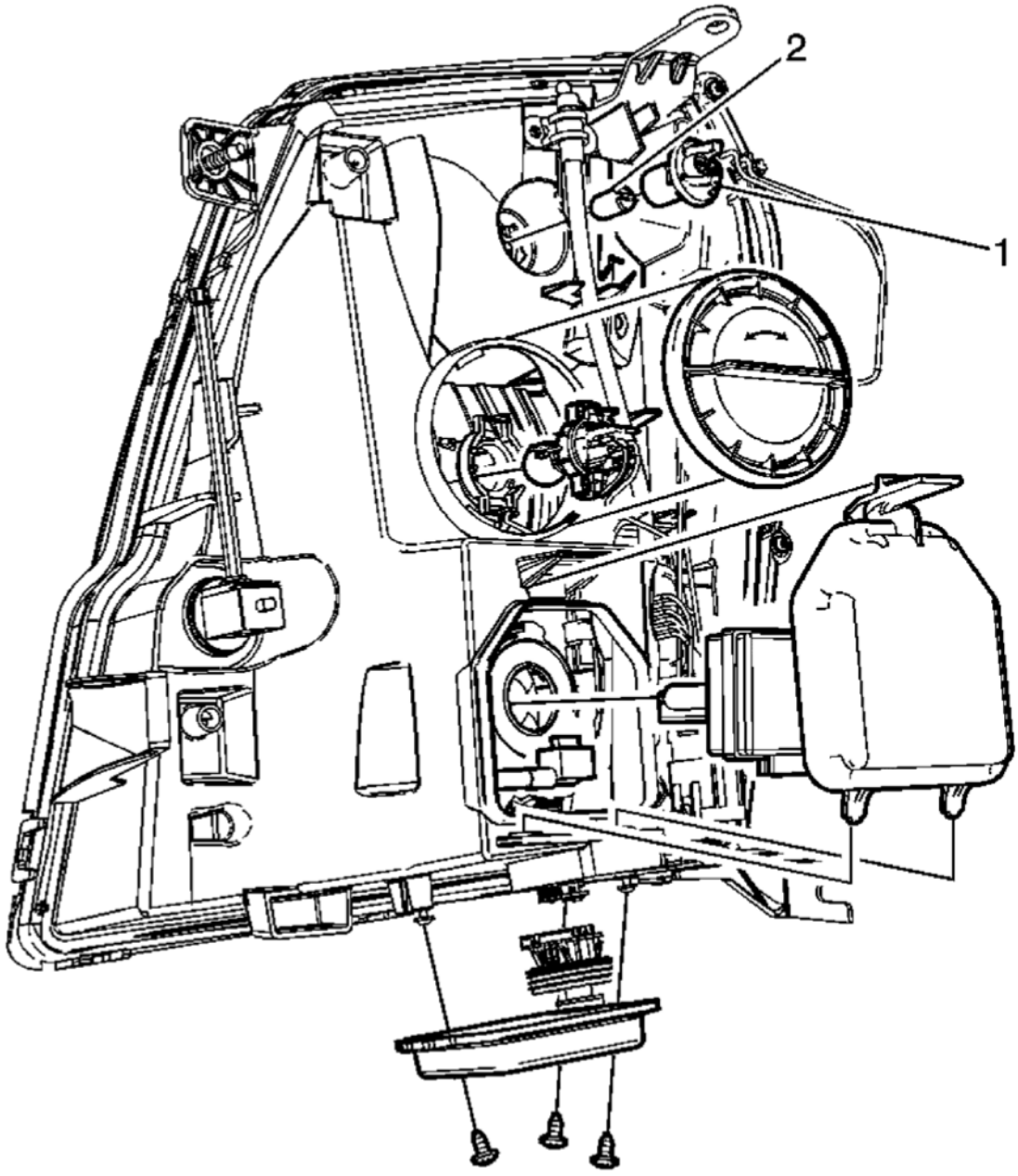



**Fig. 101: View Of Park Turn Bulb & Connector**
**Courtesy of GENERAL MOTORS CORP.**

**Park/Turn Signal Lamp Bulb Replacement (Cadillac)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |

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| | |
|---|---|
| 1 | Park Lamp Bulb Connector |
| 2 | Park Lamp Bulb |

**PARK/TURN SIGNAL LAMP BULB REPLACEMENT (TAHOE, AVALANCHE)**

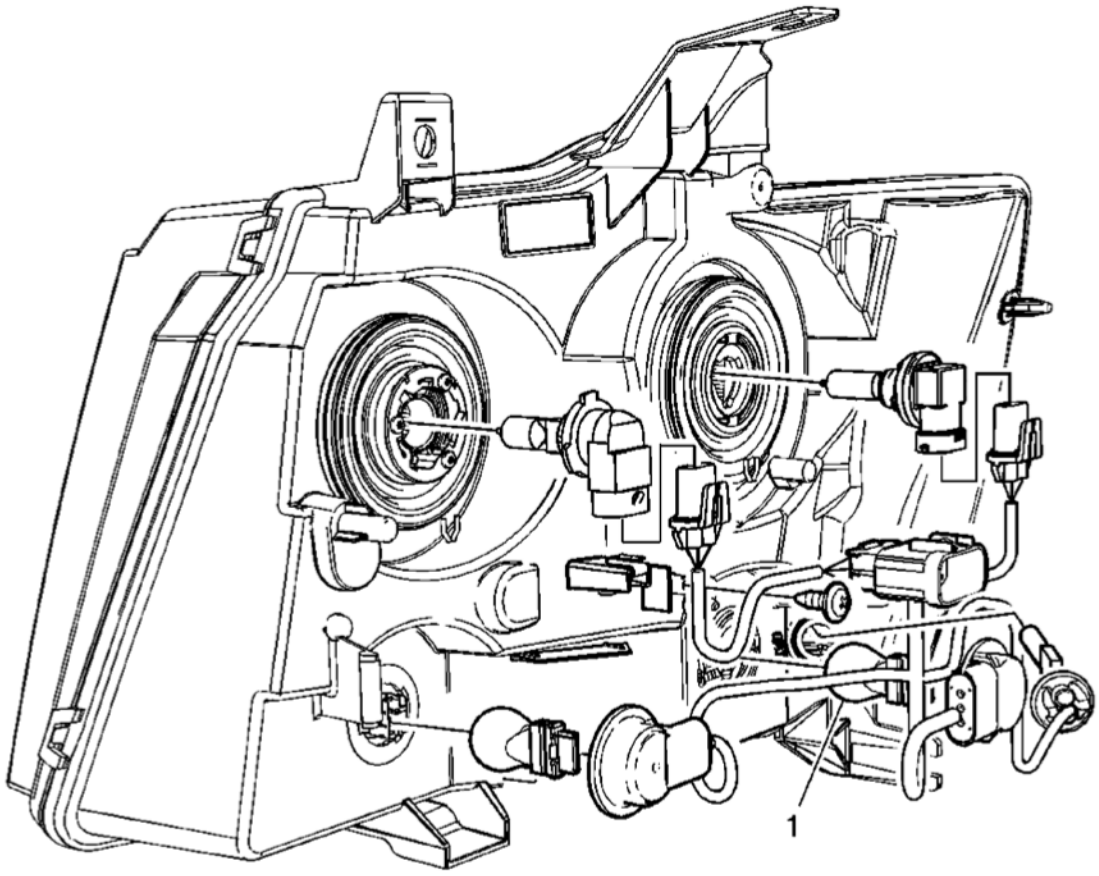



**Fig. 102: View Of Park Turn Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Park/Turn Signal Lamp Bulb Replacement (Tahoe, Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Park Turn Bulb |

**PARK/TURN SIGNAL LAMP BULB REPLACEMENT (YUKON)**

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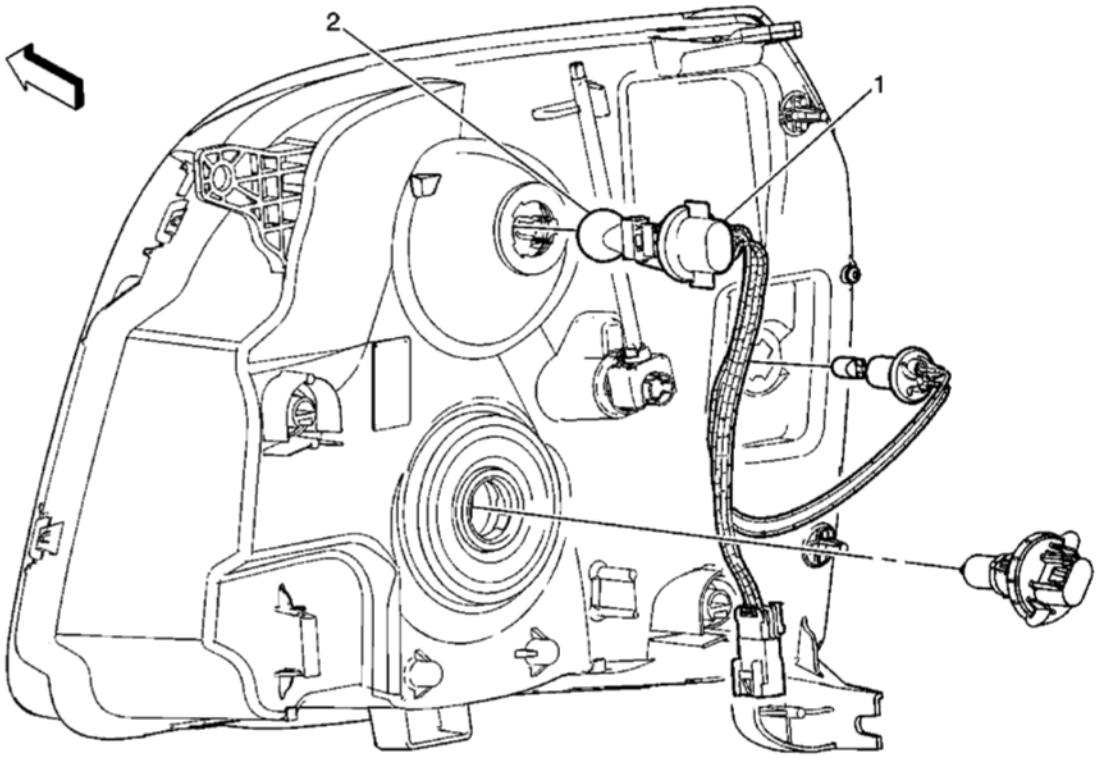



