2007 RESTRAINTS

Supplemental Inflatable Restraints - Avalanche, Escalade, Suburban, Tahoe & Yukon

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Inflatable Restraint Front Passenger Position Sensor Screws	3 N.m	25 lb in
Inflatable Restraint Rollover Sensor Nuts	10 N.m	89 lb in
Inflatable Restraint Roof Rail Bolts	9 N.m	80 lb in
Inflatable Restraint SDM Nuts	7 N.m	56 lb in
Inflatable Restraint Side Impact Sensor Module Bolts	9 N.m	80 lb in
Instrument Panel Inflatable Restraint Module Bolts	10 N.m	89 lb in
SIR Front End Discriminating Sensor Bolts	8 N.m	71 lb in

SCHEMATIC AND ROUTING DIAGRAMS

SIR SCHEMATIC ICONS

SIR 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. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.**

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IMPORTANT:

- **In order to prevent accidental deployment, the shorting bars close in order to short the connectors when the connectors are separated.**
- **Twisted-pair wires provide an effective shield that helps protect sensitive electronic components from electrical interference. If the wires were covered with shielding, install new shielding.**

  In order to prevent electrical interference from degrading the performance of the connected components, you must maintain the proper specification when making any repairs to the twisted-pair wires shown :

  - **The wires must be twisted a minimum of 9 turns per 31 cm (12 in) as measured anywhere along the length of the wires**
  - **The outside diameter of the twisted wires must not exceed 6.0 mm (0.25 in)**

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SIR SCHEMATICS

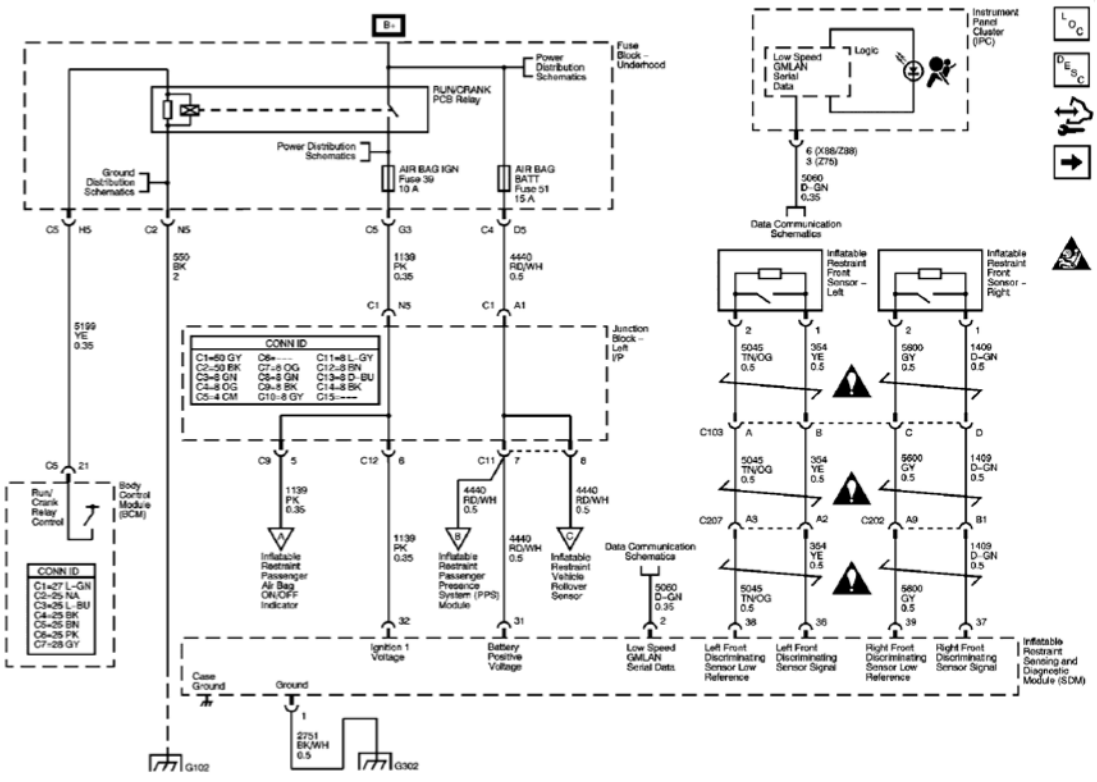


Fig. 1: Module Power, Ground, Serial Data & Front Sensors Schematic
Courtesy of GENERAL MOTORS CORP.

