

2006 Chevrolet HHR LT

2006 ACCESSORIES & EQUIPMENT Lighting Systems - HHR

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Lighting Systems - HHR

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

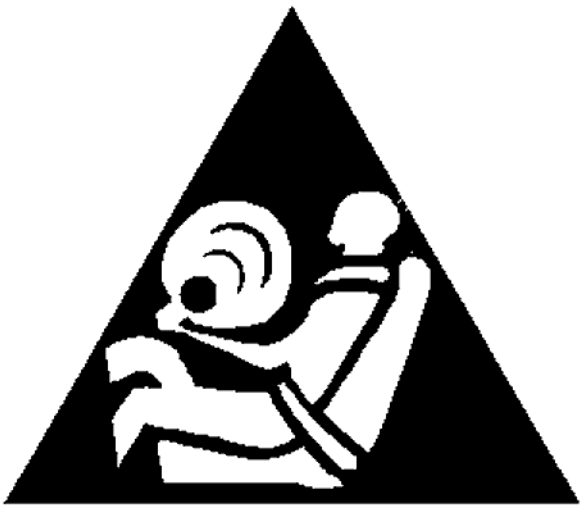
Fastener Tightening Specifications

Application	Specification	
	Metric	English
Backup Lamp Nuts	6 N.m	53 lb in
Headlamp Composite Lower Mounting Bolts	9 N.m	80 lb in
High Mounted Stop Lamp Screws	3 N.m	25 lb in
Rear License Plate Lamp Lens Screws	2 N.m	18 lb in
Rear Side Marker Lamp Screws	2 N.m	18 lb in
Tail Lamp Nuts	6 N.m	53 lb in

SCHEMATIC AND ROUTING DIAGRAMS

LIGHTING SYSTEMS SCHEMATIC ICONS

Lighting Systems Schematic Icons

Icon	Icon Definition
	CAUTION: When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Refer to SIR Disabling and Enabling Zones. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.

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HEADLIGHTS/DAYTIME RUNNING LIGHTS (DRL) SCHEMATICS

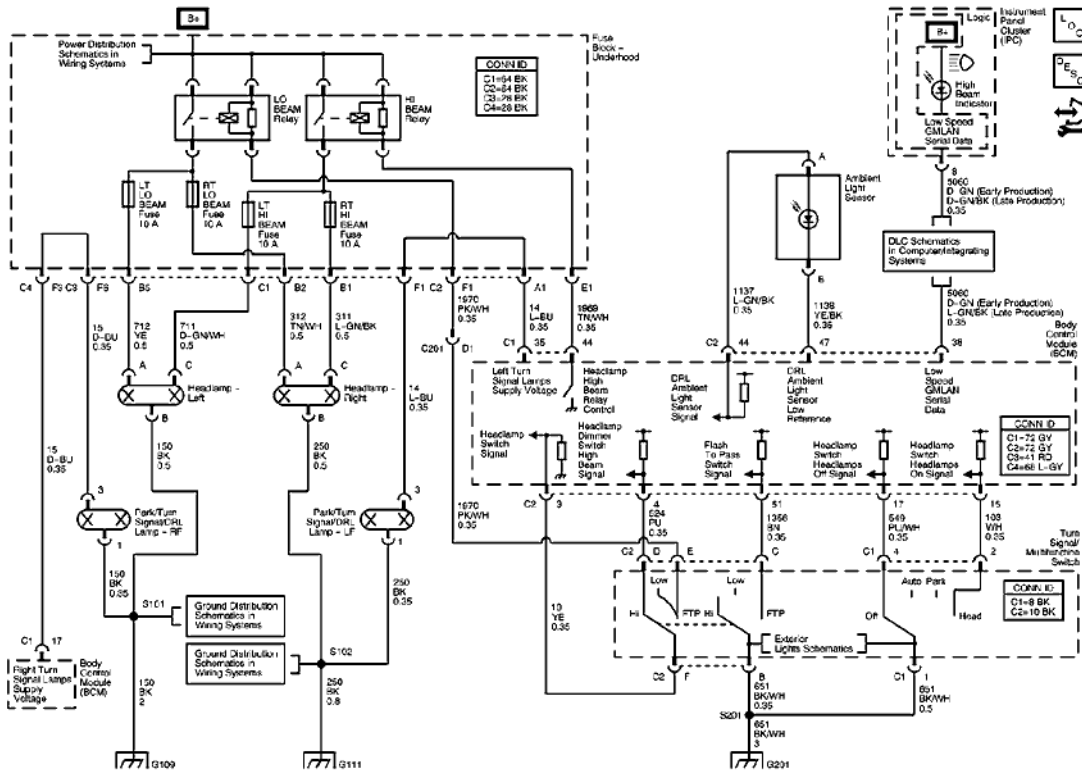


Fig. 1: Headlights/Daytime Running Lights (DRL) Schematic
Courtesy of GENERAL MOTORS CORP.

FOG LIGHTS SCHEMATICS

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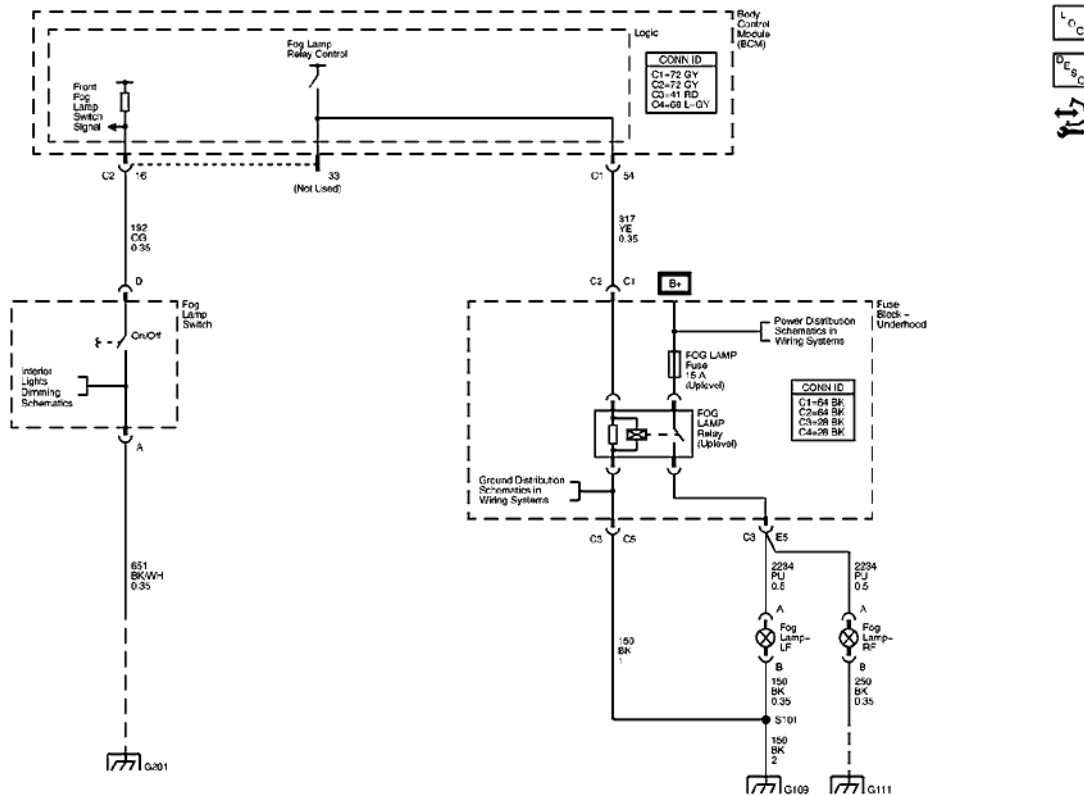
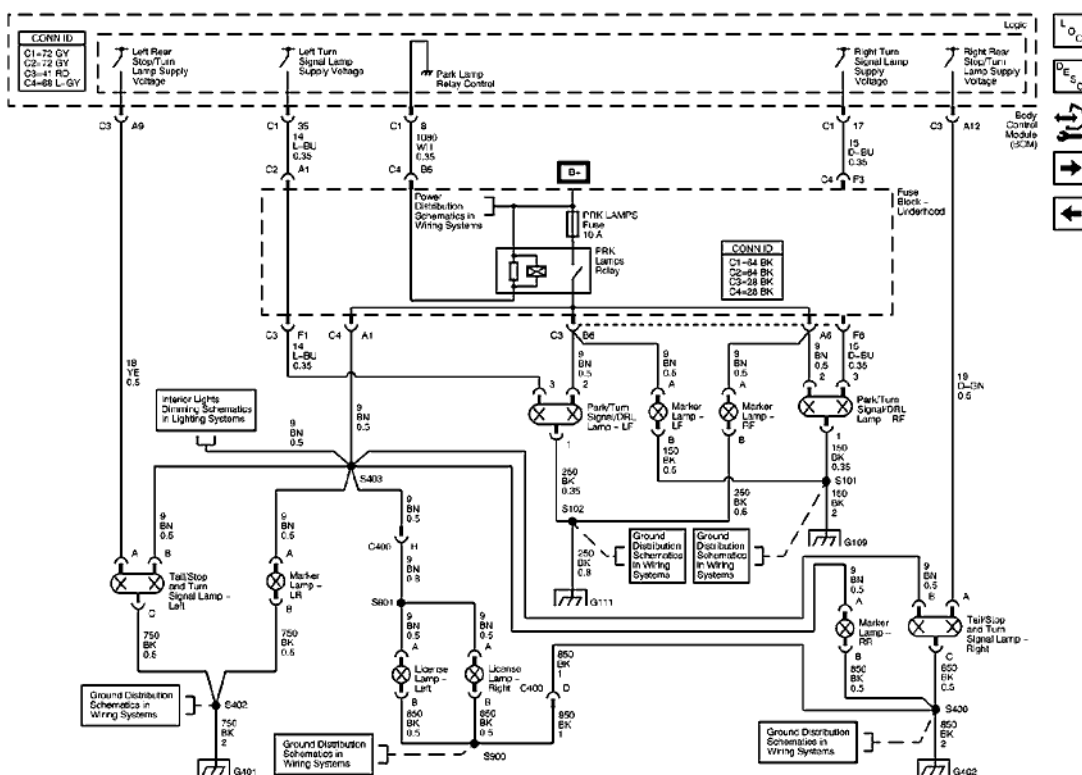
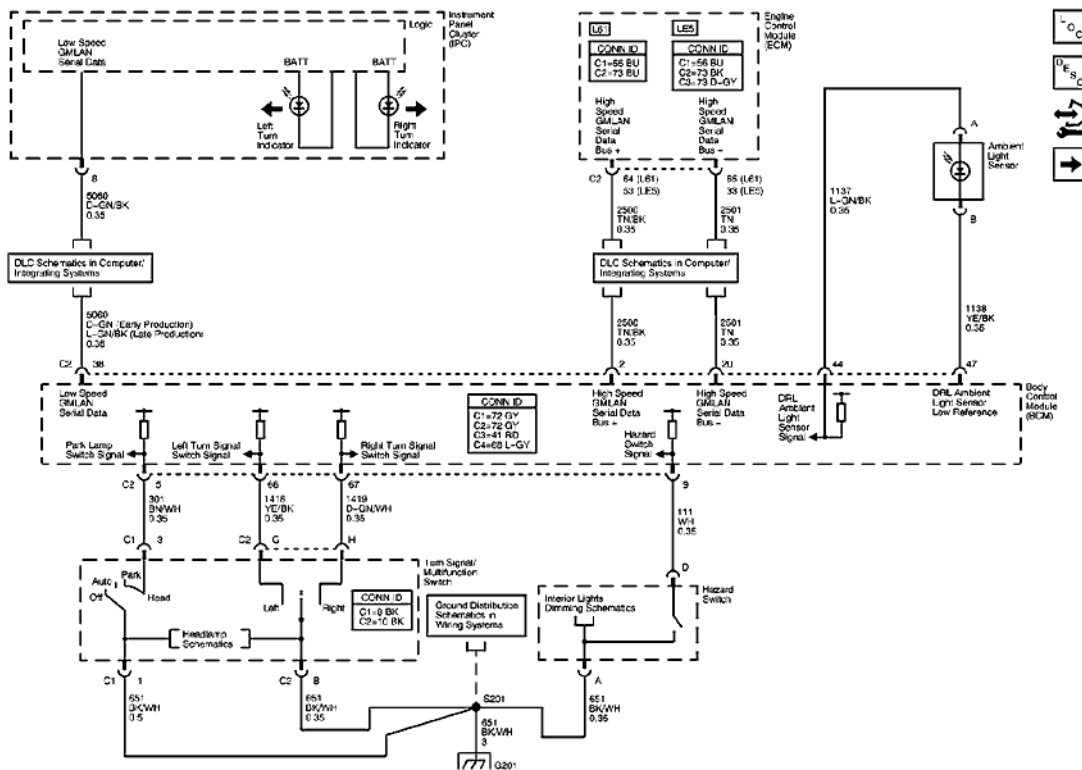


Fig. 2: Fog Lights Schematic
 Courtesy of GENERAL MOTORS CORP.

EXTERIOR LIGHTS SCHEMATICS

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Fig. 4: Park/Turn Signal/DRL, Tail/Stop and Turn Signal, License, and Side Marker Lamps

Courtesy of GENERAL MOTORS CORP.

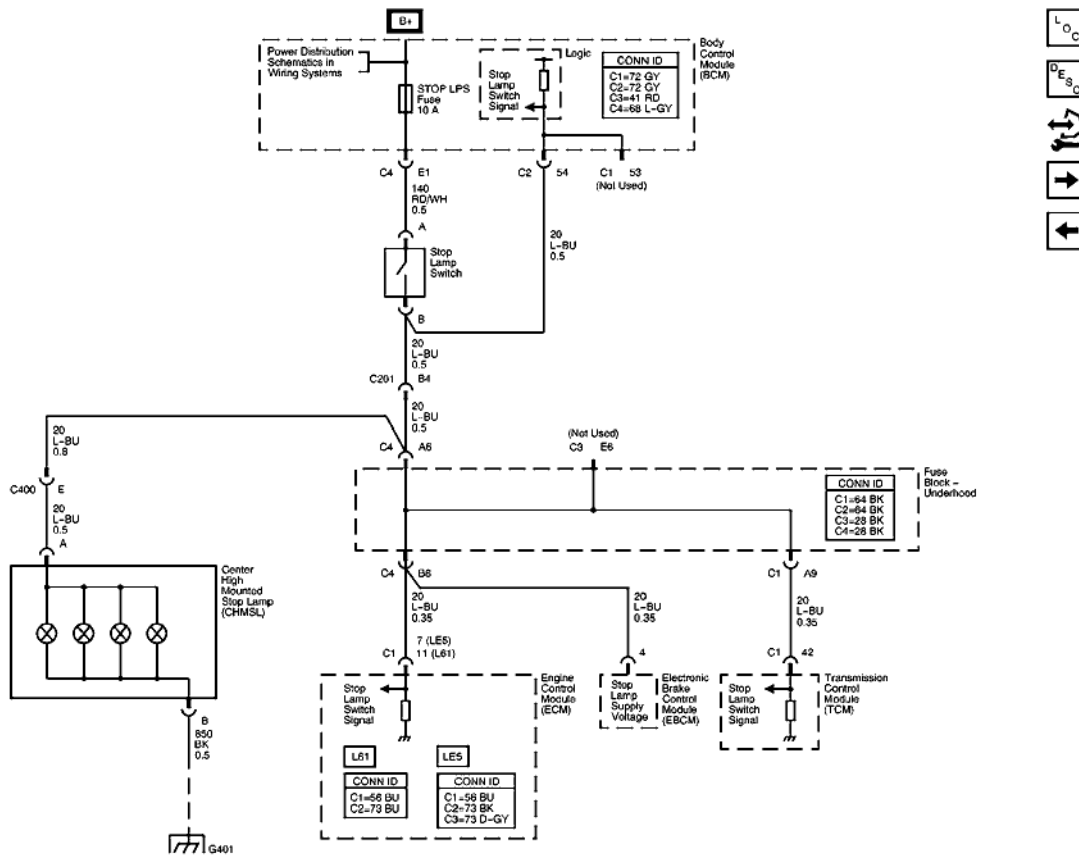
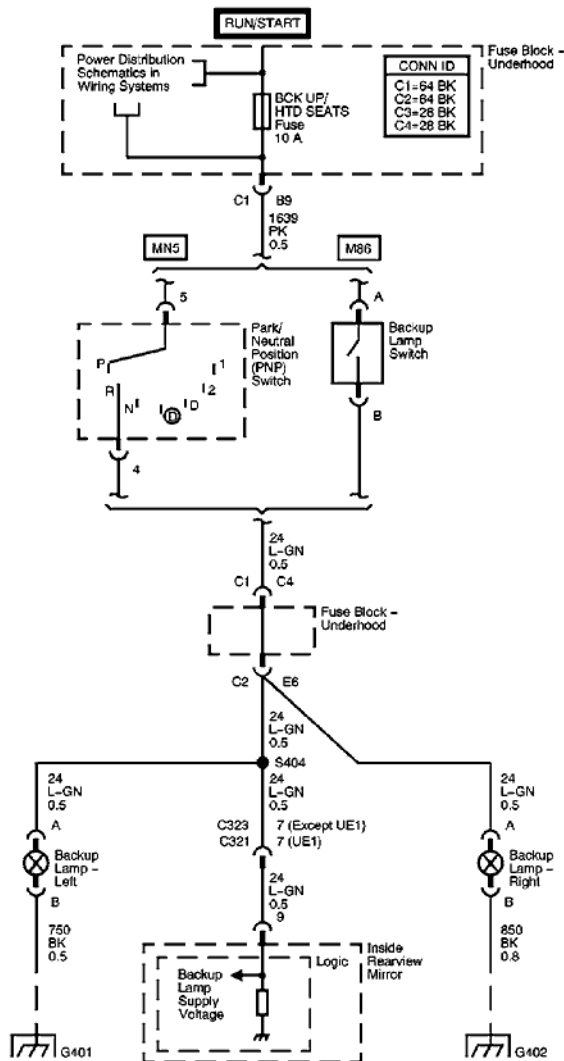


Fig. 5: Center High Mounted Stop Lamp and B+

Courtesy of GENERAL MOTORS CORP.

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L_OC

D_ES_C



Fig. 6: Backup Lamps
 Courtesy of GENERAL MOTORS CORP.

INTERIOR LIGHTS SCHEMATICS

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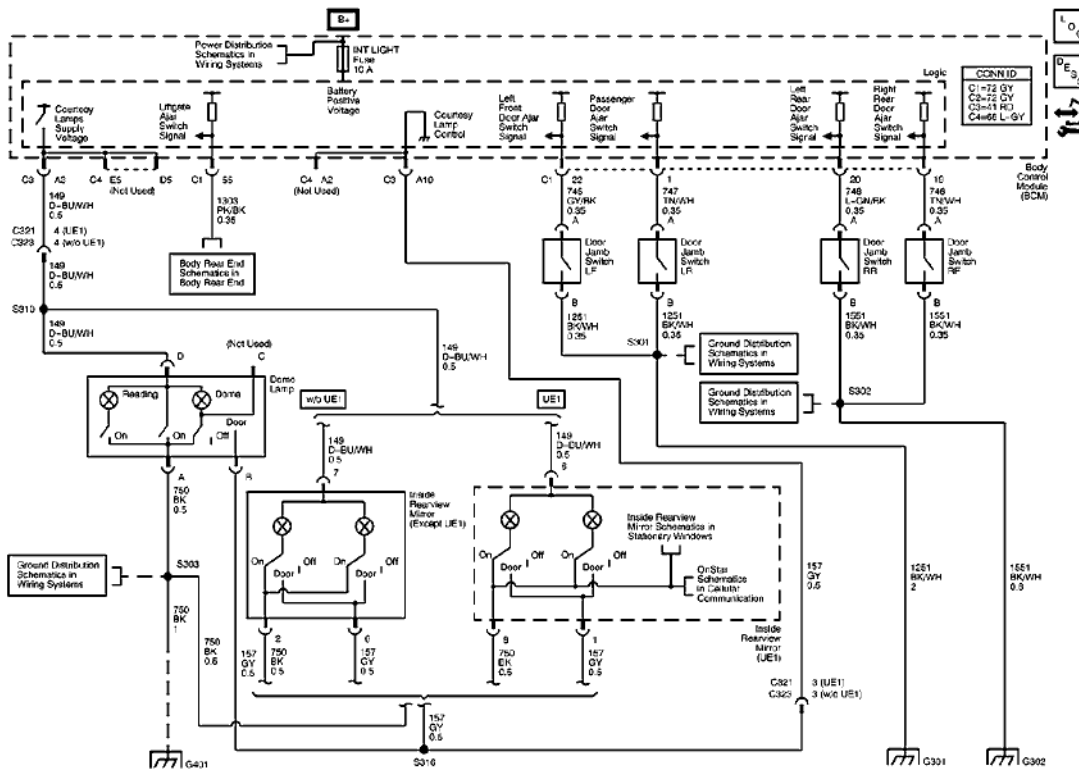


Fig. 7: Interior Lights Schematic
Courtesy of GENERAL MOTORS CORP.

INTERIOR LIGHTS DIMMING SCHEMATICS

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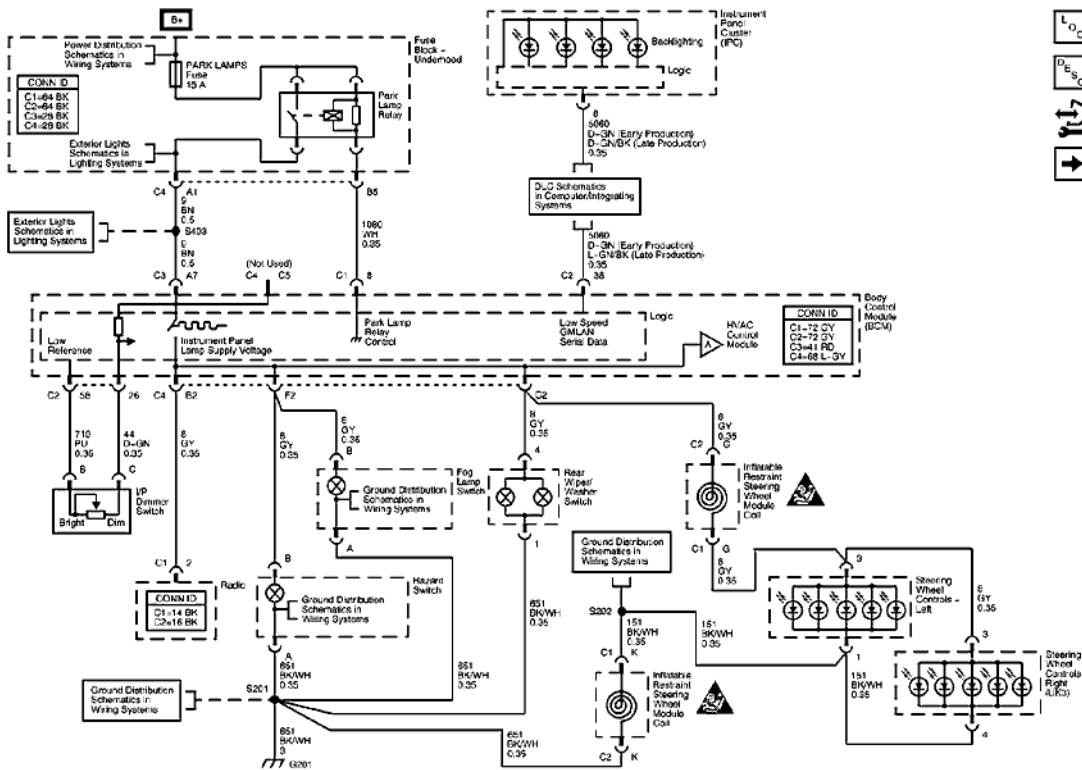


Fig. 8: Dimmer Switch, Radio, Hazard, Fog Lamp, Steering Wheel Controls, and Rear Wiper/Washer Switches
 Courtesy of GENERAL MOTORS CORP.

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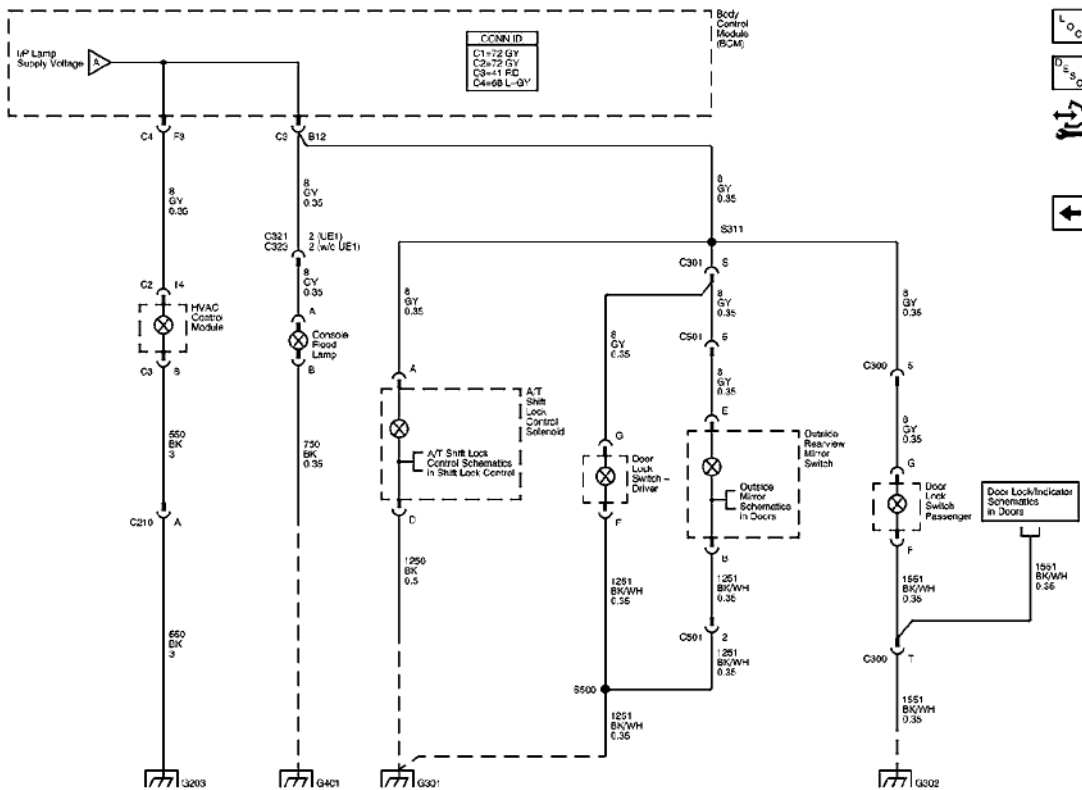


Fig. 9: HVAC Control Module, Console Flood Lamp, A/T Shift Lock Control Solenoid, Door Lock Switches, and Outside Rearview Mirror
 Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

LIGHTING SYSTEMS COMPONENT VIEWS

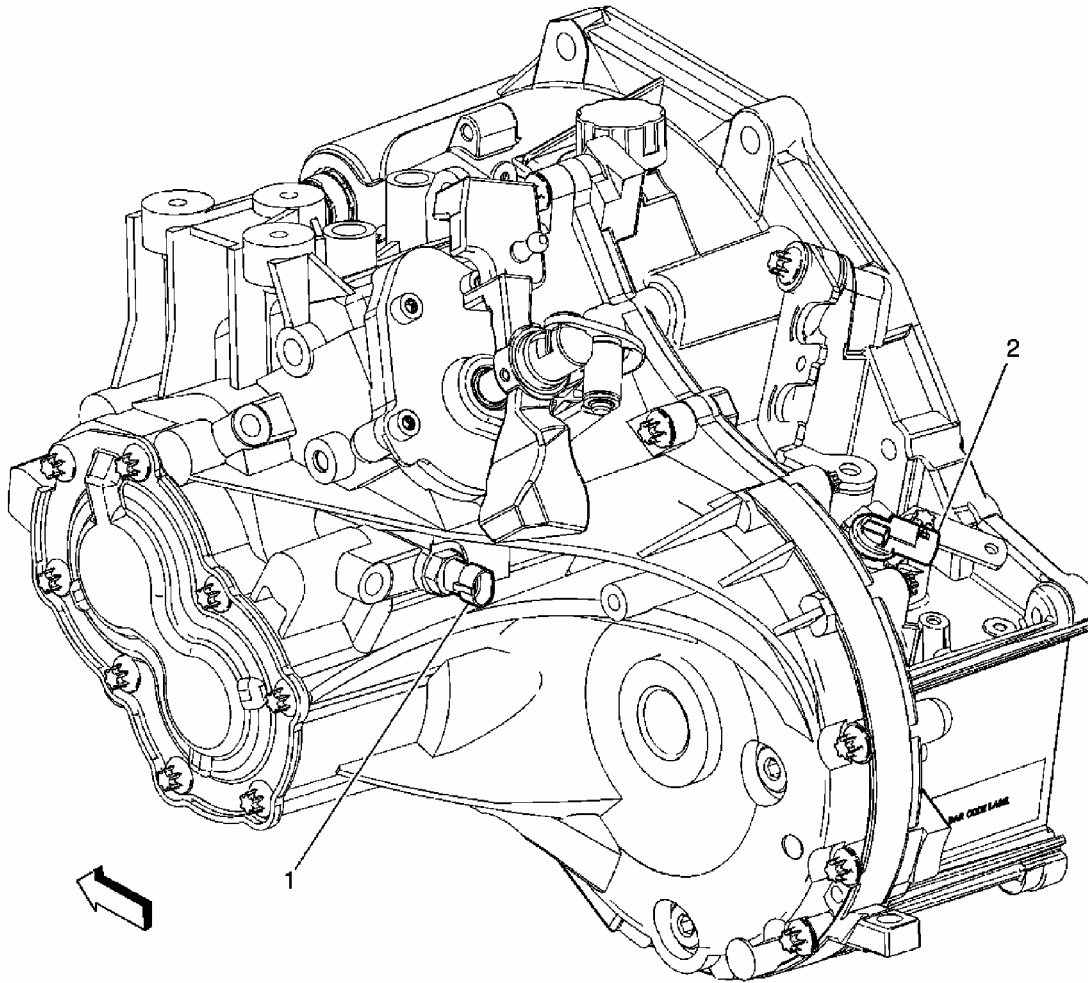


Fig. 10: Manual Transmission (M86)
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 10

Callout	Component Name
1	Backup Lamp Switch
2	Vehicle Speed Sensor

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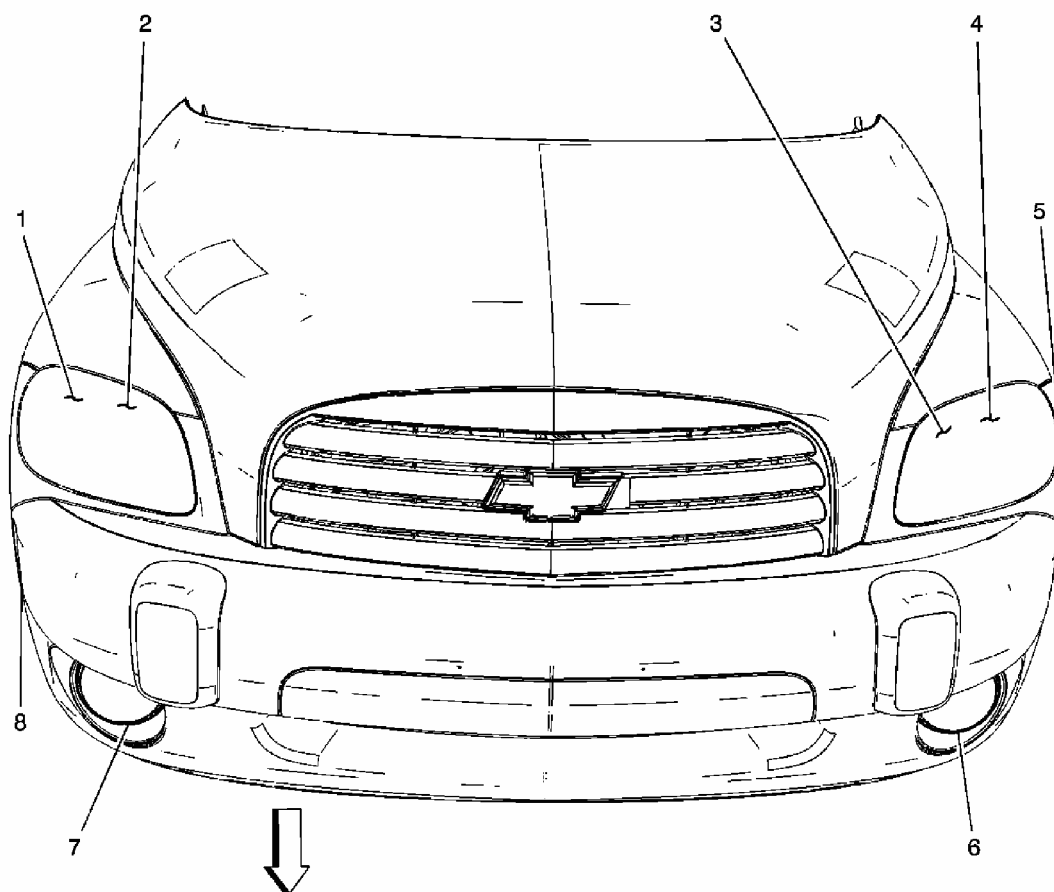


Fig. 11: Front of the Vehicle
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 11

Callout	Component Name
1	Park/Turn Signal/DRL Lamp - RF
2	Headlamp - Right
3	Headlamp - Left
4	Park/Turn Signal/DRL Lamp - LF
5	Marker Lamp - LF
6	Fog Lamp - LF (T37)
7	Fog Lamp - RF (T37)
8	Marker Lamp - RF

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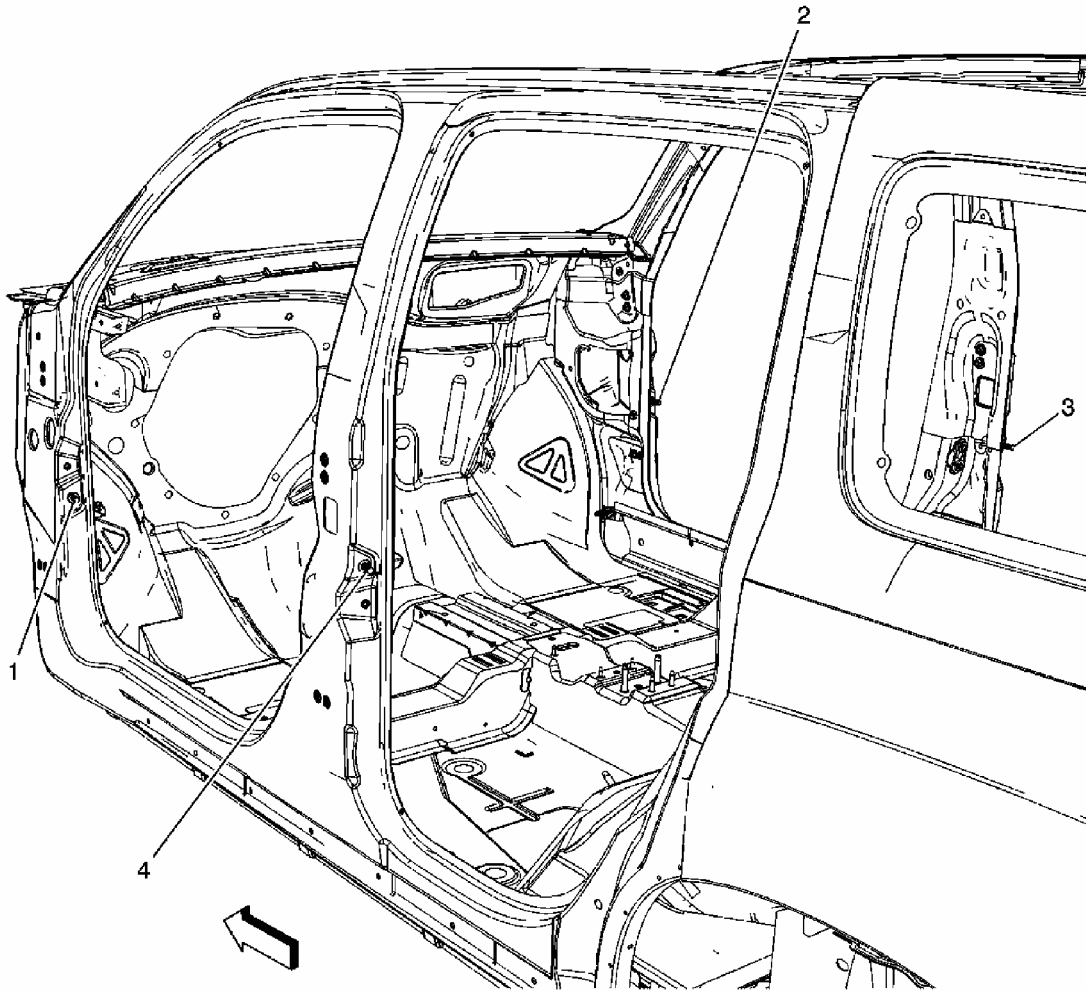


Fig. 12: Door Jamb Switches
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 12

Callout	Component Name
1	Door Jamb Switch - LF
2	Door Jamb Switch - RF
3	Door Jamb Switch - RR
4	Door Jamb Switch - LR