**Fig. 103: View Of Park Turn Bulb & Connector**
**Courtesy of GENERAL MOTORS CORP.**

**Park/Turn Signal Lamp Bulb Replacement (Yukon)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the headlamp. Refer to **Headlamp Replacement (Non HID)** or **Headlamp Replacement (Yukon)** or **Headlamp Replacement (Tahoe, Avalanche)** or **Headlamp Replacement (Cadillac Escalade)**. | |
| 1 | Park Turn Bulb Connector |
| 2 | Park Turn Bulb |

**PARK/TURN SIGNAL LAMP BULB REPLACEMENT (ESCALADE )**

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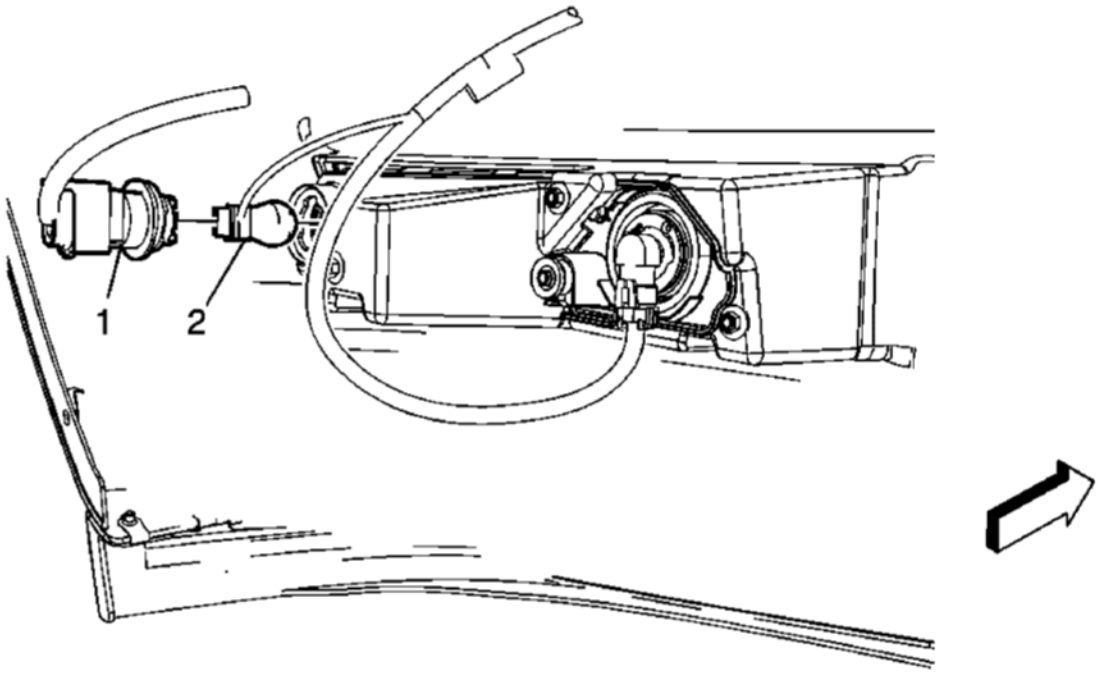



**Fig. 104: View Of Turn Signal Lamp Bulb & Socket**
**Courtesy of GENERAL MOTORS CORP.**

**Park/Turn Signal Lamp Bulb Replacement (Escalade )**

| Callout | Component Name |
|---|---|
| **Preliminary Procedures**<br>1. Remove the front lower bumper filler from the side the bulb is being serviced from. Refer to **Bumper Filler Replacement - Front Side (All Utility, Avalanche, Cadillac EXT)** or **Bumper Filler Replacement - Front Side (Z71)** .<br>2. Rotate the bulb socket counterclockwise in order to remove. | |
| 1 | Front Park, Turn Signal Lamp Socket |
| 2 | Front Park, Turn Signal Lamp Bulb<br>**Tip:** Pull the bulb straight from the socket. |

**HIGH MOUNTED STOP LAMP REPLACEMENT (YUKON)**

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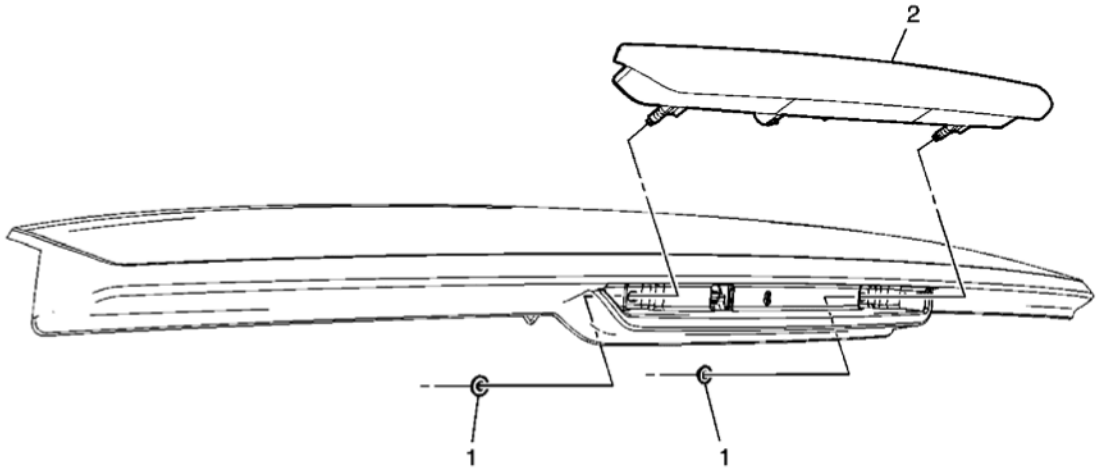



**Fig. 105: View Of High Mount Stop Lamp Assembly & Nuts**
**Courtesy of GENERAL MOTORS CORP.**

**High Mounted Stop Lamp Replacement (Yukon)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the high mount stop lamp applique. Refer to **Back Body Opening Upper Applique Replacement** . | |
| 1 | High Mount Stop Lamp Assembly Nuts (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 2 | High Mount Stop Lamp Assembly |

**HIGH MOUNTED STOP LAMP REPLACEMENT (ESCALADE)**

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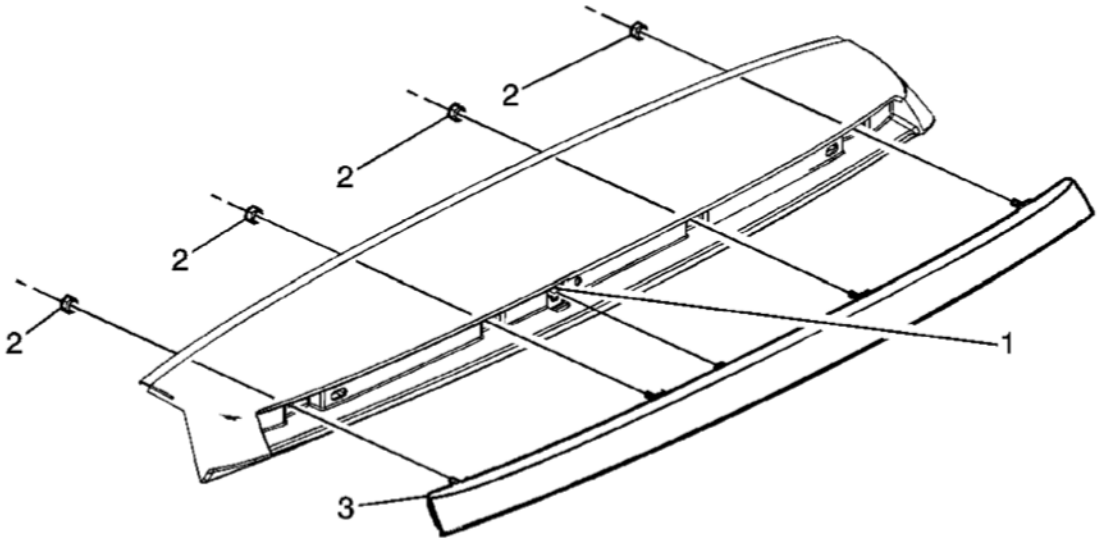