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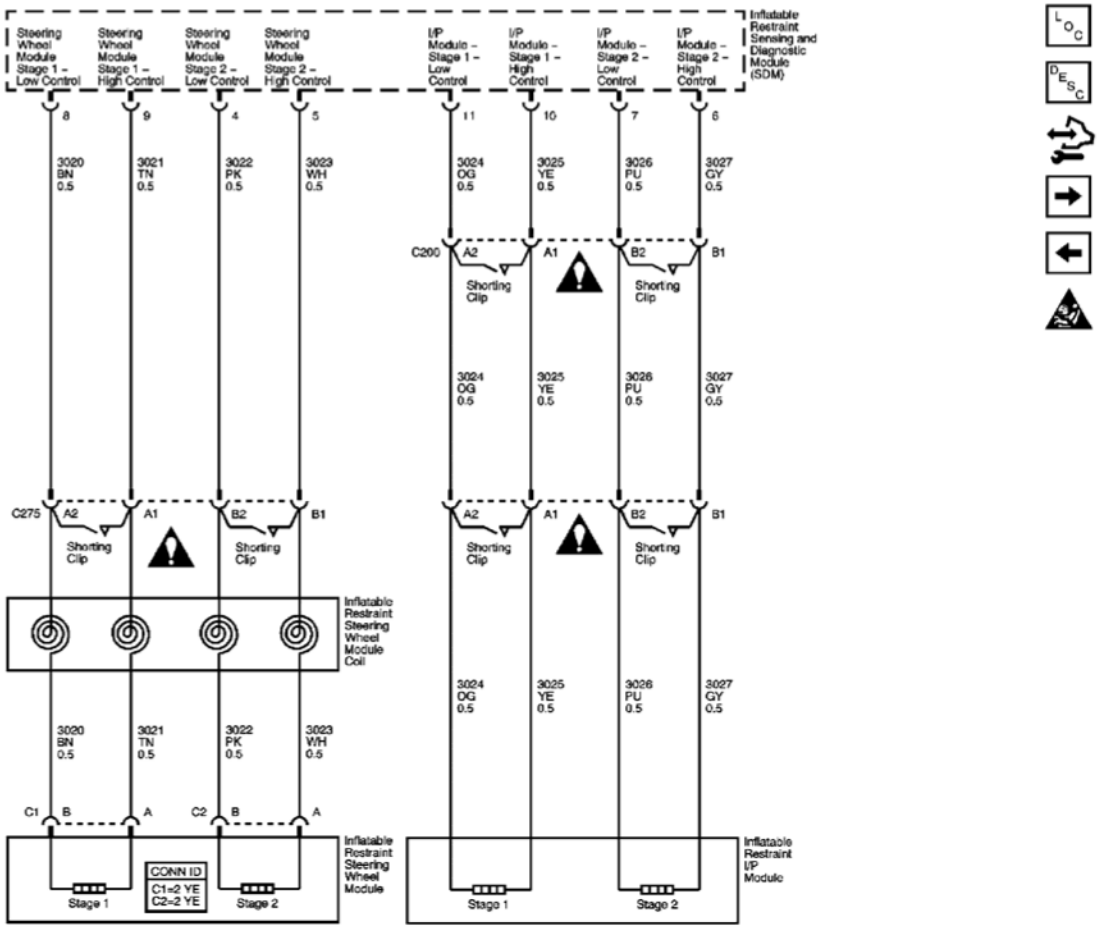


Fig. 2: Steering Wheel & I/P Modules Schematic
Courtesy of GENERAL MOTORS CORP.

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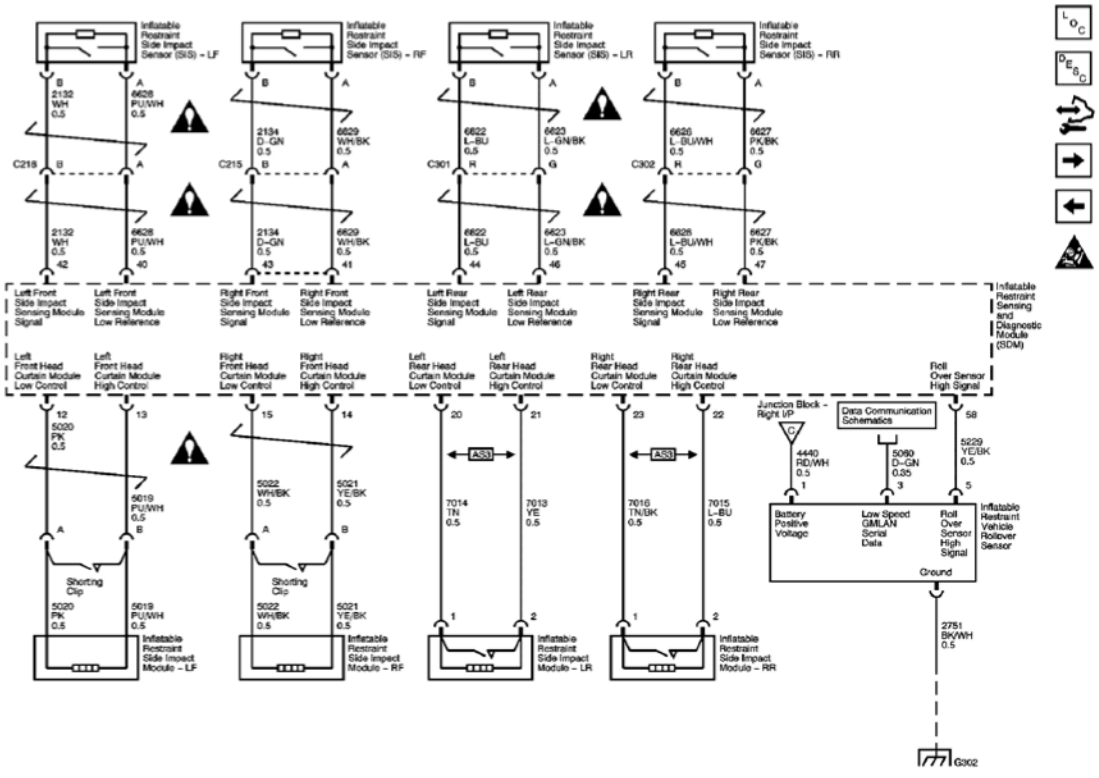


Fig. 3: Side Impact Modules & Sensors (ASF) Schematic
Courtesy of GENERAL MOTORS CORP.