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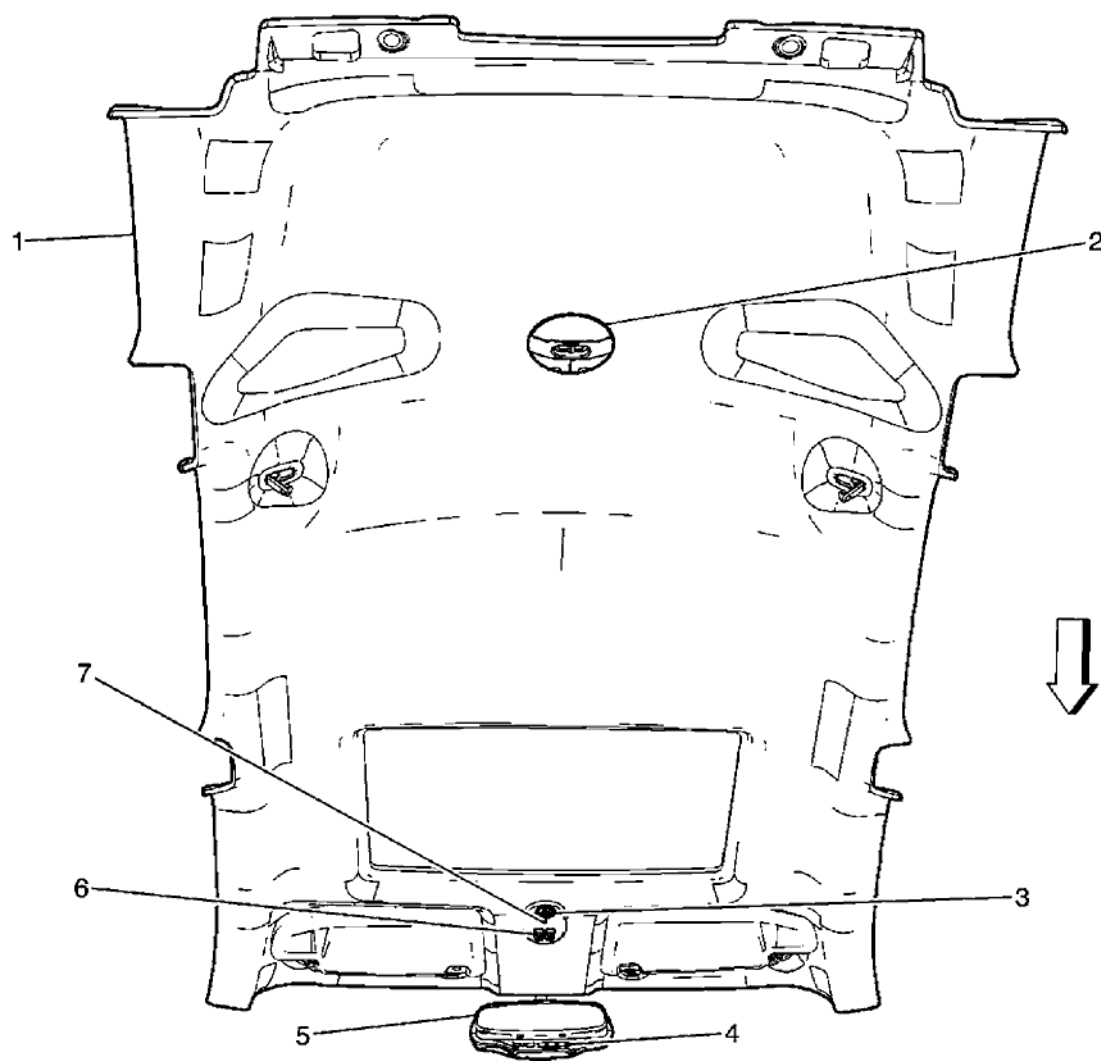


Fig. 13: Headliner Components - Bottom
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 13

Callout	Component Name
1	Headliner
2	Dome Lamp
3	Cellular Microphone (UE1)
4	OnStar Button Assembly (UE1)
5	Inside Rearview Mirror
6	Sunroof Switch (CF5)

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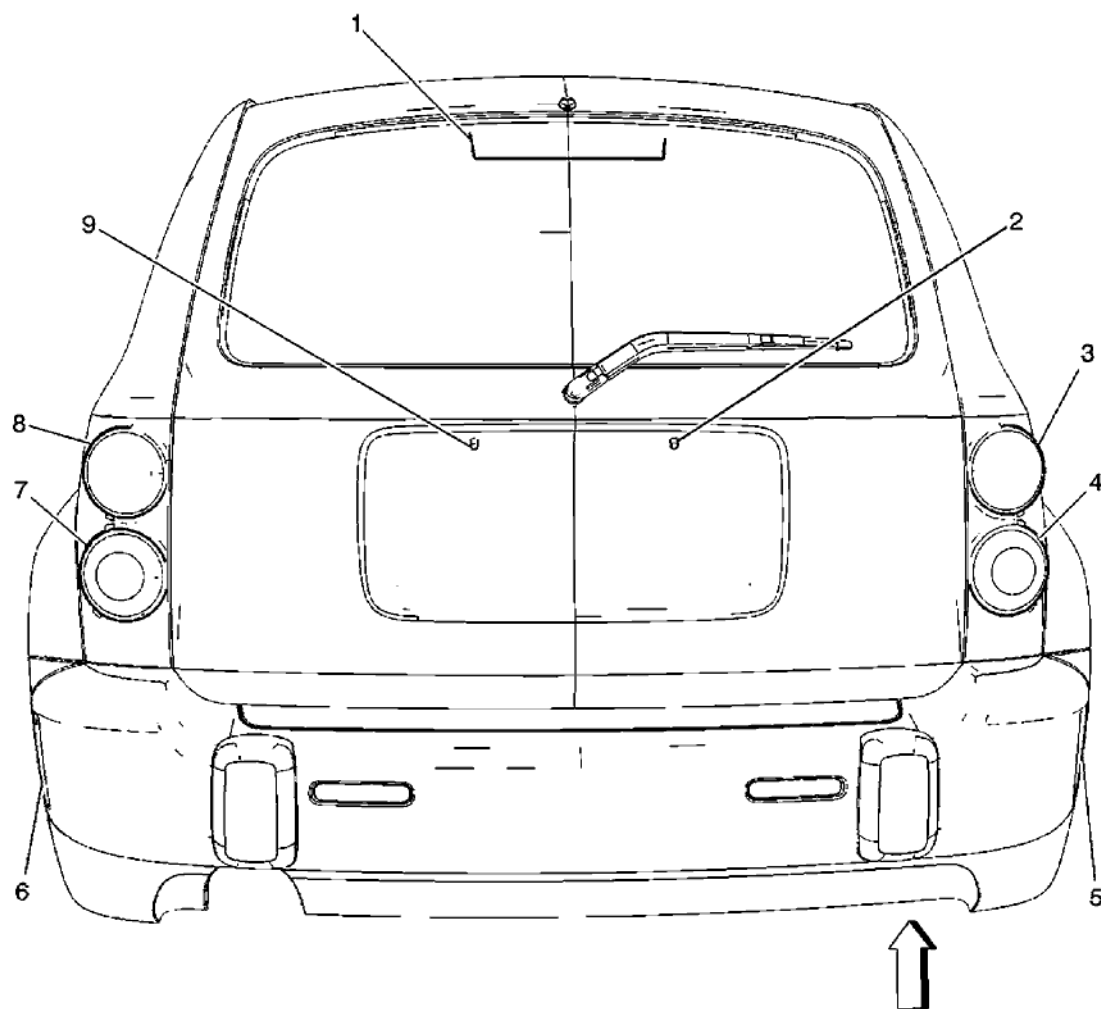


Fig. 14: Rear of the Vehicle
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 14

Callout	Component Name
1	Center high Mounted Stop Lamp (CHMSL)
2	License Lamp - Right
3	Tail/Stop and Turn Signal Lamp - Right
4	Backup Lamp - Right
5	Marker Lamp - RR
6	Marker Lamp - LR
7	Backup Lamp - Left
8	Tail/Stop and Turn Signal Lamp - Left
9	License Lamp - Left

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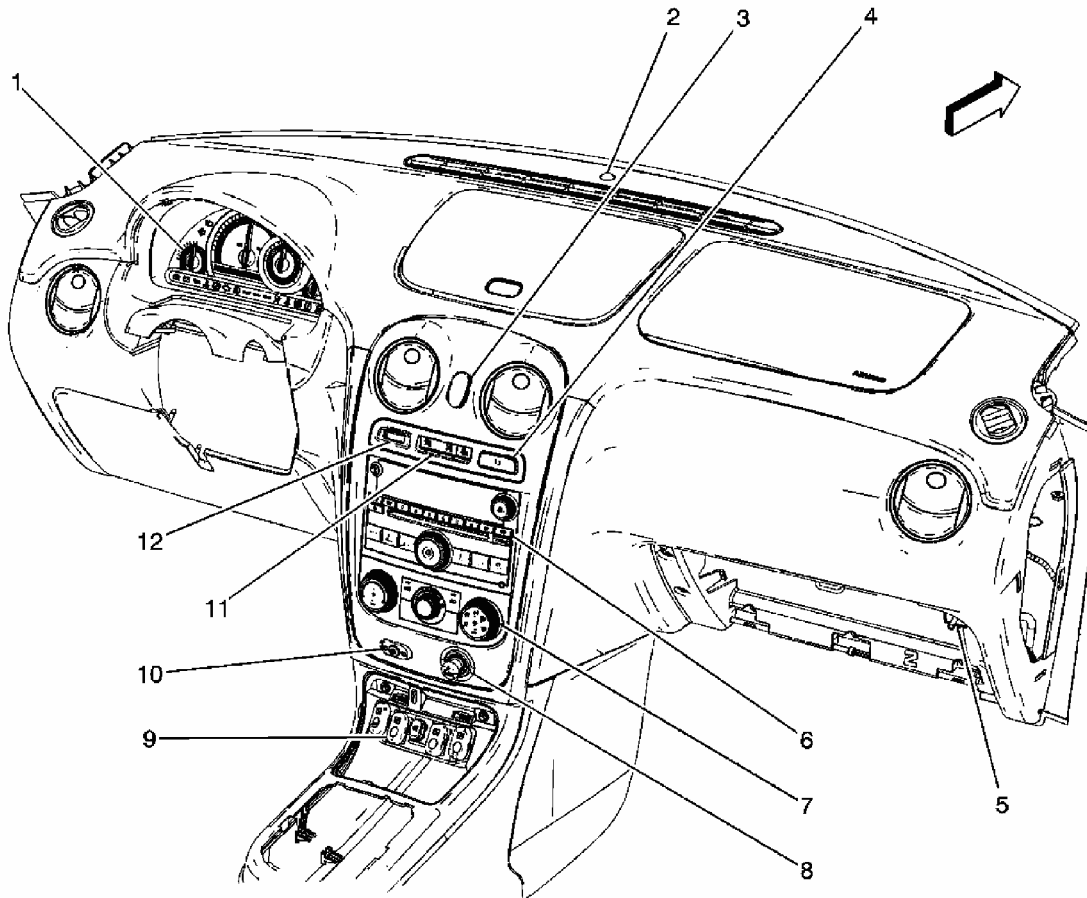


Fig. 15: I/P Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 15

Callout	Component Name
1	Instrument Panel Cluster (IPC)
2	Ambient Light Sensor
3	Hazard Switch
4	Fog Lamp Switch (T37)
5	I/P Compartment
6	Radio
7	HVAC Control Assembly
8	Cigar Lighter (DT4)
9	Master Window Switch
10	Rear Wiper/Washer Switch
11	Inflatable Restraint Passenger Air Bag ON/OFF Indicator
12	Instrument Panel (I/P) Dimmer Switch

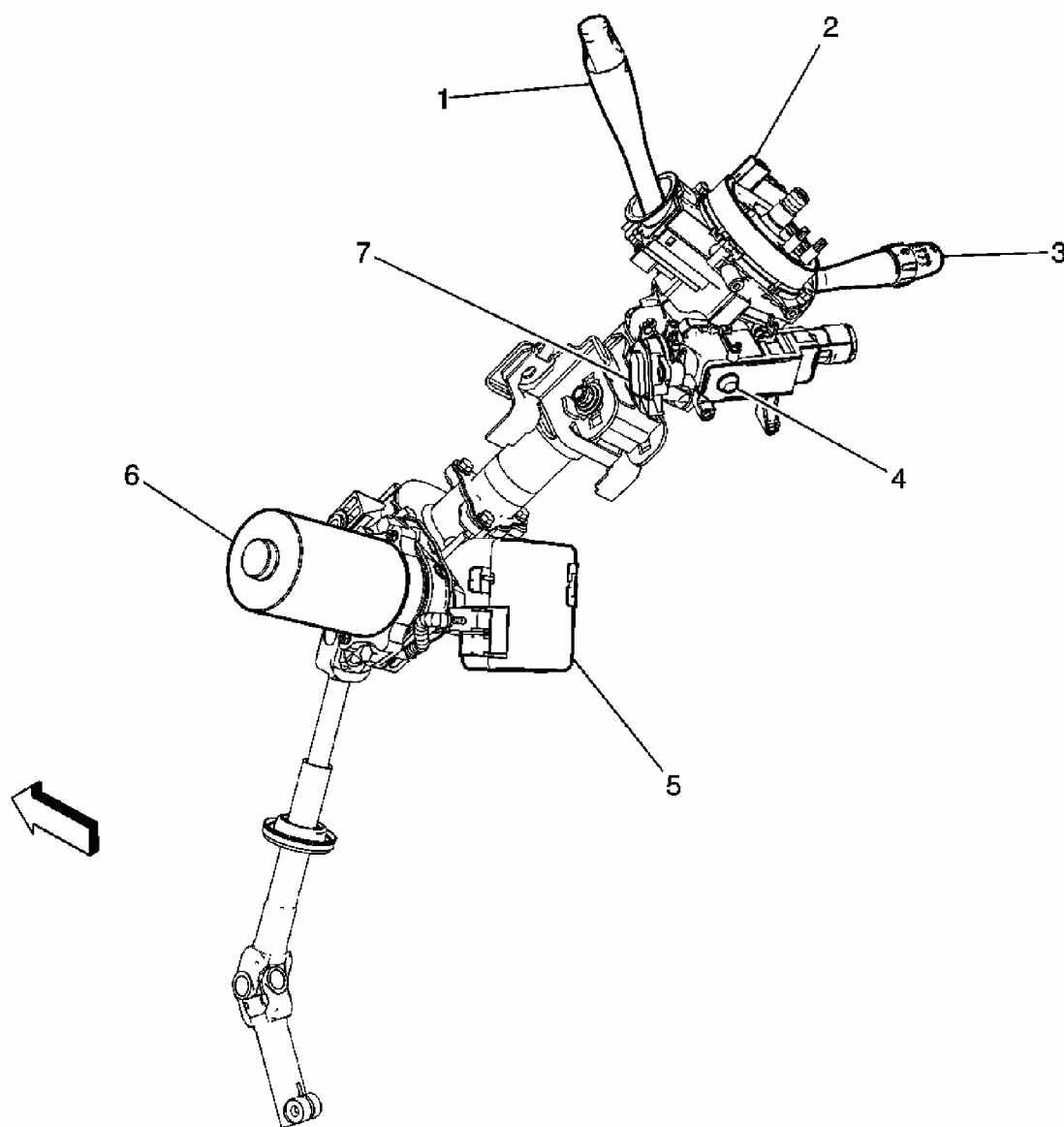
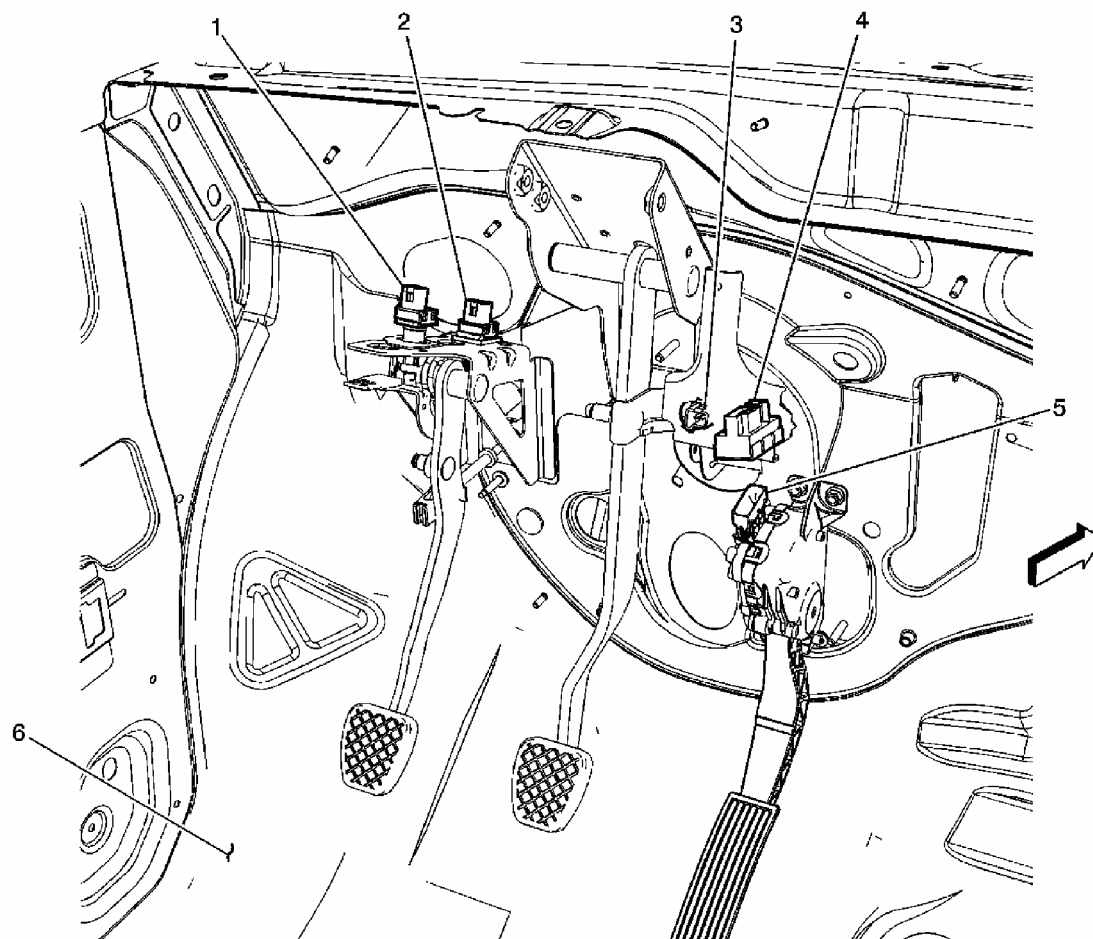


Fig. 16: Steering Column Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 16

Callout	Component Name
1	Turn Signal/Multifunction Switch
2	Inflatable Restraint Steering Wheel Module Coil
3	Windshield Wiper/Washer Switch
4	Power Steering Control Module (PSCM)
5	Electronic Power Steering (EPS) Motor
6	Ignition Lock Cylinder Control Actuator (MN5)

**Fig. 17: Pedal Assemblies**

Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 17

Callout	Component Name
1	Clutch Pedal Position (CPP) Switch (M86)
2	Clutch Start Switch (M86)
3	Stop Lamp Switch
4	Stop Lamp/Torque Converter Clutch (TCC) Switch/Cruise Release Switch
5	Accelerator Pedal Position (APP) Sensor
6	Floor Panel

LIGHTING SYSTEMS CONNECTOR END VIEWS

Ambient Light Sensor

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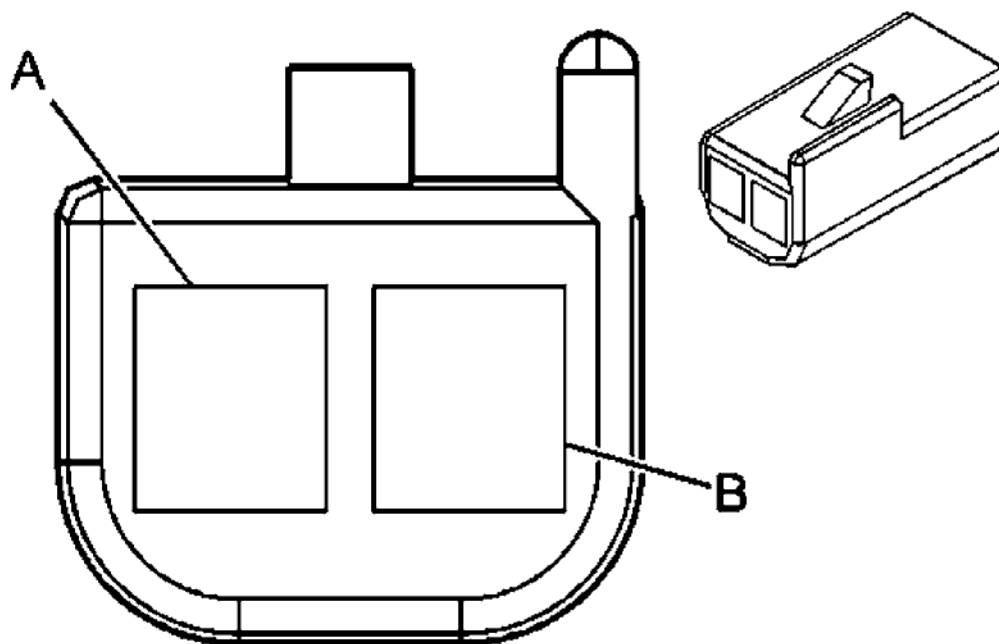


Fig. 18: Ambient Light Sensor Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 12059249
- Service: 12085535
- Description: 2-Way F Metri-Pack 150 Series (NA)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Ambient Light Sensor

Pin	Wire Color	Circuit No.	Function
A	L-GN/BK	1137	DRL Ambient Light Sensor Signal
B	YE/BK	1138	DRL Ambient Light Sensor Low

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		Reference
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Backup Lamp - Left

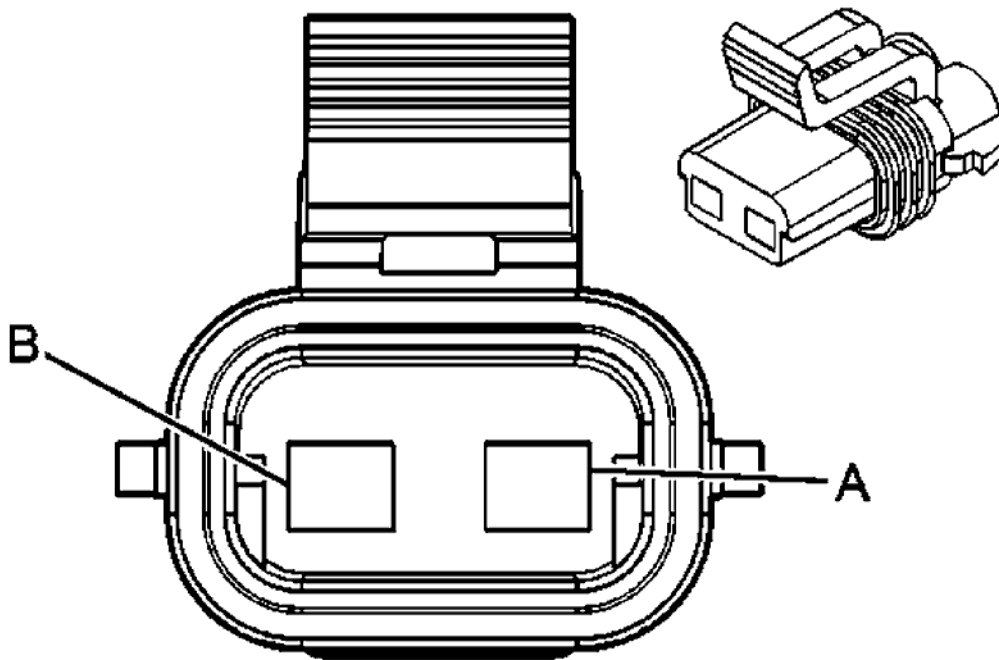


Fig. 19: Backup Lamp - Left Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Backup Lamp - Left

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Pin	Wire Color	Circuit No.	Function
A	L-GN	24	Backup Lamp Supply Voltage
B	BK	750	Ground

Backup Lamp - Right

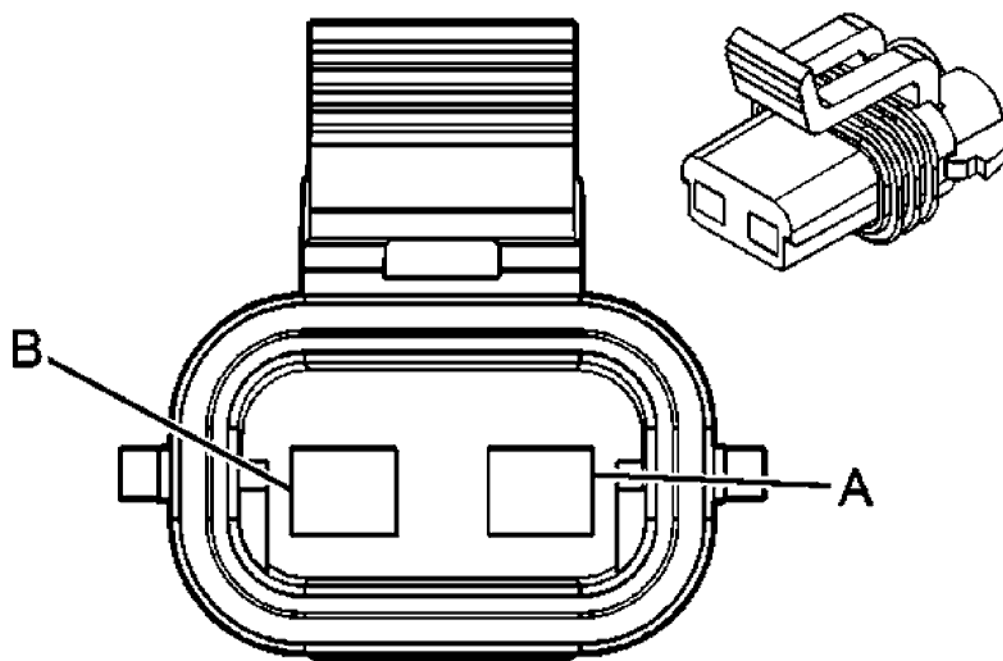


Fig. 20: Backup Lamp - Right Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:

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- Release Tool/Test Probe:

Backup Lamp - Right

Pin	Wire Color	Circuit No.	Function
A	L-GN	24	Backup Lamp Supply Voltage
B	BK	850	Ground

Backup Lamp Switch (M86)

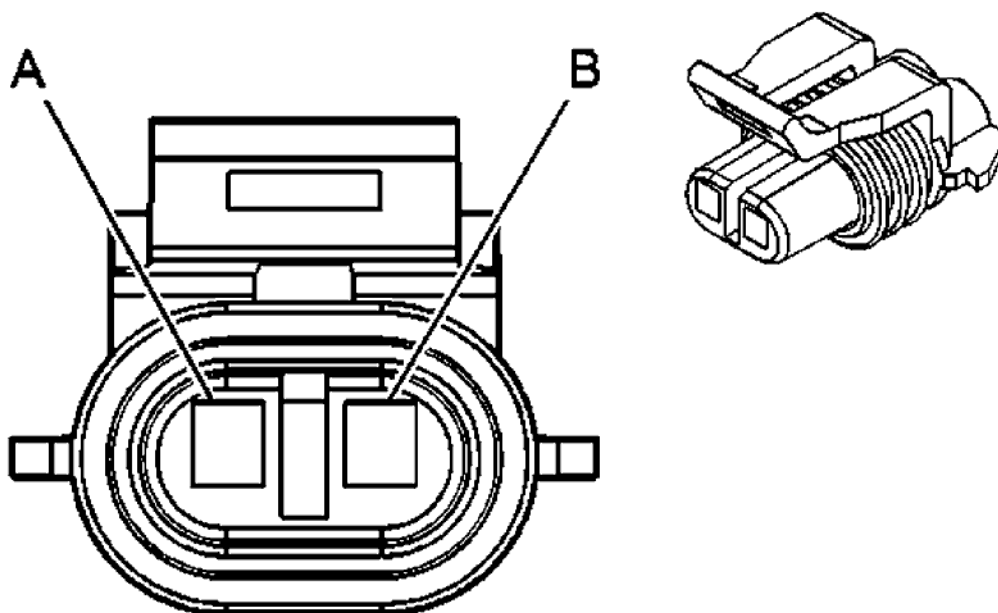


Fig. 21: Backup Lamp Switch (M86) Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 12052641
- Service: 12102747
- Description: 2-Way F Metri-Pack 150 Series (BK)

Terminal Part Information

- Pins:

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- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Backup Lamp Switch (M86)

Pin	Wire Color	Circuit No.	Function
A	PK	1639	Run/Crank Ignition 1 Voltage
B	L-GN	24	Backup Lamp Supply Voltage

Center High Mounted Stop Lamp (CHMSL)

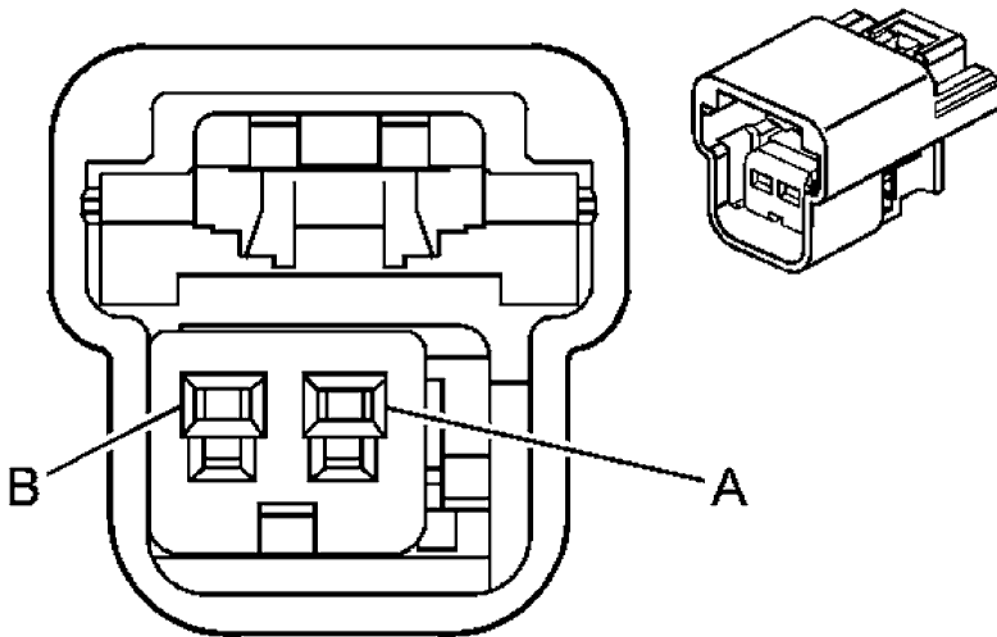


Fig. 22: Center High Mounted Stop Lamp (CHMSL) Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 15332129
- Service: 15306425
- Description: 2-Way F GT 150 Series (BK)

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Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Center High Mounted Stop Lamp (CHMSL)

Pin	Wire Color	Circuit No.	Function
A	L-BU	20	Stop Lamp Supply Voltage
B	BK	850	Ground

Console Flood Lamp

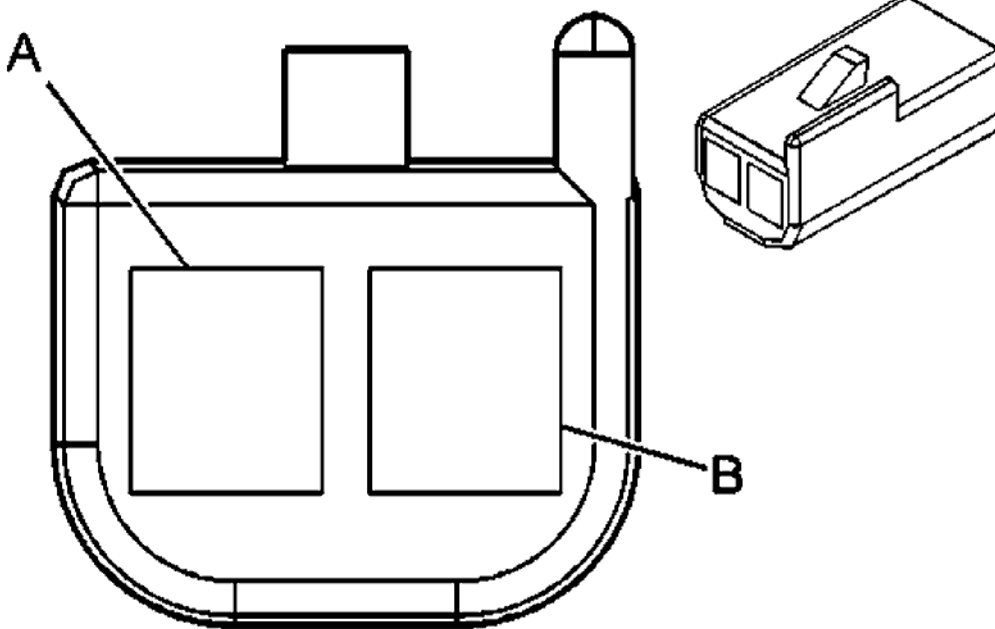


Fig. 23: Console Flood Lamp Connector
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Lighting Systems Connector End Views

Connector Part Information

- OEM: 12047662

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Console Flood Lamp

Pin	Wire Color	Circuit No.	Function
A	GY	8	Instrument Panel Lamp Supply Voltage (1)
B	BK	750	Ground

Dome Lamp

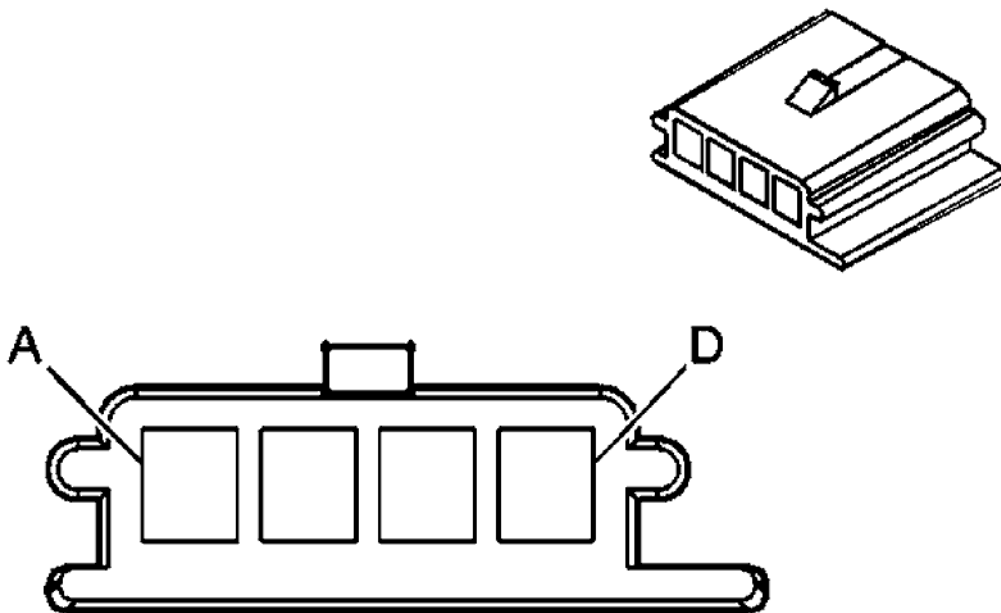


Fig. 24: Dome Lamp Connector
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Lighting Systems Connector End Views

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Connector Part Information

- OEM: 12045813
- Service: 12101889
- Description: 4-Way F Metri-Pack 150 Series (NA)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Dome Lamp

Pin	Wire Color	Circuit No.	Function
A	BK	750	Ground
B	GY	157	Interior Lamp Control
C	-	-	Not Used
D	D-BU/WH	149	Courtesy Lamp Supply Voltage

Door Jamb Switch - LF

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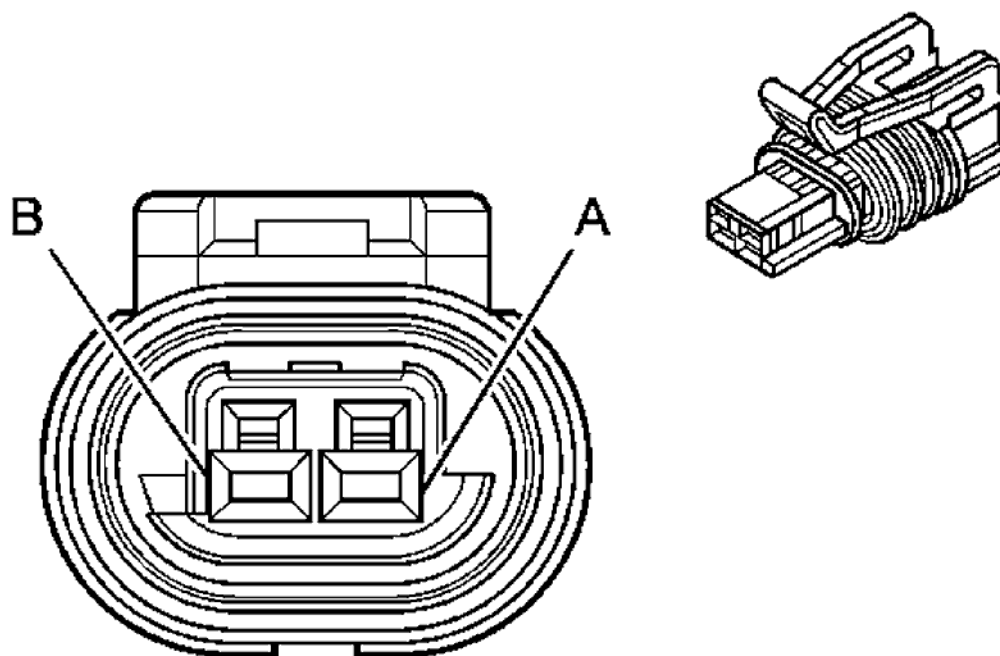


Fig. 25: Door Jamb Switch - LF Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 15449028
- Service: 88987978
- Description: 2-Way F 150 GT Series Sealed (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Door Jamb Switch - LF

Pin	Wire Color	Circuit No.	Function
A	GY/BK	745	Left Front Door Ajar Switch Signal
B	BK/WH	1251	Signal Ground

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Door Jamb Switch - LR

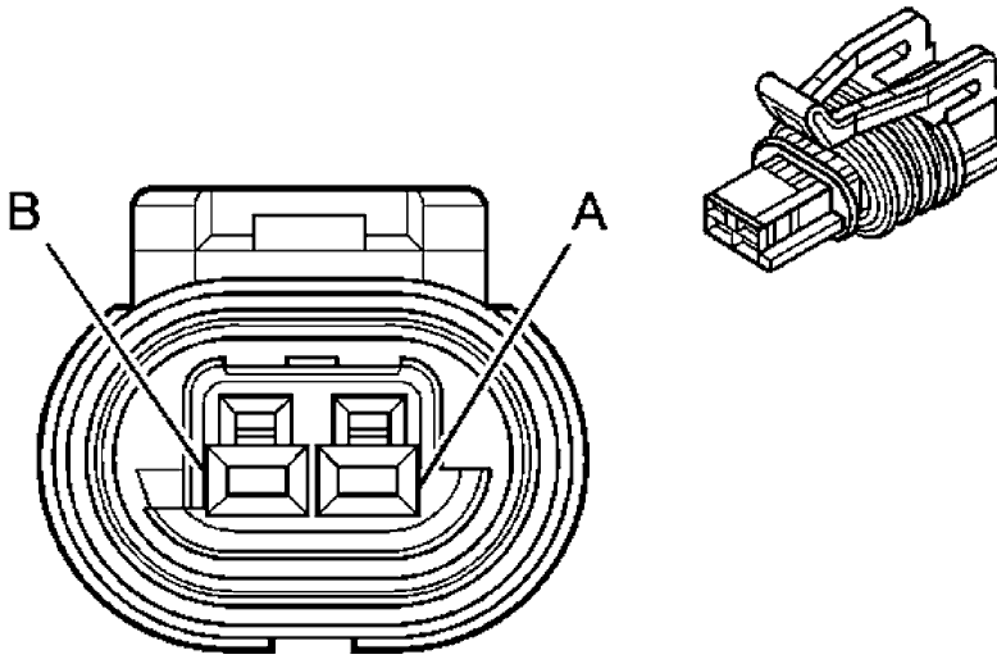


Fig. 26: Door Jamb Switch - LR Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 15449028
- Service: 88987978
- Description: 2-Way F 150 GT Series Sealed (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Door Jamb Switch - LR

Pin	Wire Color	Circuit No.	Function

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A	L-BU/BK	747	Left Rear Door Ajar Switch Signal
B	BK/WH	1251	Signal Ground