**Fig. 106: View Of High Mount Stop Lamp Assembly & Nuts**
**Courtesy of GENERAL MOTORS CORP.**

**High Mounted Stop Lamp Replacement (Escalade)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the high mount stop lamp applique. Refer to **Back Body Opening Upper Applique Replacement** . | |
| 1 | CHMSL Electrical Connector |
| 2 | High Mount Stop Lamp Assembly Nuts (Qty: 4)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 3 | High Mount Stop Lamp Assembly |

**HIGH MOUNTED STOP LAMP REPLACEMENT (AVALANCHE)**

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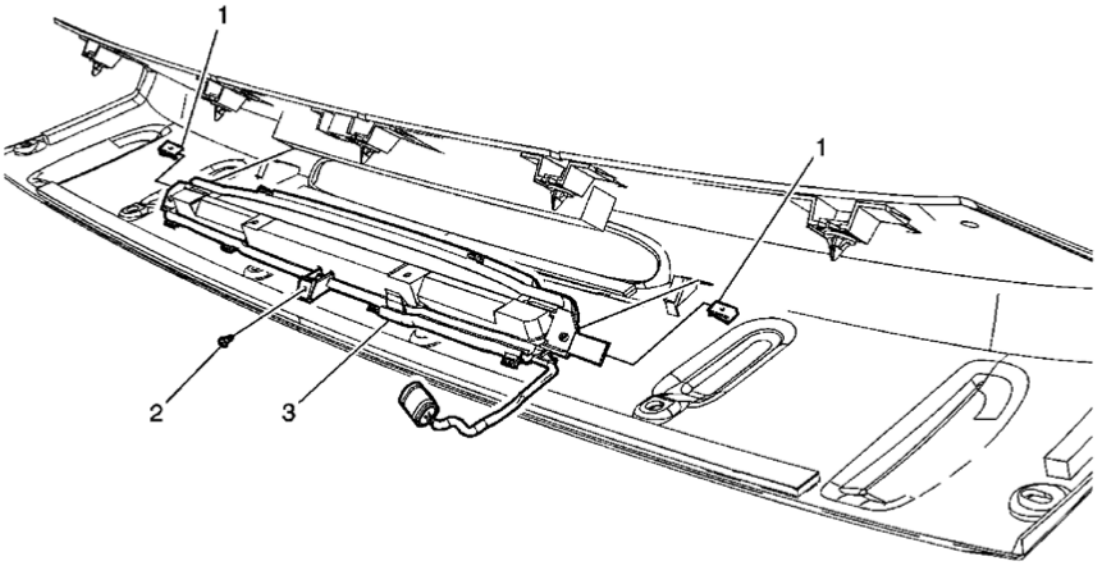



**Fig. 107: View Of High Mount Stop Lamp Assembly, Screws & Clips**
**Courtesy of GENERAL MOTORS CORP.**

**High Mounted Stop Lamp Replacement (Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Remove the center cargo bridge panel. Refer to **Panel Replacement - Cargo Box Bridge Center (Avalanche)** or **Panel Replacement - Cargo Box Bridge Center (Escalade EXT)** . | |
| 1 | High Mounted Stop Lamp Attachment Clips (Qty: 2) |
| 2 | High Mount Stop Lamp Assembly Screw<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 3 | High Mount Stop Lamp Assembly |

**REAR LICENSE LAMP REPLACEMENT (ESCALADE)**

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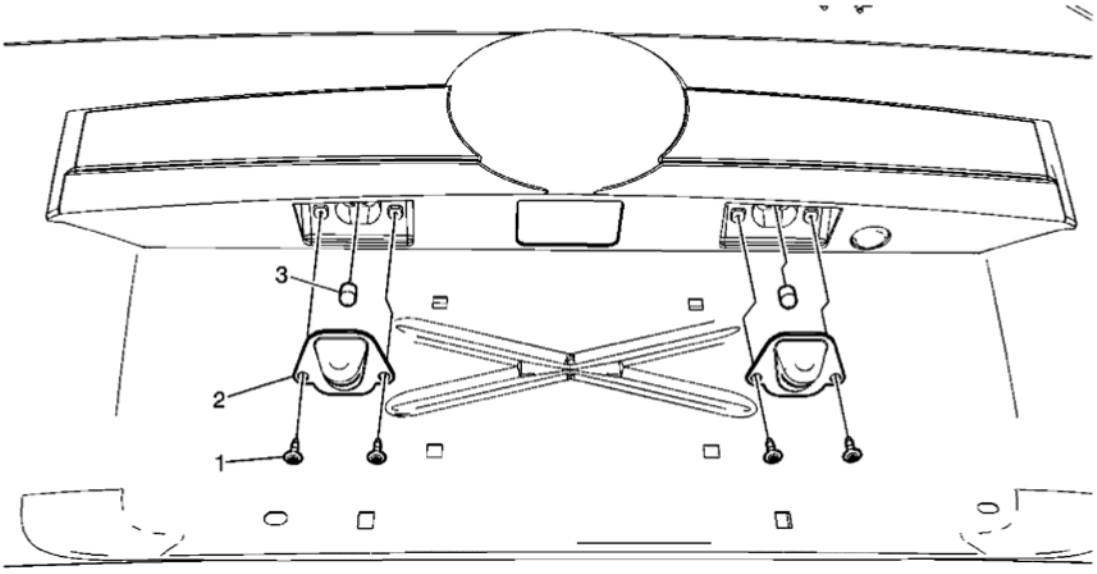



**Fig. 108: View Of License Plate Lamp Bulb, Lens & Screws**
**Courtesy of GENERAL MOTORS CORP.**

**Rear License Lamp Replacement (Escalade)**

| Callout | Component Name |
|---|---|
| 1 | License Plate Lamp Screws (Qty: 2 each lamp)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 2 | License Plate Lamp Bulb Lens |
| 3 | License Plate Lamp Bulb |

**REAR LICENSE LAMP REPLACEMENT (GMC DENALI)**

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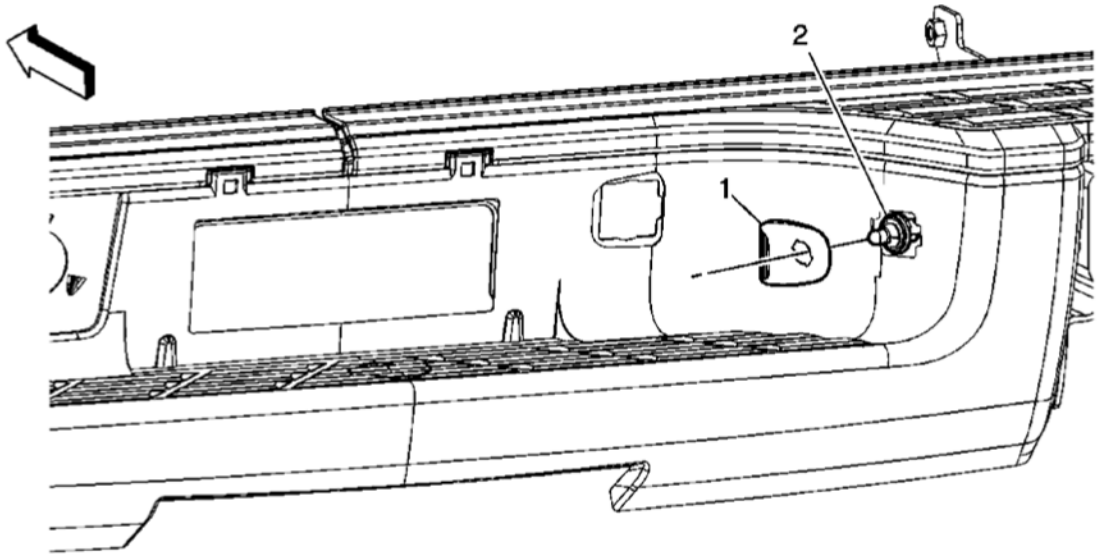



**Fig. 109: View Of Rear License Plate Lamp Bulb & Cover**
**Courtesy of GENERAL MOTORS CORP.**

**Rear License Lamp Replacement (GMC Denali)**

| Callout | Component Name |
|---|---|
| 1 | Rear License Plate Lamp Cover<br>**Tip:** Remove the cover from the bumper assembly using a flat-bladed tool. |
| 2 | Rear License Plate Lamp Bulb<br>**Tip:** Pull the bulb straight from the socket in order to replace. |