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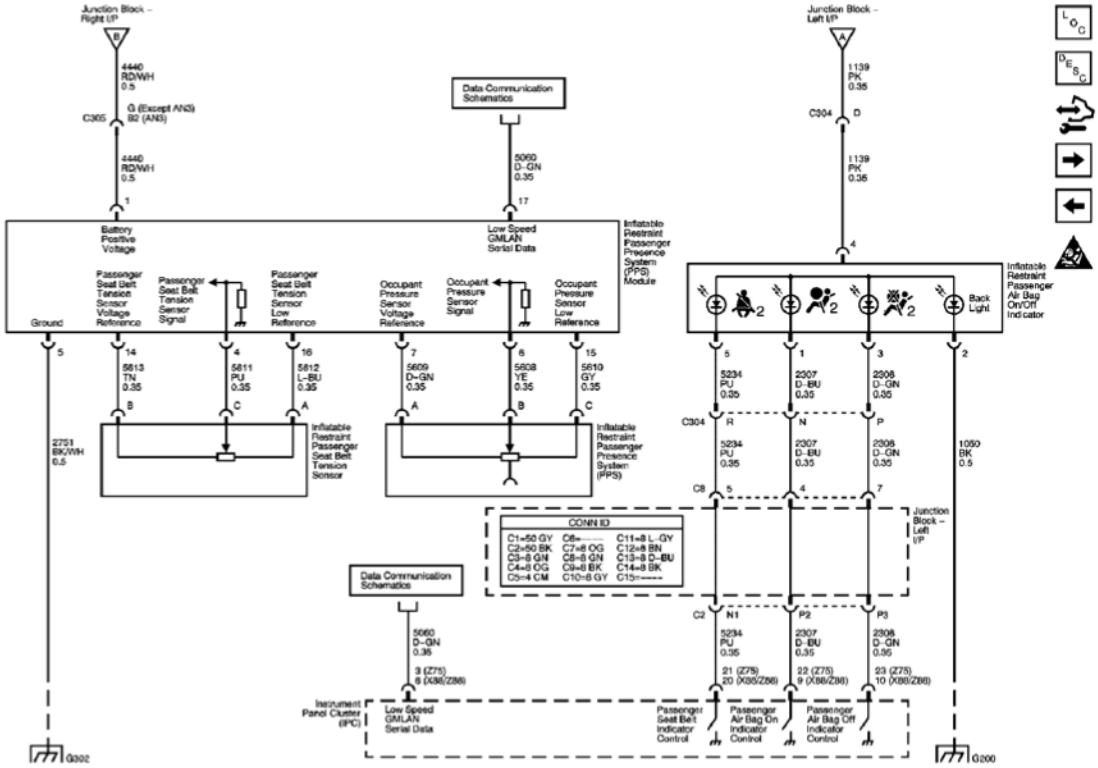


Fig. 4: Passenger Presence System - 1 of 2 Schematic
Courtesy of GENERAL MOTORS CORP.

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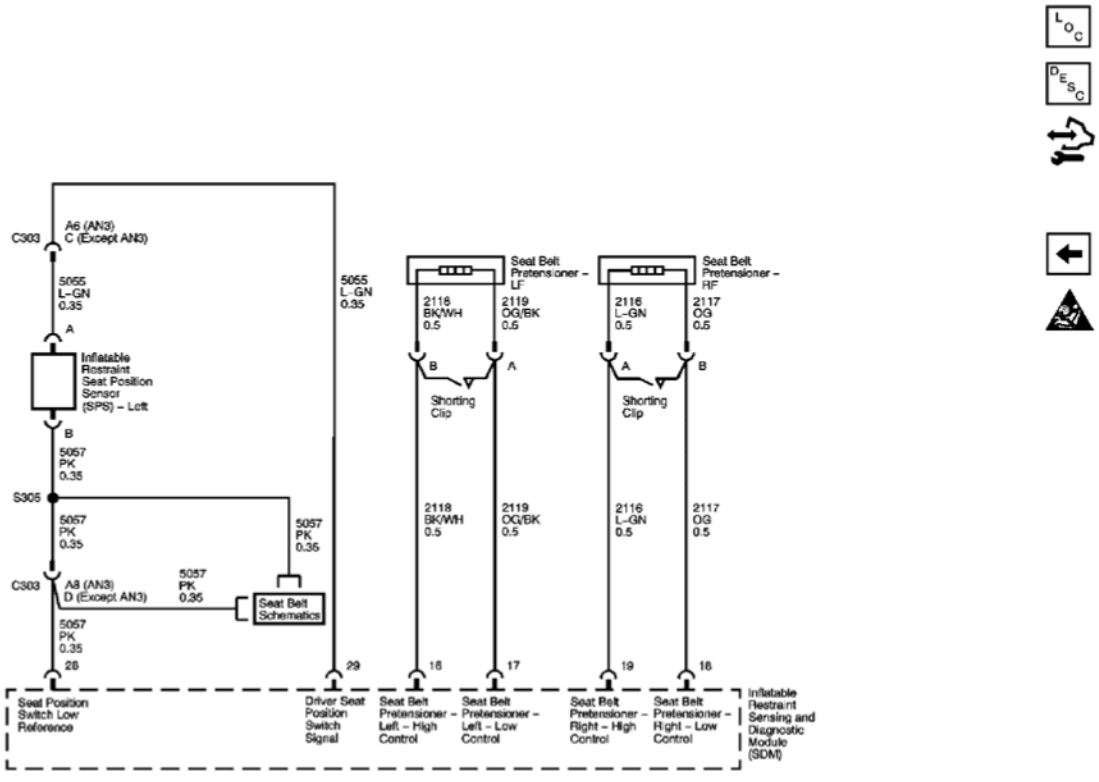


Fig. 5: Passenger Presence System - 2 of 2 Schematic
Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