Door Jamb Switch - RF

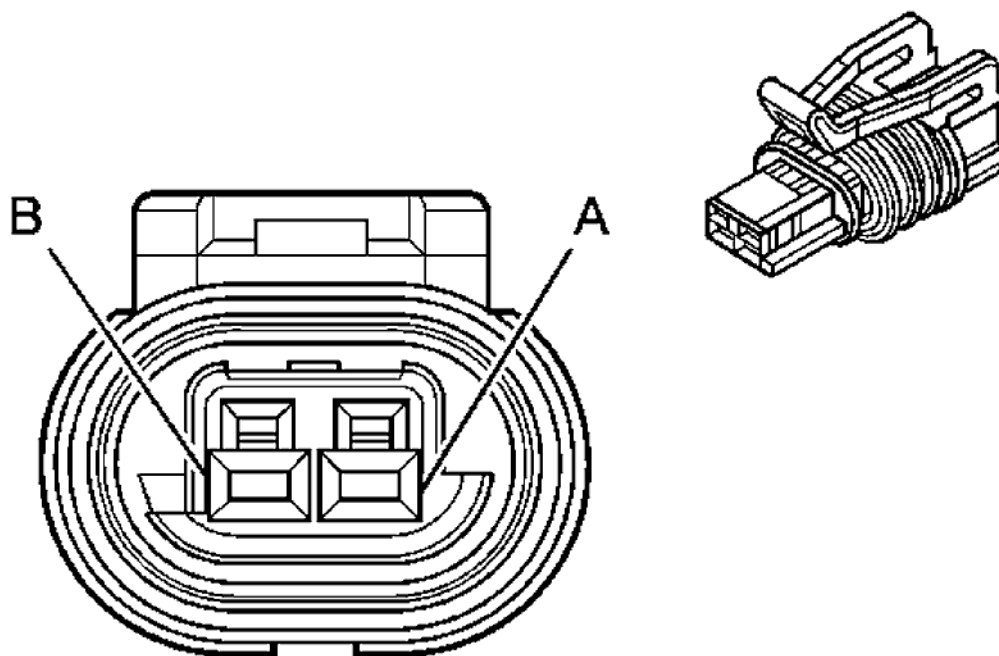


Fig. 27: Door Jamb Switch - RF Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 15449028
- Service: 88987978
- Description: 2-Way F 150 GT Series Sealed (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

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Door Jamb Switch - RF

Pin	Wire Color	Circuit No.	Function
A	TN/WH	746	Right Front Door Ajar Switch Signal
B	BK/WH	1551	Signal Ground

Door Jamb Switch - RR

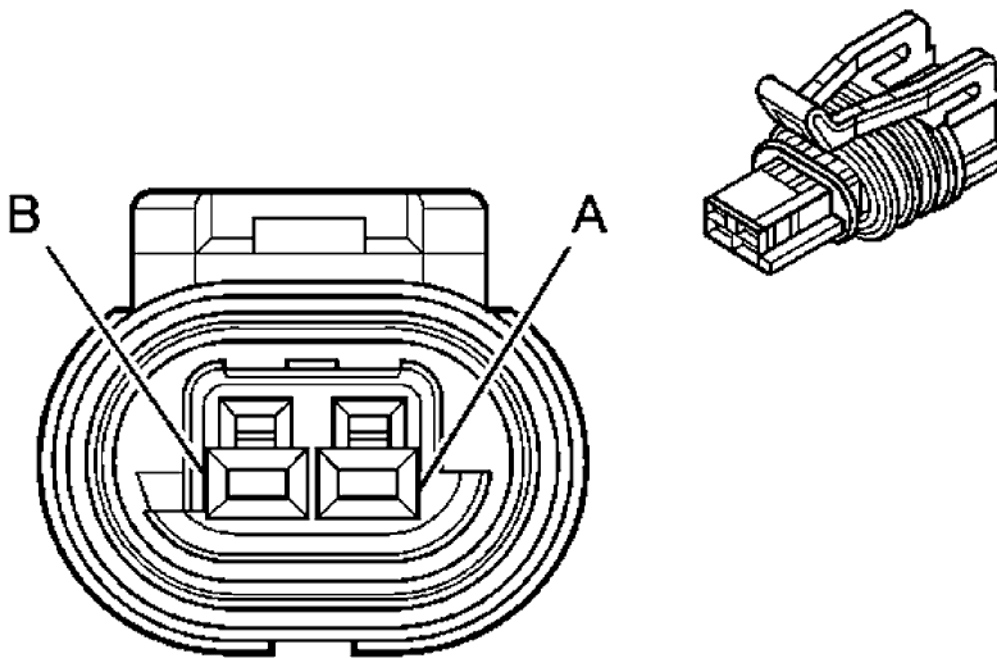


Fig. 28: Door Jamb Switch - RR Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 15449028
- Service: 88987978
- Description: 2-Way F 150 GT Series Sealed (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:

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- Release Tool/Test Probe:

Door Jamb Switch - RR

Pin	Wire Color	Circuit No.	Function
A	L-GN/BK	748	Right Rear Door Ajar Switch Signal
B	BK/WH	1551	Signal Ground

Fog Lamp - LF (T37)

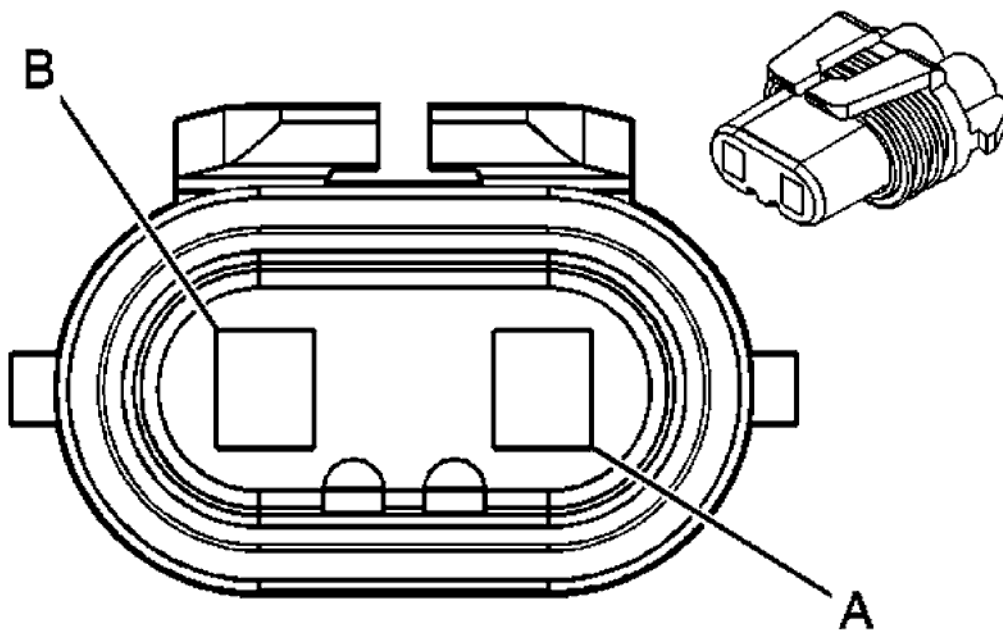


Fig. 29: Headlamp - High Beam - (Early Production) Connector End Views
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:

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- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Fog Lamp - LF (T37)

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

Fog Lamp - RF (T37)

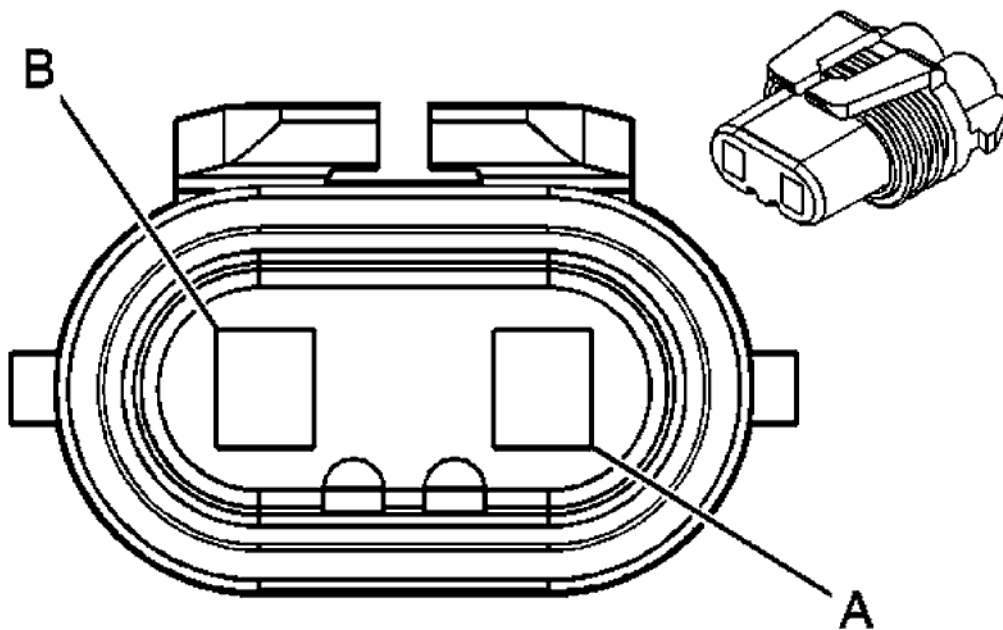


Fig. 30: Headlamp - High Beam - (Early Production) Connector End Views
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

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- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Fog Lamp - RF (T37)

Pin	Wire Color	Circuit No.	Function
A	PU	2234	Front Fog Lamp Supply Voltage
B	BK	250	Ground

Fog Lamp Switch (T37)

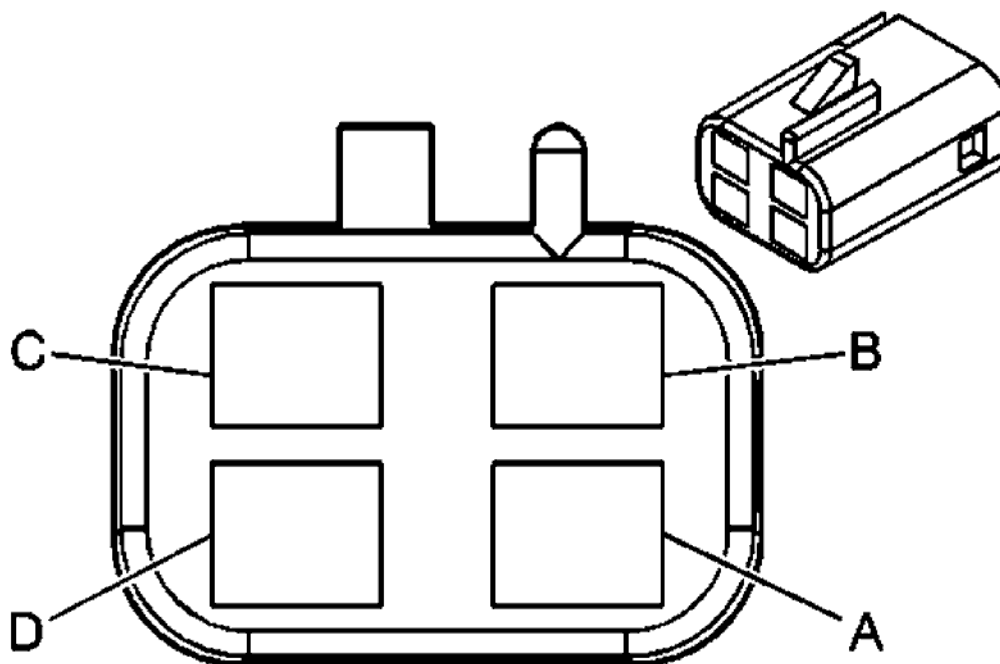


Fig. 31: Seat Connectors End Views
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 12047785
- Service: 12102900

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- Description: 4-Way F Metri-Pack 150 Series (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Fog Lamp Switch (T37)

Pin	Wire Color	Circuit No.	Function
A	BK/WH	651	Signal Ground
B	GY	8	Instrument Panel Lamp Supply Voltage (1)
C	-	-	Not Used
D	OG	192	Front Fog Lamp Switch Signal

Hazard Switch

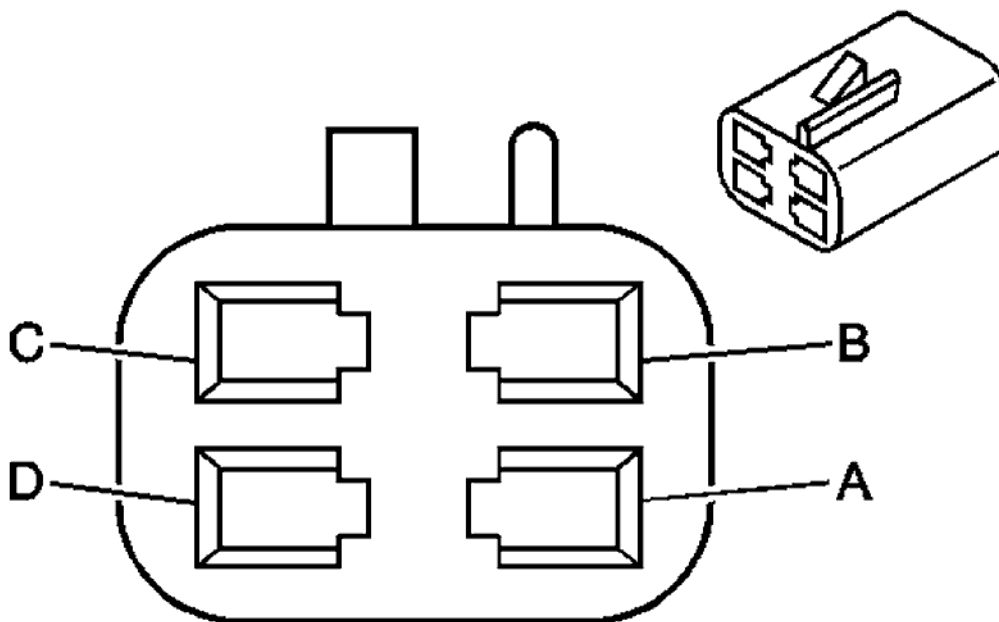


Fig. 32: Hazard Switch Connector
Courtesy of GENERAL MOTORS CORP.

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Lighting Systems Connector End Views

Connector Part Information

- OEM: 12089248
- Service: 12102900
- Description: 4-Way F Metri-Pack 150 Series (NA)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Hazard Switch

Pin	Wire Color	Circuit No.	Function
A	BK/WH	651	Signal Ground
B	GY	8	Instrument Panel Lamp Supply Voltage (1)
C	-	-	Not Used
D	WH	111	Hazard Switch Signal

Headlamp - Left

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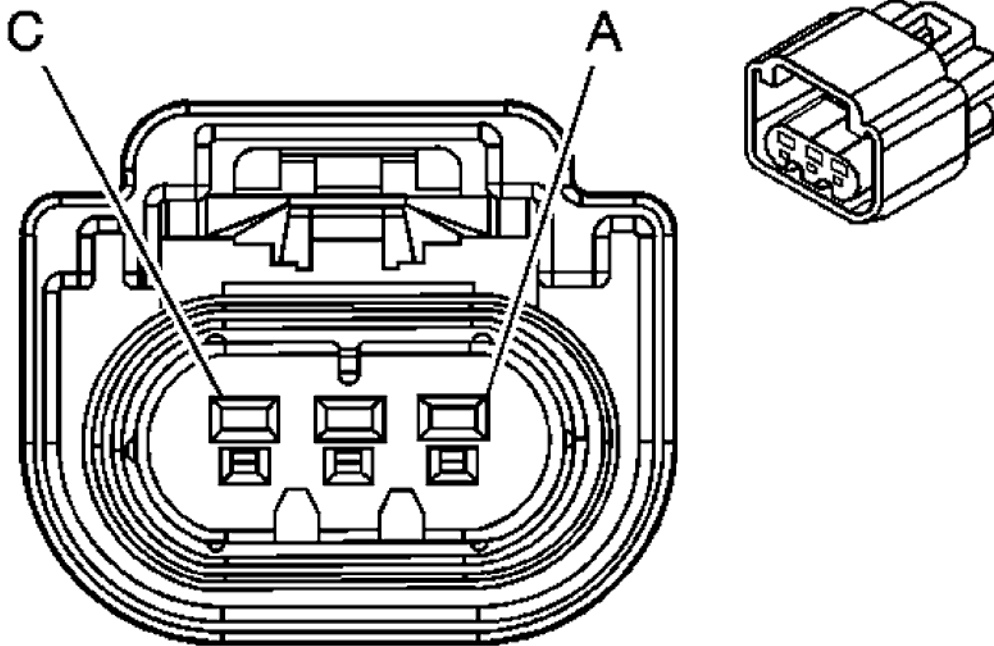


Fig. 33: Headlamp - Left Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Headlamp - Left

Pin	Wire Color	Circuit No.	Function
A	YE	712	Left Headlamp Low Beam Supply Voltage

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B	BK	150	Ground
C	D-GN/WH	711	Left Headlamp High Beam Supply Voltage

Headlamp - Right

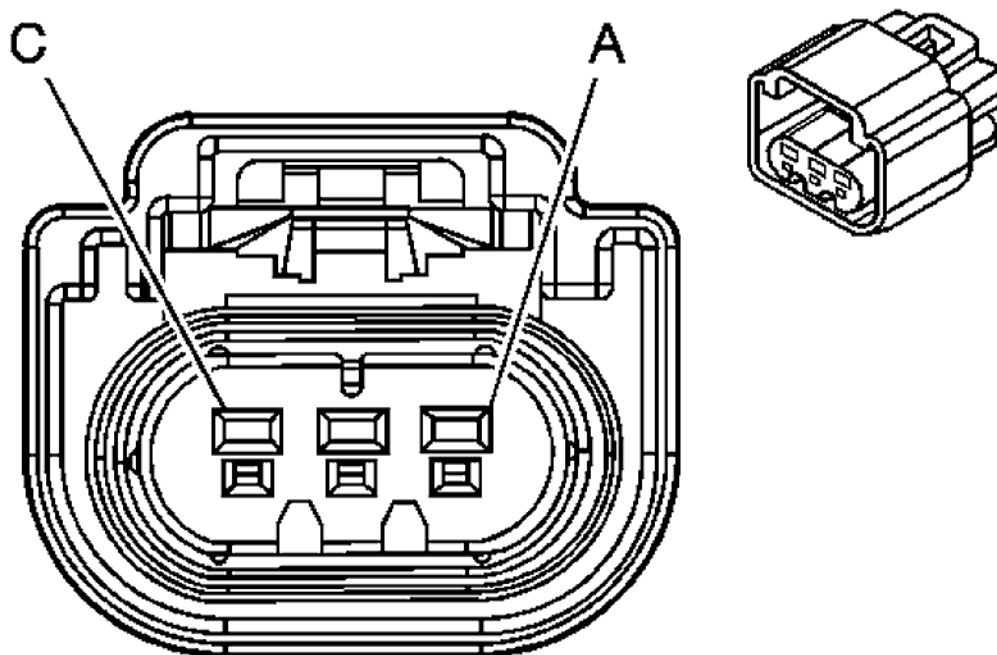


Fig. 34: Headlamp - Right Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:

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- Release Tool/Test Probe:

Headlamp - Right

Pin	Wire Color	Circuit No.	Function
A	TN/WH	312	Right Headlamp Low Beam Supply Voltage
B	BK	250	Ground
C	L-GN/BK	311	Right Headlamp High Beam Supply Voltage

Instrument Panel (I/P) Dimmer Switch

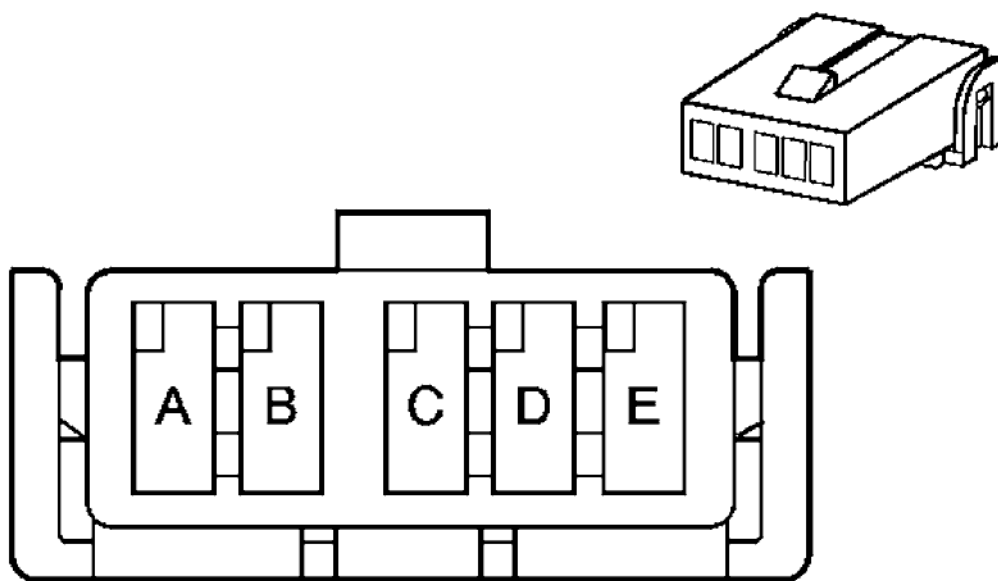


Fig. 35: Instrument Panel (I/P) Dimmer Switch Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 12020299
- Service: 12102566
- Description: 5-Way F P/C EDGBD STD (NA)

Terminal Part Information

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- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Instrument Panel (I/P) Dimmer Switch

Pin	Wire Color	Circuit No.	Function
A	-	-	Not Used
B	PU	719	Sensor Low Reference
C	D-GN	44	Instrument Panel Lamp Dimmer Switch Signal
D-E	-	-	Not Used

License Lamp - Left

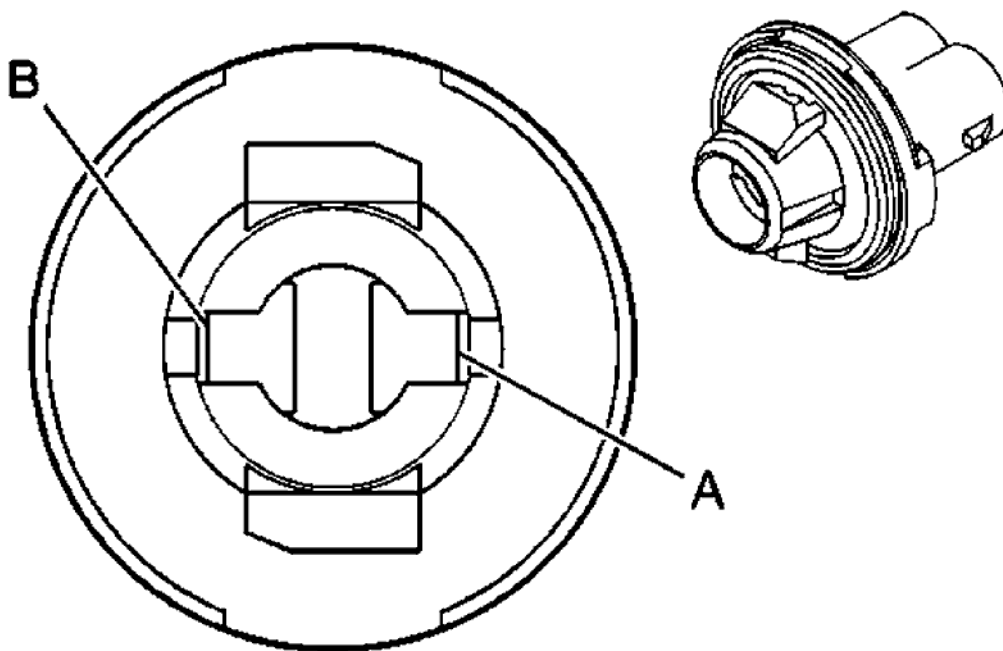


Fig. 36: License Lamp - Left Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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- OEM: 12110053
- Service: See Catalog
- Description: 2-Way F Lamp Socket Wedge Base W2 (L-GY)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

License Lamp - Left

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

License Lamp - Right

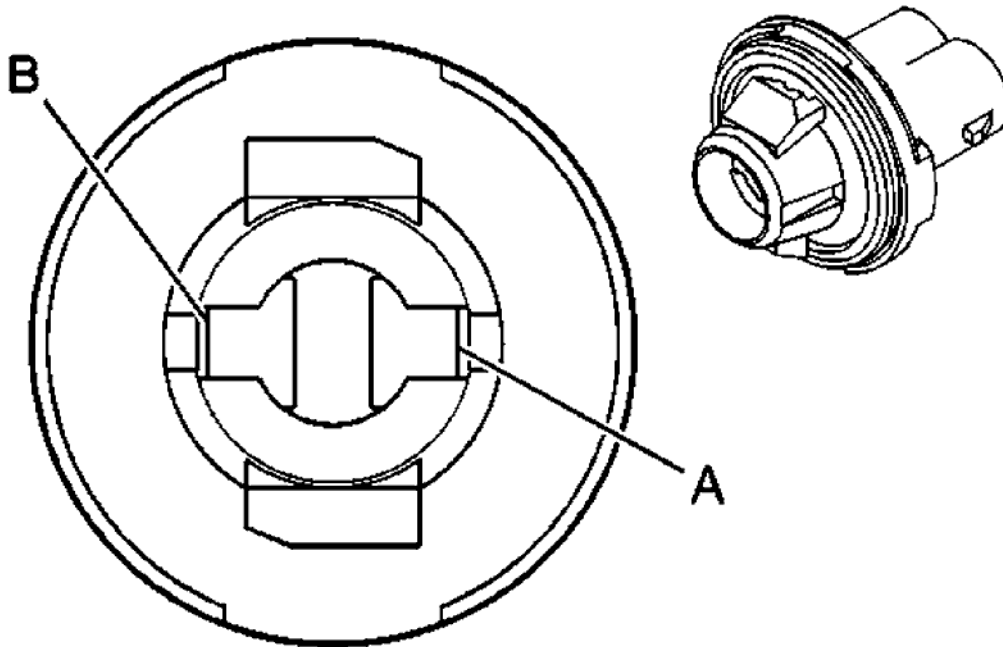


Fig. 37: License Lamp - Right Connector
Courtesy of GENERAL MOTORS CORP.

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Lighting Systems Connector End Views

Connector Part Information

- OEM: 12110053
- Service: See Catalog
- Description: 2-Way F Lamp Socket Wedge Base W2 (L-GY)

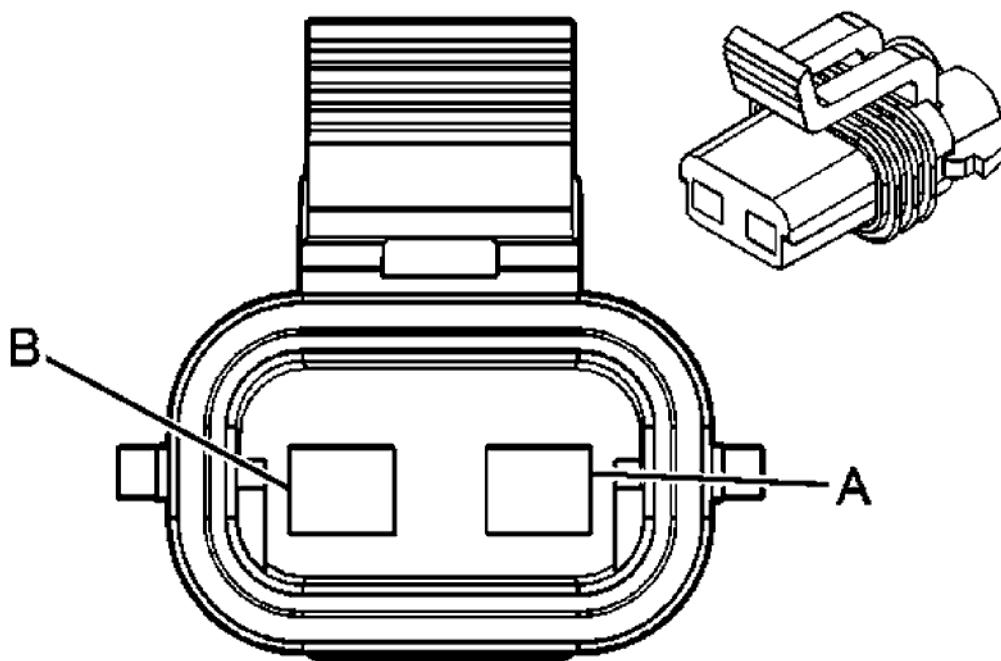
Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

License Lamp - Right

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

Marker Lamp - LF



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Fig. 38: Marker Lamp - LF Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Marker Lamp - LF

Pin	Wire Color	Circuit No.	Function
A	BN	9	Park Lamp Supply Voltage
B	BK	150	Ground

Marker Lamp - LR

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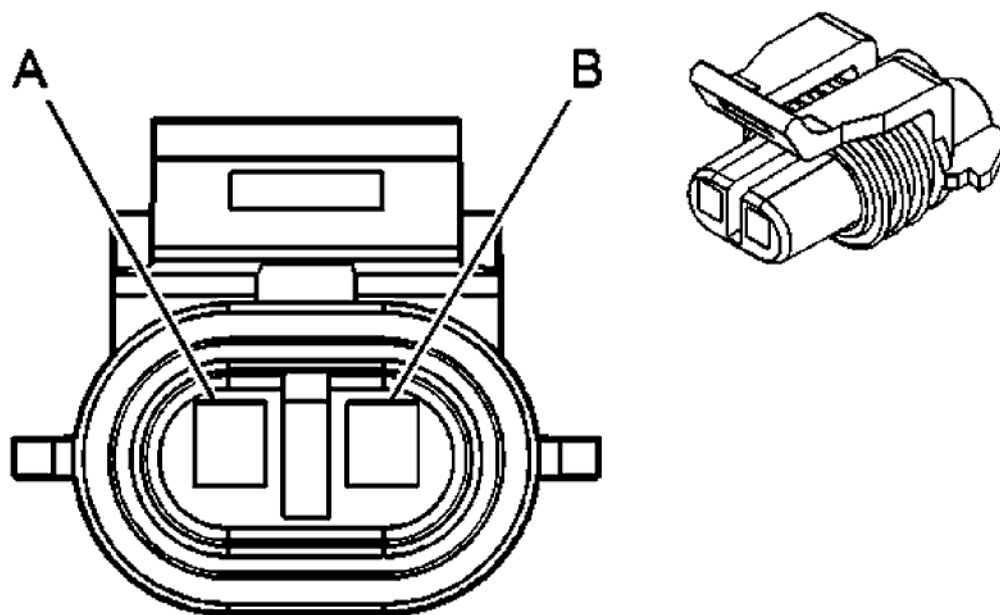


Fig. 39: Marker Lamp - LR Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 12052641
- Service: 12101855
- Description: 2-Way F Metri-Pack 150 Series (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Marker Lamp - LR

Pin	Wire Color	Circuit No.	Function
A	BN	9	Park Lamp Supply Voltage
B	BK	750	Ground

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Marker Lamp - RF

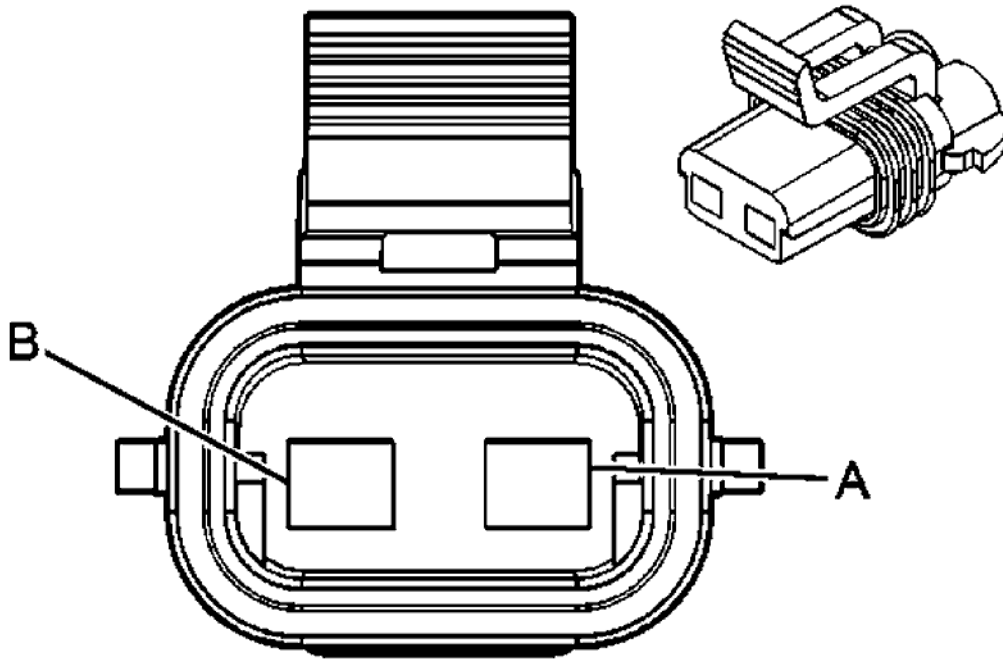


Fig. 40: Marker Lamp - RF Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Marker Lamp - RF

Pin	Wire Color	Circuit No.	Function

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A	BN	9	Park Lamp Supply Voltage
B	BK	250	Ground

Marker Lamp - RR

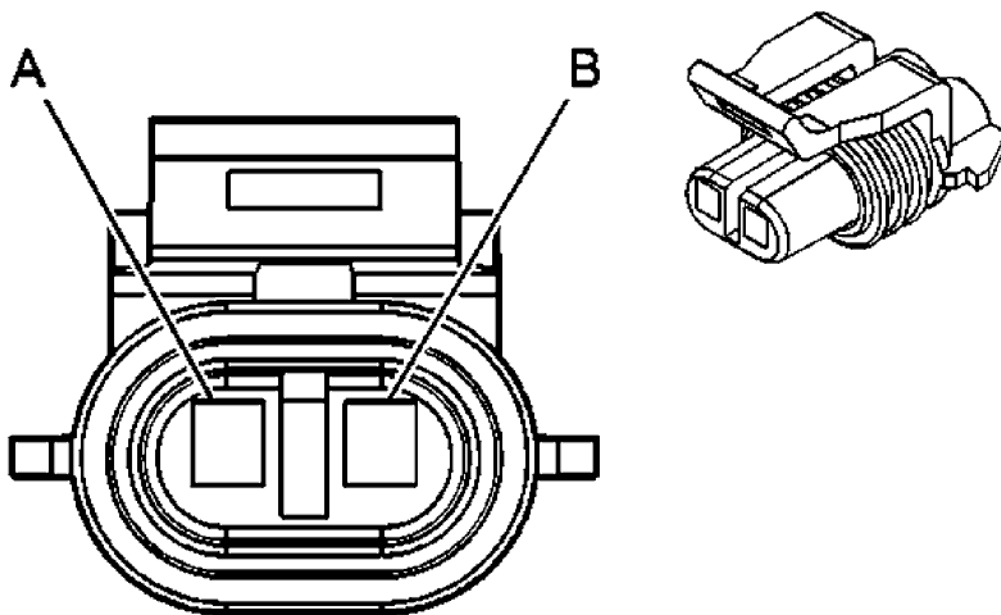


Fig. 41: Marker Lamp - RR Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 12052641
- Service: 12101855
- Description: 2-Way F Metri-Pack 150 Series (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Marker Lamp - RR

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

Park/Turn Signal/DRL Lamp - LF

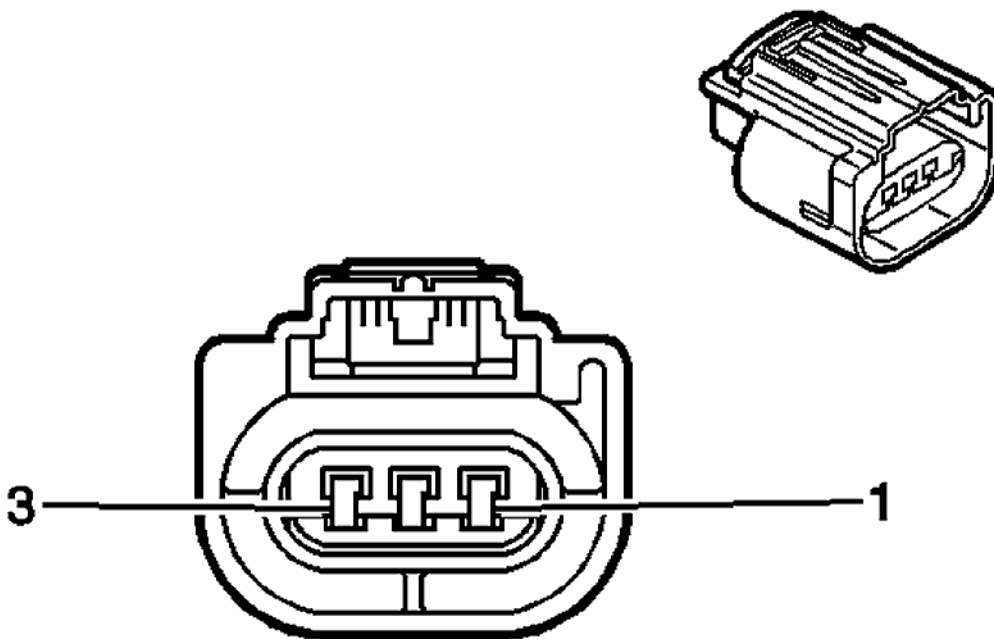


Fig. 42: Park/Turn Signal/DRL Lamp - LF Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 7900-1486-016
- Service: 88986266
- Description: 3-Way MISC

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

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Park/Turn Signal/DRL Lamp - LF

Pin	Wire Color	Circuit No.	Function
1	BK	250	Ground
2	BN	9	Park Lamp Supply Voltage
3	L-BU	14	Left Turn Signal Lamp Supply Voltage

Park/Turn Signal/DRL Lamp - RF

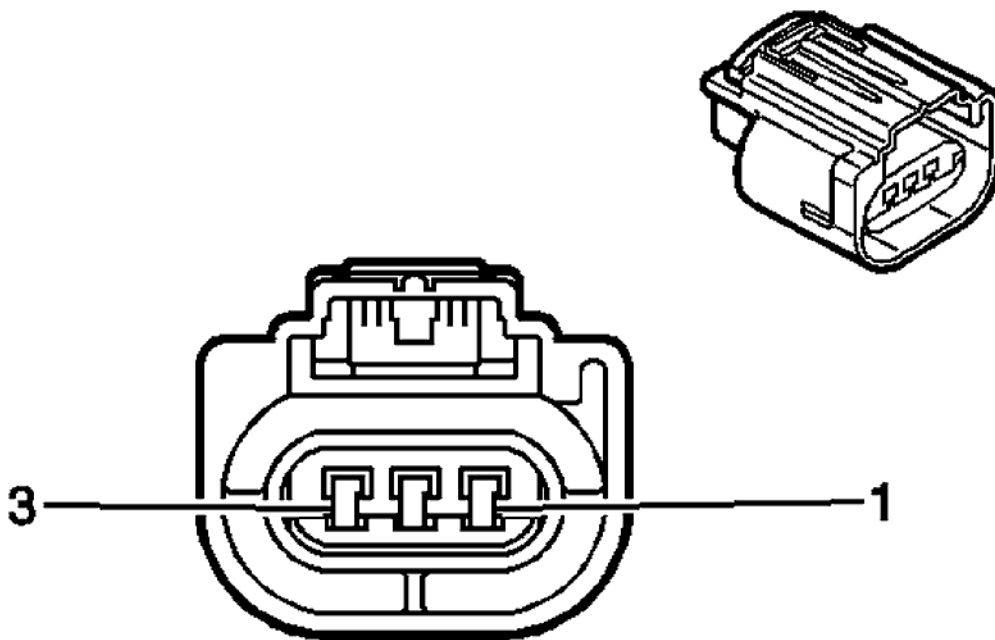


Fig. 43: Park/Turn Signal/DRL Lamp - RF Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 7900-1486-016
- Service: 88986266
- Description: 3-Way MISC