**TAIL LAMP REPLACEMENT (CADILLAC)**

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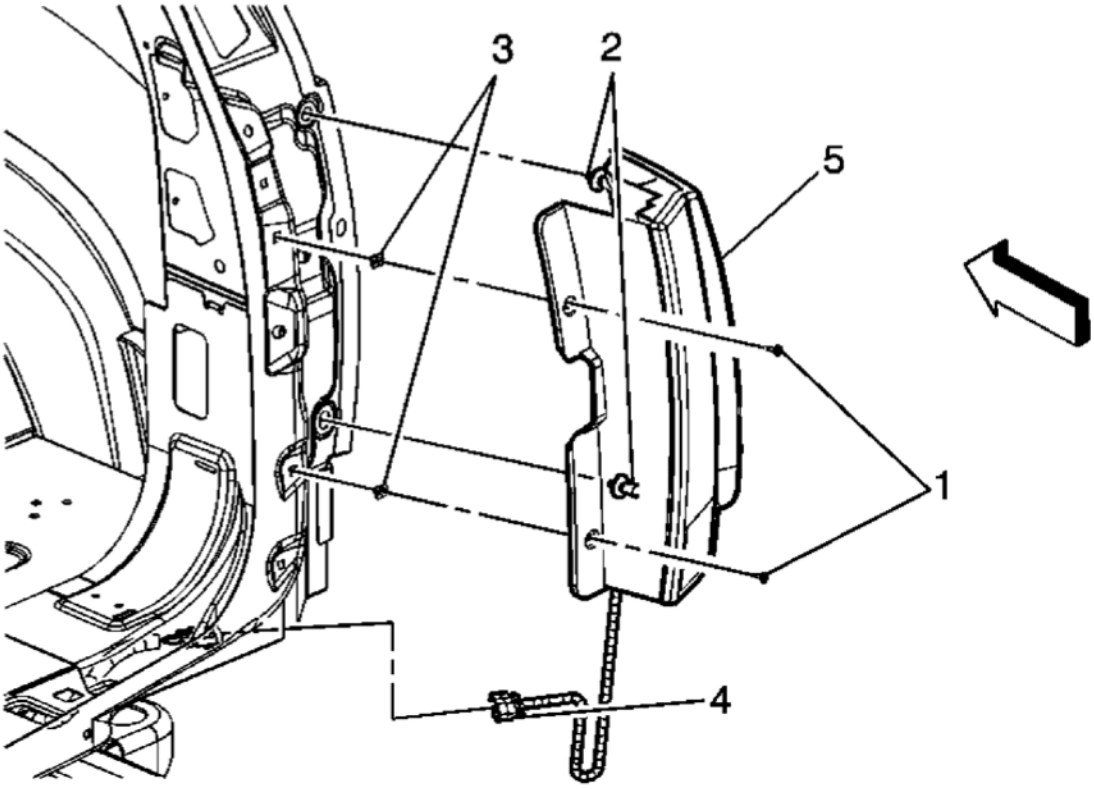



**Fig. 110: View Of Tail Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Tail Lamp Replacement (Cadillac)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Open the liftgate in order to access the tail lamp assembly screws. | |
| 1 | Tail Lamp Assembly Screws (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 2 | Tail Lamp Assembly Locator Pins (Qty: 2)<br>**Tip:** Upon tail lamp removal, some effort is needed to disengage the locating pins from the rear body panel retainer nuts. |
| 3 | Tail Lamp Retainers (Qty: 2) |
| 4 | Tail Lamp Wiring Harness Assembly Connector |
| 5 | Tail Lamp Assembly<br>**Tip:** Upon installation of the tail lamp, push inward on the lamp in order to seat the 2 locator pins into the retainer nuts. |

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## TAIL LAMP REPLACEMENT (TAHOE/YUKON)

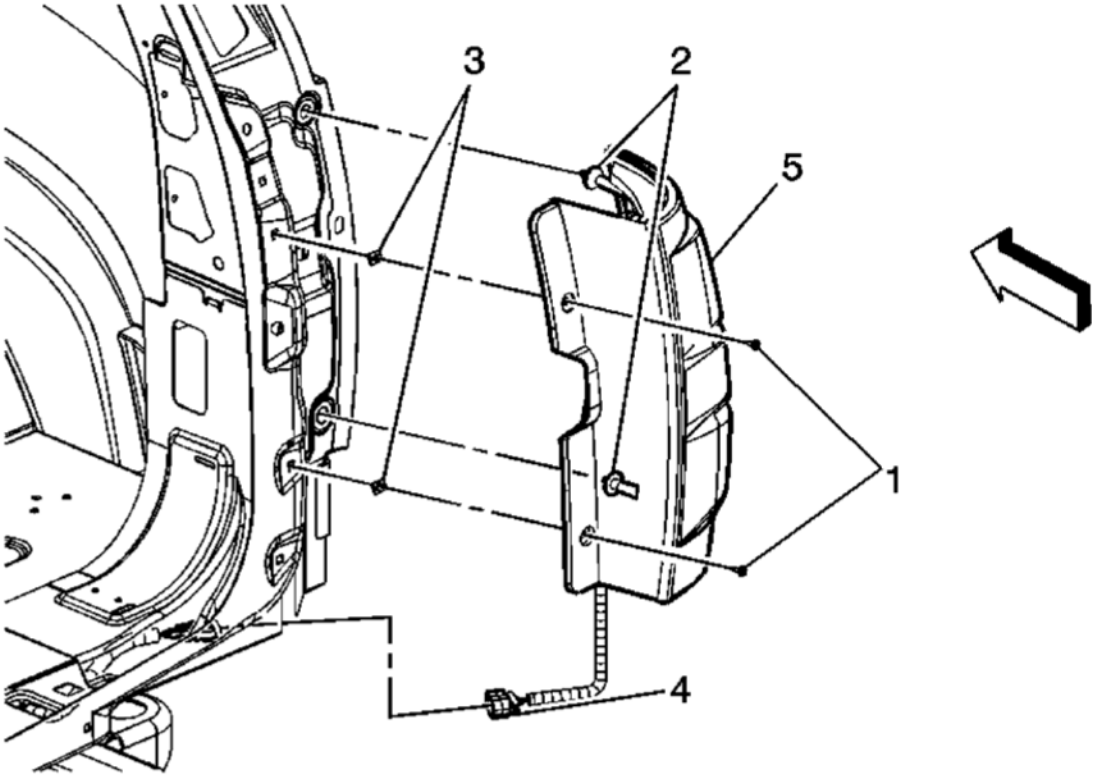



**Fig. 111: View Of Tail Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Tail Lamp Replacement (Tahoe/Yukon)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Open the liftgate in order to access the tail lamp assembly screws. | |
| 1 | Tail Lamp Assembly Screws (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 2 | Tail Lamp Assembly Locator Pins (Qty: 2)<br>**Tip:** Upon tail lamp removal, some effort is needed to disengage the locating pins from the rear body panel retainer nuts. |
| 3 | Tail Lamp Retainer Nuts (Qty: 2) |
| 4 | Tail Lamp Wiring Harness Assembly Connector |
| 5 | Tail Lamp Assembly<br>**Tip:** Upon installation, push inward on the tail lamp in order to seat the 2 locating pins. |

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## TAIL LAMP REPLACEMENT (AVALANCHE)