SIR COMPONENT VIEWS

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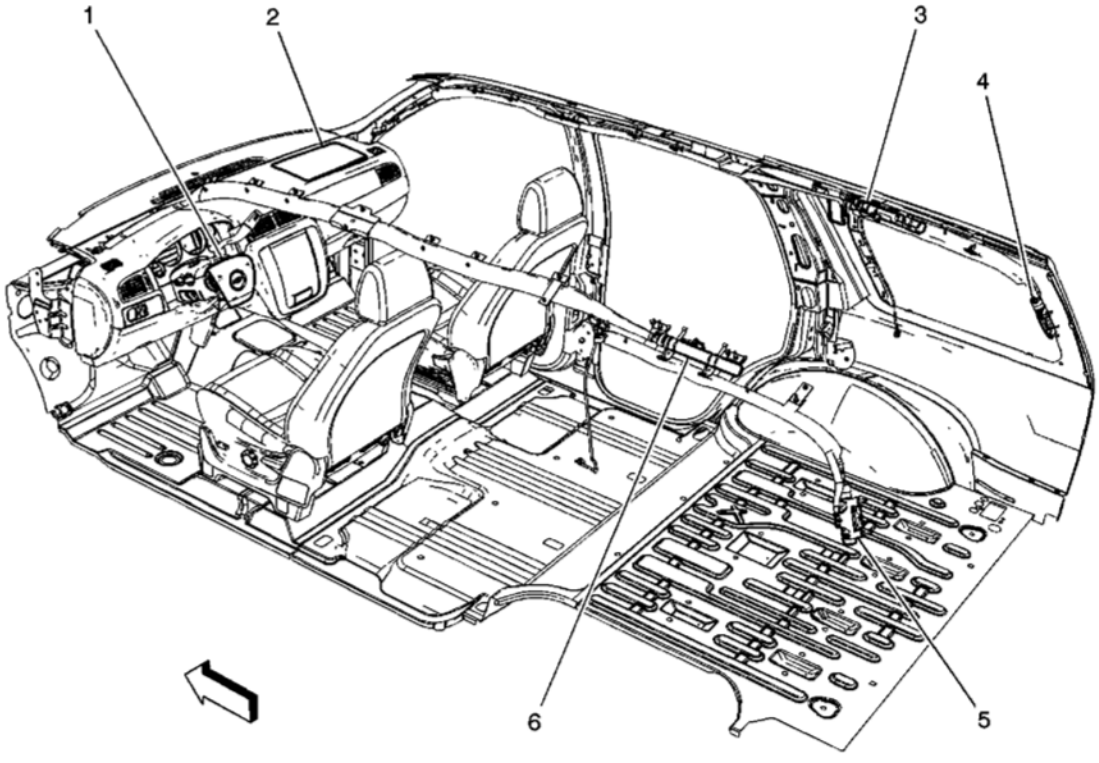


Fig. 6: Air Bags
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 6

Callout	Component Name
1	Inflatable Restraint Steering Wheel Module
2	Inflatable Restraint I/P Module
3	Inflatable Restraint Roof Rail Module - RF (ASF)
4	Inflatable Restraint Roof Rail Module - RR (ASF)
5	Inflatable Restraint Roof Rail Module - LR (ASF)
6	Inflatable Restraint Roof Rail Module - LF (ASF)

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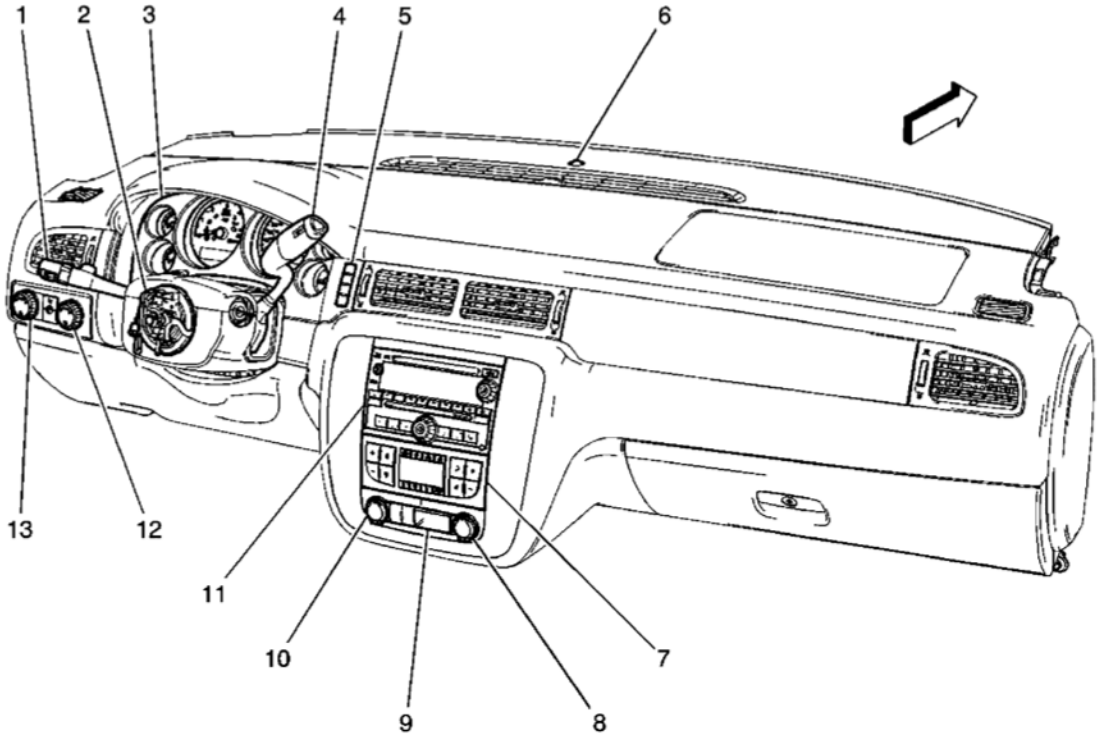