Terminal Part Information

- Pins:

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- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Park/Turn Signal/DRL Lamp - RF

Pin	Wire Color	Circuit No.	Function
1	150	BK	Ground
2	BN	9	Park Lamp Supply Voltage
3	D-BU	15	Right Turn Signal Lamp Supply Voltage

Stop Lamp Switch

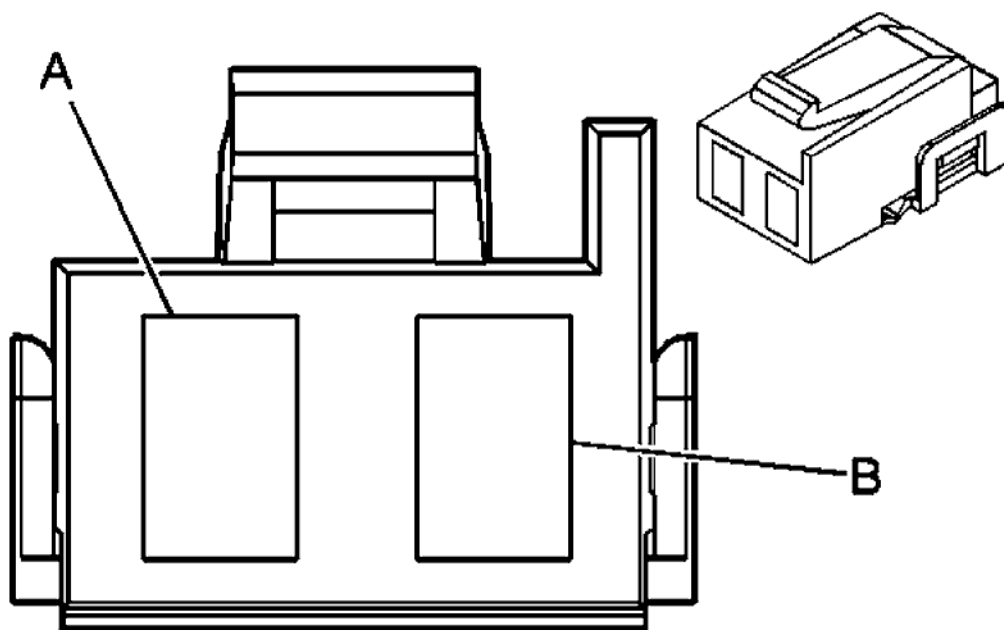


Fig. 44: Stop Lamp Switch Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 12033701
- Service: 12117346

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- Description: 2-Way F Metri-Pack 480 Series (GY)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Stop Lamp Switch

Pin	Wire Color	Circuit No.	Function
A	RD/WH	140	Battery Positive Voltage
B	L-BU	20	Stop Lamp Supply Voltage
	L-BU	20	Stop Lamp Supply Voltage

Tail/Stop and Turn Signal Lamp - Left

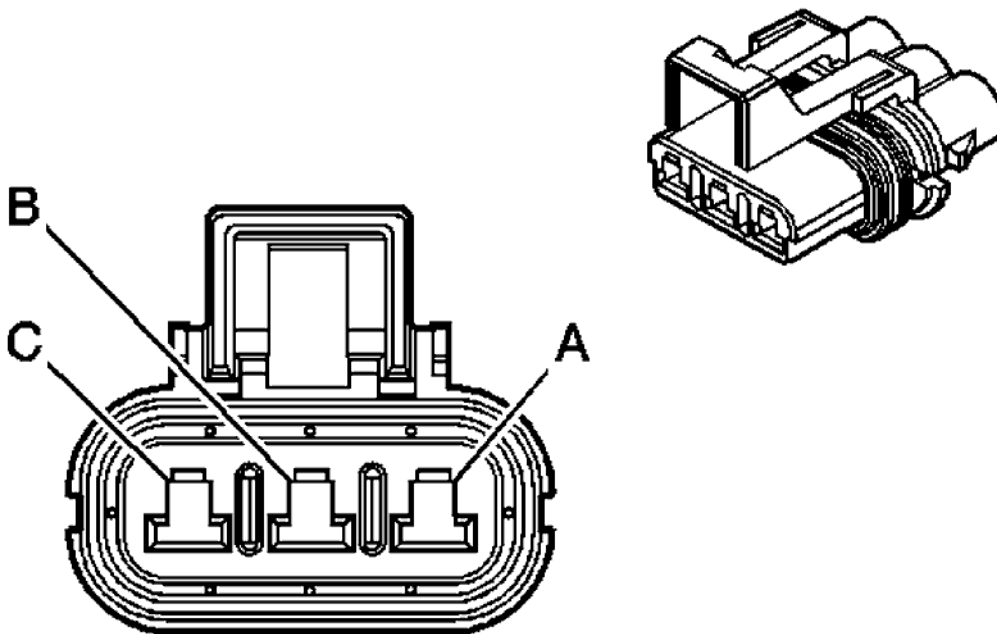


Fig. 45: Tail/Stop and Turn Signal Lamp - Left Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Tail/Stop and Turn Signal Lamp - Left

Pin	Wire Color	Circuit No.	Function
A	YE	18	Left Rear Stop/Turn Lamp Supply Voltage
B	BN	9	Park Lamp Supply Voltage
C	BK	750	Ground

Tail/Stop and Turn Signal Lamp - Right

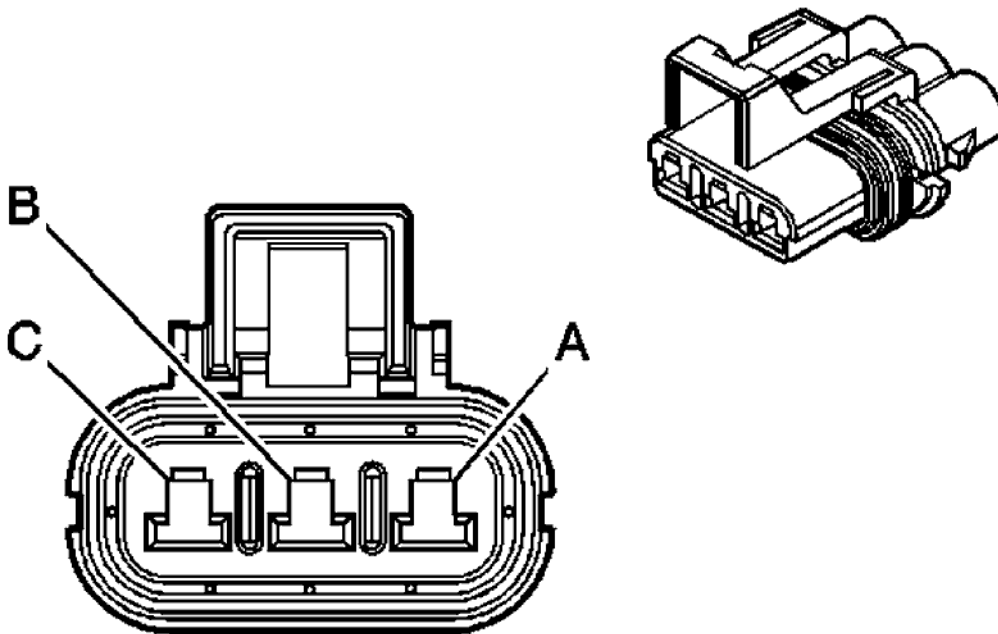


Fig. 46: Tail/Stop and Turn Signal Lamp - Right Connector

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Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

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

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Tail/Stop and Turn Signal Lamp - Right

Pin	Wire Color	Circuit No.	Function
A	D-GN	19	Right Rear Stop/Turn Lamp Supply Voltage
B	BN	9	Park Lamp Supply Voltage
C	BK	850	Ground

Turn Signal/Multifunction Switch C1

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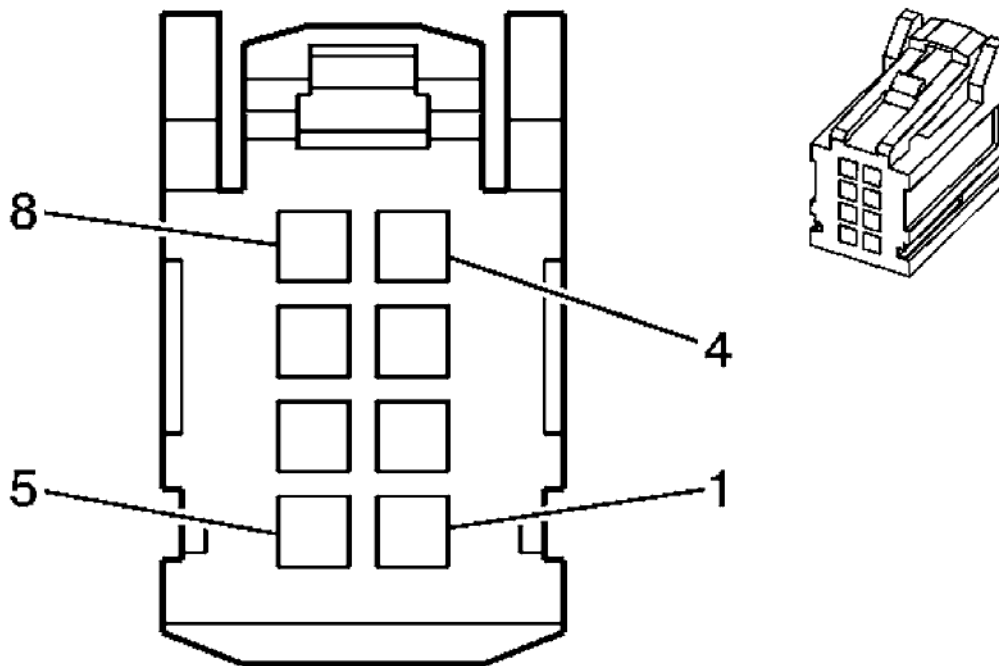


Fig. 47: Turn Signal/Multifunction Switch C1 Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 15411425
- Service: 88987843
- Description: 8-Way F JST NAC-I Series (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

Turn Signal/Multifunction Switch C1

Pin	Wire Color	Circuit No.	Function
1	BK/WH	651	Signal Ground
2	WH	103	Headlamp Switch On Signal

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3	BN/WH	301	Park Lamp Switch On Signal
4	PU/WH	549	Headlamp Switch Headlamps Off Signal
5-8	-	-	Not Used

Turn Signal/Multifunction Switch C2

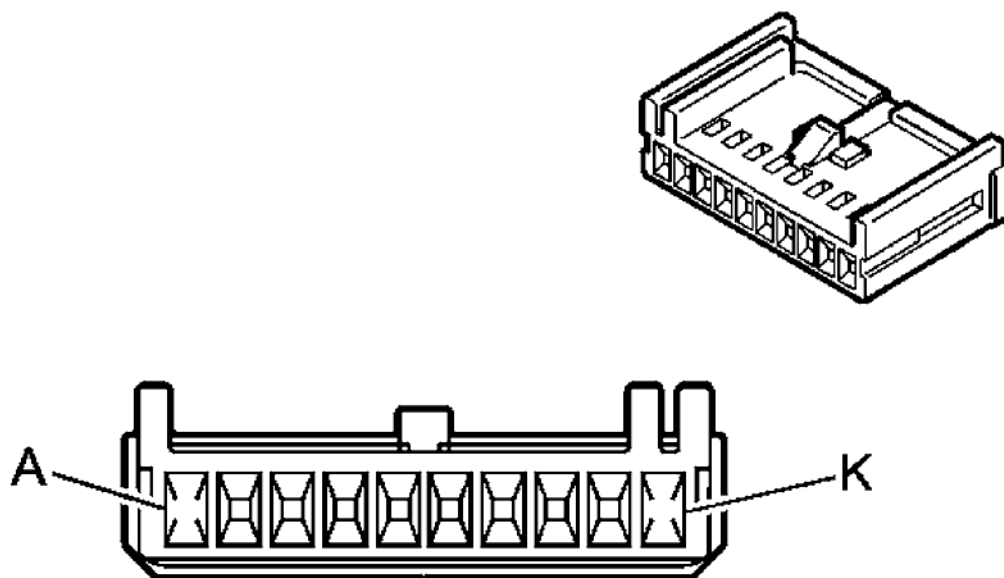


Fig. 48: Turn Signal/Multifunction Switch C2 Connector
Courtesy of GENERAL MOTORS CORP.

Lighting Systems Connector End Views

Connector Part Information

- OEM: 15393435
- Service: 88986438
- Description: 10-Way F Micro 64 (BK)

Terminal Part Information

- Pins:
- Terminal:
- Core/Insulation Crimp:
- Release Tool/Test Probe:

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Turn Signal/Multifunction Switch C2

Pin	Wire Color	Circuit No.	Function
A	-	-	Not Used
B	BK/WH	651	Signal Ground
C	BN	1356	Flash To Pass Switch Signal
D	PU	524	Headlamp Dimmer Switch High Beam Signal
E	PK/WH	1970	Headlamp Low Beam Relay Control
F	YE	10	Headlamp Switch Signal
G	YE/BK	1418	Left Rear Turn Signal Switch Signal
H	D-GN/WH	1419	Right Rear Turn Signal Switch Signal
J-K	-	-	Not Used

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
<u>DTC B1480</u>	Battery Rundown Protection Circuit
<u>DTC B2530</u>	Front Fog Lamps Control Circuit
<u>DTC B2580</u>	Headlamp High Beam Control Circuit
<u>DTC B2625</u>	Display Dimming Pulse Width Modulation (PWM) Output Circuit
<u>DTC B2645</u>	Ambient Light Sensor Circuit
<u>DTC B3903</u>	Stop Lamp Relay Circuit
<u>DTC B3948</u>	Left Front Turn Signal Circuit
<u>DTC B3949</u>	Right Front Turn Signal Circuit
<u>DTC B3950</u>	Left Rear Turn Signal Circuit
<u>DTC B3951</u>	Right Rear Turn Signal Circuit

DIAGNOSTIC STARTING POINT - LIGHTING SYSTEMS

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

- The identification of the control modules which commands 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 Vehicle System Check 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	Description
Headlamps	Special Functions	The BCM actuates the low beam headlamps when you select ON. The headlamps should illuminate until commanded OFF.
Interior Lamps	Special Functions	The BCM actuates the interior lamp control you select ON. The foot well and courtesy lamps should illuminate until commanded OFF.
High Beam Lamp	Special Functions	The BCM actuates the high beam headlamps when you select ON. The headlamps should illuminate until commanded OFF.
Parking Lamps	Special Functions	The BCM actuates the park lamp relay when you select ON. The park lamps should illuminate until commanded OFF.
Backup Lamps	Special Functions	The BCM actuates the backup lamps when you select ON. The backup lamps should illuminate until commanded OFF.
Front Fog Lamps	Special Functions	The BCM actuates the fog lamps when you select ON. The front fog lamps should illuminate until commanded OFF.
Inadvertent Power Relay	Special Functions	The BCM actuates the inadvertent power relay when you select ON. The inadvertent power relay should remain on until commanded OFF.
RF Turn Signal	Special Functions	The BCM actuates the right front turn signal when you select ON. The right front turn signal should remain on until commanded OFF.
LF Turn Signal	Special Functions	The BCM actuates the left front turn signal when you select ON. The left front turn signal should remain on until commanded OFF.
LR Turn Signal	Special Functions	The BCM actuates the left rear turn signal when you select ON. The left rear turn signal should remain on until commanded OFF.
RR Turn Signal	Special Functions	The BCM actuates the right rear turn signal when you select ON. The right rear turn signal should remain on until commanded OFF.

SCAN TOOL DATA LIST

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Body Control Module (BCM)

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Operating Conditions: Ignition ON/Engine OFF/Doors, Trunk and Hood Closed/No Switches ON/Vehicle in PARK or NEUTRAL			
ALC Status	BCM	Off/On	Varies with light level
Ambient Light Sensor	BCM	Volts	Varies
Backup Lamp Relay Cmd.	BCM	Off/On	Off
Day/Night Status	BCM	Day/Night	Varies with light level
DRL Status	BCM	Off/On	Varies with light level
Flash to Pass Switch	BCM	Inactive/Active	Inactive
Front Fog Lamp Relay Command	BCM	Off/On	Off
Front Fog Lamp Switch	BCM	Inactive/Active	Inactive
Hazard Lamp Switch	BCM	Inactive/Active	Inactive
Headlamp OFF Switch	BCM	Off/On	On
Headlamp ON Switch	BCM	Inactive/Active	Inactive
High Beam Relay Command	BCM	Off/On	Off
High Beam Select Switch	BCM	Inactive/Active	Inactive
Inadvert Power CMD	BCM	Off/On	Off
Inadvert Power Signal	BCM	Inactive/Active	Inactive
Interior Light Command	BCM	Off/On	Off
Interior Lights Dimmed Command	BCM	Percentage	Varies
IP Dimmer Switch	BCM	Volts	Varies
Left Turn Signal Switch	BCM	Inactive/Active	Inactive
LF Turn Lamp/DRL Status	BCM	Off/On	Off
Low Beam Relay Command	BCM	Off/On	Off
LR Turn/Stop Lamp Status	BCM	Off/On	Off
Park Brake Switch	BCM	Off/On	Off
Park Lamp Relay Cmd	BCM	Off/On	Off
Park Lamp Switch	BCM	Off/On	Off
RF Turn Lamp/DRL Status	BCM	Off/On	Off
Right Turn Signal Switch	BCM	Inactive/Active	Inactive
RR Turn/Stop Lamp Status	BCM	Off/On	Off
Stop Lamp Relay Command	BCM	Off/On	Off

SCAN TOOL DATA DEFINITIONS

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Body Control Module (BCM)

ALC Status

The scan tool displays On/Off. When the ambient light level indicates low light level then the BCM will turn on the automatic light control (ALC) then the scan tool will display On.

Ambient Light Sensor

The scan tool displays the voltage reading of the ambient light sensor.

Backup Lamp Relay Command

The scan tool display On/Off. When the transmission is placed in the REVERSE position the scan tool displays On.

Day/Night Status

The scan tool displays Day/Night. When the daylight conditions are present the scan tool will display Day.

DRL Status

The scan tool displays On/Off. When the ambient light level indicates daylight level then the scan tool will display ON.

Flash to Pass Switch

The scan tool displays Inactive/Active. When Flash to Pass switch is placed in the OFF position, the scan tool displays Inactive.

Front Fog Lamp Relay Command

The scan tool displays On/Off. When the fog lamps are placed in the ON position then the scan tool displays On.

Front Fog Lamp Switch

The scan tool displays Inactive/Active. When the fog lamp switch is in the OFF position the scan tool displays Off.

Hazard Lamp Switch

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

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Headlamps OFF Switch

The scan tool displays On/Off. When the headlamp switch is placed in the OFF position, the scan tool displays On.

Headlamps ON Switch

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

High Beam Relay Command

The scan tool displays On/Off. When the high beam headlamps are turned on, the scan tool displays On.

High Beam Select Switch

The scan tool displays Inactive/Active. When the high beam headlamps are turned on, the scan tool displays Active.

Inadvert Power CMD

The scan tool displays On/Off. When the inadvertent power is being commanded on by the BCM the scan tool displays On.

Inadvert Power Signal

The scan tool displays Inactive/Active. When the inadvertent power is being commanded on by the BCM the scan tool displays Active.

Interior Light Command

The scan tool displays Off or On. When the interior lights are commanded on, On is displayed. When the interior lights are commanded off, Off is displayed.

Interior Lights Dimmed

The scan tool displays the percentage of dimming that is commanded by the IP dimmer switch.

IP Dimmer Switch

The scan tool displays the position of the IP dimmer switch in volts.

Left Turn Signal Switch

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

LF Turn Lamp/DRL Status

The scan tool displays On/Off. When the DRL lamps are commanded on by the BCM or the turn signal switch is placed in the LEFT position, scan tool displays On.

Low Beam Relay Command

The scan tool displays On/Off. When the headlamp are turned on, the scan tool displays On.

LR Turn /Stop Lamp Status

The scan tool displays On/Off. When the DRL lamps are commanded on by the BCM or the turn signal switch is placed in the LEFT position, scan tool displays On.

Park Brake Switch

The scan tool displays Off or On. When the park brake is disengaged, Off is displayed. When the park brake is engaged, On is displayed.

Park Lamp Relay CMD

The scan tool displays On/Off. When the park lamps are turned on, the scan tool will display On.

Park Lamp Switch

The scan tool displays On/Off. When the park lamp switch is placed in the ON position, the scan tool will display On.

RF Turn Lamp/DRL Status

The scan tool displays On/Off. When the DRL lamps are commanded on by the BCM or the turn signal switch is placed in the RIGHT position, scan tool displays On.

Right Turn Signal Switch

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

RR Turn/Stop Lamp Status

The scan tool displays On/Off. When the DRL lamps are commanded on by the BCM

or the turn signal switch is placed in the RIGHT position, scan tool displays On.

Stop Lamp Relay Command

The scan tool displays On/Off. When the brakes are applied, the scan tool displays On.

DTC B1480

Circuit Description

The body control module (BCM) supplies battery positive voltage to the courtesy lamps, underhood lamp, instrument panel (I/P) compartment lamp, console lamp, and both visor vanity mirror lamps. In the event that any of these lamps were to remain illuminated for more than 20 minutes with the ignition switch in the OFF position, the BCM will deactivate the inadvertent power courtesy lamps supply voltage circuit to prevent a total battery discharge condition.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B1480 Battery Rundown Protection Circuit

Conditions for Running the DTC

The battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

DTC B1480 00

The inadvertent power courtesy lamps supply voltage circuit to the courtesy lamps, underhood lamp, I/P compartment lamp, console lamp, and both visor vanity mirror lamps are shorted to ground for longer than 1 second.

Action Taken When the DTC Sets

The courtesy lamps, underhood lamp, I/P compartment lamp, console lamp, and both visor vanity mirror lamps will not operate.

Conditions for Clearing the DTC

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

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Diagnostic Aids

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

DTC B1480

Step	Action	Yes	No
Schematic Reference: Interior Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Install a scan tool. 2. Turn ON the ignition. Is DTC B1480 present?	Go to Step 3	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems
3	Test the inadvertent power courtesy lamps supply voltage circuit for a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 5	Go to Step 4
4	Replace the body control module (BCM). Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 5	-
5	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

DTC B2530

Circuit Description

The front fog lamp switch signal circuit is grounded momentarily by pressing the front fog

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lamp switch. The body control module (BCM) energizes the front fog lamp relay by applying battery positive voltage to the front fog lamps relay control circuit when the front fog lamp relay is energized, battery positive voltage is applied to the front fog lamps supply voltage circuit which illuminates the front fog lamps.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B2530 Front Fog Lamps Control Circuit

Conditions for Running the DTC

The battery voltage must be between 9-16 volts.

Conditions for Setting the DTC

DTC B2530 02

The front fog lamp relay control circuit is shorted to ground.

DTC B2530 05

The front fog lamp relay control circuit is shorted to battery positive voltage or open.

Action Taken When the DTC Sets

DTC B2530 02

The front fog lamps will not operate.

DTC B2530 05

The front fog lamps and the fog lamp indicator will be on at all times or will not operate.

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

Conditions for Clearing the DTC

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

Diagnostic Aids

- The fog lamps will only illuminate under the following conditions:
 - The park lamps or low beam headlamps are ON.

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- The high beam headlamps are OFF.
- The fog lamp switch is the ON position.
- If the DTC is a history DTC, the problem may be intermittent. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

DTC B2530

Step	Action	Yes	No
Schematic Reference: <u>Fog Lights Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn ON the ignition. 2. Turn ON the park lamps. 3. Turn ON the front fog lamps. 4. Turn OFF the front fog lamps. Do the front fog lamps turn ON and OFF?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Is DTC B2530 02 present?	Go to Step 5	Go to Step 4
4	Are the fog lamps illuminated?	Go to Step 6	Go to Step 7
5	Test for a short to ground in the fog lamp relay control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 9
6	Test for a short to battery positive voltage in the fog lamp relay control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 9
7	Test for an open or high resistance in the fog lamp relay control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 8
	Test for an open or high resistance in the control side ground circuit of the fog lamp		

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8	relay. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 10
9	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 in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 12
10	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 in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 11
11	Replace the underhood fuse block. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 13	-
12	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 13	-
13	1. Use a scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

DTC B2580**Circuit Description**

The high beam relay is controlled by the body control module (BCM). The BCM provides ground to the high beam relay control circuit in order to turn ON the high beam relay. When the high beam relay control circuit opens, becomes shorted to voltage, or becomes shorted to ground without being commanded ON by the BCM, DTC B2580 is set.

DTC Descriptor

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This diagnostic procedure supports the following DTC:

DTC B2580 Headlamp High Beam Control Circuit

Conditions for Running the DTC

The ignition switch is in the ON position.

Conditions for Setting the DTC

B2580 01

Will set if there is a short to voltage in the high beam relay control circuit

B2580 06

Will set if there is an open or short to ground in the high beam relay control circuit

Action Taken When the DTC Sets

- DTC B2580 is stored in the BCM memory.
- If the high beam relay control circuit is shorted to ground, the high beams are always ON.
- If the high beam relay control circuit is open, the high beam 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.

Diagnostic Aids

- The high beam lamps will only illuminate under the following conditions:
 - The headlamps are ON.
 - The headlamp dimmer switch is in the high position.
- If the DTC is a history DTC, the problem may be intermittent. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

DTC B2580

Step	Action	Yes	No
Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
	Did you perform the Diagnostic System		Go to

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1	Check - Vehicle?	Go to Step 2	Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, command the high beam relay ON and OFF. Does the high beam relay turn ON and OFF with each command?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Is DTC 2580 01 present?	Go to Step 5	Go to Step 4
4	1. Disconnect the body control module (BCM). 2. Connect a test lamp between the headlamp high beam relay control circuit and ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 6
5	Test the headlamp high beam relay control circuit for a short to battery positive voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 7
6	Test for an open, high resistance, or short to ground in the headlamp high beam relay control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 8
7	Inspect for poor connections at the harness connector of the BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
8	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 in Wiring Systems.		

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	Did you find and correct the condition?	Go to Step 11	Go to Step 10
9	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 11	-
10	Replace the underhood fuse block. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 11	-
11	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC, as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

DTC B2625

Circuit Description

The body control module (BCM) monitors the instrument panel (I/P) lamps dimming control circuit to determine the lighting intensity of the I/P lamps. When the BCM receives a varied voltage signal on the I/P lamps dimming control circuit, it applies a corresponding pulse width modulated (PWM) voltage signal through the I/P lamps supply voltage circuit to all the I/P lamps.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B2625 Display Dimming Pulse Width Modulation (PWM) Output Circuit

Conditions for Running the DTC

- Voltage supplied to the BCM is in the normal operating range, approximately 9-14 volts.
- The ignition switch must be in the ACCESSORY or RUN position.
- The park lamps must be ON.

Conditions for Setting the DTC

- The BCM detects a short to ground in the instrument panel lamp supply voltage circuit.

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- The above condition must be present for more than 1 second.

Action Taken When the DTC Sets

- The I/P courtesy lamps are inoperative.
- The BCM store DTC B2625 in memory.

Conditions for Clearing the MIL/DTC

- A current DTC B2625 clears when the BCM no longer detects a short to ground in the I/P lamps supply voltage circuit.
- A history DTC B2625 clears after 100 consecutive ignition cycles.

Diagnostic Aids

- If the DTC B2627 is a history DTC, the fault may be intermittent. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.
- The following conditions may cause an intermittent malfunction to occur:
 - An intermittent short to ground in the instrument panel lamps supply voltage circuit.
 - The BCM is intermittently shorted to ground.

DTC B2625

Step	Action	Yes	No
Schematic Reference: Interior Lights Dimming Schematics and Interior Lights Schematics			
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 in Vehicle DTC Information
2	1. Turn the ignition to the ON position. 2. Place the headlamp switch in the park position. 3. Operate the instrument panel (I/P) dimmer switch from full dim to full bright. The I/P lamps illuminate and vary intensity?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
	Test the I/P lamps supply voltage circuit for		

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3	a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 5	Go to Step 4
4	Replace the body control module (BCM). Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 5	-
5	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

DTC B2645**Circuit Description**

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

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B2645 Ambient Light Sensor Circuit

Conditions for Running the DTC

The system voltage must be between 9-16 volts.

Conditions for Setting the DTC**B2645 01**

Will set if there is a short to voltage in the ambient light sensor signal circuit

B2645 02

Will set if there is an open or short to ground in the ambient light sensor signal circuit

Action Taken When the DTC Sets

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The ALC will remain ON in any ambient light state.

Conditions for Clearing the MIL/DTC

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

Diagnostic Aids

- The following may cause an intermittent:
 - Bent terminal
 - Backed out terminal
 - Damaged terminal
 - Poor terminal tension
 - Chafed wire
 - Broken wire inside the insulation
- When diagnosing for an intermittent short or an open, manipulate the wire harness while watching the test equipment for changes.

DTC B2645

Step	Action	Values	Yes	No
Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics Connector End View Reference: Master Electrical Component List				
1	Did you perform the Diagnostic System Check - Vehicle?	-	Go to Step 2	Go to <u>Diagnostic System Check - Vehicle</u>
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. With a scan tool, observe the Ambient Light Sensor parameter in the body control module (BCM) data list. Does the scan tool indicate that the Ambient Light Sensor parameter is within the specified range?	1.75-4.9 V	Go to <u>Testing for Intermittent Conditions and Poor Connections</u>	Go to Step 3
	1. Turn OFF the ignition.			

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3	2. Disconnect the ambient light sensor. 3. Turn ON the ignition, with the engine OFF. 4. With a scan tool, observe the Ambient Light Sensor parameter. Does the scan tool indicate that the Ambient Light Sensor parameter is less than the specified value?	0.02 V		
			Go to Step 4	Go to Step 5
4	Test the ambient light sensor circuit of the ambient light sensor for the following: • An open • A high resistance • A short to ground Refer to Circuit Testing and Wiring Repairs. Did you find and correct the condition?	-		
			Go to Step 10	Go to Step 6
5	Test the ambient light sensor signal circuit of the ambient light sensor for a short to battery positive voltage. Refer to Circuit Testing and Wiring Repairs. Did you find and correct the condition?	-		
			Go to Step 10	Go to Step 7
6	Inspect for poor connections at the harness connector of the ambient light sensor. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs. Did you find and correct the condition?	-		
			Go to Step 10	Go to Step 8
	Inspect for poor connections at the harness connector of the BCM. Refer to Testing for Intermittent			

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7	Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	-	Go to Step 10	Go to Step 9
8	Replace the ambient light sensor. Refer to. 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	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC, as specified in the supporting text. Does the DTC reset?	-	Go to Step 2	System OK

DTC B3903**Circuit Description**

The body control module (BCM) supplies voltage to the center high mount stop lamp (CHMSL) and the powertrain control module (PCM) when the stop lamps are active.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B3903 Stop Lamp Relay Circuit**Conditions for Running the DTC**

- The BCM must be powered.
- This test is run continuously.

Conditions for Setting the DTC**B3903 02**

Will set if the stop lamp switch signal circuit is shorted to ground for 125 ms

B3903 05

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Will set if the stop lamp switch signal circuit is open or shorted to voltage for 125 ms

Action Taken When the DTC Sets

When DTC B3903 is set the service vehicle soon lamp will illuminate.

Conditions for Clearing the DTC

- The current DTC will clear when the fault is no longer present.
- The ignition key must be cycled OFF and ON.
- A history DTC clears after 100 consecutive ignition cycles in which no faults have occurred.
- Clear the DTC with a scan tool.

DTC B3903

Step	Action	Yes	No
Schematic Reference: <u>Exterior Lights Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Install a scan tool. 2. Turn ON the ignition, with the engine OFF. 3. Retrieve DTCs. Is the DTC retrieved as a current DTC?	Go to Step 3	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems
3	Is DTC B3903 02 set?	Go to Step 5	Go to Step 4
4	1. Place the ignition in the ON position. 2. Ensure that the brake pedal is not applied. 3. Observe the center high mount stop lamp (CHMSL). Is the CHMSL illuminated?	Go to Step 6	Go to Step 7
5	Test the stop lamp switch signal circuit for a short to ground. Refer to Circuit Protection - Circuit Breakers and Wiring Repairs in Wiring Systems.		

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	Did you find and correct the condition?	Go to Step 10	Go to Step 8
6	Test the stop lamp switch signal circuit for a short to voltage. Refer to Circuit Protection - Circuit Breakers and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 10	Go to Step 8
7	Test the stop lamp switch signal circuit for an open or high resistance. Refer to Circuit Protection - Circuit Breakers and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 10	Go to Step 8
8	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 in Wiring Systems. Did you find and correct the condition?	Go to Step 10	Go to Step 9
9	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 10	-
10	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Running the DTC. Does the DTC reset?	Go to Step 2	System OK

DTC B3948**Circuit Description**

The body control module (BCM) controls the left front turn signal, hazard lamp, and daytime running lamp (DRL). The BCM supplies voltage to control the lighting functions. The BCM monitors the left turn signal lamp supply voltage circuit for proper operation.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B3948 Left Front Turn Signal Circuit

Conditions for Setting the DTC

Will set if there is a short to ground in the left front turn signal circuit

B3948 05

Will set if there is an open or short to voltage in the left front turn signal circuit

Action Taken When the DTC Sets

- The Service Vehicle Soon message will be displayed.
- Stores a DTC B3948 in the BCM memory
- If the failure is an open, short to ground, or to power, the rear turn signal flashes at double rate.

Conditions for Clearing the DTC

- This DTC requires an ignition cycle in order to change from current to history.
- The BCM no longer detects continuous battery voltage on the LH turn signal monitor circuit for longer than 5 seconds.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.

Diagnostic Aids

- The following conditions may cause an intermittent malfunction:
 - There is an intermittent short to voltage in the LH turn signal monitor circuit.
 - The turn signal switch or the hazard switch is shorted internally or is sticking.
- If the BCM detects continuous voltage on the LH turn signal monitor circuit, the BCM interprets this as a short to voltage. The BCM will continue with normal DRL operation, and the LF turn signal will remain inoperative.
- If the DTC is a history DTC, the problem may be intermittent. Perform the tests shown while moving related wiring and connectors. This can often cause the malfunction to occur. Refer to **Testing for Intermittent Conditions and Poor Connections**.

DTC B3948

Step	Action	Yes	No
Schematic Reference: Exterior Lights Schematics			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle
	1. Turn ON the ignition, with the engine OFF. 2. Place the turn signal switch in the left	Go to Testing	

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	turn position.	for Intermittent Conditions and Poor Connections	
2	Does the left front turn signal operate properly?		Go to Step 3
3	Observe the left front turn signal lamp. Is the lamp always ON?	Go to Step 6	Go to Step 4
4	Inspect the condition of the left front turn signal bulb. Is the bulb burned out?	Go to Step 8	Go to Step 5
5	Test for the following in the left turn signal lamp supply voltage circuit: • An open • A high resistance • A short to ground Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 7
6	Test for a short to voltage in the left turn signal lamp supply voltage circuit. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the 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 Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 9
8	Replace the left front turn signal bulb. Refer to Headlamp Capsule Replacement . 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	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Setting the DTC, as		

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

DTC B3949

Circuit Description

The body control module (BCM) controls the right front turn signal, hazard lamp, and daytime running lamp (DRL). The BCM supplies voltage to control the lighting functions. The BCM monitors the right turn signal lamp supply voltage circuit for proper operation.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B3949 Right Front Turn Signal Circuit

Conditions for Setting the DTC

B3949 02

Will set if there is a short to ground in the right front turn signal circuit

B3949 05

Will set if there is an open or short to voltage in the right front turn signal circuit

Action Taken When the DTC Sets

- The service vehicle soon message will be displayed.
- Stores a DTC B3949 in the BCM memory
- If the failure is an open, short to ground, or to power, the rear turn signal flashes at double rate.

Conditions for Clearing the DTC

- This DTC requires an ignition cycle in order to change from current to history.
- The BCM no longer detects continuous battery voltage on the RH turn signal monitor circuit for longer than 5 seconds.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.

Diagnostic Aids

- The following conditions may cause an intermittent malfunction:
 - There is an intermittent short to voltage in the RH turn signal monitor circuit

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- The turn signal switch or the hazard switch is internally shorted or is sticking.
- The BCM needs to detect voltage oscillations on the RH turn signal monitor circuit in order to de-energize the RH DRL relay. If the BCM detects continuous voltage on the RH turn signal monitor circuit, the BCM interprets this as a short to voltage. The BCM will continue with normal DRL operation, and the RF turn signal will remain inoperative.
- If the DTC is a history DTC, the problem may be intermittent. Perform the tests shown while moving related wiring and connectors. This can often cause the malfunction to occur. Refer to **Testing for Intermittent Conditions and Poor Connections**.

DTC B3949

Step	Action	Yes	No
Schematic Reference: <u>Exterior Lights Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u>			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to <u>Diagnostic System Check - Vehicle</u>
2	1. Turn ON the ignition, with the engine OFF. 2. Place the turn signal switch in the right turn position. Does the left front turn signal operate properly?	Go to <u>Testing for Intermittent Conditions and Poor Connections</u>	Go to Step 3
3	Observe the right front turn signal lamp. Is the lamp always ON?	Go to Step 6	Go to Step 4
4	Inspect the condition of the right front turn signal bulb. Is the bulb burned out?	Go to Step 8	Go to Step 5
5	Test for the following in the right turn signal lamp supply voltage circuit: ● An open ● A high resistance ● A short to ground Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . Did you find and correct the condition?	Go to Step 10	Go to Step 7

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6	Test for a short to voltage in the right turn signal lamp supply voltage circuit. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the 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 Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 9
8	Replace the right front turn signal bulb. Refer to Headlamp Capsule Replacement . 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	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Setting the DTC, as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

DTC B3950**Circuit Description**

The body control module (BCM) controls the left rear turn signal and hazard lamp. The BCM supplies voltage to control the lighting functions. The BCM monitors the left rear stop/turn lamp supply voltage circuit for proper operation.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B3950 Left Rear Turn Signal Circuit

Conditions for Setting the DTC**B3950 02**

Will set if there is a short to ground in the left rear turn signal circuit

B3950 05

Will set if there is an open or short to voltage in the left rear turn signal circuit

Action Taken When the DTC Sets

- The Service Vehicle Soon message will be displayed.
- Stores a DTC B3950 in the BCM memory
- If the failure is an open, short to ground, or to power, the rear turn signal flashes at double rate.

Conditions for Clearing the DTC

- This DTC requires an ignition cycle in order to change from current to history.
- The BCM no longer detects continuous battery voltage on the LH turn signal monitor circuit for longer than 5 seconds.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.