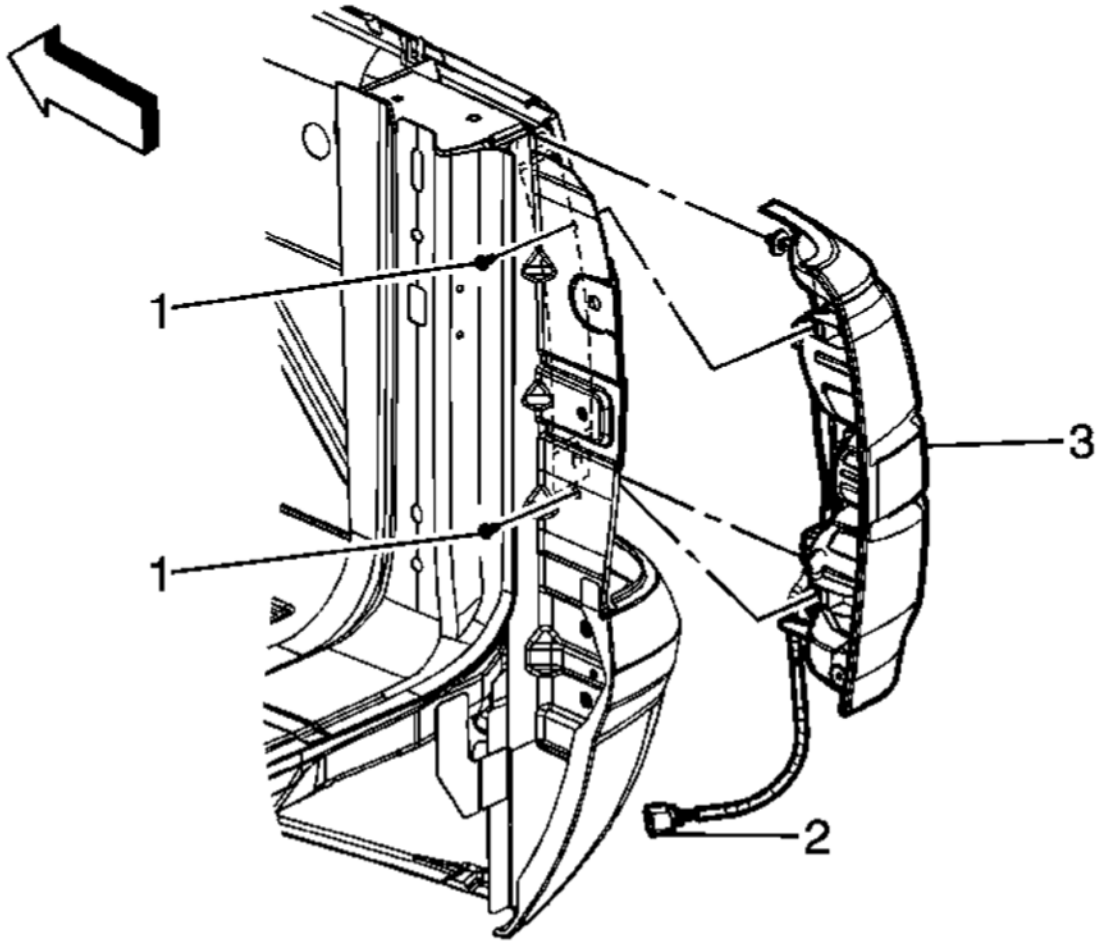



**Fig. 112: View Of Tail Lamp Assembly & Components**
**Courtesy of GENERAL MOTORS CORP.**

**Tail Lamp Replacement (Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:**<br>Open the endgate in order to access the tail lamp assembly screws. | |
| 1 | Tail Lamp Assembly Screws (Qty: 2)<br><br>**NOTE:**<br>**Refer to Fastener Notice .**<br><br>**Tighten:** 2 N.m (18 lb in) |
| 4 | Tail Lamp Wiring Harness Assembly Connector |
| | Tail Lamp Assembly |

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| | |
|---|---|
| 5 | **Tip:** Upon installation, push inward on the tail lamp in order to seat the 2 locating pins in the body panel. |

**TAIL LAMP BULB REPLACEMENT (CADILLAC)**

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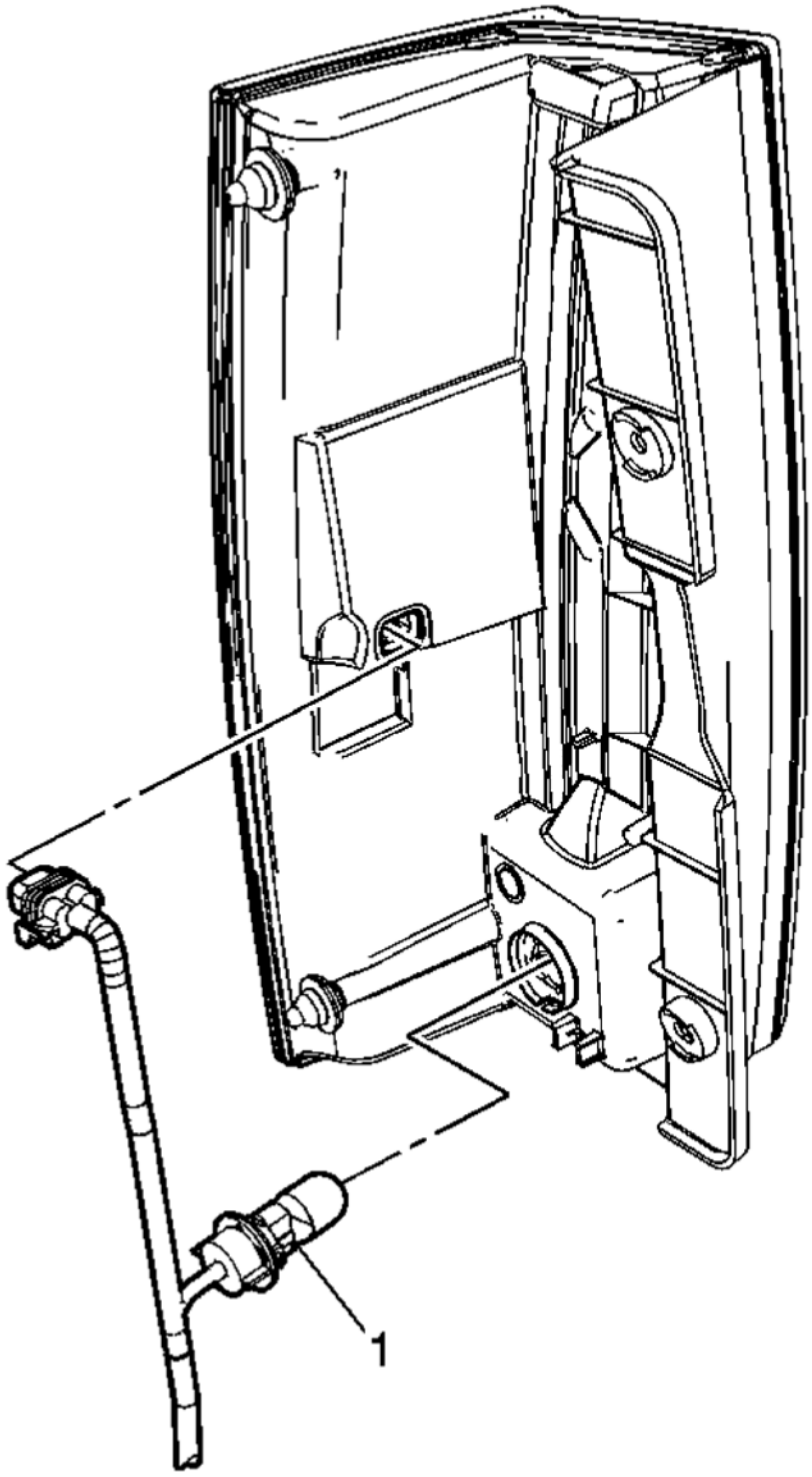


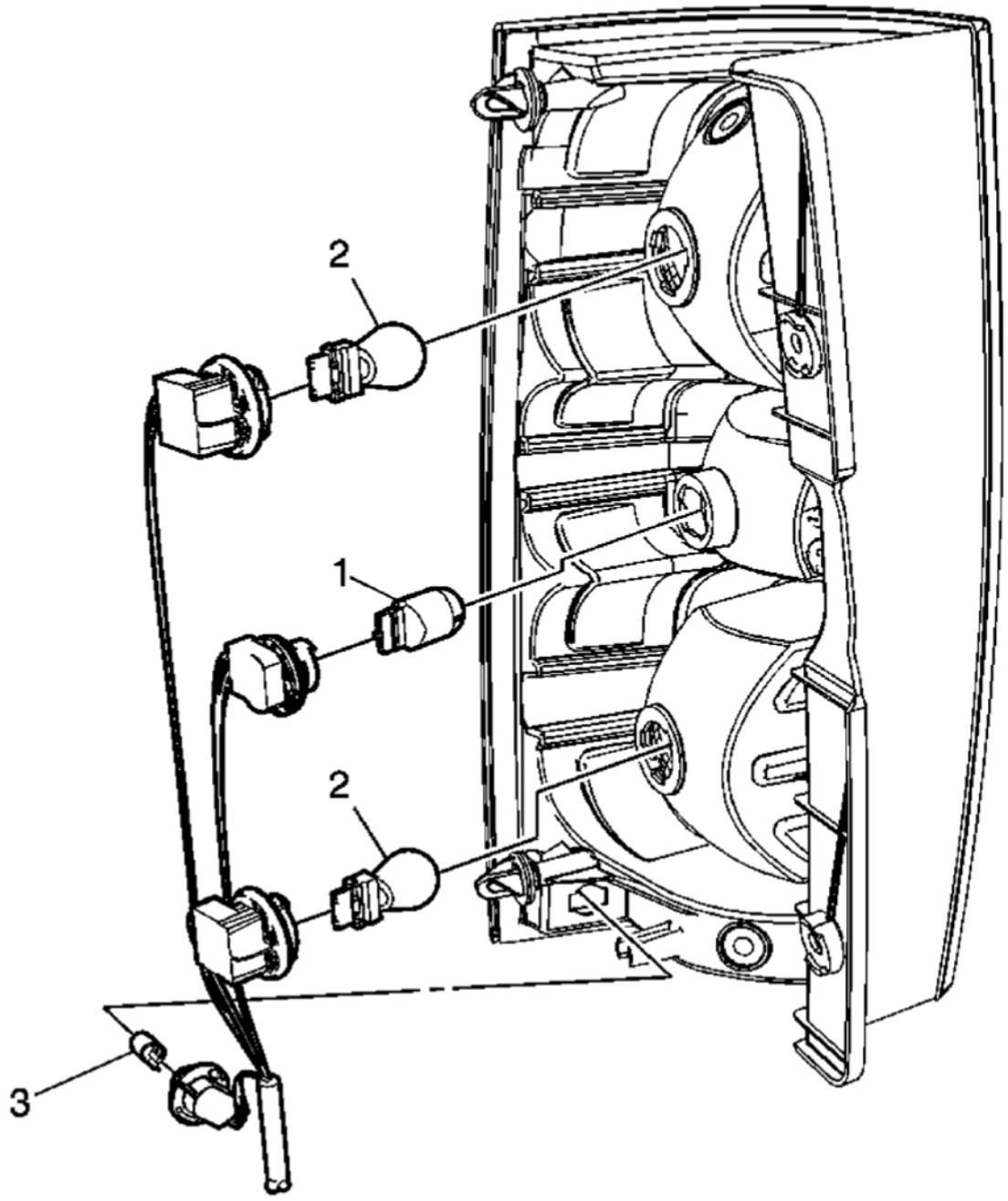

**Fig. 113: View Of Reverse Lamp Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Tail Lamp Bulb Replacement (Cadillac)**