Fig. 7: Front of the I/P (Except Z75)
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 7

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

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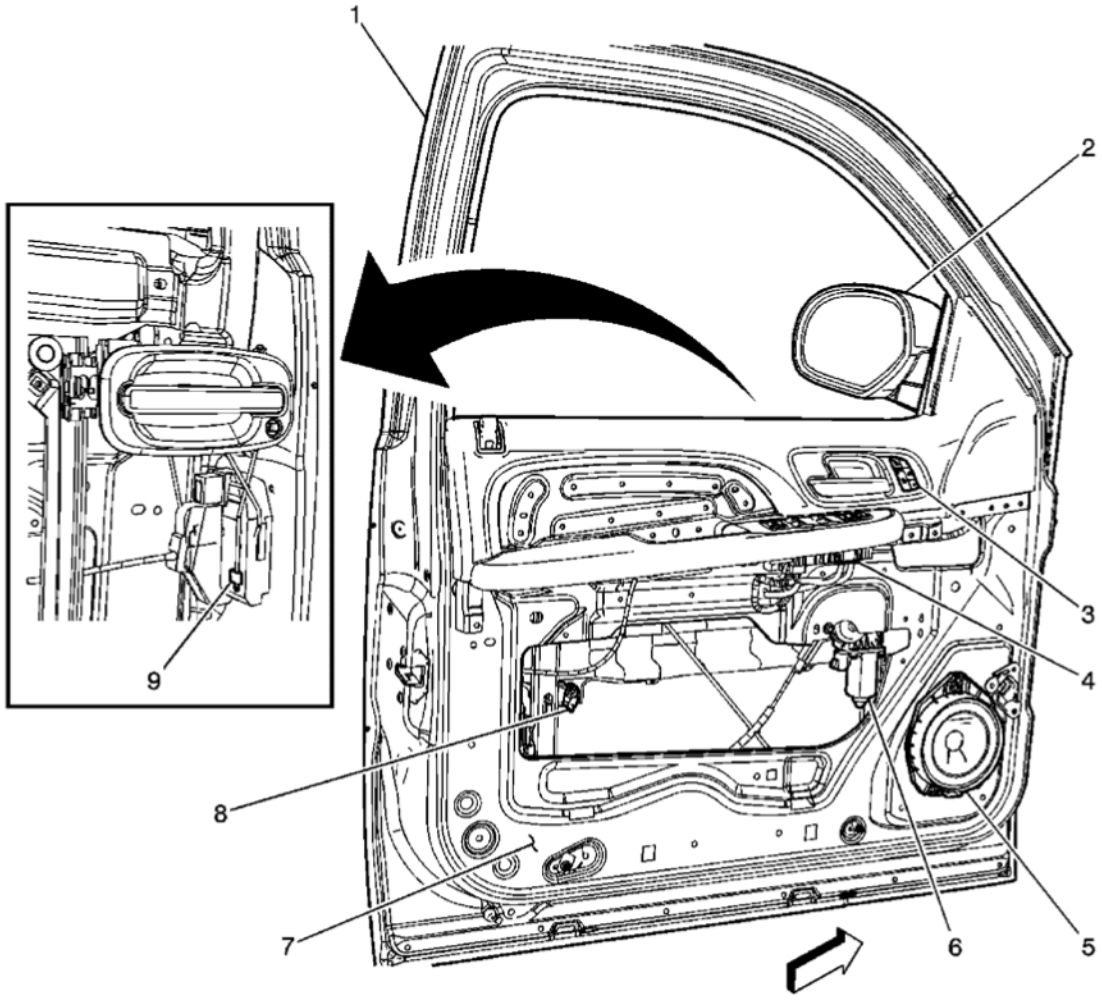


Fig. 8: Driver Door
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 8

Callout	Component Name
1	Door Frame
2	Outside Rearview Mirror - Driver
3	Memory/Heated Seat Switch (AN3 Except KB6) / Memory Seat Switch (KB6)
4	Driver Door Switch (DDS)
5	Speaker - LF Door
6	Window Motor - Driver
7	Inflatable Restraint Side Impact Sensor (SIS) - LF (ASF)
8	Door Latch Assembly - Driver