Diagnostic Aids

- The following conditions may cause an intermittent malfunction:
 - There is an intermittent short to voltage in the LH turn signal monitor circuit.
 - The turn signal switch or the hazard switch is shorted internally or is sticking.
- If the BCM detects continuous voltage on the LH turn signal monitor circuit, the BCM interprets this as a short to voltage. The BCM will continue with normal daytime running lights (DRL) operation, and the LR turn signal will remain inoperative.
- If the DTC is a history DTC, the problem may be intermittent. Perform the tests shown while moving related wiring and connectors. This can often cause the malfunction to occur. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

DTC B3950

Step	Action	Yes	No
Schematic Reference: Exterior Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle
	1. Turn ON the ignition, with the engine OFF.		

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2	2. Place the turn signal switch in the left turn position. Does the left rear turn signal operate properly?	Go to Testing for Intermittent Conditions and Poor Connections	Go to Step 3
3	Observe the left rear turn signal lamp. Is the lamp always ON?	Go to Step 6	Go to Step 4
4	Inspect the condition of the left rear turn signal bulb. Is the bulb burned out?	Go to Step 8	Go to Step 5
5	Test for the following in the left rear stop/turn lamp supply voltage circuit: • An open • A high resistance • A short to ground Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 7
6	Test for a short to voltage in the left rear stop/turn lamp supply voltage circuit. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the 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 Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 9
8	Replace the left rear turn signal bulb. Refer to Tail Lamp Replacement . 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	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Setting the DTC, as		

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

DTC B3951

Circuit Description

The body control module (BCM) controls the right rear turn signal and hazard lamp. The BCM supplies voltage to control the lighting functions. The BCM monitors the right rear stop/turn lamp supply voltage circuit for proper operation.

DTC Descriptor

This diagnostic procedure supports the following DTC:

DTC B3951 Right Rear Turn Signal Circuit

Conditions for Setting the DTC

B3951 02

Will set if there is a short to ground in the right rear turn signal circuit

B3951 05

Will set if there is an open or short to voltage in the right rear turn signal circuit

Action Taken When the DTC Sets

- The Service Vehicle Soon message will be displayed.
- Stores a DTC B3951 in the BCM memory
- If the failure is an open, a short to ground, or to power, the rear turn signal flashes at double rate.

Conditions for Clearing the DTC

- This DTC requires an ignition cycle in order to change from current to history.
- The BCM no longer detects continuous battery voltage on the RH turn signal monitor circuit for longer than 5 seconds.
- A history DTC will clear after 50 consecutive ignition cycles if the condition for the malfunction is no longer present.

Diagnostic Aids

- The following conditions may cause an intermittent malfunction:
 - There is an intermittent short to voltage in the RH turn signal monitor circuit

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- The turn signal switch or the hazard switch is internally shorted or is sticking.
- If the BCM detects continuous voltage on the RR turn signal monitor circuit, the BCM interprets this as a short to voltage. The BCM will continue with normal daytime running lights (DRL) operation, and the RF turn signal will remain inoperative.
- If the DTC is a history DTC, the problem may be intermittent. Perform the tests shown while moving related wiring and connectors. This can often cause the malfunction to occur. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

DTC B3951

Step	Action	Yes	No
Schematic Reference: Exterior Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle
2	1. Turn ON the ignition, with the engine OFF. 2. Place the turn signal switch in the right turn position. Does the left rear turn signal operate properly?	Go to Testing for Intermittent Conditions and Poor Connections	Go to Step 3
3	Observe the right rear turn signal lamp. Is the lamp always ON?	Go to Step 6	Go to Step 4
4	Inspect the condition of the right rear turn signal bulb. Is the bulb burned out?	Go to Step 8	Go to Step 5
5	Test for the following in the right rear stop/turn lamp supply voltage circuit: ● An open ● A high resistance ● A short to ground Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 7

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6	Test for a short to voltage in the right rear stop/turn lamp supply voltage circuit. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the 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 Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 9
8	Replace the right rear turn signal bulb. Refer to Tail Lamp Replacement . 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	1. Use the scan tool in order to clear the DTCs. 2. Operate the vehicle within the Conditions for Setting the DTC, as specified in the supporting text. Does the DTC reset?	Go to Step 2	System OK

SYMPTOMS - LIGHTING SYSTEMS

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

1. Perform the Vehicle System Check before using the symptom tables in order to verify that all of the following are true:
 - There are no DTCs set.
 - The body control module (BCM) 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

Several of the symptom procedures ask for a careful visual/physical check. This step is

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extremely important; it could lead to correcting a problem without further checks and can save valuable time. These checks include the following:

- Inspect for aftermarket devices which could affect the operation of the Lighting System. Refer to **Checking Aftermarket Accessories** in Wiring Systems.
- Inspect the easily accessible or visible system components and harness connectors for obvious damage or conditions which could cause the symptom.
- If only one lamp is inoperative, inspect and repair a poor connection or an open in the power feed or ground circuit before replacing the light bulb. Refer to **Circuit Testing** and **Wiring Repairs** in Wiring Systems.

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose a symptom that does not set a DTC:

- **Backup Lamps Always On**
- **Backup Lamps Inoperative**
- **Courtesy Lamps Always On**
- **Courtesy Lamps Inoperative**
- **Fog Lamps Always On**
- **Fog Lamps Inoperative**
- **Hazard Lamps Inoperative**
- **Headlamps Always On - Low or High Beam**
- **Headlamps Inoperative - High Beams**
- **Headlamps Inoperative - Low Beams**
- **Headlamps Inoperative - Low and High Beams**
- **Headlamps Inoperative - Flash to Pass**
- **High Beam Indicator Inoperative**
- **Park Lamps Inoperative**
- **Reading Lamp(s) Inoperative**
- **Rear Compartment Lamp(s) Inoperative**
- **Stop Lamps Inoperative**
- **Turn Signal Lamps and/or Indicators Inoperative**

AUTOMATIC LAMP CONTROL INOPERATIVE

Automatic Lamp Control Inoperative

Step	Action	Yes	No
Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u>			

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DEFINITION: Automatic headlamps are inoperative.

1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle
2	- Cover the ambient light sensor. - Place the headlamp switch in the AUTO position. - Turn ON the ignition, with the engine OFF. - Wait 20 seconds. Do the headlamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections	Go to Step 3
3	- Disconnect the ambient light sensor. - With a scan tool, observe the Day/Night Status parameter. Does the scan tool indicate Night?	Go to Step 4	Go to Step 5
4	Inspect for poor connections at the harness connector of the ambient light sensor. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs. Did you find and correct the condition?	Go to Step 8	Go to Step 6
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. Did you find and correct the condition?	Go to Step 8	Go to Step 7
6	Replace the ambient light sensor. Refer to. Did you complete the replacement?	Go to Step 8	-
7	Replace the BCM. Refer to Control Module References for replacement, setup, and programming. Did you complete the replacement?	Go to Step 8	-
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

BACKUP LAMPS ALWAYS ON

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Backup Lamps Always On

Step	Action	Yes	No
Schematic Reference: Exterior Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn the ignition to the ON position. 2. Ensure that the gear selector is in park or neutral. Are the backup lamps OFF?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Remove the backup lamp relay. Are the backup lamps illuminated?	Go to Step 4	Go to Step 5
4	Test for a short to voltage in the backup lamp voltage supply circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 6
5	Inspect for poor connections at the backup lamp relay. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 7
6	Inspect for poor connections at the fuse block - rear. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 8
7	Replace the backup lamp relay. Refer to Relay Replacement (Within an Electrical Center) or Relay Replacement (Attached to Wire Harness) in Wiring Systems. Did you complete the replacement?	Go to Step 9	-
8	Replace the fuse block - rear.	-	-

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	Did you complete the replacement?	Go to Step 9	
9	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

BACKUP LAMPS INOPERATIVE

Backup Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: <u>Exterior Lights Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn the ignition to the ON position. 2. Place the gear selector lever to the REVERSE position. Do both backup lamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Is only one lamp inoperative?	Go to Step 9	Go to Step 4
4	1. Disconnect the backup lamp relay. 2. Probe the switch side battery positive voltage circuit of the backup lamp relay with a test lamp that is connected to a good ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 7
5	Connect a 10-amp fused jumper between the switch side battery positive voltage circuit of the backup lamp relay and the backup lamp voltage supply circuit of the backup lamp relay. Do the backup lamps illuminate?	Go to Step 8	Go to Step 6
6	Test for an open or high resistance in the backup lamp voltage supply circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems.		

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	Did you find and correct the condition?	Go to Step 12	Go to Step 7
7	Inspect for poor connections at the fuse block - rear. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 10
8	Inspect for poor connections at the backup lamp relay. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 12	Go to Step 11
9	Repair an open, high resistance, or short to ground in the backup lamp voltage supply circuit or the ground circuit of the inoperative lamp. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 12	-
10	Replace the fuse block - rear. Did you complete the replacement?	Go to Step 12	-
11	Replace the backup lamp relay. Refer to Relay Replacement (Within an Electrical Center) or Relay Replacement (Attached to Wire Harness) in Wiring Systems. 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 2

COURTESY LAMPS ALWAYS ON

Courtesy Lamps Always On

Step	Action	Yes	No
Schematic Reference: Interior Lights Dimming Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information

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2	1. Turn the headlamp switch to the OFF position. 2. Close all doors. Are all of the courtesy lamps OFF?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Disconnect the body control module (BCM) connector C3. Do the instrument panel (I/P) courtesy lamps turn OFF?	Go to Step 4	Go to Step 5
4	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 6	-
5	Repair a short to ground in the courtesy lamp low control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	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

COURTESY LAMPS INOPERATIVE

Courtesy Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: <u>Interior Lights Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Open each of the doors. Do all of the courtesy lamps illuminate when you open each door?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3

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3	Are the courtesy lamps inoperative from one door only?	Go to Diagnostic Starting Point - Doors in Doors	Go to Step 4
4	Are all of the courtesy lamps inoperative?	Go to Step 7	Go to Step 5
5	Test for an open or high resistance in the inoperative courtesy lamp voltage supply circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 8	Go to Step 6
6	Test for an open or a short to battery positive voltage in the courtesy lamp low control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 8	Go to Step 7
7	Replace the body control module (BCM). Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 8	-
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

DAYTIME RUNNING LAMPS (DRL) INOPERATIVE

Daytime Running Lamps (DRL) Inoperative

Step	Action	Yes	No
Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics 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	- Expose the ambient light sensor to a bright incandescent lamp. - Turn ON the ignition, with the engine OFF. - Place the headlamp switch in the OFF position. - Ensure the parking brake is disengaged.		

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	5. Block the wheels. 6. Place the transaxle in NEUTRAL. Do the daytime running lights (DRL) illuminate?	Go to Testing for Intermittent Conditions and Poor Connections	Go to Step 3
3	Using a scan tool, observe the Day/Night Status parameter. Does the scan tool indicate Day?	Go to Step 6	Go to Step 4
4	1. Disconnect the ambient light sensor. 2. Connect a 3-amp fused jumper wire between the ambient light sensor signal circuit and the ambient light sensor low reference circuit. 3. Using a scan tool, observe the Day/Night Status parameter. Does the scan tool indicate Day?	Go to Step 7	Go to Step 5
5	Test the ambient light sensor low reference circuit for an open or high resistance. Refer to Circuit Testing and Wiring Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 6
6	Inspect for poor connections at the body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 8
7	Inspect for poor connections at the ambient light sensor. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs . Did you find and correct the condition?	Go to Step 10	Go to Step 9
8	Replace the BCM. Refer to Control Module References for replacement, setup, and programming. Did you complete the replacement?	Go to Step 10	-
9	Replace the ambient light sensor. Refer to . 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 2

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Dome Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: Interior Lights Schematics			
DEFINITION: The dome lamp is inoperative from the dome lamp switch only.			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Place the dome lamp switch in the ON position. Does the dome lamp illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Do the courtesy lamps operate properly?	Go to Step 4	Go to Courtesy Lamps Inoperative
4	1. Disconnect the dome lamp assembly. 2. Probe the ground circuit of the dome lamp with a test lamp that is connected to battery positive voltage. Does the test lamp illuminate?	Go to Step 5	Go to Step 6
5	Inspect for poor connections at the harness connector of the dome lamp. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 8	Go to Step 7
6	Repair an open or high resistance in the ground circuit of the dome lamp. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 8	-
7	Replace the dome lamp assembly. Did you complete the replacement?	Go to Step 8	-
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

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FOG LAMP INDICATOR INOPERATIVE

Fog Lamp Indicator Inoperative

Step	Action	Yes	No
Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn ON the ignition, with the engine OFF. 2. Observe the fog lamp indicator on the instrument cluster. Does the indicator illuminate during the bulb check?	Go to Step 3	Go to Step 4
3	1. Place the headlamp switch in the HEADLAMP position. 2. Place the fog lamp switch in the ON position. Does the indicator illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 5
4	Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 8	Go to Step 6
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 in Wiring Systems. Did you find and correct the condition?	Go to Step 8	Go to Step 7
6	Replace the IPC. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 8	-
	Replace the BCM. Refer to Control		

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7	Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 8	-
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

FOG LAMPS ALWAYS ON

Fog Lamps Always On

Step	Action	Yes	No
Schematic Reference: Fog Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn the ignition to the ON position. 2. Press the fog lamp switch to the OFF position. Are the fog lamps OFF?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Using a scan tool, command the fog lamps OFF. Are the fog lamps illuminated?	Go to Step 5	Go to Step 4
4	1. Disconnect the scan tool. 2. Disconnect the fog lamp switch. 3. Connect a 3-amp fused jumper wire between the front fog lamp switch signal circuit and a good ground. Are the fog lamps illuminated?	Go to Step 6	Go to Step 9
5	Test the fog lamp voltage supply circuit for a short to voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 7
	Test the front fog lamp switch signal circuit		

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6	for the following: • An open • A high resistance • A short to ground Refer to Circuit Testing and Wiring Repairs in Wiring Systems. 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 underhood fuse block. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. 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 body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. 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 fog lamp switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 13	Go to Step 12
10	Replace the underhood fuse block. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 13	-
11	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 13	-
12	Replace the fog lamp switch. Refer to Fog Lamp Switch Replacement - Front. Did you complete the replacement?	Go to Step 13	-
	Operate the system in order to verify the		

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13	repair. Did you correct the condition?	System OK	Go to Step 2
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FOG LAMPS INOPERATIVE

Fog Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: Fog Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems DEFINITION: Use this chart if either the front or the rear fog lamp is inoperative.			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn ON the ignition, with the engine OFF. 2. Turn the headlamp switch to the PARK position. 3. Turn the fog lamps to the ON position. Do both fog lamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Using a scan tool, command the fog lamps ON. Do the fog lamps illuminate?	Go to Step 6	Go to Step 4
4	1. Disconnect the FOGLP fuse. 2. Probe the switch side of the fog lamps relay with a test lamp that is connected to a good ground. Does the test lamp illuminate?	Go to Step 8	Go to Step 11
5	Using a scan tool, observe the Fog Lamp Switch Data parameter while pressing the fog lamp switch. Does the scan tool display active when pressing the switch and inactive when you release the switch?	Go to Step 12	Go to Step 6
6	1. Disconnect the fog lamp switch. 2. Observe the Fog Lamp Switch Data		

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	parameter.		
	Does the scan tool display inactive?	Go to Step 7	Go to Step 9
7	1. Connect a 3-amp fused jumper wire between the fog lamp switch signal circuit of the fog lamp switch and a good ground. 2. Observe the Fog Lamp Switch Data parameter.		
	Does the scan tool display active?	Go to Step 13	Go to Step 10
8	Test for the following in the fog lamp voltage supply circuit: Wiring Repairs in Wiring Systems. • An open • A high resistance • A short to ground		
	Refer to Circuit Testing and Did you find and correct the condition?	Go to Step 17	Go to Step 11
9	Test the fog lamp switch signal circuit for a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 12
10	Test the fog lamp switch signal circuit for an open or high resistance. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 12
11	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 in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 16
12	Inspect for poor connections at the body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems.		

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	Did you find and correct the condition?	Go to Step 17	Go to Step 14
13	Inspect for poor connections at the fog lamp switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 15
14	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 17	-
15	Replace the fog lamp switch. Did you complete the replacement?	Go to Step 17	-
16	Replace the underhood fuse block. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 17	-
17	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

HAZARD LAMPS INOPERATIVE

Hazard Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: Exterior Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Place the hazard switch to the ON position. Do the hazard lamps turn ON?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
	1. Disconnect the hazard switch.		

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3	2. Install a jumper between the hazard switch signal circuit and the ground circuit. Do the hazard lamps illuminate?	Go to Step 6	Go to Step 4
4	Using a test lamp connected to battery positive voltage, probe the ground circuit of the hazard switch. Does the test lamp illuminate?	Go to Step 5	Go to Step 8
5	Test the hazard warning switch signal circuit for the following: • An open • A poor connection • A short to battery positive voltage Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 7
6	Inspect for poor connections at the hazard switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
7	Inspect for poor connections body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 10
8	Repair a poor connection, an open, or a short to battery positive voltage in the hazard warning switch ground circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 11	-
9	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 11	-

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10	Replace the hazard warning switch. Refer to Hazard Warning Switch Replacement . Is the repair complete?	Go to Step 11	-
11	Operate the system in order to verify the repair. 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: <u>Headlights/Daytime Running Lights (DRL) Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Turn the headlamp switch to the OFF position. Do the low and high beam headlamps remain OFF?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Are the high beam headlamps ON at all times when the low beams are ON?	Go to Step 4	Go to Step 9
4	Disconnect the body control module (BCM) connector C1 Are the high beam headlamps illuminated?	Go to Step 5	Go to Step 6
5	Test for a short to ground in the headlamp high beam relay control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 14
6	1. Reconnect the BCM connector C1. 2. Disconnect the turn signal/multifunction switch connector C2. Are the high beam headlamp illuminated?	Go to Step 7	Go to Step 16

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7	Test for a short to ground in the flash to pass switch signal circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 8
8	Test for a short to ground in the headlamp switch high beam signal circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 16
9	Disconnect the BCM connector C2. Are the low beam headlamps ON?	Go to Step 10	Go to Step 11
10	Test for a short to ground in the headlamp low beam relay control circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 14
11	1. Reconnect the BCM connector C2. 2. Disconnect the turn signal/multifunction switch connector C3. Are the low beam headlamps ON?	Go to Step 12	Go to Step 15
12	Test for the following in the headlamp switch OFF signal circuit: • An open • A poor connection • A short to battery positive voltage Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 13
13	Test for a short to ground in the headlamp switch headlamps ON signal circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 16
14	Inspect for poor connections at the underhood fuse block. Refer to Testing for Intermittent Conditions and Poor		

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	Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 17
15	Inspect for poor connections at the turn signal/multifunction switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 18
16	Inspect for poor connections at the BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 19
17	Replace the underhood fuse block. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 20	-
18	Replace the turn signal/multifunction switch. Refer to Multifunction, Turn Signal Switch Replacement in Steering Wheel and Column. Did you complete the replacement?	Go to Step 20	-
19	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the repair?	Go to Step 20	-
20	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

HEADLAMPS INOPERATIVE - HIGH BEAMS

Headlamps Inoperative - High Beams

Step	Action	Yes	No
Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
	Did you perform the Diagnostic System Check - Vehicle?		Go to Diagnostic System Check -

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1		Go to Step 2	Vehicle in Vehicle DTC Information
2	1. Turn ON the ignition, with the engine OFF. 2. Place the headlamp switch in the HEADLAMP position. 3. Place the headlamp dimmer switch in the HIGH BEAM position. Do the HIGH beam headlamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Are both high beam headlamps inoperative?	Go to Step 6	Go to Step 4
4	1. Turn the ignition to the ON position. 2. Turn the headlamps switch to the HEAD position. 3. Turn the headlamp dimmer switch to the HIGH position. 4. Disconnect the inoperative high beam headlamp. 5. Using a test lamp connected to ground, probe the high beam voltage supply circuit. Does the test lamp illuminate?	Go to Step 13	Go to Step 5
5	Test the high beam voltage supply circuit for the following: • An open • A poor connection • A short to ground Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 11
6	Place the headlamp switch to the FTP position. Do the high beam headlamp illuminate?	Go to Step 8	Go to Step 7
	1. Disconnect BCM connector C1. 2. Install a 10-amp fused jumper between		

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7	the headlamp high beam relay control circuit and a good ground. Do the high beam headlamps illuminate?	Go to Step 12	Go to Step 11
8	Test for the following in the headlamp switch high beam signal circuit: • An open • A poor connection • A short to voltage Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 9
9	1. Disconnect the body control module (BCM) connector C2. 2. Using a test light connected to ground, probe the headlamp switch high beam signal circuit. 3. Place the headlamp switch to the HIGH position. Do the high beam headlamps illuminate?	Go to Step 12	Go to Step 10
10	Inspect for poor connections at the turn signal/multifunction switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 14
11	Inspect for poor connections at the fuse block - underhood. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 15
12	Inspect for poor connections at the BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 17	Go to Step 16
	Repair an open or high resistance in the		

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13	ground circuit of the inoperative headlamp. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 17	-
14	Replace the headlamp switch. Refer to Multifunction, Turn Signal Switch Replacement in Steering Wheel and Column. Did you complete the replacement?	Go to Step 17	-
15	Replace the fuse block - underhood. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 17	-
16	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 17	-
17	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

HEADLAMPS INOPERATIVE - LOW BEAMS

Headlamps Inoperative - Low Beams

Step	Action	Yes	No
Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Place the headlamp switch in the HEADLAMP position. 2. Place the headlamp dimmer switch in the LOW position. Do the low beam headlamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3

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3	Using a scan tool, command the low beam headlamps ON. Do the low beam headlamps illuminate?	Go to Step 8	Go to Step 4
4	1. Disconnect the turn/headlamp switch connector C2. 2. Connect a 15-amp fused jumper between the low beam relay control circuit and the headlamp switch signal circuit. Do the low beam headlamps illuminate?	Go to Step 8	Go to Step 5
5	Connect a 15-amp fused jumper between the low beam relay control circuit and a good ground. Do the low beam headlamps illuminate?	Go to Step 6	Go to Step 7
6	Test the headlamp switch signal circuit for an open or high resistance. Refer to Circuit Testing and Wiring Repairs in Wiring Systems Did you find and correct the condition?	Go to Step 14	Go to Step 9
7	Test the low beam relay control circuit for an open or high resistance. Refer to Circuit Testing and Wiring Repairs in Wiring Systems 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 turn/headlamp switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. 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 BCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 14	Go to Step 12
10	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 in Wiring Systems.		

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	Did you find and correct the condition?	Go to Step 14	Go to Step 13
11	Replace the turn/headlamp switch. Refer to Multifunction, Turn Signal Switch Replacement in Steering Wheel and Column. Did you complete the replacement?	Go to Step 14	-
12	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 14	-
13	Replace the underhood fuse block. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 14	-
14	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

HEADLAMPS INOPERATIVE - LOW AND HIGH BEAMS

Headlamps Inoperative - Low and High Beams

Step	Action	Yes	No
Schematic Reference: Headlights/Daytime Running Lights (DRL) Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Place the headlamp switch in the HEADLAMP position. 2. Place the headlamp dimmer switch in the LOW position. 3. Observe the headlamps. 4. Place the headlamp dimmer switch in the HIGH position. 5. Observe the headlamps.	Go to Testing for Intermittent Conditions and Poor	

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	Do both the low and high beam headlamps illuminate?	Connections in Wiring Systems	Go to Step 3
3	Test for an open or high resistance in the ground circuit of the turn/headlamp switch. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 6	Go to Step 4
4	Inspect for poor connections at the turn/headlamp switch assembly. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 6	Go to Step 5
5	Replace the turn/headlamp switch assembly. Refer to Multifunction, Turn Signal Switch Replacement in Steering Wheel and Column. Did you complete the repair?	Go to Step 6	-
6	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

HEADLAMPS INOPERATIVE - FLASH TO PASS

Headlamps Inoperative - Flash to Pass

Step	Action	Yes	No
Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn the ignition switch to the ON position. 2. Turn the headlamp switch to the HEAD position. 3. Place the headlamp dimmer switch to the HIGH position. 4. Verify that the high beam headlamps		Go to

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	operate properly.		<u>Headlamps Inoperative - High Beams</u>
	Do the high beams operate properly?	Go to Step 3	
3	1. Disconnect the body control module (BCM) connector C2. 2. Probe the flash-to-pass switch signal circuit of the BCM C2 connector with a test lamp that is connected to battery positive voltage. 3. Pull and hold the Flash-to-Pass switch.		
	Does the test lamp illuminate?	Go to Step 8	Go to Step 4
4	1. Disconnect the multifunction switch connector 2. Probe the ground circuit of the multifunction switch with a test lamp that is connected to battery positive voltage.		
	Does the test lamp illuminate?	Go to Step 6	Go to Step 5
5	Repair an open or high resistance in the ground circuit of the multifunction switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 9	-
6	Test for a poor connection, open or short to battery positive voltage in the flash to pass signal circuit. Refer to <u>Circuit Testing</u> and to <u>Wiring Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 7
7	Replace the multifunction switch. Refer to <u>Multifunction, Turn Signal Switch Replacement</u> in Steering Wheel and Column. Did you complete the repair?	Go to Step 9	-
8	Replace the BCM. Refer to <u>Control Module References</u> in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the repair?	Go to Step 9	-
	1. Connect all connectors and components		

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9	that were disconnected.		
	2. Verify that the flash to pass system operates properly.		
	Does the flash to pass system operate properly?	System OK	Go to Step 2

HIGH BEAM INDICATOR INOPERATIVE**High Beam Indicator Inoperative**

Step	Action	Yes	No
Schematic Reference: <u>Headlights/Daytime Running Lights (DRL) Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Place the headlamp switch in the ON position. 2. Turn ON the ignition, with the engine OFF. 3. Place the headlamp dimmer switch in the HIGH position. 4. Observe the high beam indicator. Does the indicator illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Using a scan tool, command the high beam indicator on. Does the high beam indicator illuminate?	Go to Step 4	Go to Step 5
4	Inspect for a poor connection at the harness connector of the body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 8	Go to Step 7
5	Inspect for a poor connection at the harness connector of the instrument panel cluster (IPC). Refer to Testing for Intermittent Conditions and Poor Connections and		

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	Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 8	Go to Step 6
6	Replace the IPC. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 8	-
7	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 8	-
8	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 2

ILLUMINATED ENTRY LAMPS INOPERATIVE

Illuminated Entry Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: <u>Interior Lights Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn OFF the ignition. 2. Lock all of the vehicles doors. 3. Close all of the vehicles doors. 4. Wait 20 seconds. 5. Press the unlock button on the remote keyless entry transmitter. Do the courtesy lamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Does the drivers door unlock?	Go to Step 4	Go to Symptoms - Keyless Entry in Keyless Entry
	Replace the body control module (BCM).		

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4	Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 5	-
5	Operate the system in order to verify the repair. 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 Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Place the headlamp switch in the PARK position. 2. Operate the instrument panel (I/P) dimmer switch. Do the instrument panel lamps operate properly?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	1. Place the headlamp switch in the OFF position. 2. Disconnect the I/P dimmer switch. 3. Place the headlamp switch in the PARK position. Are the instrument panel lamps illuminated?	Go to Step 4	Go to Step 6
4	Test the I/P dimmer switch signal circuit for a short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 5
	Inspect for poor connections at the body control module (BCM). Refer to Testing		

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5	for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 7
6	Inspect for poor connections at the I/P dimmer switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 9	Go to Step 8
7	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the repair?	Go to Step 9	-
8	Replace the I/P dimmer switch. Refer to Instrument Panel (I/P) Dimmer Switch Replacement . Did you complete the replacement?	Go to Step 9	-
9	Operate the system in order to verify the repair. 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 Connector End View Reference: Master Electrical Component List in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Place the headlamp switch in the PARK position. 2. Operate the instrument panel (I/P) dimmer switch. Do the instrument panel lamps operate	Go to Testing for Intermittent Conditions and Poor Connections in	

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	properly?	Wiring Systems	Go to Step 3
3	1. Place the headlamp switch in the OFF position. 2. Disconnect the I/P dimmer switch. 3. Connect a 3-amp fused jumper wire between the I/P dimmer switch signal circuit and a good ground. 4. Place the headlamp switch in the PARK position. Does the back lighting illuminate?	Go to Step 4	Go to Step 5
4	Connect the fused jumper wire between the I/P dimmer switch signal circuit and the I/P dimmer switch ground circuit. Does the back lighting illuminate?	Go to Step 7	Go to Step 6
5	Test the I/P dimmer switch signal circuit for an open, high resistance, or short to ground. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 8
6	Test the I/P dimmer switch ground circuit for an open or high resistance. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 8
7	Inspect for poor connections at the I/P dimmer switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 9
8	Inspect for poor connections at the body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 11	Go to Step 10
9	Replace the I/P dimmer switch. Refer to Instrument Panel (I/P) Dimmer Switch Replacement. Did you complete the replacement?	Go to Step 11	-
	Replace the BCM. Refer to Control		

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10	Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the repair?	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

INSTRUMENT PANEL (I/P) COMPARTMENT LAMP INOPERATIVE**Instrument Panel (I/P) Compartment Lamp Inoperative**

Step	Action	Yes	No
Schematic Reference: Interior Lights Schematics			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Open the instrument panel (I/P) compartment. Does the I/P compartment lamp illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Do the courtesy lamps operate properly?	Go to Step 4	Go to Courtesy Lamps Inoperative
4	1. Disconnect the I/P compartment lamp switch. 2. Probe the courtesy lamps supply voltage circuit of the I/P compartment lamp with a test lamp that is connected to a good ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 7
5	Connect a test lamp between the courtesy lamps supply voltage circuit and the ground circuit of the I/P compartment lamp. Does the test lamp illuminate?	Go to Step 6	Go to Step 8
	Inspect for poor connections at the harness connector of the I/P compartment lamp		

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6	switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 10	Go to Step 9
7	Repair an open or high resistance in the courtesy lamps supply voltage circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 10	-
8	Repair an open or high resistance in the ground circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 10	-
9	Replace the I/P compartment lamp switch. 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

PARK LAMPS INOPERATIVE

Park Lamps Inoperative

Step	Action	Yes	No
Schematic Reference: Interior Lights Schematics Connector End View Reference: Master Electrical Component List in Wiring Systems.			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn ON the ignition, with the engine OFF. 2. Turn the headlamp switch to the PARK position. Do all of the park lamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Is only one lamp inoperative?	Go to Step 12	Go to Step 4
4	Using a scan tool, command the park lamps ON. Do the park lamps illuminate?	Go to Step 5	Go to Step 6

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5	1. Disconnect the scan tool. 2. Disconnect the turn signal/multifunction switch. 3. Connect a 3-amp fused jumper wire between the park lamp switch signal circuit of the turn signal/multifunction switch and a good ground. Do the park lamps illuminate?	Go to Step 9	Go to Step 8
6	1. Remove the PARK LPS fuse. 2. Probe the switch side circuit of the park lamps relay with a test lamp that is connected to a good ground. Does the test lamp illuminate?	Go to Step 7	Go to Step 10
7	Test for the following in the park lamp supply voltage circuit: • An open • A high resistance • A short to ground Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 10
8	Test for an open or high resistance in the park lamp switch signal circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 11
9	Inspect for poor connections at the turn signal/multifunction switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 13
10	Inspect for poor connections at the underhood fuse block. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems.		

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	Did you find and correct the condition?	Go to Step 16	Go to Step 14
11	Inspect for poor connections at the body control module (BCM). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 15
12	Repair for the following in the voltage supply circuit or the ground circuit of the inoperative lamp: • An open • A high resistance • A short to ground Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 16	-
13	Replace the turn signal/multifunction switch. Refer to Multifunction, Turn Signal Switch Replacement in Steering Wheel and Column. Did you complete the replacement?	Go to Step 16	-
14	Replace the underhood fuse block. Refer to Underhood Electrical Center or Junction Block Bracket Replacement in Wiring Systems. Did you complete the replacement?	Go to Step 16	-
15	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 16	-
16	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

READING LAMP(S) INOPERATIVE

Reading Lamp(s) Inoperative

Step	Action	Yes	No

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Schematic Reference: Interior Lights Schematics

1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Do the reading lamps operate properly with the lamp switches?	Go to Step 7	Go to Step 3
3	Is only one reading lamp inoperative?	Go to Step 4	Go to Step 5
4	1. Inspect the power supply, ground circuit, and switch for a poor connection or an open in the inoperative lamp circuit. Refer to Circuit Testing in Wiring Systems. 2. Repair the poor connection or open in the inoperative lamp circuit. Refer to Wiring Repairs in Wiring Systems. 3. If no fault is found, replace the inoperative lamp. Did you complete the repair?	Go to Step 11	-
5	1. Disconnect the reading lamp switch connector. 2. Test for a high resistance or an open in the ground circuit at the reading lamp switch connector. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Is ground present?	Go to Step 6	Go to Step 8
6	Test for a high resistance or an open in the inadvertent power control circuit between the reading lamp assembly and the body control module (BCM). Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Was a condition found and corrected?	Go to Step 11	Go to Step 9
7	Test for a high resistance or an open in the interior control circuit between the reading lamp assembly and the BCM. Refer to Circuit Testing and Wiring Repairs in		

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	Wiring Systems. Was a condition found and corrected?	Go to Step 11	Go to Step 10
8	Repair the open in the ground circuit for the reading lamp switch. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 11	-
9	Replace the reading lamp assembly. Did you complete the repair?	Go to Step 11	-
10	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

REAR COMPARTMENT LAMP(S) INOPERATIVE

Rear Compartment Lamp(s) Inoperative

Step	Action	Yes	No
Schematic Reference: Interior Lights Schematics			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	Inspect the rear compartment courtesy lamp bulb. Is the bulb filament open?	Go to Step 9	Go to Step 3
3	Use a test lamp connected to a good ground in order to test for battery positive voltage at the rear compartment courtesy lamp connector. Does the test lamp illuminate?	Go to Step 4	Go to Step 8
4	Test for a high resistance or an open in the rear compartment courtesy lamp switched circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Is the rear compartment courtesy lamp switch control circuit open?	Go to Step 6	Go to Step 5

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5	1. Disconnect the rear compartment courtesy lamp switch. 2. Connect a fused jumper wire across the rear compartment lamp switch connector bypassing the switch contacts. 3. Reinstall the rear compartment lamp if removed.		
	Does the rear compartment lamp illuminate?	Go to Step 10	Go to Step 7
6	Repair the open in the rear compartment lamp switch control circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 11	-
7	Repair the open in the rear compartment lamp switch ground circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 11	-
8	Repair the open in the rear compartment lamp battery positive voltage circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 11	-
9	Replace the rear compartment courtesy lamp bulb. Did you complete the repair?	Go to Step 11	-
10	Replace the rear compartment courtesy lamp switch. Did you complete the repair?	Go to Step 11	-
11	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

STOP LAMPS INOPERATIVE

Stop Lamps Inoperative

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

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		Go to Step 2	Vehicle DTC Information
2	Press down the brake pedal. Do all of the stop lamps illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Is only one lamp inoperative?	Go to Step 4	Go to Step 5
4	1. Disconnect the inoperative stop lamp. 2. Probe the stop lamp supply voltage circuit of the inoperative lamp with a test lamp that is connected to a good ground. 3. Press down the brake pedal.		
	Does the test lamp illuminate?	Go to Step 12	Go to Step 7
5	1. Disconnect the stop lamp switch. 2. Probe the battery positive voltage circuit of the stop lamp switch with a test lamp that is connected to a good ground.		
	Does the test lamp illuminate?	Go to Step 6	Go to Step 13
6	Connect a 15-amp fused jumper wire between the battery positive voltage circuit of the stop lamp switch and the stop lamp supply voltage circuit of the stop lamp switch. Do the stop lamps illuminate?	Go to Step 9	Go to Step 8
7	Test for an open, high resistance, or short to ground in the stop lamp supply voltage circuit of the inoperative stop lamp. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 11
8	Test for an open, high resistance, or short to ground in the stop lamp supply voltage circuit between the stop lamp switch and the body control module (BCM). Refer to Circuit Testing and Wiring Repairs in Wiring Systems.		