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| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the rear tail lamp. Refer to **Tail Lamp Replacement (Cadillac)** or **Tail Lamp Replacement (Tahoe/Yukon)** or **Tail Lamp Replacement (Avalanche)**. | |
| 1 | Reverse Bulb |

**TAIL LAMP BULB REPLACEMENT (TAHOE, AVALANCHE)**




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**Fig. 114: View Of Side Marker Bulb, Park Turn Bulb & Backup Lamp Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Tail Lamp Bulb Replacement (Tahoe, Avalanche)**

| Callout | Component Name |
|---|---|
| **Preliminary Procedure:** Remove the rear tail lamp. Refer to **Tail Lamp Replacement (Cadillac)** or **Tail Lamp Replacement (Tahoe/Yukon)** or **Tail Lamp Replacement (Avalanche)**. | |
| 1 | Back Up Lamp Bulb |
| 2 | Park Turn Bulb (Qty: 2) |
| 3 | Side Marker Bulb |

**TAIL LAMP BULB REPLACEMENT (YUKON)**

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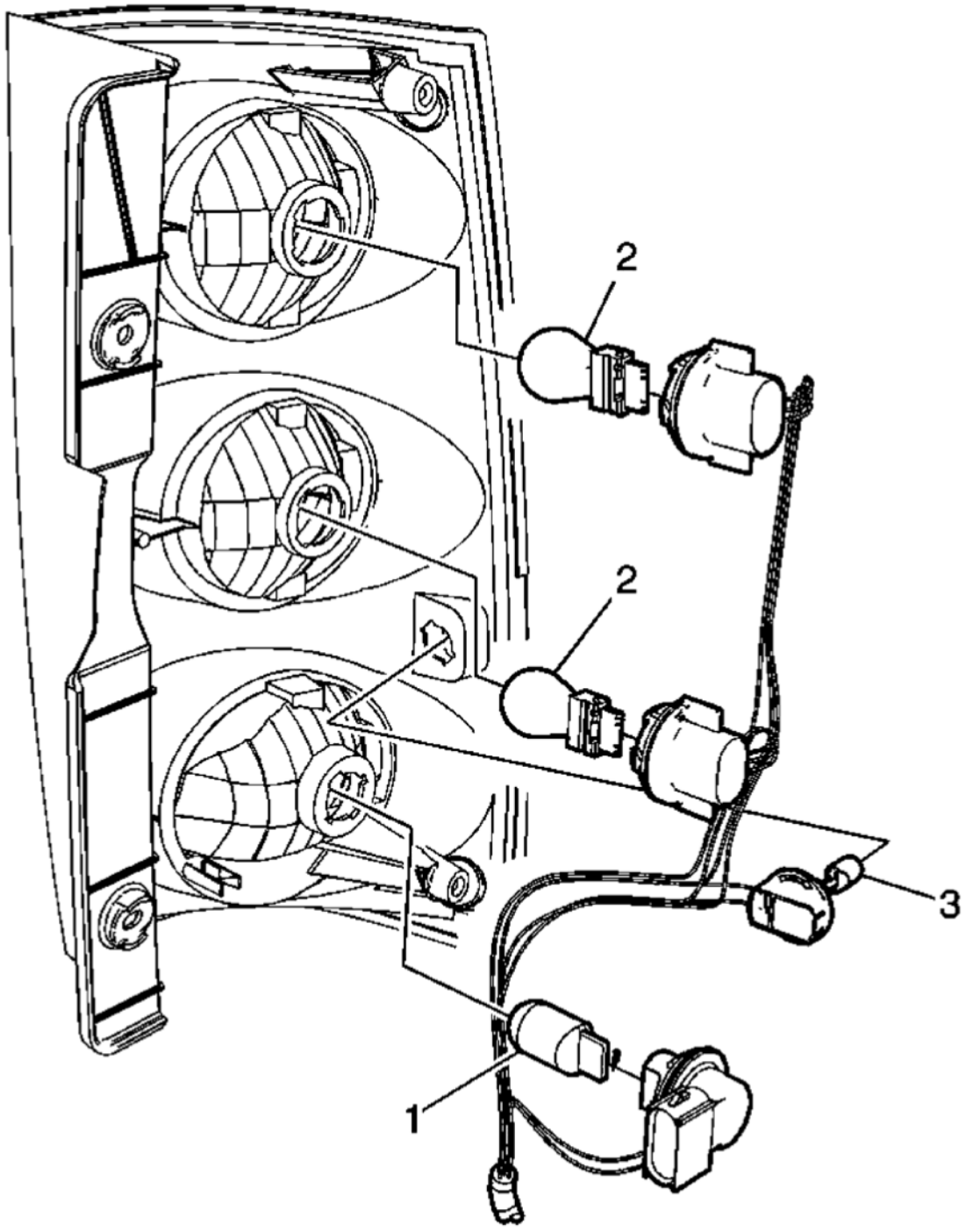



**Fig. 115: View Of Side Marker Bulb, Park Turn Bulb & Backup Lamp Bulb**
**Courtesy of GENERAL MOTORS CORP.**

**Tail Lamp Bulb Replacement (Yukon)**

| Callout | Component Name |
|---|---|

**Preliminary Procedure:**
Remove the rear tail lamp. Refer to **Tail Lamp Replacement (Cadillac)** or **Tail Lamp Replacement (Tahoe/Yukon)** or **Tail Lamp Replacement (Avalanche)**.

| | |
|---|---|
| 1 | Back Up Lamp Bulb |
| 2 | Park Turn Bulb (Qty: 2) |
| 3 | Side Marker Bulb |

# DESCRIPTION AND OPERATION

## EXTERIOR LIGHTING SYSTEMS DESCRIPTION AND OPERATION

### Exterior Lamps

The exterior lighting system consists of the following lamps:

- The headlamps
- The daytime running lamps (DRL)
- The front fog lamps
- The rear fog lamp (export only)
- The park, tail and marker lamps
- The exterior courtesy lamps
- The turn signal/hazard lamps
- The side repeater lamps (export only)
- The stop lamps
- The backup lamps
- The cargo lamps
- The clearance lamps

### Headlamps

The headlamps may be turned ON in 2 different ways. First, when the driver places the headlamp switch in the HEADLAMP position, for normal operation. Second, with the headlamp switch placed in the AUTO position, for automatic lamp control (ALC). During ALC the headlamps will be in DRL operation in daylight conditions, or headlamp operation in low light conditions.

Headlamp ON/OFF control is determined by the body control module (BCM) by a signal on the headlamp switch on input circuit when the headlamp switch is in the HEAD position. When the headlamp switch is in the AUTO position, the BCM determines headlamps ON/OFF by the voltage from the ambient light sensor.

If the headlight switch is left in the ON position, the inadvertent power control feature will turn OFF the headlights approximately 10 minutes after the ignition switch is turned to the OFF position. If the driver places the headlight switch in the ON position after the ignition switch has been turned OFF, or if the ignition switch is in the ACCY position, the headlights will remain ON until turned OFF or the battery runs dead.

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The high beam indicator is illuminated when the instrument cluster receives a GMLAN serial data message from the BCM that the high beams are illuminated.

**High Beams**

The high beam headlamps receive voltage from the headlamp high relay located in the underhood fuse block. The BCM controls the relay on the headlamp high beam relay control circuit. High beam control is determined by a signal on the headlamp dimmer switch signal circuit from the multifunction switch. When the headlamp dimmer switch signal circuit is grounded, the BCM grounds the headlamp high beam relay control circuit, illuminating the high beam headlamps. The right and left high beam circuits are independent and are fused independently in the underhood fuse block.

**Low Beams - Standard**

The low beam headlamps receive voltage from the headlamp low beam relay located in the underhood fuse block. The BCM controls the relay on the headlamp low beam relay control circuit. Low beam control is determined by a signal on the headlamp dimmer switch signal circuit from the multifunction switch. When the headlamp dimmer switch signal circuit is open, the BCM grounds the headlamp low beam relay control circuit, illuminating the low beam headlamps. The right and left low beam circuits are independent are fused independently in the underhood fuse block.

**Low Beams - High Intensity Discharge (HID)**

Normal operation of the HID system starts at the ballast. The headlamp ballast input connector receives battery positive voltage from fuses in the underhood fuse block. When the low beam headlamps are requested the low beam relay supplies voltage to the ballast on the right headlamp low beam supply voltage circuit and the left headlamp low beam supply voltage circuit, which in turn begins the low beam operation as follows. As soon as the input power is applied, the ballast draws 20 amps from the battery for 5-10 seconds, depending on the input voltage level. The ballast is then able to charge the 2 outputs leading to the start to -360 volts and +800 volts. Negative 360 volts and +800 volts are the voltages needed by the starter to strike or start the lamp. HID headlamps do not have filaments like traditional bulbs, instead, the starter uses a high voltage transformer to convert the +800 volts input power into 25,000 volts. The increased voltage is used in order to create an arc between the electrodes in the bulb. The creation of this arc begins the start up process.