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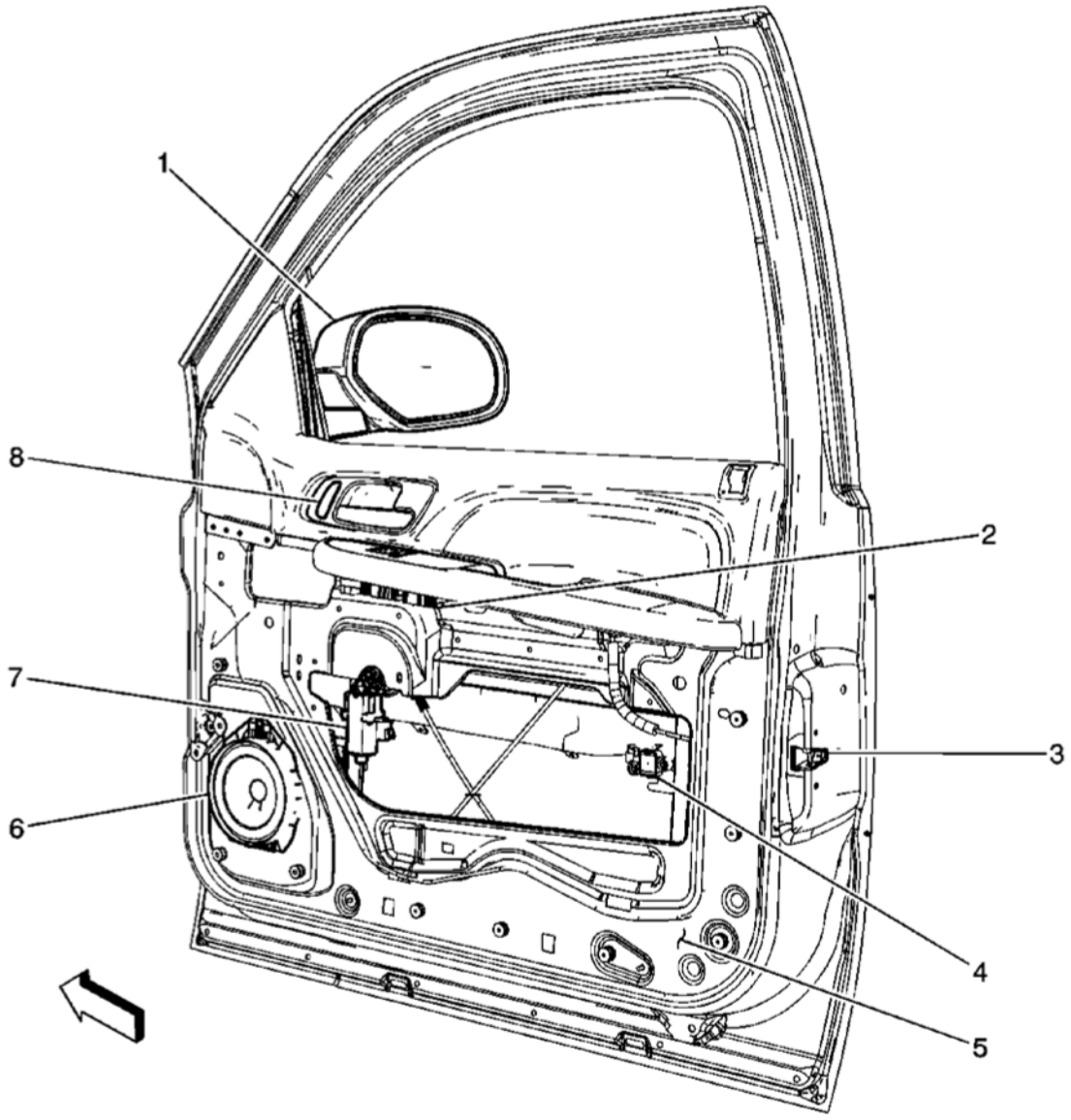


Fig. 9: Passenger Door
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 9

Callout	Component Name
1	Outside Rearview Mirror - Passenger
2	Passenger Door Switch (PDS)
3	Door Latch Assembly - Passenger
4	Inflatable Restraint Side Impact Sensor (SIS) - RF (ASF)
5	Speaker - RF Door
6	Window Motor - Passenger

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7	Heated Seat Switch (KA6)