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	Did you find and correct the condition?	Go to Step 16	Go to Step 11
9	Inspect the stop lamp switch for proper adjustment. Refer to <u>Stop Lamp Switch Adjustment</u> . Did you find and correct the condition?	Go to Step 16	Go to Step 10
10	Inspect for poor connections at the harness connector of the stop lamp switch. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 14
11	Inspect for poor connections at the harness connector of the BCM. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> in Wiring Systems. Did you find and correct the condition?	Go to Step 16	Go to Step 15
12	Repair an open or high resistance in the ground circuit of the inoperative stop lamp. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 16	-
13	Repair an open, high resistance, or short to ground in the battery positive voltage circuit of the stop lamp switch. Refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> in Wiring Systems. Did you complete the repair?	Go to Step 16	-
14	Replace the stop lamp switch. Refer to <u>Stop Lamp Switch Replacement</u> . Did you complete the replacement?	Go to Step 16	-
15	Replace the BCM. Refer to <u>Control Module References</u> in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 16	-
16	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

TURN SIGNAL LAMPS AND/OR INDICATORS INOPERATIVE

Turn Signal Lamps and/or Indicators Inoperative

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Step	Action	Yes	No
Schematic Reference: <u>Exterior Lights Schematics</u> Connector End View Reference: <u>Master Electrical Component List</u> in Wiring Systems			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information
2	1. Turn ON the ignition, with the engine OFF. 2. Place the turn signal lever in the LEFT turn position. 3. Place the turn signal lever in the RIGHT turn position. Do the appropriate turn signal lamps and/or indicators illuminate for each action?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Is only one turn signal lamp inoperative?	Go to Step 6	Go to Step 4
4	Is one or both of the turn signal indicators inoperative?	Go to Step 5	Go to Step 7
5	1. Using a scan tool, command the turn signals for the appropriate side ON. 2. Observe the turn signal indicators. Does the appropriate turn signal indicator illuminate and flash?	Go to Step 13	Go to Step 11
6	1. Disconnect the inoperative turn signal lamp. 2. Probe the turn signal supply voltage circuit of the inoperative lamp with a test lamp that is connected to a good ground. 3. Place the turn signal lever in the position of the inoperative lamp. Does the test lamp illuminate and flash?	Go to Step 14	Go to Step 15
7	Do the hazard lamps operate properly?	Go to Step 8	Go to Hazard Lamps Inoperative

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8	1. Disconnect the turn signal/multifunction switch. 2. Connect a 3-amp fuse jumper wire between the left turn signal switch signal circuit of the turn signal/multifunction switch and a good ground. Do the left turn lamps illuminate and flash?	Go to Step 9	Go to Step 10
9	Connect the 3-amp fused jumper wire between the left turn signal switch signal circuit of the turn signal/multifunction switch and the ground circuit of the turn signal/multifunction switch. Do the left turn lamps illuminate and flash?	Go to Step 12	Go to Step 16
10	Test the left turn signal switch signal circuit for an open or high resistance. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 13
11	Inspect for poor connections at the harness connector of the instrument panel cluster (IPC). Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 17
12	Inspect for poor connections at the harness connector of the turn/headlamp/wiper switch. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 20	Go to Step 18
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 in Wiring Systems. Did you find and correct the condition?	Go to Step 20	-
14	Repair an open or high resistance in the ground circuit of the inoperative lamp. Refer to Circuit Testing and Wiring Repairs in Wiring Systems.		-

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	Did you complete the repair?	Go to Step 20	
15	Repair an open, high resistance, or short to ground in the inoperative turn signal supply voltage circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 20	-
16	Repair an open or high resistance in the ground circuit of the turn signal/multifunction switch. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 20	-
17	Replace the IPC. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 20	-
18	Replace the turn signal/multifunction switch. Refer to Multifunction, Turn Signal Switch Replacement in Steering Wheel and Column. Did you complete the replacement?	Go to Step 20	-
19	Replace the BCM. Refer to Control Module References in Computer/Integrating Systems for replacement, setup, and programming. Did you complete the replacement?	Go to Step 20	-
20	Operate the system in order to verify the repair. Did you correct the condition?	System OK	Go to Step 3

VANITY MIRROR LAMP(S) INOPERATIVE

Vanity Mirror Lamp(s) Inoperative

Step	Action	Yes	No
Schematic Reference: Interior Lights Schematics			
1	Did you perform the Diagnostic System Check - Vehicle?	Go to Step 2	Go to Diagnostic System Check - Vehicle in Vehicle DTC Information

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2	Open the right hand (RH) vanity mirror. Does the RH vanity mirror lamp illuminate?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	Do the courtesy lamps operate properly?	Go to Step 4	Go to Courtesy Lamps Inoperative
4	1. Disconnect the RH vanity mirror lamp. 2. Probe the courtesy lamps supply voltage circuit of the RH vanity mirror lamp with a test lamp that is connected to a good ground. Does the test lamp illuminate?	Go to Step 5	Go to Step 7
5	Connect a test lamp between the courtesy lamps supply voltage circuit and the ground circuit of the RH vanity mirror lamp. Does the test lamp illuminate?	Go to Step 6	Go to Step 8
6	Inspect for poor connections at the harness connector of the RH vanity mirror lamp. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?	Go to Step 10	Go to Step 9
7	Repair an open or high resistance in the courtesy lamps supply voltage circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 10	-
8	Repair an open or high resistance in the ground circuit. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you complete the repair?	Go to Step 10	-
9	Replace the RH vanity mirror lamp. Refer to Sunshade Replacement in Interior Trim. 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**

REPAIR INSTRUCTIONS

STOP LAMP SWITCH ADJUSTMENT

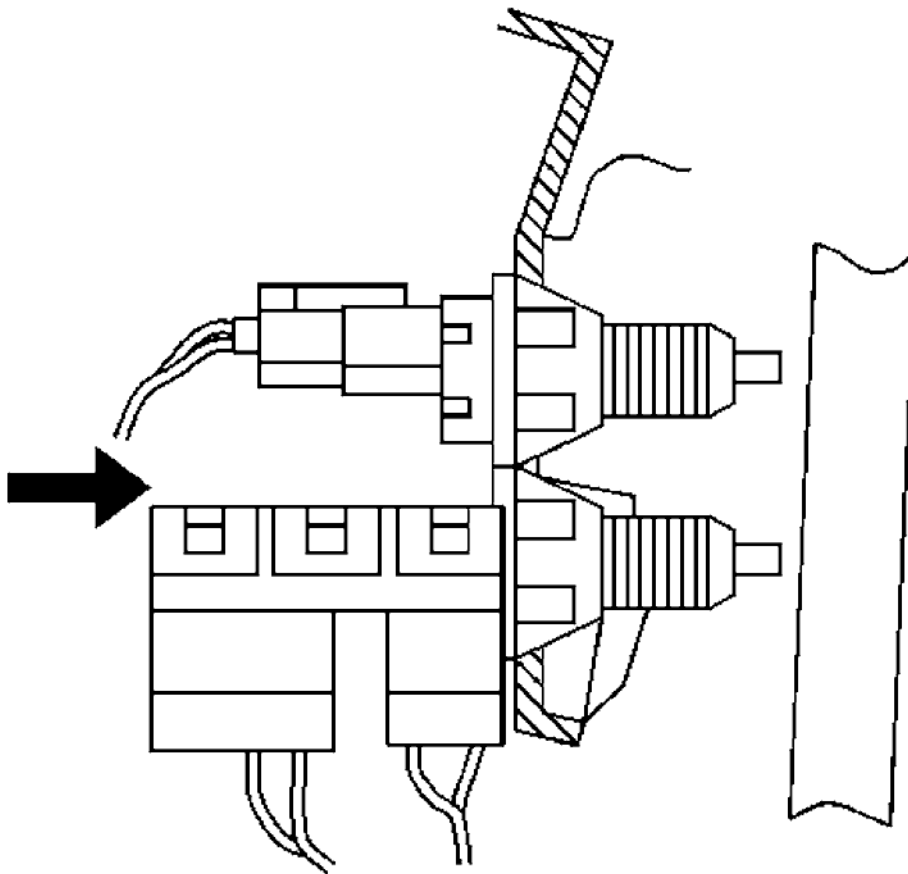


Fig. 49: Stop Lamp Switch & Cruise Control Switch
Courtesy of GENERAL MOTORS CORP.

1. With the brake pedal in the fully released position, ensure that the stop lamp plunger is fully depressed against the brake pedal shanks.
2. Fully insert the stop lamp switch and the cruise control switch, if equipped, into the brake pedal bracket.
3. Push the brake pedal forward in order to set the brake push rod into the booster.

NOTE: Proper stoplamp switch adjustment is essential. Improper stoplamp switch adjustment may cause brake drag, heat buildup and excessive brake lining wear.

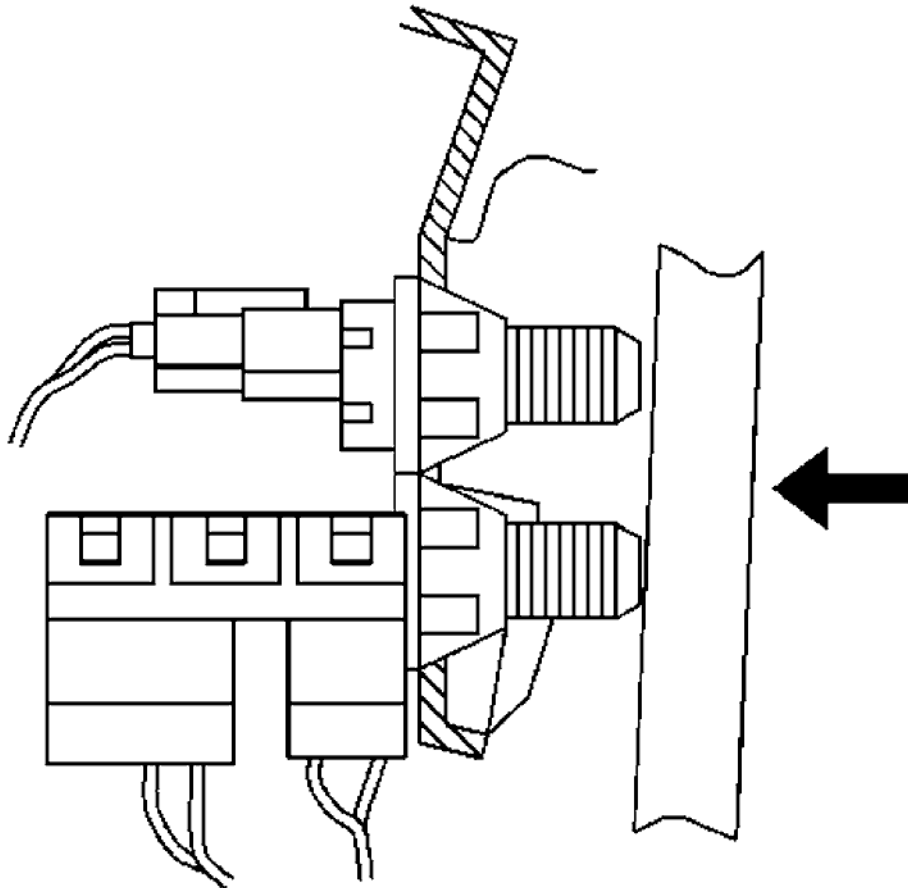


Fig. 50: View Of Stop Lamp Switch & Cruise Control Switch
Courtesy of GENERAL MOTORS CORP.

4. Pull the brake pedal to the rear, against the internal stop. This adjusts both the stop lamp switch and the cruise control switch.
5. Inspect the stop lamp switch for proper adjustment.

STOP LAMP SWITCH REPLACEMENT

Removal Procedure

1. Remove the left side of the instrument panel (I/P) insulator.

2. Disconnect the electrical connector from the stop lamp switch.

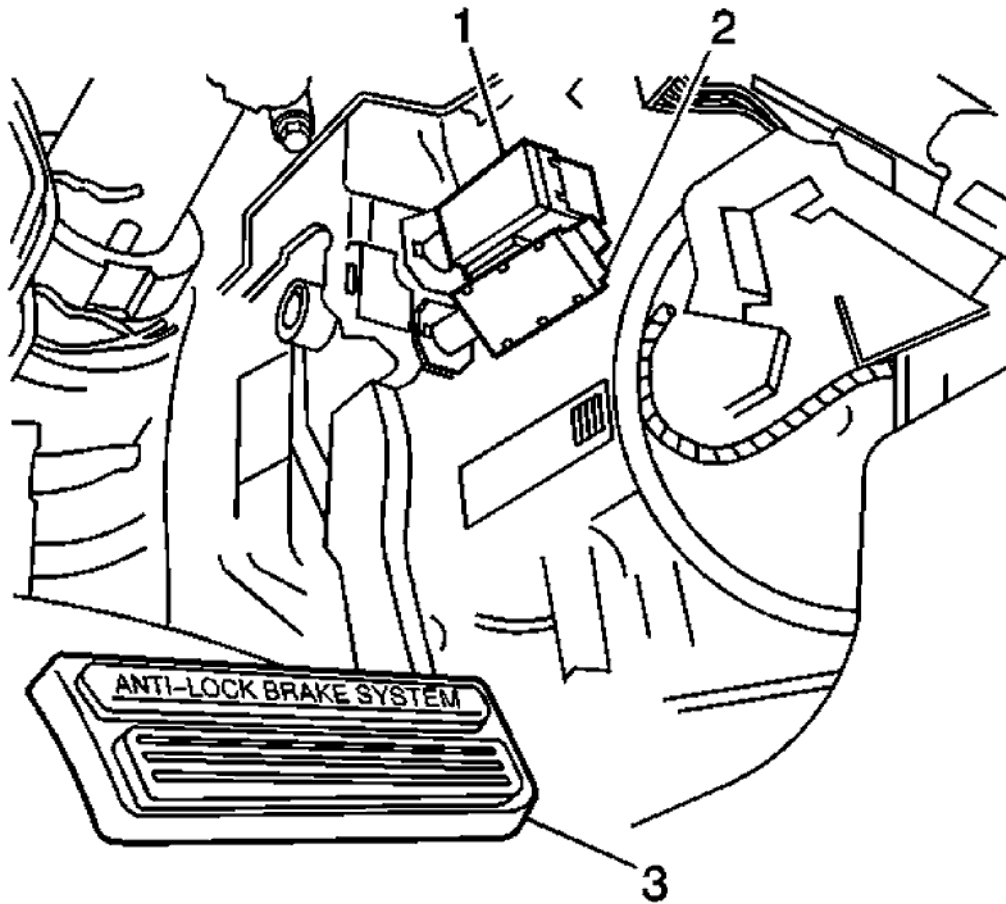


Fig. 51: Identifying Brake Pedal & Stop Lamp Switch
Courtesy of GENERAL MOTORS CORP.

3. Remove the stop lamp switch (2) from the brake pedal bracket.

Installation Procedure

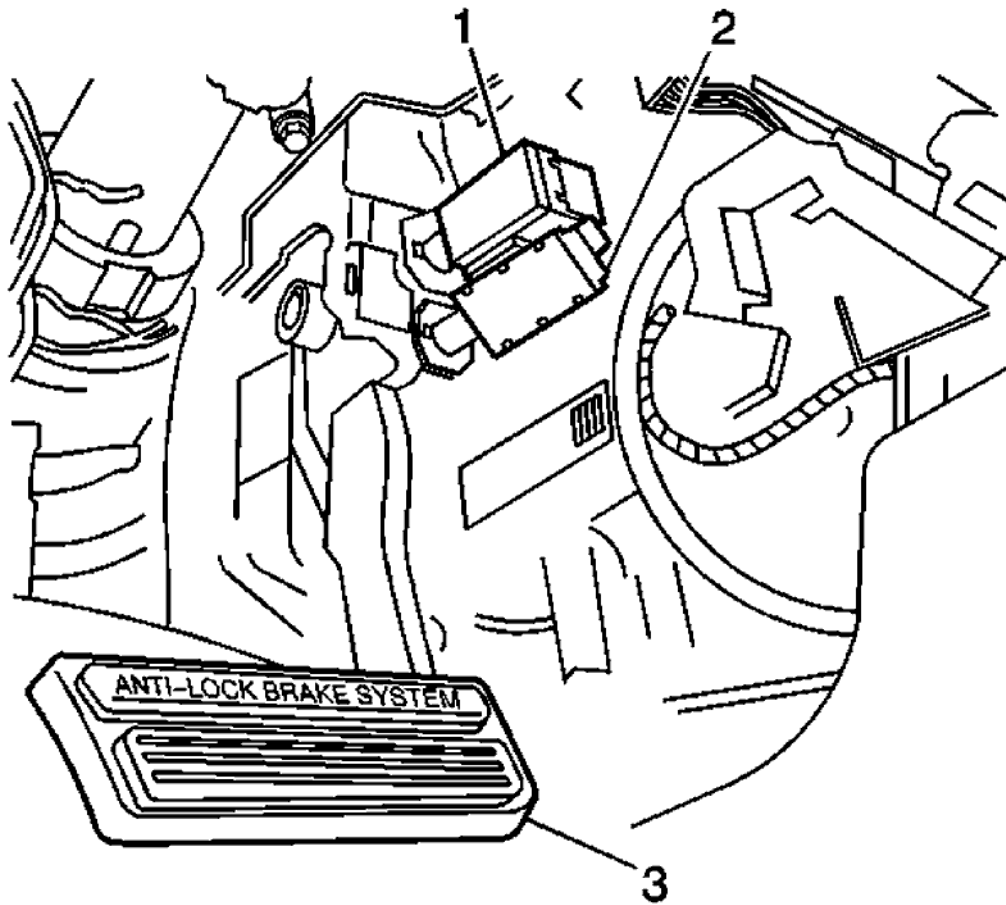


Fig. 52: Identifying Brake Pedal & Stop Lamp Switch
Courtesy of GENERAL MOTORS CORP.

1. Install the stop lamp switch (2) to the brake pedal bracket.
2. Connect the electrical connector to the stop lamp switch.
3. Install the left side of the I/P insulator.
4. Adjust the stop lamp switch. Refer to **Stop Lamp Switch Adjustment**.

FOG LAMP SWITCH REPLACEMENT - FRONT

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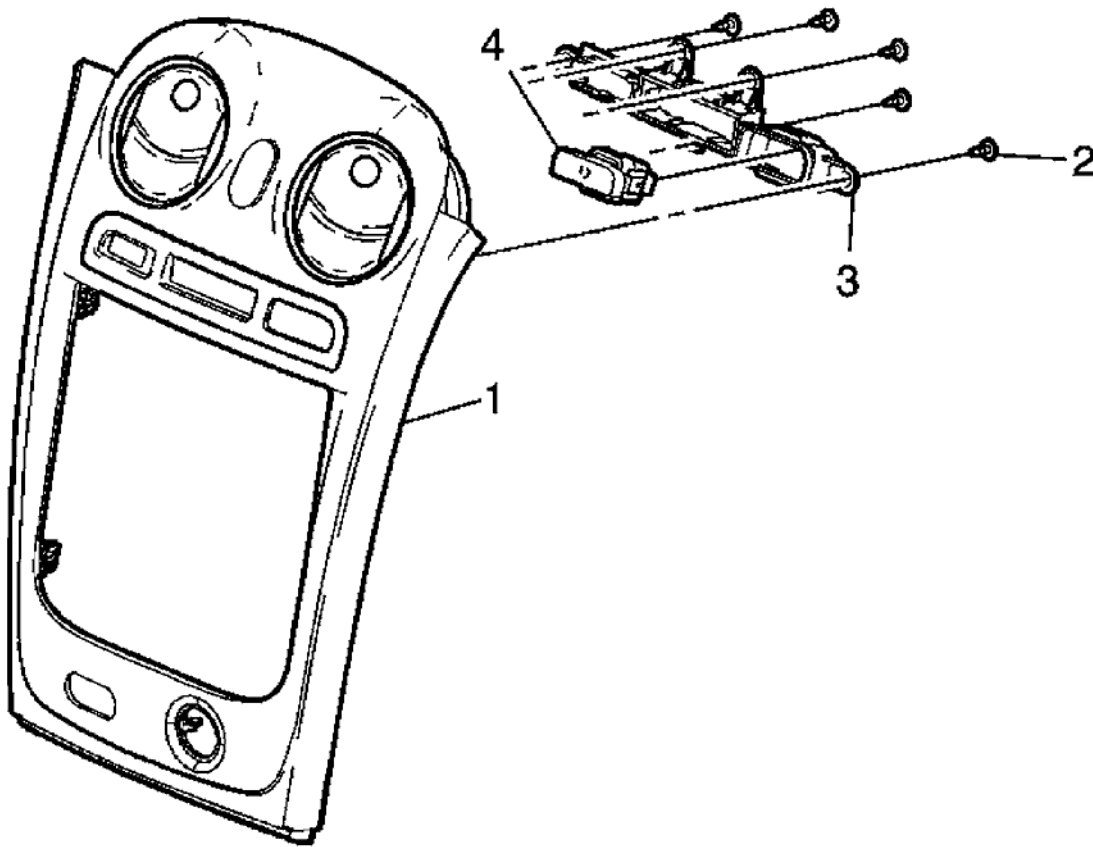


Fig. 53: Fog Lamp Switch Replacement - Front
Courtesy of GENERAL MOTORS CORP.

Fog Lamp Switch Replacement - Front

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
1	Trim Plate, Instrument Panel Accessory Refer to <u>Trim Plate Replacement - Instrument Panel (I/P) Accessory</u> .
2	Screw, Inflatable Restraint Indicator Bracket (Qty: 5) Tighten: 2 N.m (18 lb in)
3	Bracket, Inflatable Restraint Indicator
4	Switch Assembly, Fog Lamp

DOOR JAMB SWITCH REPLACEMENT - FRONT

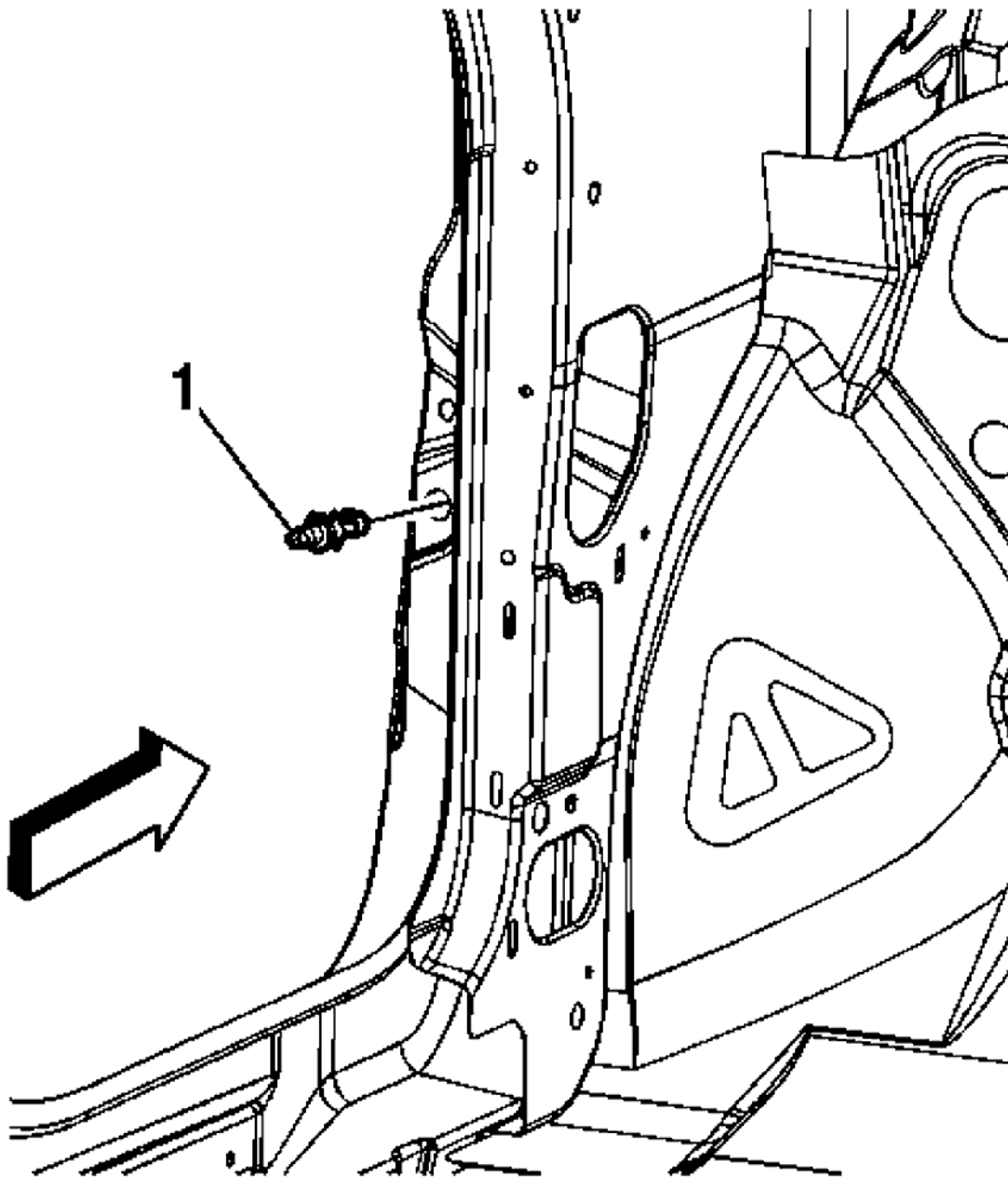


Fig. 54: Door Jamb Switch Replacement - Front
 Courtesy of GENERAL MOTORS CORP.

Door Jamb Switch Replacement - Front

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
1	Switch, Front Door Jamb Tip: 1. Use a small bladed tool to press the tab on the side of the switch to remove.

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2. Disconnect the electrical connector.

DOOR JAMB SWITCH REPLACEMENT - REAR

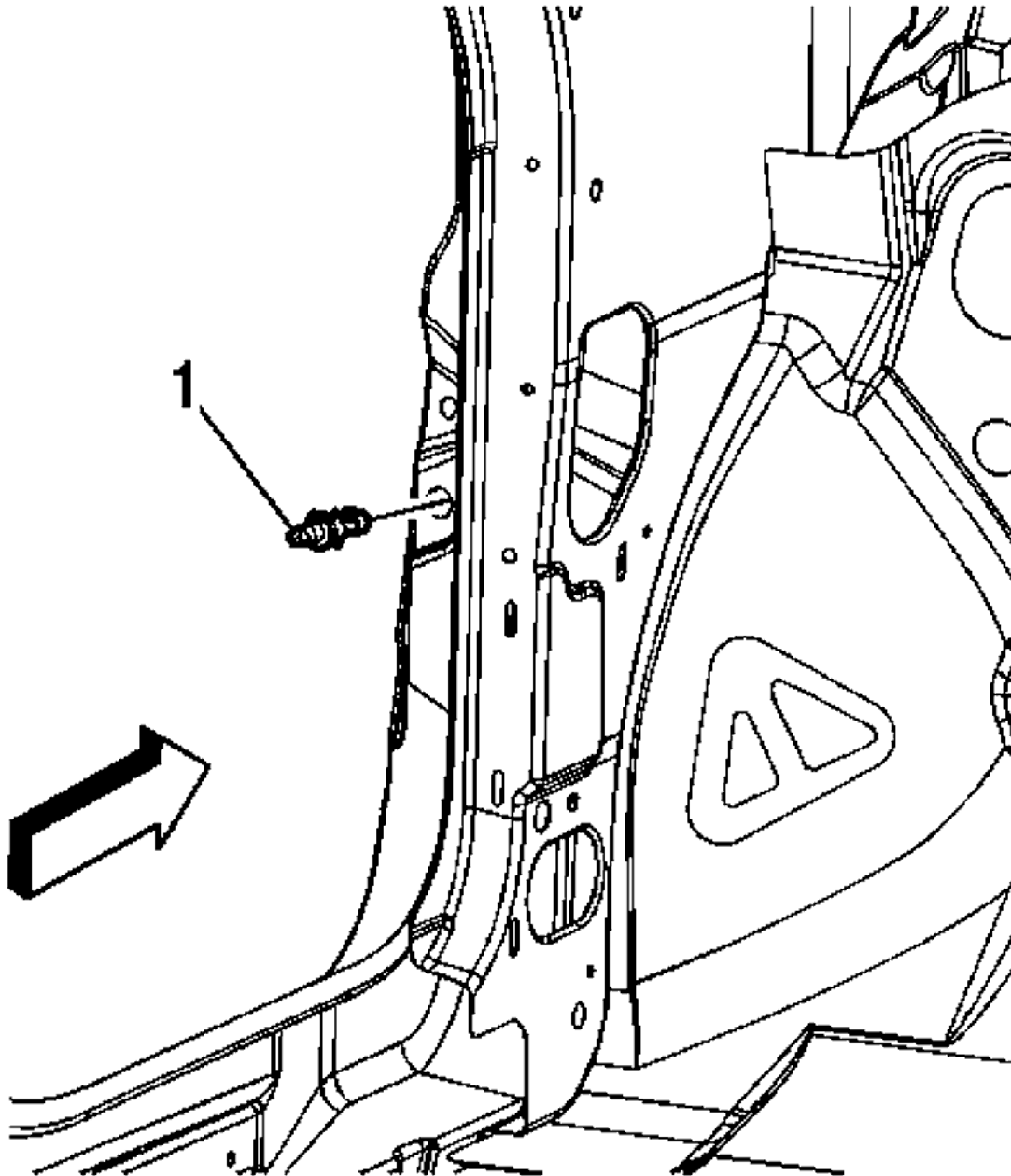


Fig. 55: Door Jamb Switch Replacement - Rear
Courtesy of GENERAL MOTORS CORP.

Door Jamb Switch Replacement - Rear

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
	Switch, Rear Door Jamb

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Tip:

1

1. Use a small bladed tool to press the tab on the side of the switch to remove.
2. Disconnect the electrical connector.

HAZARD WARNING SWITCH REPLACEMENT

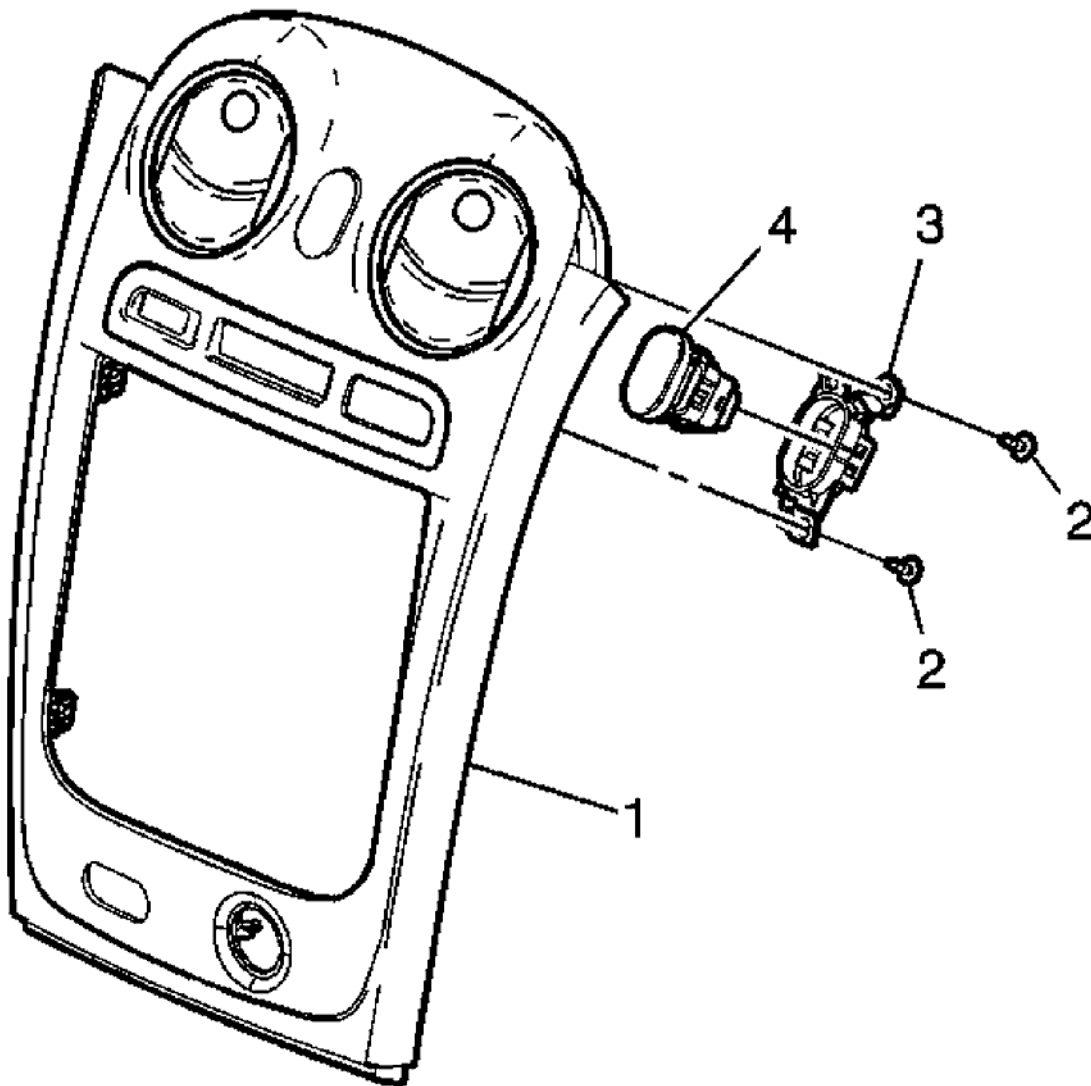


Fig. 56: Hazard Warning Switch Replacement
Courtesy of GENERAL MOTORS CORP.

Hazard Warning Switch Replacement

Callout	Component Name
NOTE: Refer to <u>Fastener</u> Notice .	

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Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

1	Trim Plate, Instrument Panel Accessory Refer to Trim Plate Replacement - Instrument Panel (I/P) Accessory .
2	Screw, Hazard Warning Switch (Qty: 2) Tighten: 2 N.m (18 lb in)
3	Bracket, Hazard Warning Switch
4	Switch Assembly, Hazard Warning

INSTRUMENT PANEL (I/P) DIMMER SWITCH REPLACEMENT

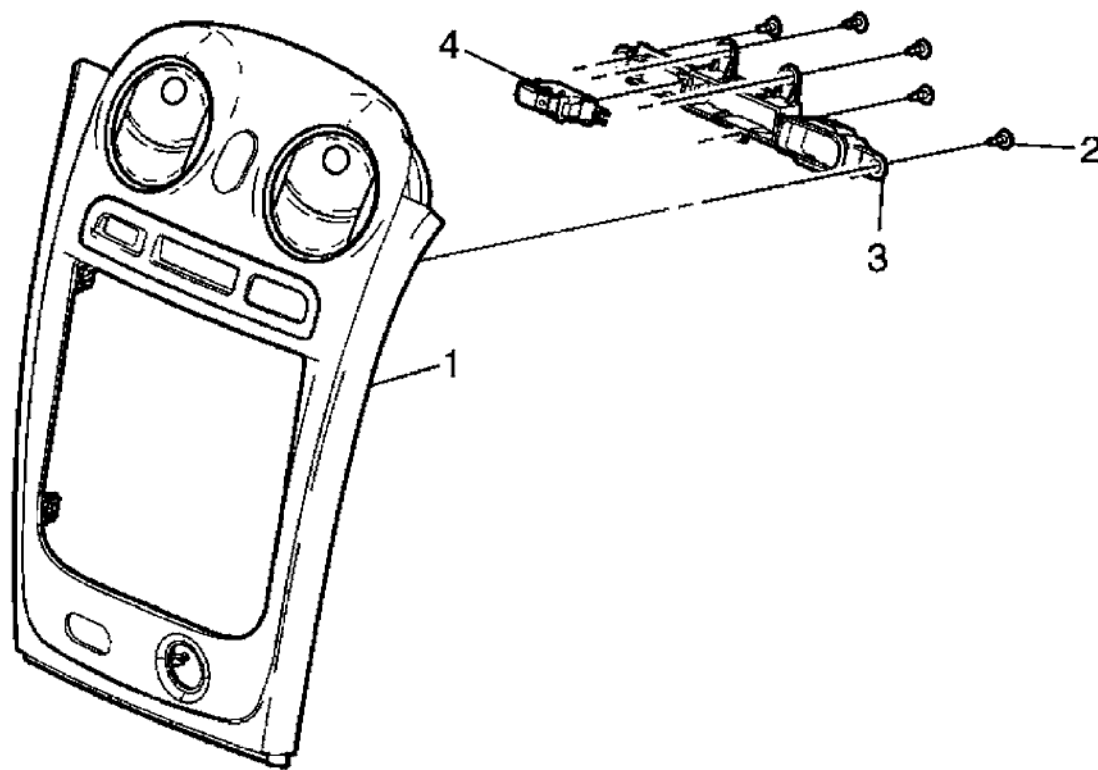


Fig. 57: Instrument Panel (I/P) Dimmer Switch Replacement
Courtesy of GENERAL MOTORS CORP.

Instrument Panel (I/P) Dimmer Switch Replacement

Callout	Component Name
NOTE: Refer to Fastener Notice .	
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
1	Trim Plate, Instrument Panel Accessory Refer to Trim Plate Replacement - Instrument Panel (I/P) Accessory .

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2	Screw, Inflatable Restraint Indicator Bracket (Qty: 5) Tighten: 2 N.m (18 lb in)
3	Bracket, Inflatable Restraint Indicator
4	Switch Assembly, Instrument Panel Dimmer

AMBIENT LIGHT SENSOR REPLACEMENT

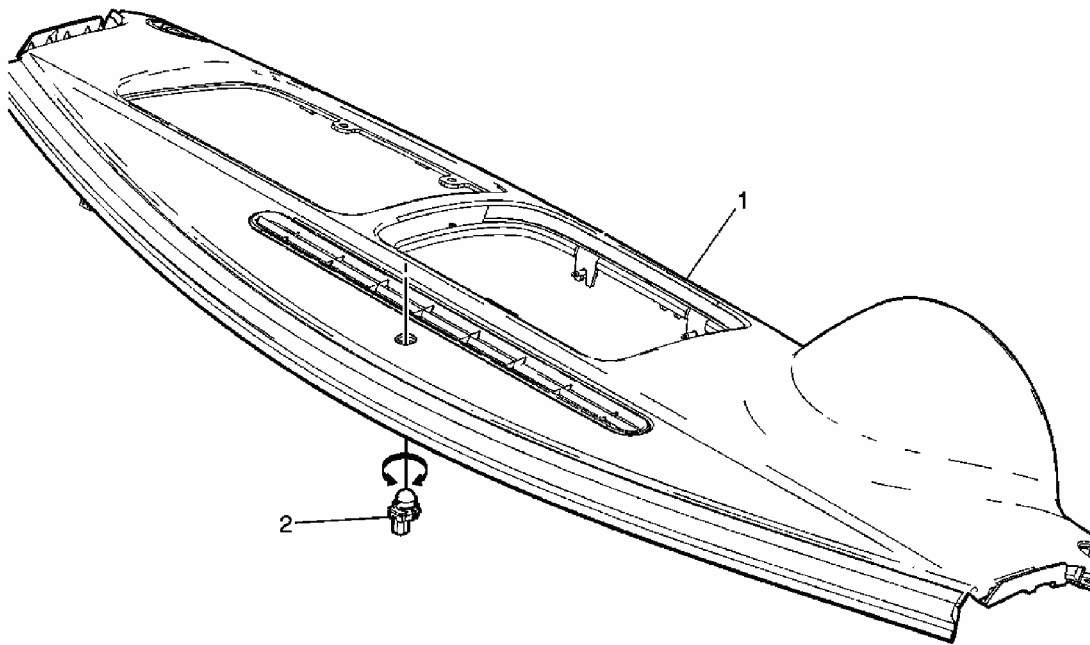


Fig. 58: Ambient Light Sensor Replacement
Courtesy of GENERAL MOTORS CORP.

Ambient Light Sensor Replacement

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
1	Instrument Panel Upper Trim Pad Refer to Trim Pad Replacement - Instrument Panel (I/P) Upper .
2	Daytime Running Lamp Ambient Light Sensor Assembly 1. Twist and pull down to remove. 2. Disconnect the electrical connector.

FRONT FLOOR CONSOLE FLOOD LAMP REPLACEMENT (W/O SUNROOF)

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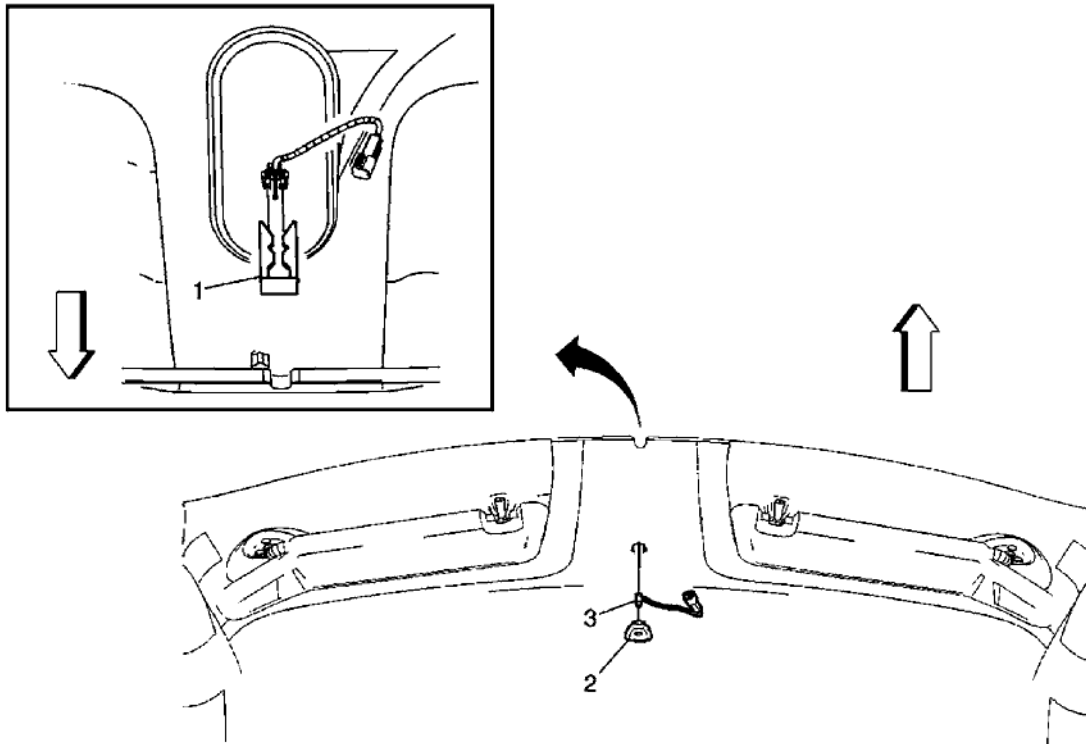


Fig. 59: Front Floor Console Flood Lamp Replacement (w/o Sunroof)
Courtesy of GENERAL MOTORS CORP.