**Low Voltage Operation of HID Headlamps**

The BCM monitors the vehicle system voltage while in the RUN power mode. When the system voltage drops below 8.9 volts, the following will occur:

- STAGE 1: If the low beam headlamps are ON, either manually or automatically, the BCM will turn ON the high beam headlamps by activating the High Beam output.
- STAGE 2: When the system voltage drops below 8.5 volts, the following will occur:
  - If the low beam headlamps are currently ON, either manually or automatically, the BCM will turn OFF the low beam headlamps by deactivating the Low Beam output.
  - If the headlamps are then turned ON manually, the manual switch redundancy will cause the low beam headlamps to remain ON.

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If during the same ignition cycle, the BCM enters either STAGE 1 or STAGE 2 operations noted above, and then determines that the system voltage has risen, the following will occur:

- If the BCM has entered STAGE 2 operation, it will not return to STAGE 1 operation until the system voltage rises above 9.4 volts.
- If the BCM has entered STAGE 1 operation, it will not return to normal operation until the system voltage rises above 9.8 volts.

**Electrical System Requirements with HID**

Ensure that the battery and the harness are capable of supplying up to 20 amps of current per ballast, with less than 2 volts of system loss or voltage drop. Each ballast requires the 20 amps in order to ensure normal startup and run up of the lamp. Run up is the term used to describe the extra power level given to the bulb from the -360-volt ballast output. The input current during the steady state operation is 3.4 amps at 12.8 volts.

**Run Up of the HID Lamp**

After the lamp receives the strike from the starter and the arc is established, the ballast uses its -360-volt output in order to provide the run up power needed in order to keep the lamp ON. The lamp rapidly increases in intensity from a dim glow to a very high-intensity, bright light called a steady state. Within 2 seconds of the arc being established in the bulb, 70 percent of steady state is complete. 100 percent of the steady state is completed within 30 seconds. A 75-watt power level is necessary in order to bring the lamp to a steady state in the required period of time.

**When to Change the HID Bulb**

Bulb failure occurs when the bulb gets older and becomes unstable. The bulb may begin shutting itself OFF sporadically and unpredictably at first, perhaps only once during a 24 hour period. When the bulb begins shutting itself OFF occasionally, the ballast will automatically turn the bulb back ON again within 0.5 second. The ballast will re-strike the bulb so quickly that the bulb may not appear to have shut OFF. As the bulb ages, the bulb may begin to shut OFF more frequently, eventually over 30 times per minute. When the bulb begins to shut OFF more frequently, the ballast receives excessive, repetitive current input (20 amps). Repetitive and excessive restarts or re-strikes, without time for the ballast to cool down, will permanently damage the ballast. As a safeguard, when repetitive re-strikes are detected, the ballast will not attempt to re-strike the lamp. The ballast then shuts down and the bulb goes out.

The following symptoms are the noticeable signs of bulb failure:

- Flickering light caused in the early stages of bulb failure
- Lights go out caused when the ballast detects excessive, repetitive bulb re-strike
- Color change-The lamp may change to a dim pink glow.

Input power to the ballast must be terminated in order to reset the ballasts fault circuitry. In order to terminate the input power to the ballast, turn the lights OFF and back ON again. Turning the lights OFF and back ON again resets all of the fault circuitry within the ballast until the next occurrence of excessive, repetitive bulb re-strikes. When excessive, repetitive bulb re-strikes occur, replace the starter/arc tube assembly. The ballast will begin the start-up process when the starter/arc tube assembly is replaced. Repeatedly resetting the input power

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can overheat the internal components and cause permanent damage to the ballast. Allow a few minutes of cool-down time in between reset attempts.

Bulb failures are often sporadic at first, and difficult to repeat. Technicians can identify bulb failure by observing if the problem gets progressively worse over the next 100 hours of operation.

**Light Color (w/HID)**

HID headlamps have a different color rating than regular headlamps. The range of white light that is acceptable is broad when compared to halogens. Therefore, some variation in headlight coloring between the right and left headlamp will be normal. One HID at the end of the normal range may appear considerably different in color from one at the other end of the range. A difference in color is normal. Replace the arc tube only if the arc tube is determined to be at the bulb failure stage.

**Daytime Running Lamps (DRL)**

The DRL will only operate while the engine is running and the headlamp switch is in the AUTO position. When these conditions have been met and the ambient light sensor indicates daytime conditions, the DRL will illuminate. The ambient light sensor is a light sensitive transistor that varies its voltage signal to the BCM in response to changes to the outside ambient light level. When the BCM receives this signal it will either turn ON the dedicated DRL on the X88/Z75, the low beam headlamps only as DRL on the Z88, or the headlamps, park, and tail lamps for auto headlamp operation in low light conditions. Any function or condition that turns ON the headlights will cancel the DRL operation. The DRL can be manually turned OFF by activating the AHL/DRL switch in the headlamp switch. The AHL/DRL defeat switch sends a ground signal through the DRL switch signal circuit to the BCM. The BCM then turns OFF the DRL. When the AHL/DRL are manually turned OFF at the headlamp switch, the AHL/DRL will default to ON with the next ignition cycle. With the headlight switch in the AUTO position, the DRL 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 BCM energizes the DRL relay, the DRL receives voltage on the DRL supply voltage circuit.

**IntelliBeam Intelligent High-Beam Headlamp Control System**

IntelliBeam is an enhancement to your vehicles headlamp system. Using a digital light sensor on the rearview mirror, the system will turn the vehicles high beam headlamps ON and OFF according to surrounding traffic conditions. The IntelliBeam system will turn ON the high-beam headlamps when it is dark enough, there is no other traffic present, and the IntelliBeam system is enabled. When the conditions are met, the inside rearview mirror will send a serial data message to the BCM requesting high beam headlamp operation.

**Activating and Enabling IntelliBeam**

Press and release the IntelliBeam button on the inside rearview mirror. The IntelliBeam indicator on the mirror will illuminate to indicate the system has been turned ON. Once the systems has been turned ON, it will remain ON each time the vehicle is started. Additionally, the IntelliBeam system must be enabled. To enable the IntelliBeam system, turn the exterior lamp control to AUTO, with the turn signal/multifunction lever in its neutral position. The high beam ON light will appear on the instrument panel cluster when the high beams are ON.

**Driving with IntelliBeam**

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IntelliBeam will only activate the high-beams when driving over 32 km/h (20 mph). The high beam headlamps will remain ON, under the automatic control of IntelliBeam, until any of the following situations occur:

- The system detects an approaching vehicles headlamps.
- The system detects a preceding vehicles tail lamps.
- The outside light is bright enough that the high-beam headlamps are not required.
- The vehicles speed drops below 24 km/h (15 mph).
- The headlamp stalk is moved forward to the high-beam position or the flash-to-pass feature issued. See when either of these conditions occur, the IntelliBeam feature will be disabled and the IntelliBeam light in the mirror will turn OFF until the high-beam stalk is returned to the neutral position.
- If IntelliBeam was using low-beams prior to this action, the IntelliBeam feature will be temporarily disabled until the stalk is returned to the neutral position.
- The exterior lamp control is turned to any setting except AUTO. When this occurs, IntelliBeam will be disabled until the control is turned back to the AUTO position.
- The IntelliBeam system is turned OFF at the inside rearview mirror.

The high beam headlamps may need to manually disabled or canceled by turning the low beam headlamps ON, if any of the above conditions exist.

**Disabling and Resetting IntelliBeam at the Rearview Mirror**

IntelliBeam can be disabled by using the controls on the inside rearview mirror.

**AUTO (On/Off)**

To disable the system, press this button on the inside rearview mirror. The IntelliBeam indicator will turn OFF and then will not come back ON until the IntelliBeam button is pressed again.

**Stalk Disable**

When IntelliBeam has turned ON the high-beams, pull or push the high-beam stalk. This will disable IntelliBeam. The IntelliBeam indicator on the mirror will turn OFF. To re-enable IntelliBeam, press the IntelliBeam button on the mirror. A different sensitivity setting is available for dealer diagnostics. This is done by pushing and holding this button for 20 seconds until the IntelliBeam indicator light flashes 3 times.

**Fog Lamps**

With both the ignition switch in the RUN position, and the park lamps ON, the fog lights will illuminate when the driver depresses the fog lamp switch. The BCM receives the park lamp ON signal from the interior park lamps supply voltage signal circuit. With the headlamp switch in either the park or headlamp position, and the fog lamp switch is in the ON position, the BCM will ground the fog lamp relay control circuit causing the relay to energize. The current flows from the fog lamp relay to both front fog lamps. The state of the fog lamps will remain the same until the fog lamp switch position is changed, 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.

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The rear fog lamp will illuminate when the driver presses the rear fog lamp switch. The auxiliary body control module (XBCM) controls and supplies battery positive voltage to both the rear fog lamp and trailer rear fog lamp circuits.