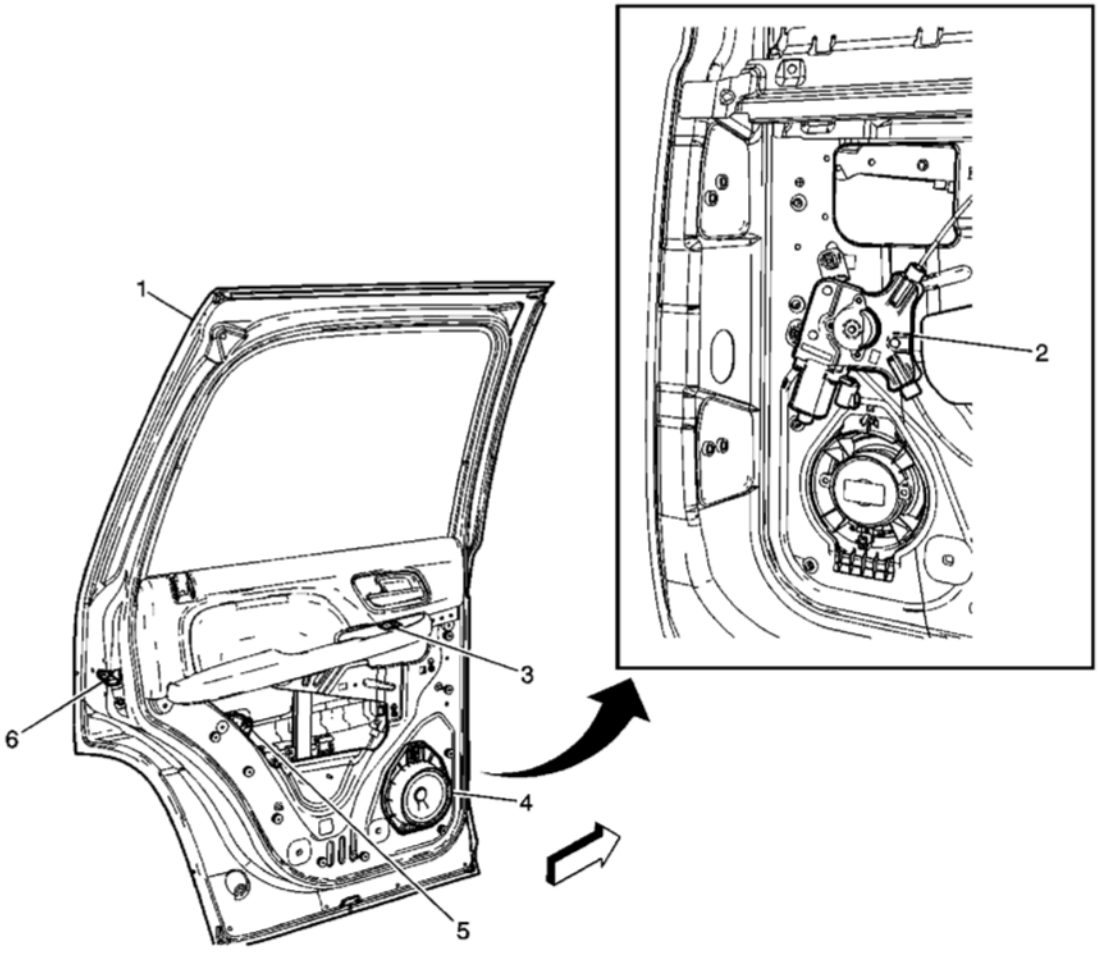


Fig. 10: LR Door
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 10

Callout	Component Name
1	Door Frame
2	Window Motor - LR
3	Window Switch - LR
4	Speaker - LR Door
5	Inflatable Restraint Side Impact Sensor (SIS) - LR (ASF)
6	Door Latch Assembly - LR

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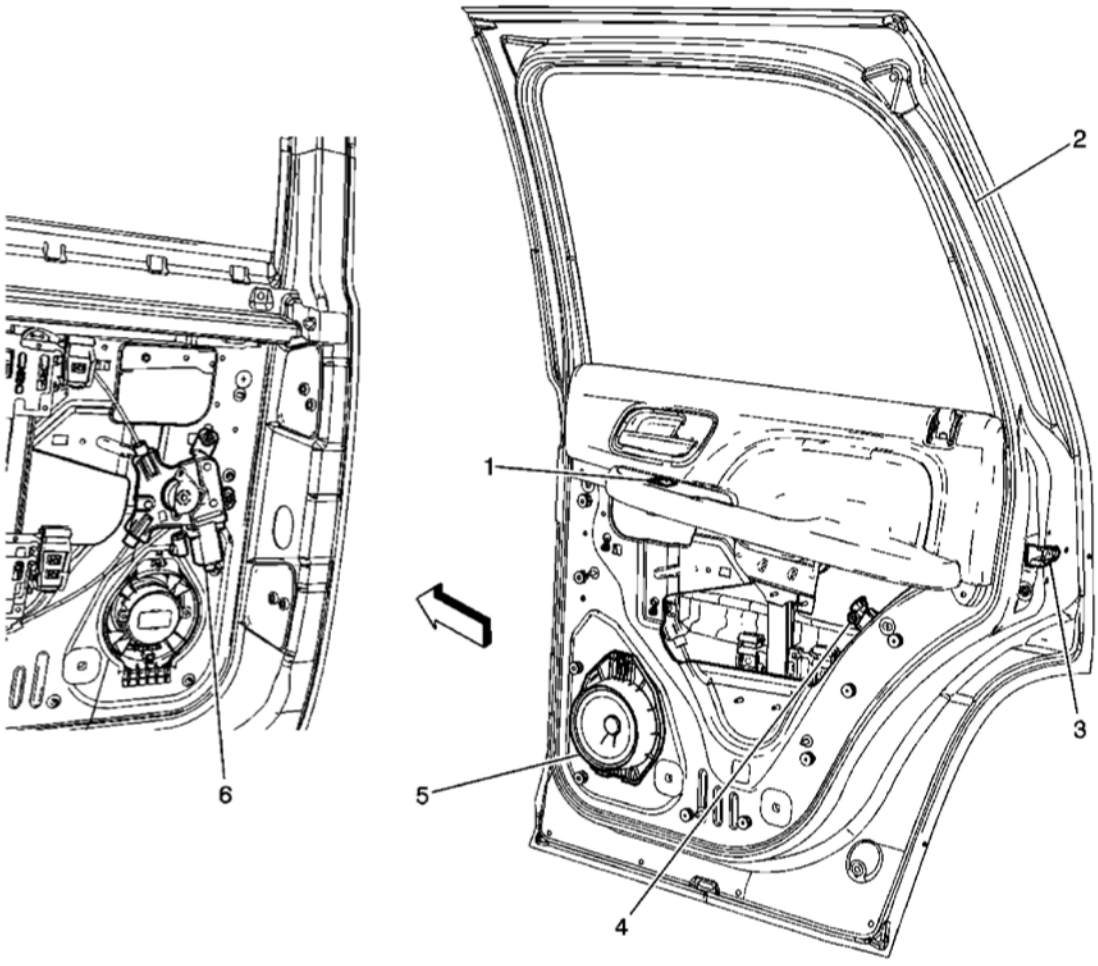


Fig. 11: RR Door
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 11

Callout	Component Name
1	Window Switch - RR
2	Door Frame
3	Inflatable Restraint Side Impact Sensor (SIS) - RR (ASF)
4	Speaker - RR Door
5	Window Motor - RR

SIR IDENTIFICATION VIEWS

The SIR Identification Views shown below illustrate the approximate location of all SIR components available for the vehicle. This will assist in disabling and enabling the SIR system, refer to **SIR Disabling and Enabling**.