Front Floor Console Flood Lamp Replacement (w/o Sunroof)

Callout	Component Name
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedure: Lower the front of the headliner enough to gain access to the floor console flood lamp retainer clip. Refer to <u>Headliner Replacement</u> .	
1	Clip, Front Floor Console Flood Lamp Retainer
2	Housing, Front Floor Console Flood Lamp
3	Lamp Assembly, Front Floor Console Flood
Tip: Disconnect the electrical connector.	

FRONT FLOOR CONSOLE FLOOD LAMP REPLACEMENT (WITH SUNROOF)

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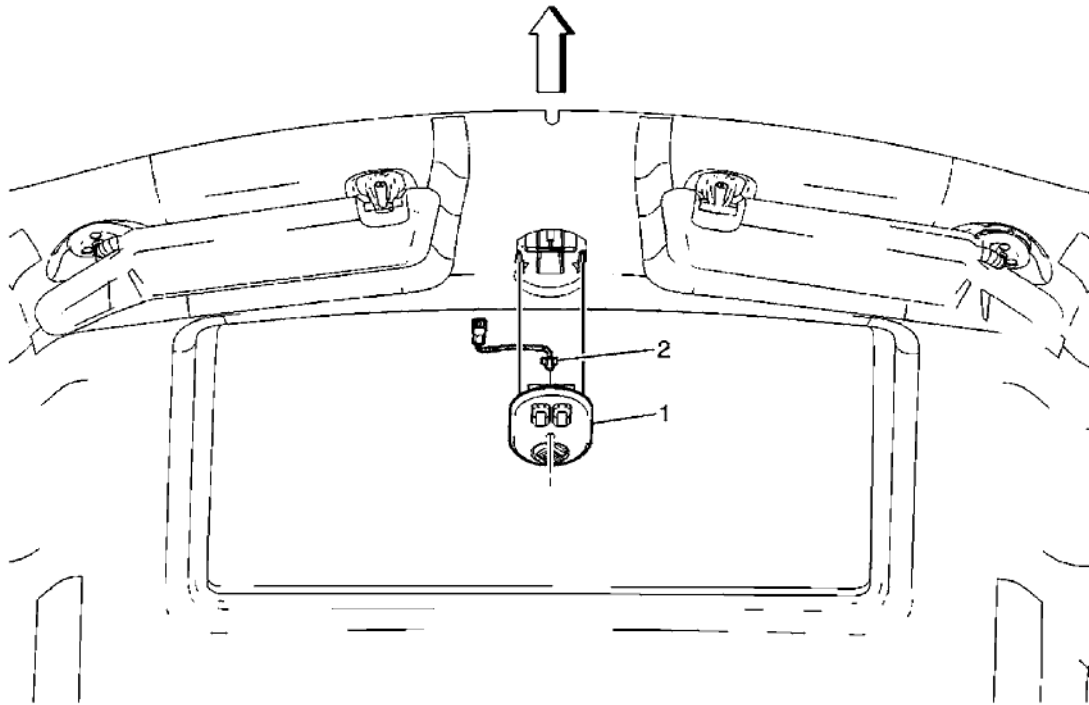


Fig. 60: Front Floor Console Flood Lamp Replacement (with Sunroof)
Courtesy of GENERAL MOTORS CORP.

Front Floor Console Flood Lamp Replacement (with Sunroof)

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
Preliminary Procedure: Lower the front of the headliner enough to gain access to the floor console flood lamp retainer clip. Refer to Headliner Replacement .	
1	Switch Assembly, Sunroof Refer to Sunroof Switch Replacement .
2	Lamp Assembly, Front Floor Console Flood Tip: Disconnect the electrical connector.

TRANS FLOOR SHIFT CONTROL INDICATOR LAMP REPLACEMENT

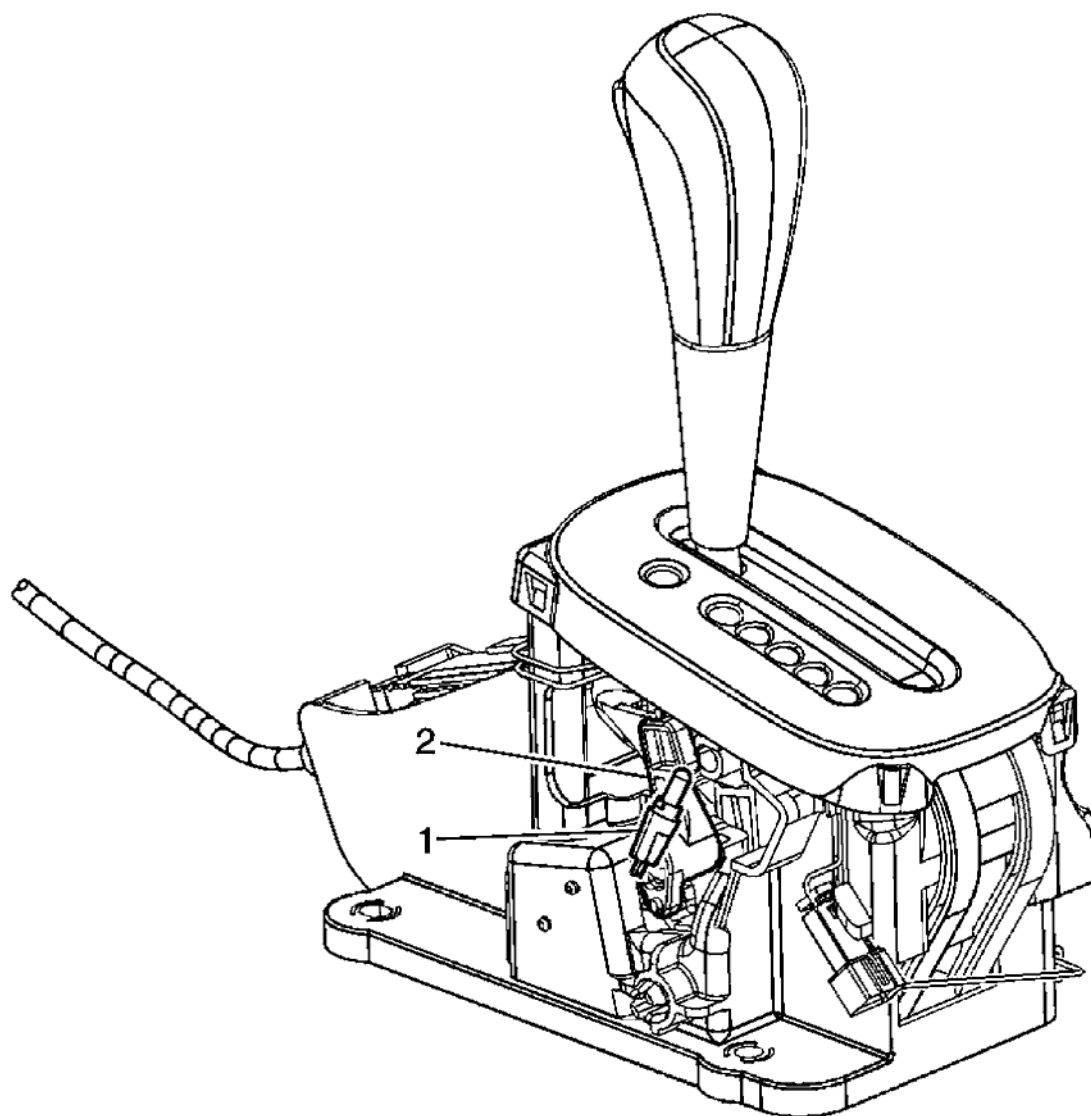


Fig. 61: Trans Floor Shift Control Indicator Lamp Replacement
 Courtesy of GENERAL MOTORS CORP.

Trans Floor Shift Control Indicator Lamp Replacement

Callout	Component Name
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedure: Remove the front floor console. Refer to <u>Console Replacement - Front Floor</u> .	
1	Connector, Transmission Floor Shift Control Indicator Lamp
2	Bulb, Transmission Floor Shift Control Indicator Lamp

DOME LAMP REPLACEMENT

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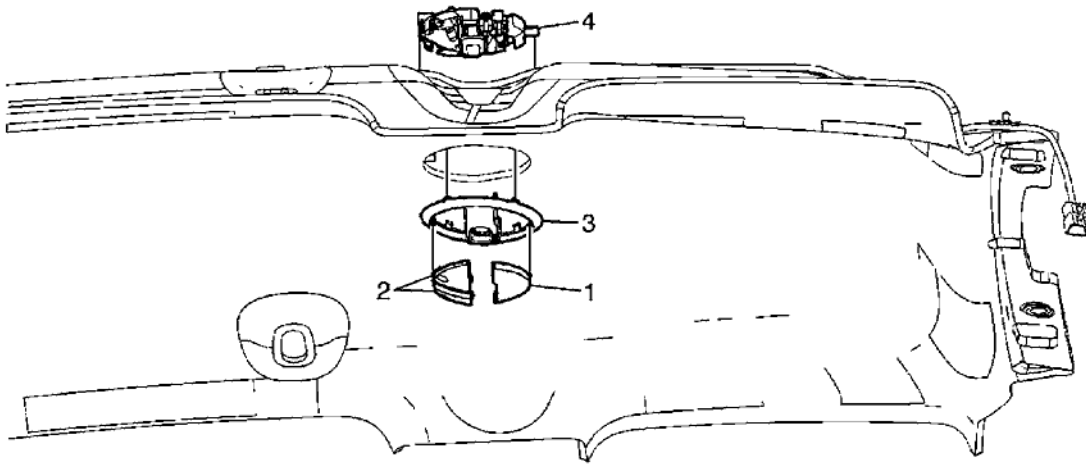


Fig. 62: Dome Lamp Replacement
Courtesy of GENERAL MOTORS CORP.

Dome Lamp Replacement

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
Preliminary Procedure: Lower the headliner enough to gain access to the dome lamp housing. Refer to Headliner Replacement .	
1	Lens, Dome Lamp
2	Lens, Reading Lamp
3	Bezel, Dome Lamp Switch
4	Housing, Dome Lamp Tip: Disconnect the electrical connector.

DOMELAMPBULBREPLACEMENT

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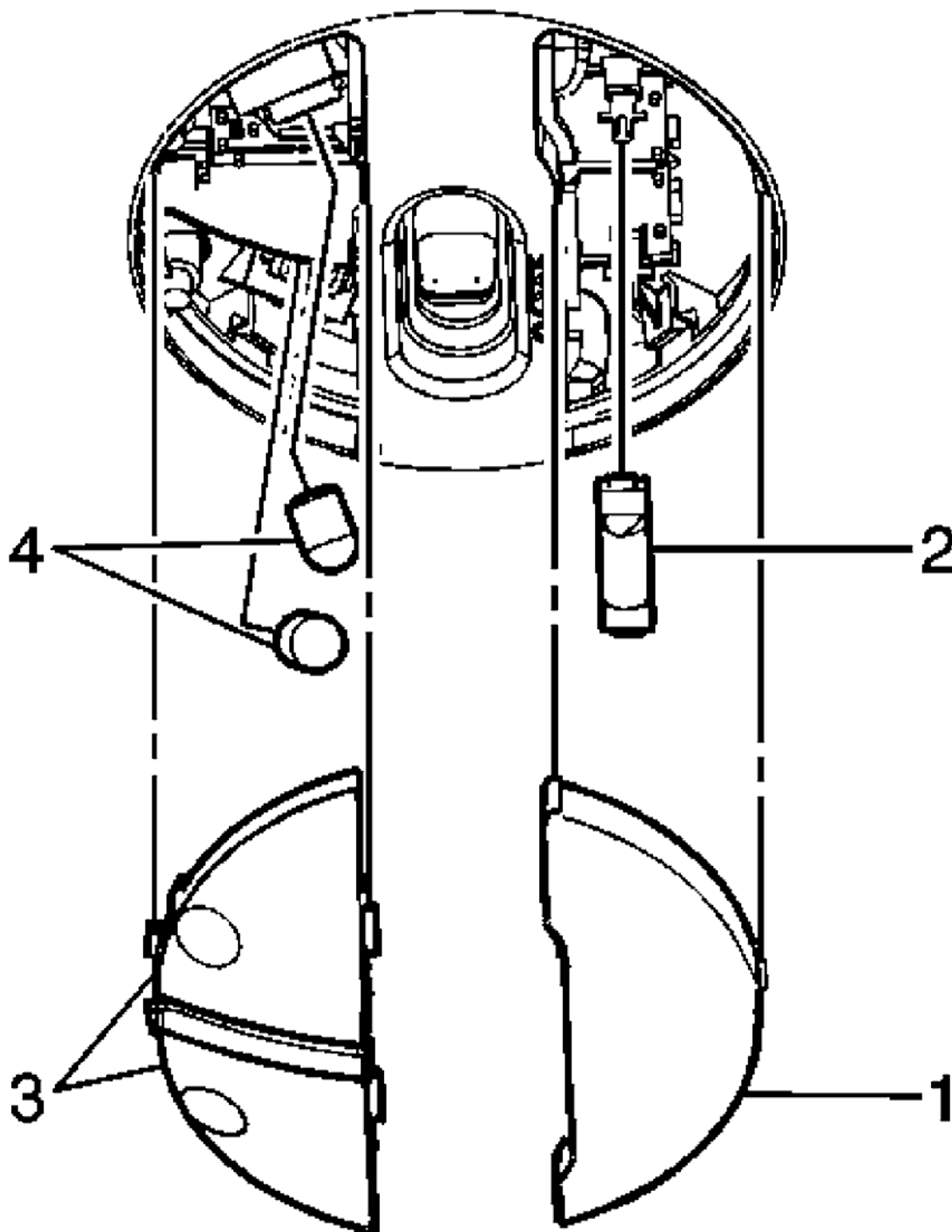


Fig. 63: Dome Lamp Bulb Replacement
Courtesy of GENERAL MOTORS CORP.

Dome Lamp Bulb Replacement

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.	
1	Lens, Dome Lamp

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2	Bulb, Dome Lamp
3	Lens, Dome and Reading Lamp
4	Bulb, Reading Lamp

HEADLAMP BULB REPLACEMENT

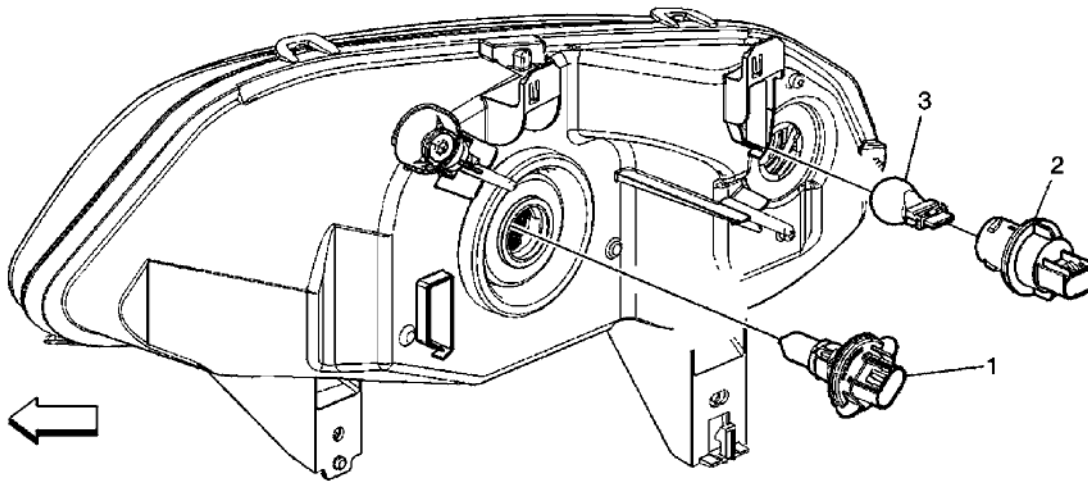


Fig. 64: Headlamp Bulb Replacement
Courtesy of GENERAL MOTORS CORP.

Headlamp Bulb Replacement

Callout	Component Name
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedures	
1. Remove the forward portion of either the LF or RF wheelhouse liner. Refer to <u>Wheelhouse Liner Replacement - Front</u> .	
2. Disconnect the electrical connectors.	
3. Reach inside the front bumper fascia and rotate the headlamp socket a quarter turn counterclockwise.	
1	Bulb, Headlamp CAUTION: Refer to <u>Halogen Bulb Caution</u> .
2	Socket, Park & Turn Signal Lamp Tip: Turn the socket a quarter turn counterclockwise in order to remove.
3	Bulb, Park & Turn Signal Lamp Tip: Pull the bulb straight outward from the lamp socket.

HEADLAMP CAPSULE REPLACEMENT

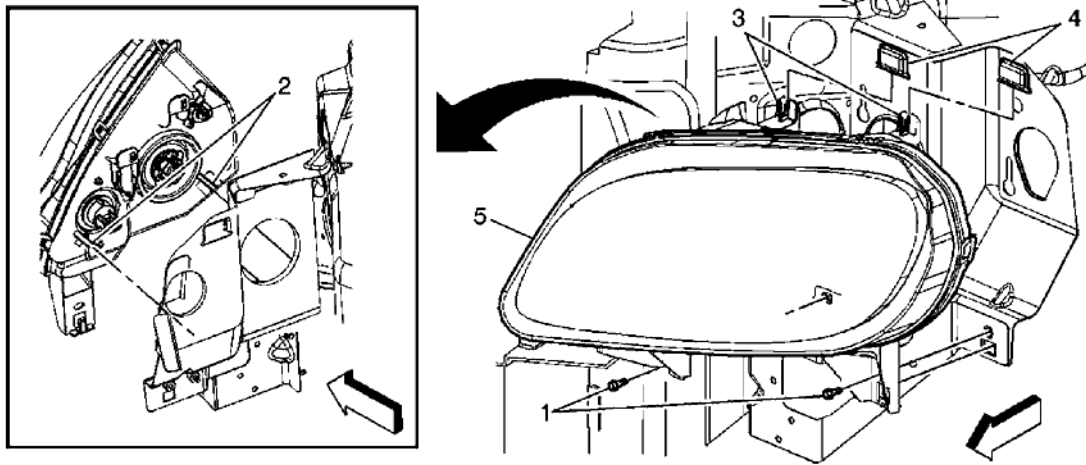


Fig. 65: Headlamp Capsule Replacement
 Courtesy of GENERAL MOTORS CORP.

Headlamp Capsule Replacement

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> . Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u>. Preliminary Procedures 1. Open the hood. 2. Remove the front bumper fascia. Refer to <u>Fascia Replacement - Front Bumper</u> . 3. Disconnect the headlamp bulbs electrical connectors.	
1	Bolts/Screws, Lower Mounting Panel (Qty: 2) Tip: 1. The lower tab on the headlamp composite locks into the front end mounting panel. 2. Release the tab prior to lifting the headlamp capsule from the mounting panel. Tighten: 4.5 N.m (40 lb in)
2	Pins, Locating (Qty: 2)
	Tabs, Upper Headlamp Mounting (Qty: 2)

3	Tip: Upon reassembly of the headlamp capsule to the mounting panel, slide the tabs on the capsule up inside the locator holes then position the capsule downward.
4	Panel, Headlamp and Front End Mounting
5	Capsule Assembly, Headlamp Tip: Aim the headlamps after installation of a new capsule assembly. Refer to Headlamp Aiming .

HEADLAMP AIMING

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

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

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

It is recommended that the vehicle is taken to your dealer for service if the headlamps need to be re-aimed. It is possible however, to re-aim the headlamps as described in the following procedure.

The vehicle should be properly prepared as follows:

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

Headlamp aiming is done with the vehicle's low-beam headlamps. The high-beam headlamps will be correctly aimed if the low-beam headlamps are aimed properly.

The vertical headlamp aiming screws are located under the hood near the headlamps.

The adjustment screw can be turned with a 6 mm male hex.

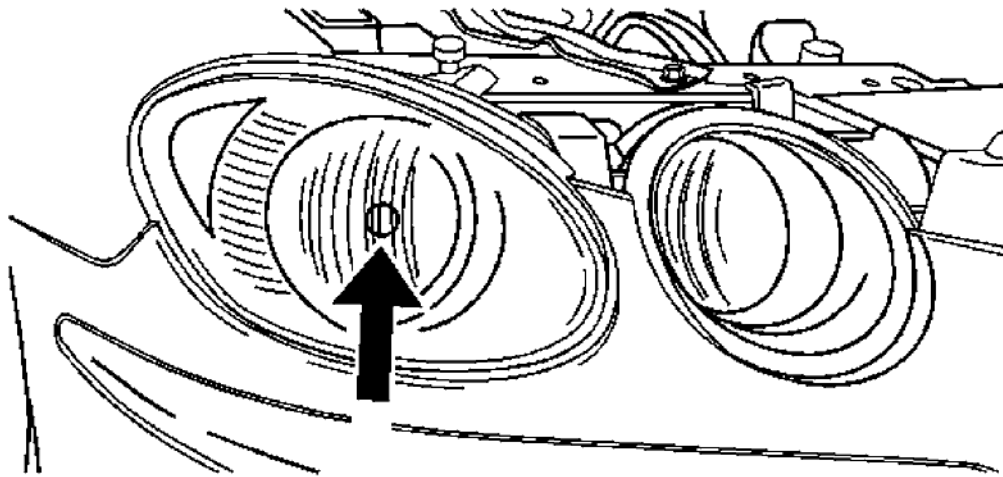


Fig. 66: Aim Dot

Courtesy of GENERAL MOTORS CORP.

1. To adjust the vertical aim on the headlamps, do the following:
2. Find the aim dot on the lens of the low-beam lamp.
3. Measure the distance from the ground to the aim dot on the lamp. Record the distance.
4. At the wall or other flat surface, measure from the ground upward the recorded distance from Step 2 and draw or tape a horizontal line the width of the vehicle.

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

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

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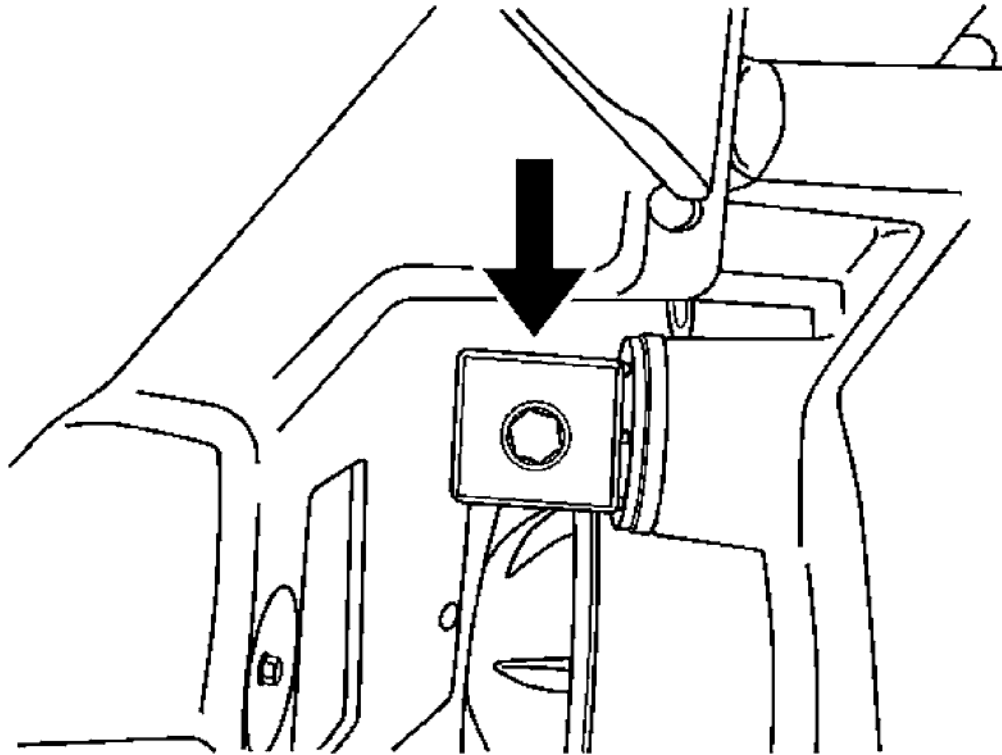


Fig. 67: Vertical Aiming Screw
Courtesy of GENERAL MOTORS CORP.

6. Turn the vertical aiming screw until the headlamp beam is aimed to the horizontal tape line. The top edge of the cut-off should be positioned at the bottom edge of the horizontal tape line.
7. Repeat Steps 6 and 7 for the opposite headlamp.

FOG LAMP REPLACEMENT - FRONT

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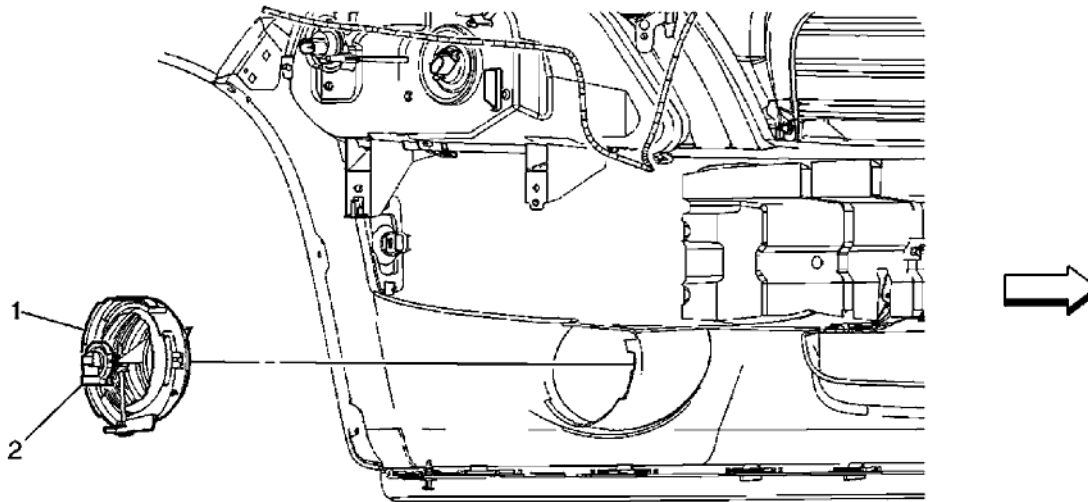


Fig. 68: Fog Lamp Replacement - Front
Courtesy of GENERAL MOTORS CORP.

Fog Lamp Replacement - Front

Callout	Component Name
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedure	
1. Remove the forward portion of either the LF or RF wheelhouse liner. Refer to <u>Wheelhouse Liner Replacement - Front</u>. 2. Disconnect the fog lamp bulb electrical connector.	
1	Lamp Assembly, Front Fog Tip: 1. Release the rearward edge of the front bumper fascia from the locking ring on the front fog lamp assembly. 2. Pull the fog lamp assembly rearward out from the inside of the front bumper fascia.
2	Bulb Assembly, Front Fog Lamp CAUTION: Refer to <u>Halogen Bulb Caution</u> . Tip: Turn the bulb socket a quarter turn counterclockwise in order to remove.

FOG LAMP BULB REPLACEMENT - FRONT

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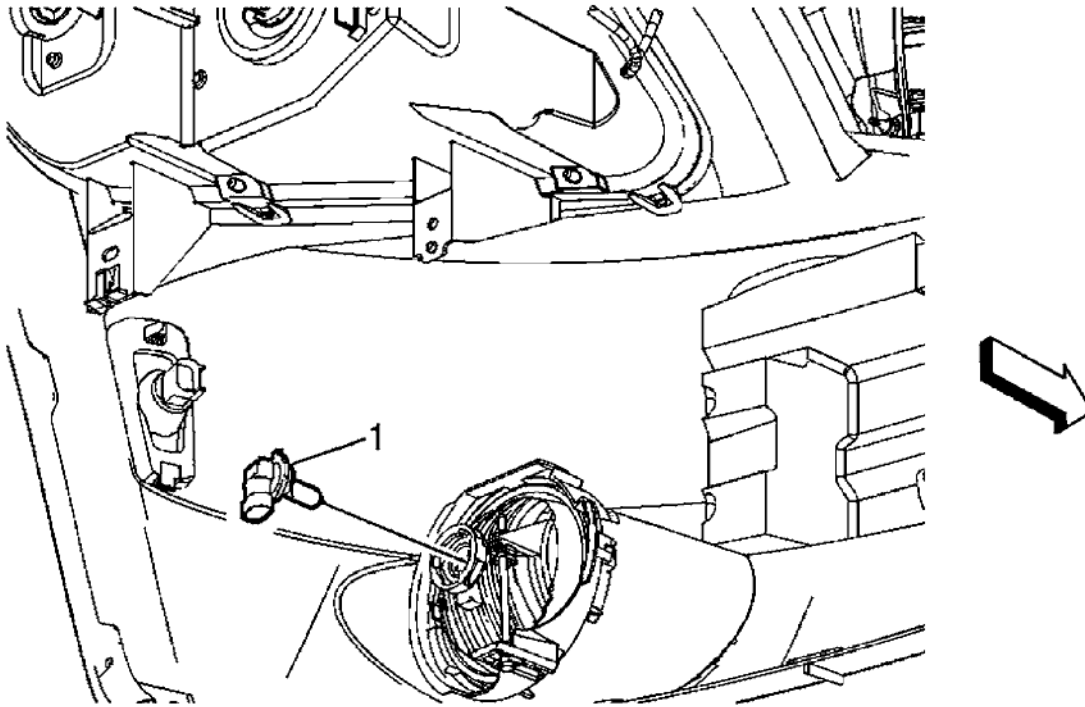


Fig. 69: Fog Lamp Bulb Replacement - Front
Courtesy of GENERAL MOTORS CORP.

Fog Lamp Bulb Replacement - Front

Callout	Component Name
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedure	
1. Remove the forward portion of either the LF or RF wheelhouse liner. Refer to <u>Wheelhouse Liner Replacement - Front</u> .	
2. Disconnect the fog lamp bulb electrical connector.	
1	Bulb Assembly, Front Fog Lamp CAUTION: Refer to <u>Halogen Bulb Caution</u>. Tip: Turn the bulb socket a quarter turn counterclockwise in order to remove.

FOG LAMP AIMING PROCEDURE

The front fog lamps must be aimed for proper illumination of the road. The front fog lamp

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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.

There is no horizontal adjustment for aiming the front fog lamp assemblies on this vehicle.

1. To ensure accurate vertical front fog lamp aiming, first perform the following steps to prepare the vehicle.
 - Ensure that all the components are in place on the vehicle, if other service has been performed on the vehicle.
 - Ensure the fuel level is full.
 - Place the vehicle on a level surface 1.52 m (5 ft) away from a target screen.
 - Stop all other operations of work on the vehicle.
 - Jounce the vehicle to settle the suspension.
 - Cover the headlamps while aiming the fog lamps.
2. Turn the front fog lamps ON.

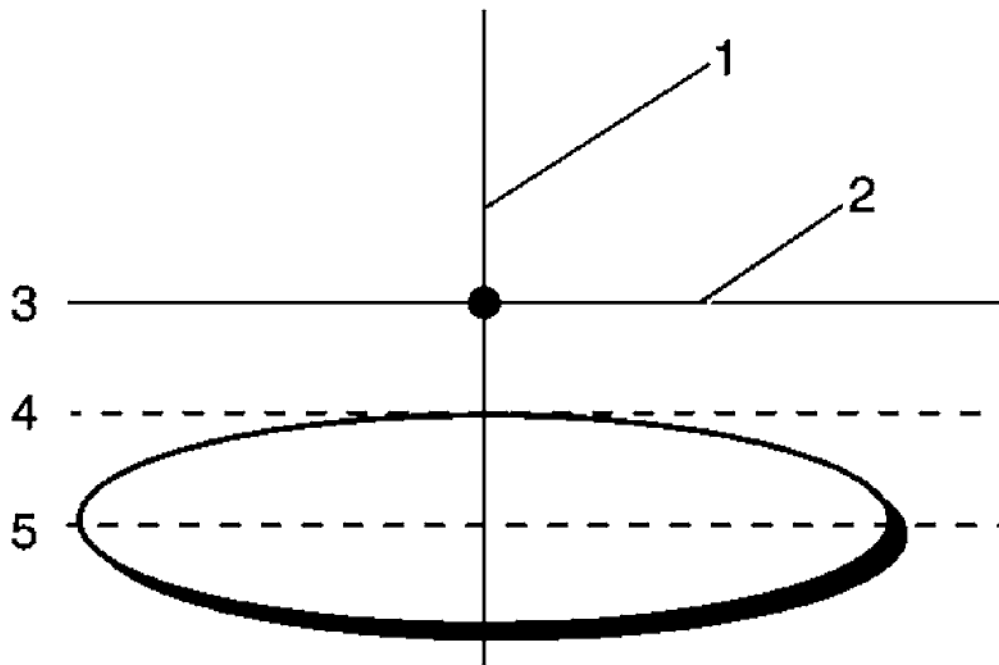


Fig. 70: Fog Lamp Aiming Pattern
Courtesy of GENERAL MOTORS CORP.

3. Adjust the fog lamp up or down until the top edge of the high intensity zone on the

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screen is 102 mm (4 in) below the horizontal centerline (2), within the range of 0 mm (0 in) (3) to 203 mm (8 in) (5), below the horizontal centerline, on the target screen.

4. Turn OFF the front fog lamps.

MARKER LAMP REPLACEMENT - FRONT SIDE

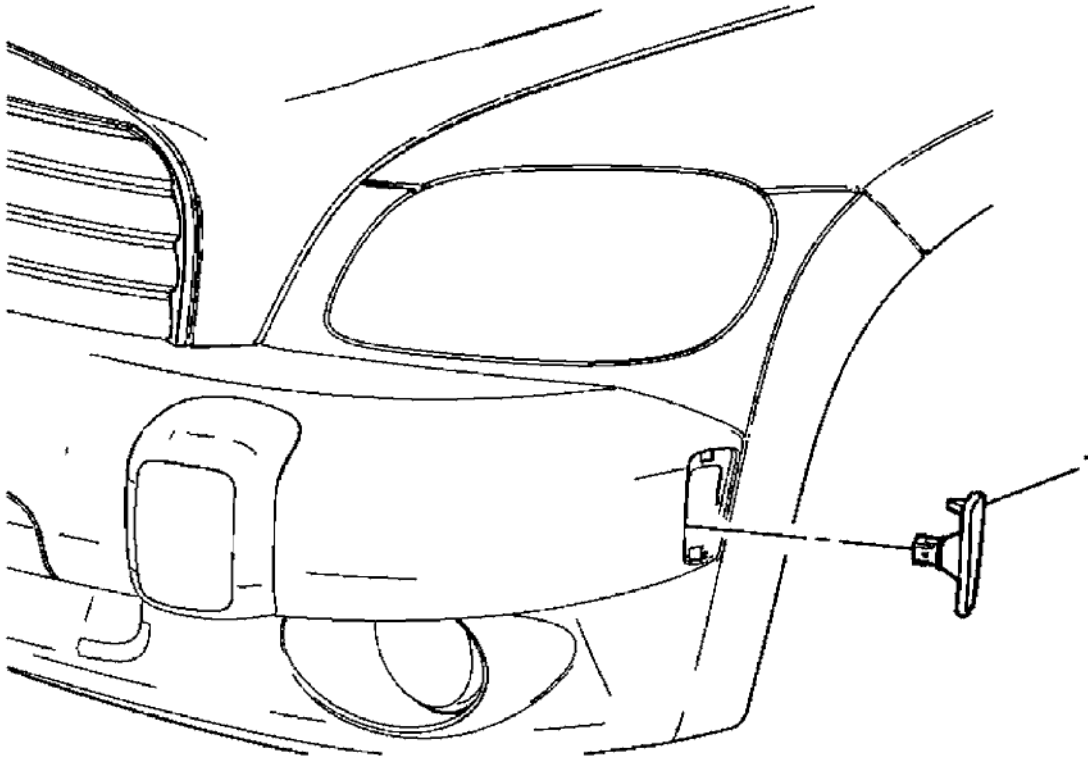


Fig. 71: Marker Lamp Replacement - Front Side
Courtesy of GENERAL MOTORS CORP.

Marker Lamp Replacement - Front Side

Callout	Component Name
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedures	
1. Remove the forward portion of either the LF or RF wheelhouse liner. Refer to <u>Wheelhouse Liner Replacement - Front</u>. 2. Reach inside the front bumper fascia and pinch the upper lamp tabs and push lamp outward from fascia then lift upward. 3. Disconnect the electrical connector.	
1	Lamp Assembly, Front Side Marker

MARKER LAMP BULB REPLACEMENT - FRONT SIDE

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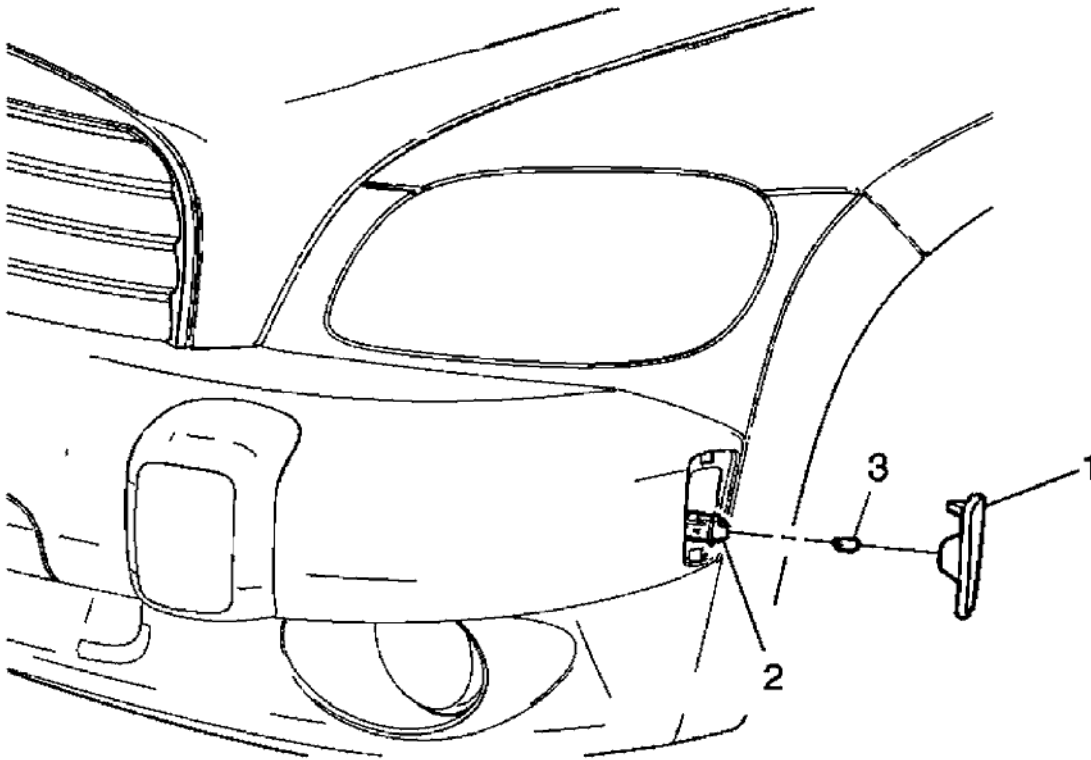


Fig. 72: Marker Lamp Bulb Replacement - Front Side
Courtesy of GENERAL MOTORS CORP.