**Park, Tail and Marker Lamps**

The park, tail and marker lamps, including the license lamps, are turned ON when the headlamp switch is placed in the PARK or HEAD 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 BCM provides a ground or control circuit to the park lamp relay coil circuit. When the park lamps are turned ON, the BCM energizes the park lamp relay. If the headlight switch is left in the ON position, the inadvertent power control feature will turn OFF the park, tail and marker lamps approximately 10 minutes after the ignition switch is turned to the OFF position. If the driver places the headlight switch in the ON position after the ignition switch has been turned OFF, or if the ignition switch is in the ACCY position, the park, tail and marker lamps will remain ON until turned OFF or the battery runs dead.

**Exterior Courtesy Lamps**

The BCM, driver door switch, and the passenger door switch communicate through the GMLAN serial data system. The driver door switch and passenger door switch supply power and ground to the left and right exterior lamps respectively. When the BCM commands illuminated entry, a command is also sent to the door switches for illumination of the exterior courtesy lamps. If the door locks are activated to the LOCK position, or if the ignition switch is turned to either the ON or RUN position the exterior courtesy lamps will deactivate immediately.

**Turn Signal/Hazard Lamps**

When the turn signal switch is placed in either the left or right position, a ground signal is completed from the turn signal switch to the BCM. When the hazard flasher switch is activated, a ground signal is completed from the turn signal/hazard switch to the BCM. The BCM then sends an ON-OFF voltage signal through the fuses to the appropriate turn signal and side repeater (export only) lamps or to all of the turn signal fuses for hazard operation. The driver door switch and passenger door switch also receive voltage from the BCM turn signal supply voltage circuits for the mirror turn signals. The door switches have no function or control of the mirror turn signals other than a pass through connection for the circuits. The audio chime is also activated when the turn signals are ON. The instrument panel cluster (IPC) receives the signals to activate the turn signal indicators over the GMLAN serial data system. When the hazard switch is pressed, all turn signal lamps will flash including both IPC turn indicators.

On certain export vehicles, the auxiliary body control module (XBCM) controls and supplies voltage for all of the trailer lighting functions.

**Stop Lamps**

When the driver presses the brake pedal, the switch contacts close and battery positive voltage is supplied to the BCM, transfer case control module (TCM), and powertrain control module (PCM). The BCM then supplies voltage to both the turn/stop lamp supply voltage circuit and trailer rear turn/stop lamp supply voltage circuits. The BCM also supplies voltage to the CHMSL though a dedicated circuit.

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#### Backup Lamps

The backup lamp request signal is sent from the PCM to the BCM on the GMLAN serial data system. This signal is based on the park neutral position (PNP) switch signal. The BCM supplies voltage to the backup relay and to the automatic day/night mirror when the vehicle is in reverse. The backup relay supplies a voltage on the backup lamp supply voltage circuit to the backup lamps and trailer backup circuit.

#### Cargo Lamps

The cargo lamp is controlled by the dome lamp control circuit. There is not a separate switch to turn the cargo lamps ON and OFF.

#### Clearance Lamps

The clearance lamps, are turned ON when the headlamp switch is placed in the PARK or HEAD position or anytime the headlamps 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 BCM provides a ground or control circuit to the park lamps relay coil circuit. When the park lamps are turned ON, the BCM energizes the park lamp relay. If the headlamp switch is left in the ON position, the inadvertent power control feature will turn OFF the park, tail and clearance lamps approximately 10 minutes after the ignition switch is turned to the OFF position. If the driver places the headlamp switch in the ON position after the ignition switch has been turned OFF, or if the ignition switch is in the ACCY position, the park, tail and marker lamps will remain ON until turned OFF or the battery runs dead.

## INTERIOR LIGHTING SYSTEMS DESCRIPTION AND OPERATION

#### Interior Lamps

The interior lighting consists of 2 groups. The first group includes lamps that may not be dimmed.

- Courtesy/illuminated entry lamps
- Dome lamps
- Map lamps
- Reading lamps
- Vanity mirror lamps

#### Courtesy/Illuminated Entry Lamps

The courtesy/illuminated entry lamps, may be manually turned ON or OFF by placing the interior lamp switch in the ON or OFF position. If an outside door handle is lifted and a door is opened, the courtesy/illuminated entry lamps illuminate. After all the doors have been closed the courtesy/illuminated entry lamps will remain illuminated approximately 15 seconds. The body control module (BCM) will then turn them OFF through the theater dimming feature. The courtesy/illuminated entry lamps will also turn ON prior to any door being opened, and remain illuminated approximately 40 seconds when the driver removes the ignition key. When the driver places the dome lamp defeat switch in the OFF position, the courtesy/illuminated entry lamps will be disabled.

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The BCM, the door switches, and the liftgate module (LGM) (if equipped with power liftgate) communicate through the GMLAN serial data circuit for the lamp illumination commands of the doors, liftgate, and liftglass open/ajar switch signals. The LGM receives a ground signal from the pawl switch, ratchet switch, and liftglass ajar switch that are located within the liftgate latch and liftglass latch. For all vehicles, the left and right rear door latch switches are both on one circuit that is also an input to the BCM.

If the vehicle has a manual liftgate, there is an input circuit from the liftgate latch switch and liftglass latch switch directly to the BCM.

The left and right front door courtesy lamps receive voltage and ground from the driver door switch and the passenger door switch respectively. The remaining courtesy lamps are controlled and receive voltage from the BCM. Voltage for the courtesy lamp supply voltage circuit is from the INT LTS fuse in the instrument panel fuse block.

**Keyless Entry Interior Illumination**

When the driver uses the door key in order to unlock the doors, the body control module (BCM) receives a door unlock signal. The BCM must have inputs or serial data messages that indicate that the ignition switch is OFF, the courtesy lamp switch is OFF and all the doors are closed. The BCM will then activate the interior lamps. The courtesy lamps will remain ON, approximately 15 seconds after the door is closed. The BCM will then turn them OFF through the theater dimming feature. 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, trunk or presses the panic button, the BCM will keep the courtesy lamps ON approximately 40 seconds. When the driver uses the remote function actuator transmitter to lock the doors, the BCM will keep the courtesy lamps on approximately 2 seconds. If the ignition switch is turned to either the RUN or CRANK position the courtesy lamps will turn OFF immediately.

**Vanity Lamps**

The inadvertent power supply voltage circuit of the body control module (BCM) provides battery positive voltage to each vanity mirror lamp. When the vanity mirror cover on the sunshade is opened, a switch closes to provide a ground circuit and the vanity lamp illuminates.

**Reading Lamps**

The inadvertent power supply voltage circuit of the body control module (BCM) provides battery positive voltage to the reading lamps. The reading lamps and switch are integral to the courtesy/reading lamp assembly. When the switch is closed, voltage is supplied and the lamp illuminates.

**Battery Rundown Protection/Inadvertent Power**

The body control module (BCM) inadvertent power supply voltage circuit provides battery positive voltage to all of the interior reading lamps, visor vanity mirror lamps, and cargo lamps if equipped. In the event that any of these lamps were to remain illuminated for a period of more than 10 minutes with the ignition switch in the OFF position, the BCM will deactivate the inadvertent power supply voltage circuit to prevent a total battery discharge condition.

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**Interior Lamps Dimming**

The second interior lighting group includes lamps which may be dimmed. This group may use a combination of vacuum fluorescent (VF) illumination, LED illumination and incandescent lamps.

When the ignition switch is turned to the RUN position, the radio VF display turns ON at maximum brightness. When the park lamps are ON, all incandescent and LED back lighting turn ON at the dimming level indicated by the instrument panel (I/P) dimmer switch. At the same time all VF displays dim to match the indicated dimming level. The panel dimmer switch potentiometer is an input to the body control module (BCM). When the driver selects a dimming setting by moving the I/P dimming switch potentiometer, all 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 incandescent back lighting respond from minimum intensity to maximum brightness in response to the I/P dimmer switch.

The following switches and components have back lighting when the park lamps are ON:

- The instrument panel cluster (IPC)
- Window and heated seat switches
- Rear HVAC switches
- Sunroof switch
- Accessory switches
- Fog lamp switches
- Rear parking assist (RPA) disable switches
- Transfer case shift control switch
- Roof beacon switch
- PRNDL lamps
- Traction control switch
- Steering wheel control switches
- Headlamp leveling switch

The left and right front door switch illumination is controlled, receives voltage and ground from the driver door switch and passenger switch respectively. The radio is also a GMLAN module and has full control of its illumination. The BCM, door switches, and radio communicate through GMLAN serial data for the lamp illumination commands.

The various switches, HVAC control assembly, and the PRNDL lamps receive voltage and are controlled by the BCM on the I/P lamps dimming control circuit.

The following indicators receive voltage from the BCM and are controlled by ground from a switch or from various modules:

- Tow indicator
- Transfer case control switch 4WD position indicators

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- Fog lamp indicators
- Radio
- Analog clock
- HVAC control assembly
- Instrument panel cluster (IPC)
- Driver information center (DIC)
- Headlamp and panel dimmer switch
- Rear parking assist (RPA) indicator

The indicators receive voltage from the BCM on the LED dimming circuit. Control for the indicators is from the various modules or switches. Voltage for the LED dimming supply circuit, instrument panel lamps dimming control circuit and the instrument panel lamps dimming supply circuit is from the BCM.

The modules controlling the above indicators are as follows:

- Transfer case shift control module
- BCM

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