Marker Lamp Bulb Replacement - Front Side

Callout	Component Name
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedures	
1. Remove the forward portion of either the LF or RF wheelhouse liner. Refer to <u>Wheelhouse Liner Replacement - Front</u> .	
2. Reach inside the front bumper fascia and pinch the upper lamp tabs and push the lamp outward from the front bumper fascia then lift upward to remove.	
3. Disconnect the electrical connector.	
1	Lamp Assembly, Front Side Marker
2	Socket, Front Side Marker Lamp Tip: Turn the socket a quarter turn counterclockwise in order to remove.
3	Bulb, Front Side Marker Lamp Tip: Pull the bulb straight outward from the lamp socket.

MARKER LAMP REPLACEMENT - REAR SIDE

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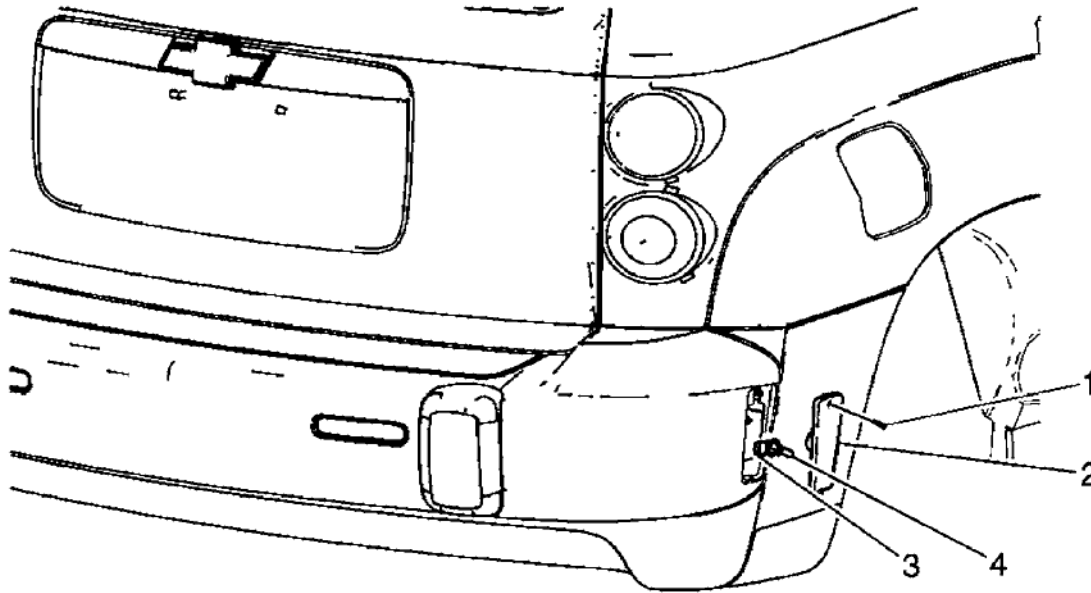


Fig. 73: Marker Lamp Replacement - Rear Side
Courtesy of GENERAL MOTORS CORP.

Marker Lamp Replacement - Rear Side

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
1	Rear Side Marker Lamp Screw Tighten: 2 N.m (18 lb in)
2	Rear Side Marker Lamp Tip: Pull the top edge outward then lift the lamp upward and disconnect the electrical connector from the lamp socket.
3	Rear Side Marker Lamp Bulb
4	Rear Side Marker Lamp Bulb

MARKER LAMP BULB REPLACEMENT - REAR SIDE

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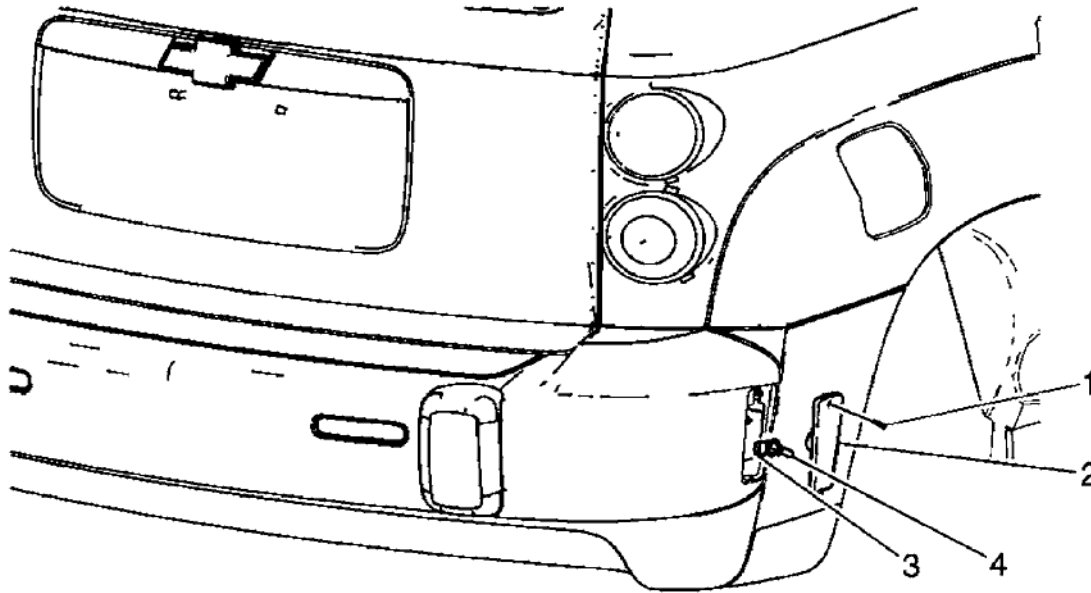


Fig. 74: Marker Lamp Bulb Replacement - Rear Side
Courtesy of GENERAL MOTORS CORP.

Marker Lamp Bulb Replacement - Rear Side

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
1	Screw, Rear Side Marker Lamp Tighten: 2 N.m (18 lb in) Tip: Ensure the screw gasket is in place prior to tightening the screw.
2	Lamp Assembly, Rear Side Marker Tip: Pull the top of the lens outward and lift the lamp from the bumper fascia.
3	Socket, Rear Side Marker Lamp Tip: Twist the socket counterclockwise from the lamp housing to remove.
4	Bulb, Rear Side Marker Lamp Tip: Pull the bulb straight out from the lamp socket.

PARK/TURN SIGNAL LAMP BULB REPLACEMENT

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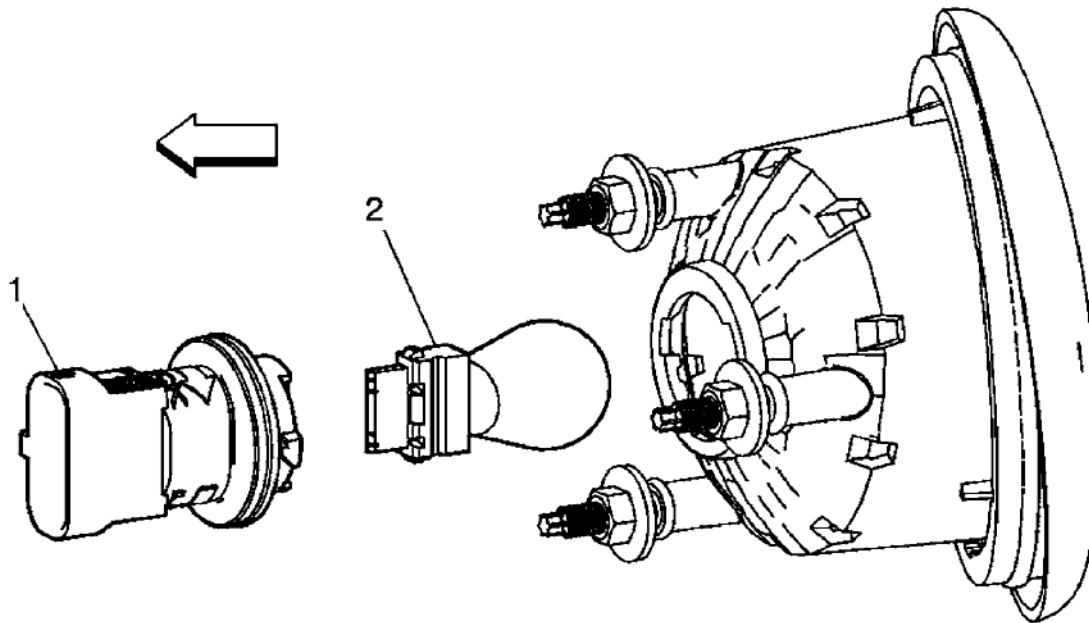


Fig. 75: Park/Turn Signal Lamp Bulb Replacement
Courtesy of GENERAL MOTORS CORP.

Park/Turn Signal Lamp Bulb Replacement

Callout	Component Name
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
Preliminary Procedure	
1. Open the liftgate.	
2. Remove either the LH or RH rear quarter trim panel access hole cover.	
3. Disconnect the electrical connector at the upper tail lamp socket.	
1	Tail Lamp Bulb Socket Tip: Turn the bulb socket a quarter turn counterclockwise to remove.
2	Stop and Turn Signal Lamp Bulb Tip: Pull the bulb straight out from the bulb socket to remove.

HIGH MOUNTED STOP LAMP REPLACEMENT

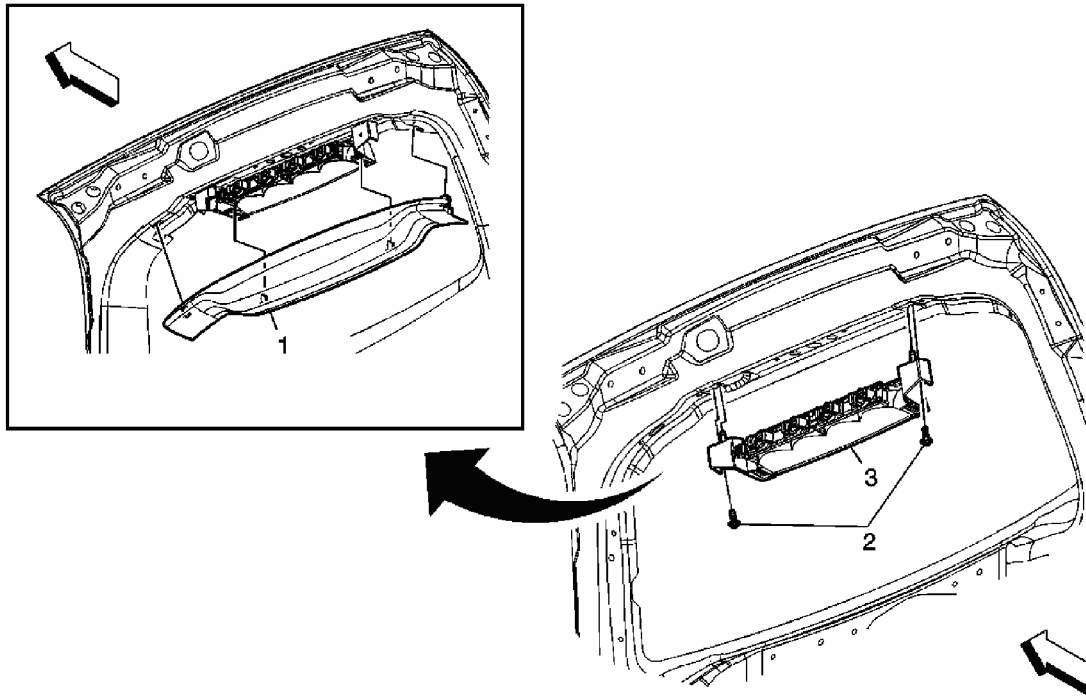


Fig. 76: High Mounted Stop Lamp Replacement
 Courtesy of GENERAL MOTORS CORP.

High Mounted Stop Lamp Replacement

Callout	Component Name
NOTE: Refer to Fastener Notice .	
Fastener Tightening Specifications: Refer to Fastener Tightening Specifications .	
1	Panel, Liftgate Trim Finish
2	Screw, High Mounted Stop Lamp (Qty: 2) Tighten: 3 N.m (25 lb in)
3	Lamp Assembly, Center High Mounted Stop Tip: The bulbs can be replaced by pulling the socket out of the rear of the lamp assembly then removing the bulb from the socket.

BACKUP LAMP REPLACEMENT

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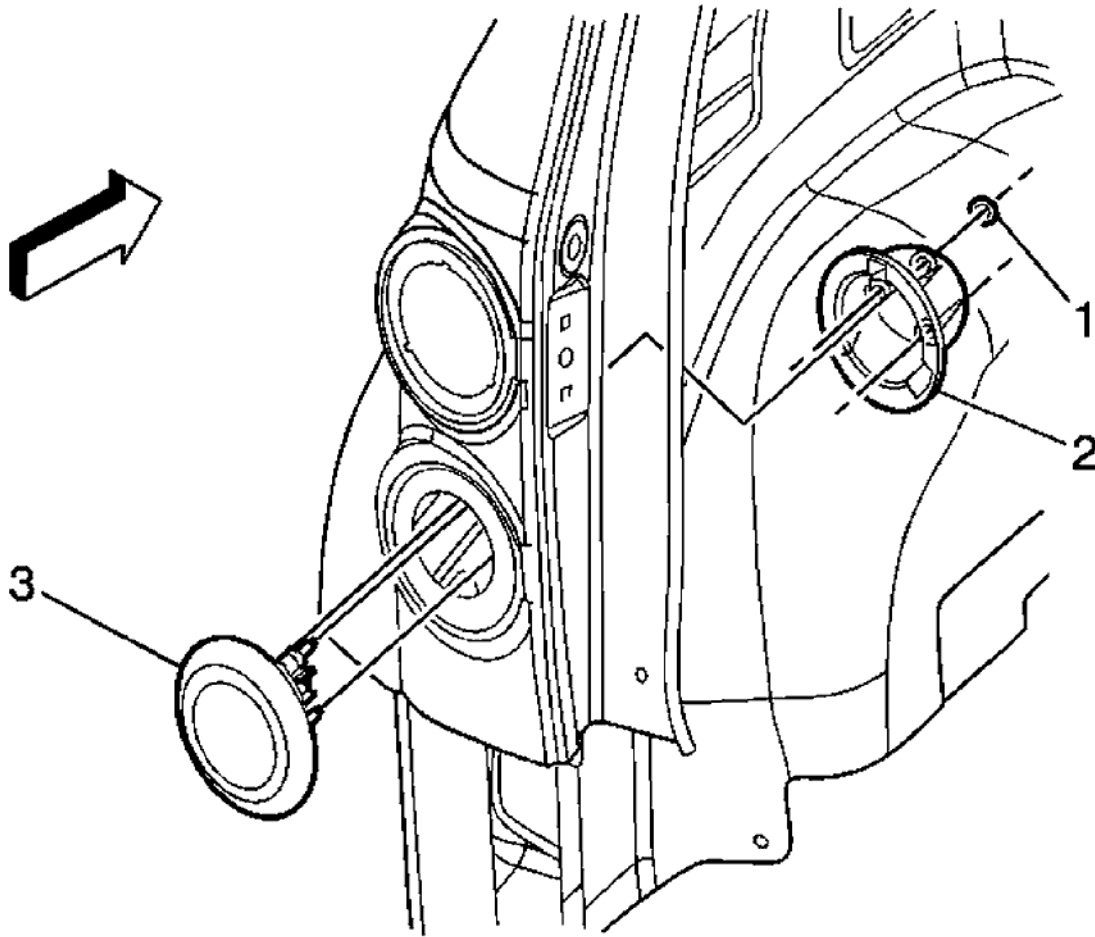


Fig. 77: Backup Lamp Replacement
Courtesy of GENERAL MOTORS CORP.

Backup Lamp Replacement

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedure	
1. Open the liftgate.	
2. Remove either the LH or RH rear quarter trim panel access hole cover.	
3. Disconnect the electrical connector at the backup lamp bulb socket.	
1	Nuts, Backup Lamp Assembly (Qty: 3) Tighten: 6 N.m (53 lb in)

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2	Bracket, Backup Lamp Assembly Tip: Pull the bracket toward the front of the vehicle off the backup lamp studs.
3	Lamp Assembly, Backup Tip: Remove the lamp assembly from the exterior of the rear body panel.

BACKUP LAMP BULB REPLACEMENT

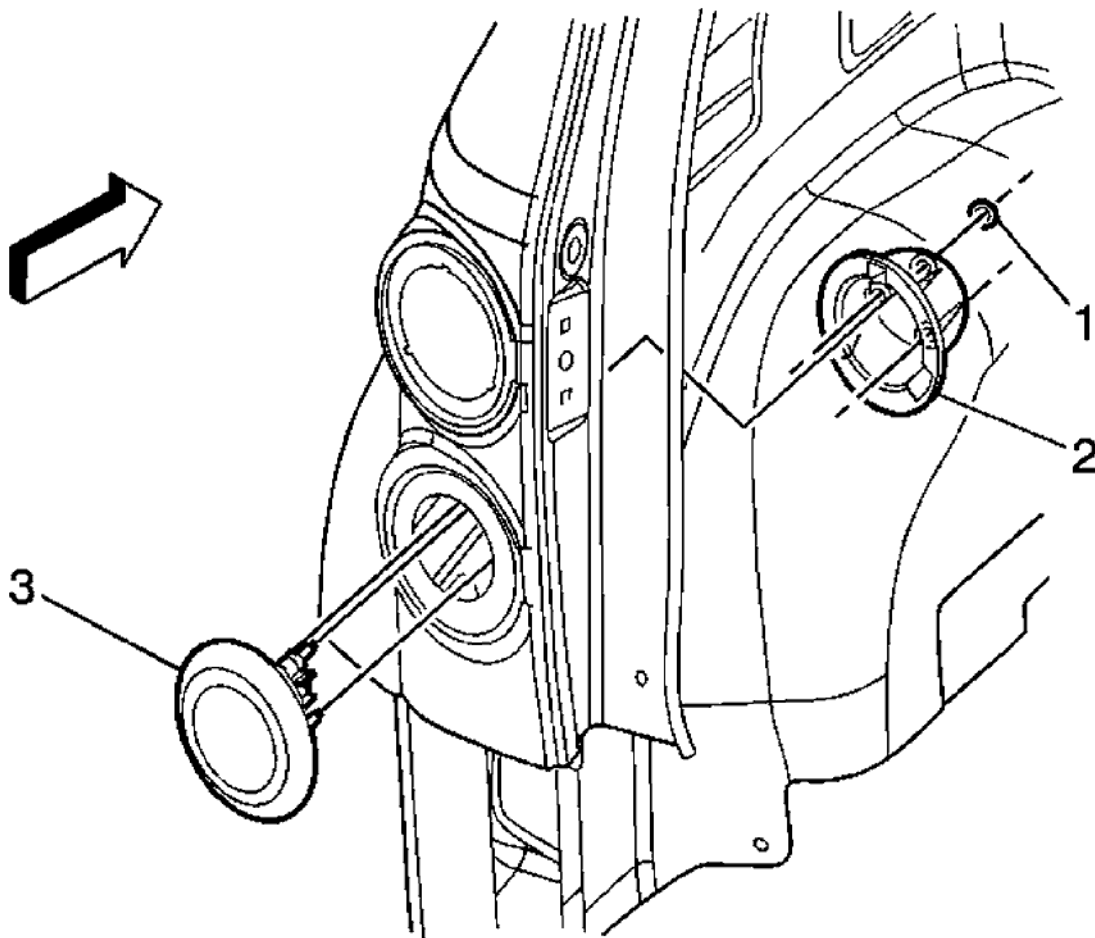


Fig. 78: Backup Lamp Bulb Replacement
Courtesy of GENERAL MOTORS CORP.

Backup Lamp Bulb Replacement

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	

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Preliminary Procedure

1. Open the liftgate.
2. Remove either the LH or RH rear quarter trim panel access hole cover.
3. Disconnect the electrical connector at the backup lamp bulb socket.
4. Turn the lamp socket a quarter turn counterclockwise and remove.

1	Socket, Backup Lamp
2	Bulb, Backup Lamp Assembly Tip: Pull the bulb straight from the bulb socket.

LICENSE LAMP BULB REPLACEMENT

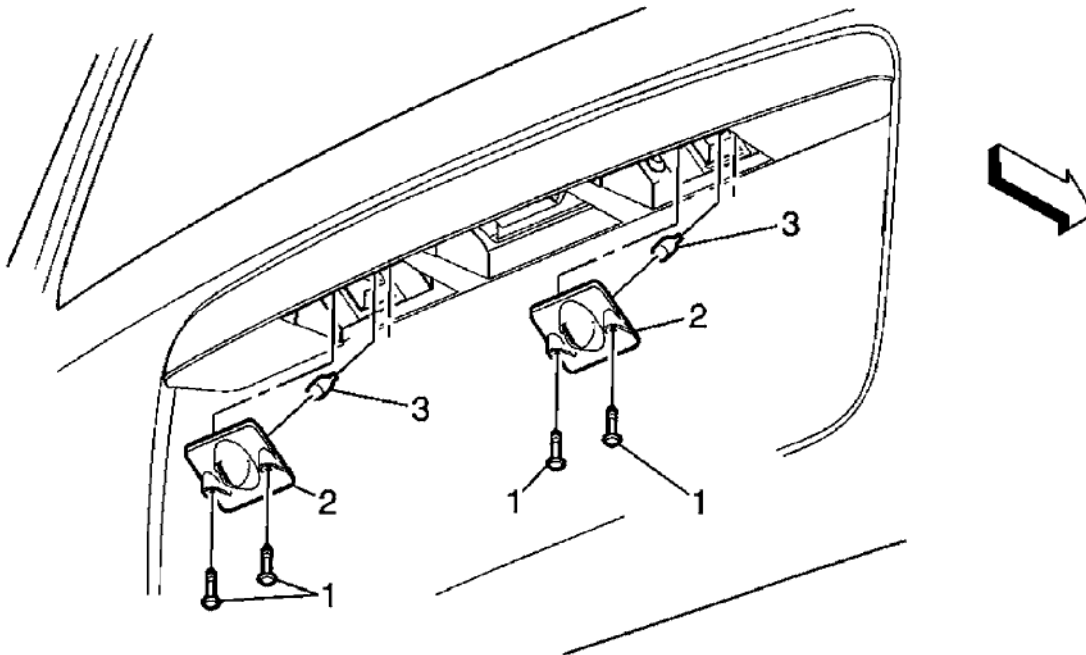


Fig. 79: License Lamp Bulb Replacement
Courtesy of GENERAL MOTORS CORP.

License Lamp Bulb Replacement

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
1	Screws, Rear License Plate Lamp Lens (Qty: 4) Tighten: 2 N.m (18 lb in)

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2	Lens, Rear License Plate Lamp (Qty: 2)
3	Bulb, Rear License Plate Lamp Tip: Carefully pull the bulb downward from the lamp socket in order to remove.

TAIL LAMP REPLACEMENT

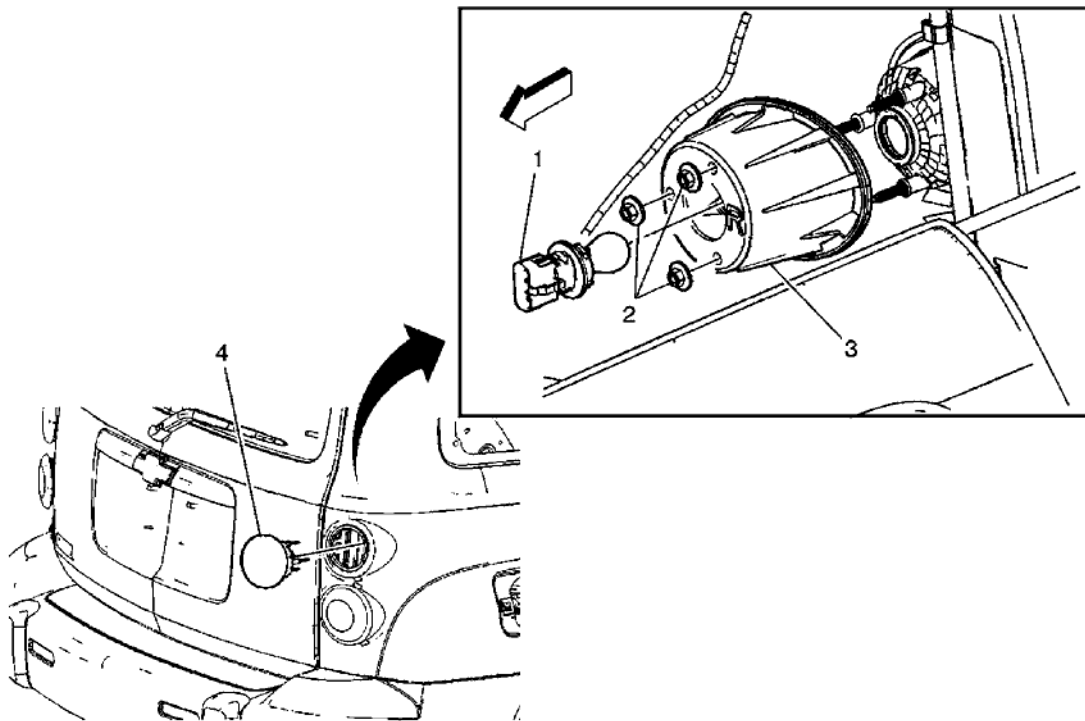


Fig. 80: Tail Lamp Replacement
Courtesy of GENERAL MOTORS CORP.

Tail Lamp Replacement

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedure	
1. Open the liftgate.	
2. Remove either the LR or RR quarter trim panel access hole cover in order to access the rear tail lamp connectors and fasteners.	
3. Disconnect the rear tail lamp bulb electrical connector.	

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1	Socket, Tail Lamp Bulb
2	Nuts, Tail Lamp (Qty: 3) Tighten: 6 N.m (53 lb in)
3	Bracket, Tail Lamp Tip: Pull the bracket forward in the vehicle to remove.
4	Lamp Assembly, Tail Tip: Remove the tail lamp from the exterior side of the rear body panel.

TAIL LAMP BULB REPLACEMENT

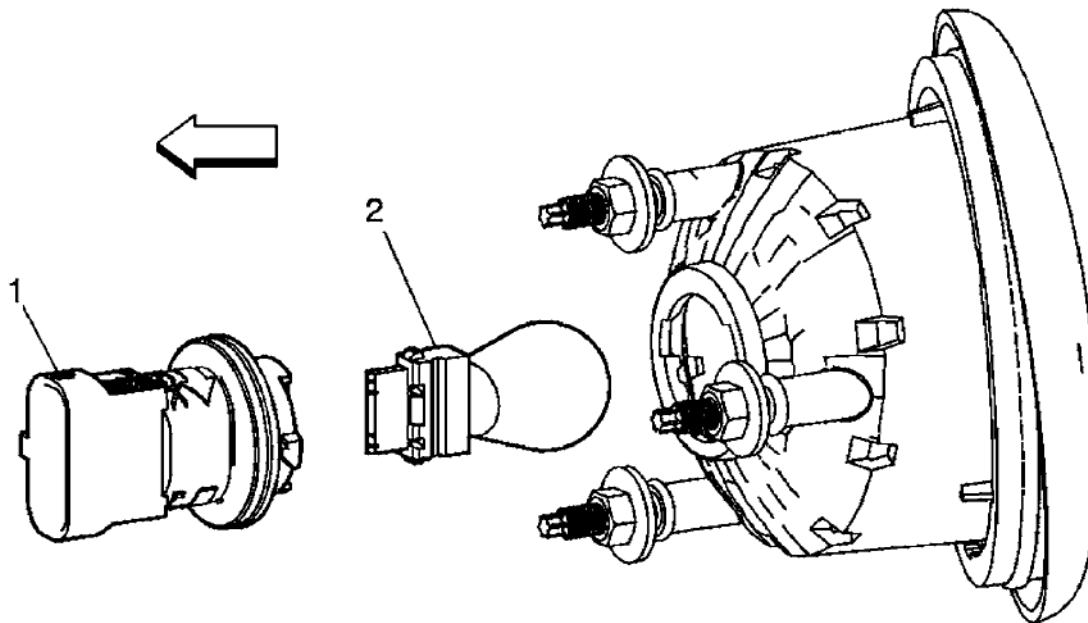


Fig. 81: Tail Lamp Bulb Replacement
Courtesy of GENERAL MOTORS CORP.

Tail Lamp Bulb Replacement

Callout	Component Name
NOTE: Refer to <u>Fastener Notice</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedure	
1. Open the liftgate.	
2. Remove either the LR or RR quarter trim panel access hole cover in order to access the rear tail lamp electrical connector.	

3. Disconnect the rear tail lamp bulb electrical connector.

1

Tail Lamp Bulb Socket

Tip: Turn the lamp socket a quarter turn counterclockwise to remove from the tail lamp bracket.

2

Tail Lamp Bulb

Tip: Pull the tail lamp bulb straight from the socket.

DESCRIPTION AND OPERATION

EXTERIOR LIGHTING SYSTEMS DESCRIPTION AND OPERATION

Exterior Lamps

The exterior lighting system consist of the following lamps:

- The headlamps
- The daytime running lamps
- The fog lamps
- The park, tail, and marker lamps
- The turn signal lamps
- The stop lamps
- The backup lamps

Headlamps

The headlamps may be turned ON 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 OFF in daylight conditions, or low beam operation in low light conditions. Battery positive voltage is supplied to the low beam relay and the high beam relay in the underhood fuse block. When low beam headlamps are requested, the body control module (BCM) supplies ground to the coil side of the low beam relay. This activates the relay and the relay supplies voltage to the left hand low beam headlamp through the LH LOW BEAM fuse and to the right hand low beam headlamp through the RH LOW BEAM fuse. Ground for the left hand low beam headlamp is provided at G101. Ground for the right hand low beam headlamp is provided at G102. When high beam headlamps are requested, the BCM supplies ground to the coil side of the high beam relay. This activates the relay and the relay supplies voltage to the left hand high beam headlamp through the LH HIGH BEAM fuse and to the right hand high beam headlamp through the RH HIGH BEAM fuse. Ground for the left hand high beam headlamp is provided at G101. Ground for the right hand high beam headlamp is provided at G102.

Daytime Running Lamps (DRL)

The ambient light sensor is a light sensitive transistor that varies its voltage signal to the body control module (BCM) in response to changes to the outside (ambient) light level. When the BCM receives this signal, it will either turn ON the daytime running lamps (DRL) or the headlights if the headlamp switch is in the AUTO position. Any function or condition that turns ON the headlights will cancel the DRL operation. With the headlight switch in the AUTO position, the headlights will either be turned ON or OFF, after an approximate 30-second delay depending on whether daylight or low light conditions are sensed. The DRL illuminates the park/turn signal and DRL lamps. The DRL will operate when the ignition switch is in the ON position, the gear selector is not in the PARK position, and the parking brake is released. When these conditions have been met and the ambient light sensor indicates daytime conditions, the DRL will illuminate.

DRL operation in manual transmission equipped vehicles will occur when the ignition switch is in the ON position, and the parking brake is released.

Fog Lamps

With the ignition switch in the ON position, and the park lamps or low beam headlights ON, the fog lights will illuminate when the driver presses the fog lamp switch. The FRT FOG fuse in the underhood fuse block supplies battery positive voltage to the switch side of the FRT FOG relay. When the fog lamp switch is pressed, the body control module (BCM) fog lamp switch input is grounded. Ground is provided at G203. The BCM will then energize the FRT FOG relay control circuit. The current flow is now from the FRT FOG relay to both front fog lamps and to ground. Ground is provided at G101 and G102. The state of the fog lamps, either ON or OFF, will remain the same until the fog lamp switch is pressed again, or the ignition switch is cycled OFF and ON. Fog lamp operation will be cancelled whenever the park lamps, are turned OFF or the high beam headlights have been selected.

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 HEADLAMP position, or anytime the headlights are requested. The PARK LAMPS fuse in the rear fuse block supplies battery positive voltage to the PARK LAMP relay switch contacts. The PARK LAMPS fuse in the rear fuse block also supplies battery positive voltage to the PARK LAMP relay coil. When the park lamps are turned ON, the body control module (BCM) energizes the park lamp relay. Current flow is from the PARK LAMP relay to their respective park and marker lamps and to ground. Ground is provided at G101, G102, G401, and G403.

Remote Keyless Entry Exterior Lamp Illumination

On vehicles with a remote control door lock receiver (RCDLR), when the RCDLR module receives a door unlock command from the remote keyless entry (RKE) transmitter, the RCDLR module will send a class 2 message to the body control module (BCM) indicating that an UNLOCK command has been received. The BCM will then flash the park lamps

twice. With all the doors closed, and the RKE transmitter is used to lock the doors, the park lamps will flash twice. The park lamps will not flash if the rear compartment is opened using the RKE transmitter.

On vehicles without a RCDLR, when the BCM receives a door unlock command from the RKE transmitter, the BCM will then flash the park lamps twice. With all the doors closed, and the RKE transmitter is used to lock the doors, the park lamps will flash twice. The park lamps will not flash if the rear compartment is opened using the RKE transmitter.

Turn Signal Lamps

The body control module (BCM) is responsible for controlling the turn signals and hazard lamps. When the turn signal switch is placed in either the left turn or right turn position, the BCM receives a signal from the turn signal switch. The BCM then sends an on-off voltage signal to either the left or right turn signals and their instrument panel cluster (IPC) indicator. When the hazard switch is pressed, the BCM receives a signal from the hazard switch. The BCM then will send an on-off voltage signal to all the turn signal lamps. All the turn signal lamps will flash including both IPC turn signal indicators.

Stop Lamps

The body control module (BCM) is responsible for controlling the stop lamps. When the driver presses the brake pedal, the BCM will receive a signal from the brake pedal position sensor. The BCM then supplies battery positive voltage to both left and right stop lamp assemblies and to the center high mounted stop lamp (CHMSL). The stop lamps are grounded at G401 and G403. The CHMSL is grounded at G302.

Backup Lamps

The R-BEC 1 fuse in the underhood fuse block supplies battery positive voltage to the BACKUP LAMP relay through the BACKUP LAMP fuse. When the gear selector is placed in reverse, the body control module (BCM) supplies ground to the BACKUP LAMP relay. This energizes the BACKUP LAMP relay and current flows from the BACKUP LAMP relay to the backup lamps and then to ground. The backup lamps are grounded at G401 and G403.

Inadvertent Power

The body control module (BCM) used in this vehicle controls the lighting system through circuits that enable both the exterior lamp functions of park, head, and fog lamps as well as the interior lamps. The BCM opens these enabling circuits shortly after the ignition switch is turned OFF with no lamp switch activity. If the ignition switch is turned to any position other than OFF, or if a lamp switch is activated during this period, the timer will reset itself again.

INTERIOR LIGHTING SYSTEMS DESCRIPTION AND OPERATION

Interior Lamps

The interior lamps consist of the following 2 groups. The first group are those lamps which may not be dimmed. The second group includes lamps that may be dimmed.

Courtesy/Illuminated Entry Lamps

This group includes lamps that may be manually turned ON by placing the interior lamp switch in the ON position, or by opening a door.

- The dome lamp
- The reading lamps
- The rearview mirror lamps
- The vanity mirror lamps

The dome lamp switch has 3 positions: DOOR, OFF, and ON. When in the DOOR position, the dome lamp operation is controlled by the body control module (BCM). The ON position provides a ground for continuous operation. Ground is provided at G302. The OFF position turns OFF any dome lamp operation. The courtesy lamps, may be manually turned ON by placing the instrument panel (I/P) dimmer switch in the DOME position. When the dome lamp switch is in the DOOR position, the dome lamp will illuminate when a door is opened. When a door is opened, the courtesy lamps turn ON. After all the doors have been closed, the courtesy lamps will remain illuminated approximately 10 seconds after the last door closes. When the driver places the dome lamp switch in the OFF position, the dome lamp will be disabled.

The inadvertent power control circuit of the BCM supplies battery positive voltage to the dome lamp, reading lamps, and vanity mirror lamps. When any door is opened, the door jam switch contacts close and the door open input to the BCM is grounded.

If the driver inadvertently leaves any interior lamp ON, the BCM will turn it OFF after 20 minutes.

The courtesy lamps will normally turn OFF using the theater dimming feature. The BCM provides a pulse width modulated ground to the dome lamp for the theater dimming feature. The courtesy lamps will also turn OFF immediately if a door lock command is received with all the doors closed, or if the ignition switch is turned to the ON position.

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 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 10 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 ON or START position, the courtesy lamps will turn OFF immediately.

On vehicles with a remote control door lock receiver (RCDLR), when the RCDLR module receives a door unlock command from the remote keyless entry (RKE) transmitter, the RCDLR module will send a class 2 message to the BCM indicating that an UNLOCK command has been received. The BCM will keep the courtesy lamps ON approximately 10 seconds and then turn them OFF through the theater dimming feature. If the door locks are activated to the LOCK position, the courtesy lamps will deactivate immediately. When the ignition switch is turned to either the ON or RUN position, the courtesy lamps will deactivate in approximately 1 second.

On vehicles without a RCDLR, when the BCM receives a door unlock command from the RKE transmitter, the BCM will keep the courtesy lamps ON approximately 10 seconds and then turn them OFF through the theater dimming feature. If the door locks are activated to the LOCK position, the courtesy lamps will deactivate immediately. When the ignition switch is turned to either the ON or RUN position, the courtesy lamps will deactivate in approximately 1 second.

Rear Compartment Lamp

The inadvertent power relay also provides battery positive voltage to the rear compartment lamp. When the rear compartment is opened, its switch closes to provide a ground circuit and the rear compartment lamp illuminates. Ground is provided at G401.

Interior Lamps Dimming

The second group includes lamps which may be dimmed. This group may use a combination of vacuum fluorescent (VF) illumination and of incandescent lamps.

- Adjustable pedal position switch
- Door switches and window switches
- Fog lamp switch
- Heated seat switches
- HVAC control head assembly
- Hazard switch
- Outside rearview mirror switch
- Power sunroof switch assembly
- Radio
- Rear compartment lid release switch
- Rear seat audio module
- Steering wheel radio controls

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- The instrument panel cluster (IPC)
- Traction control switch

When the ignition switch is turned to the ON position, the VF displays (radio) turn ON at maximum brightness. When the park lamps are ON and the ambient light sensor indicates low light conditions, all incandescent back lighting turns 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 body control module (BCM) is responsible for the dimming of the interior lights. The BCM receives a varying signal from the I/P dimmer switch. Based on the position of the I/P dimmer switch, the BCM then supplies the appropriate amount of voltage to the interior lamps. When the headlight switch is turned to the PARK or HEADLAMP position, all incandescent back lighting turns ON at the dimming level indicated by the I/P dimmer switch. 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 position.