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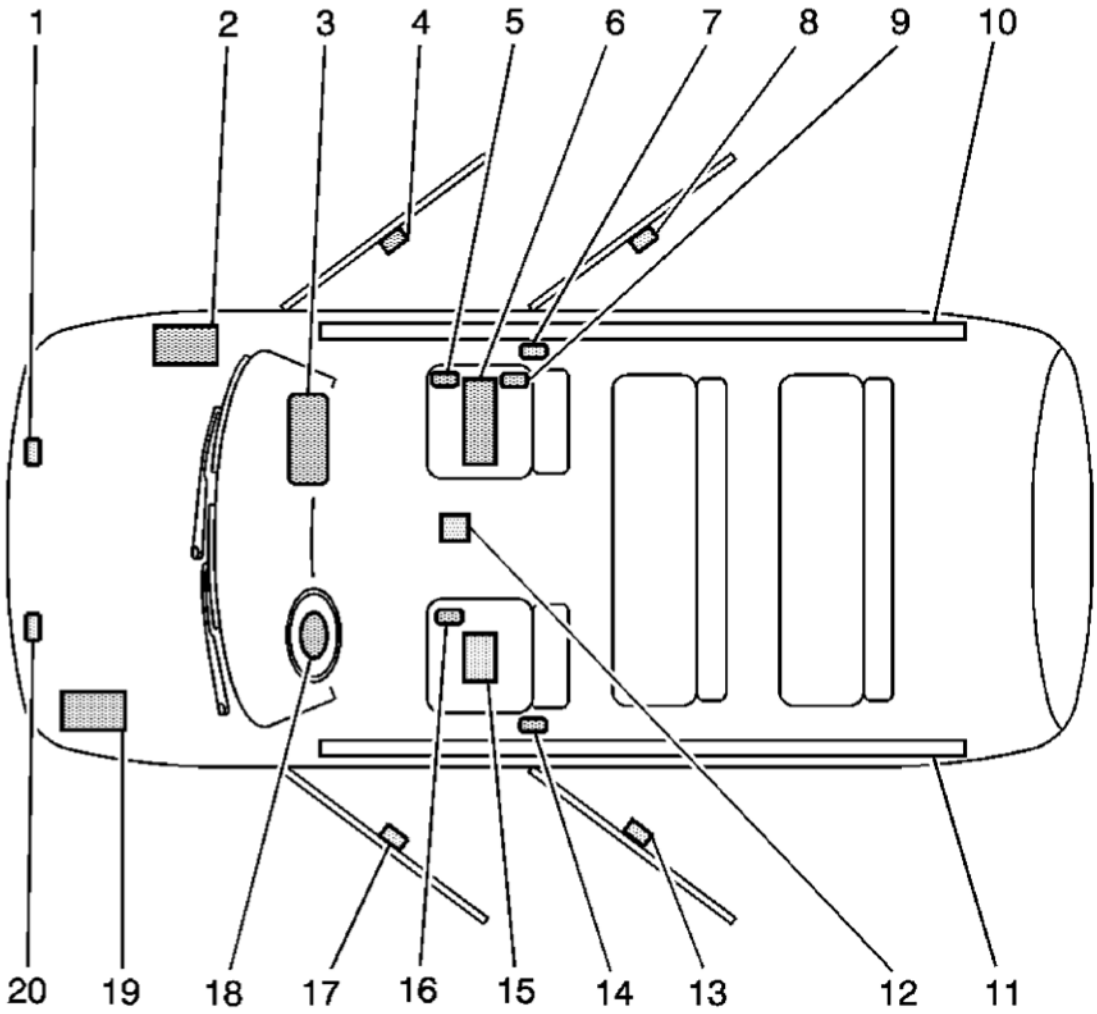


Fig. 12: SIR Identification Views, Avalanche/Escalade/Suburban/Tahoe/Yukon
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 12

Callout	Component Name
1	Inflatable Restraint Front End Sensor-Right-Located on the front frame crossmember
2	Battery-Located under the hood on the right side
3	Inflatable Restraint I/P Module-Located at the right front of the instrument panel cluster (IPC)
4	Inflatable Restraint Side Impact Sensor (SIS)-RF-Located under the right front door trim near the lower rear of the door frame
5	Inflatable Restraint Seat Position Sensor (SPS)-Right-Located on the right front outboard seat track
6	Inflatable Restraint Passenger Presence System (PPS)-Located under the right front seat mounted to the seat frame

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7	Inflatable Restraint Seat Belt Pretensioner-Right-Located on the right front B Piller
8	Inflatable Restraint Side Impact Sensor (SIS)-RR-Located under the right rear door trim near the lower rear of the door frame
9	Inflatable Restraint Seat Belt Tension Retractor Sensor-Located on the outboard lower seat belt anchor
10	Inflatable Restraint Roof Rail Module-Right-Located in the headliner
11	Inflatable Restraint Roof Rail Module-Left-Located in the headliner
12	Inflatable Restraint Vehicle Rollover Sensor-Located under the center console
13	Inflatable Restraint Side Impact Sensor (SIS)-LR-Located under the left rear door trim near the lower rear of the door frame
14	Inflatable Restraint Seat Belt Pretensioner-Left-Located on the left front B Piller
15	Inflatable Restraint Sensing and Diagnostic Module (SDM)-Located under the left front seat under the carpet
16	Inflatable Restraint Seat Position Sensor (SPS)-Left-Located on the left front outboard seat track
17	Inflatable Restraint Side Impact Sensor (SIS)-LF-Located under the left front door trim near the lower rear of the door frame
18	Inflatable Restraint Steering Wheel Module-Located on the steering wheel
19	Underhood Fuse Block and Auxiliary Battery-Located under the hood on the left side
20	Inflatable Restraint Front End Sensor-Left-Located on the front frame crossmember

SIR CONNECTOR END VIEWS

Inflatable Restraint Front End Sensor - Left

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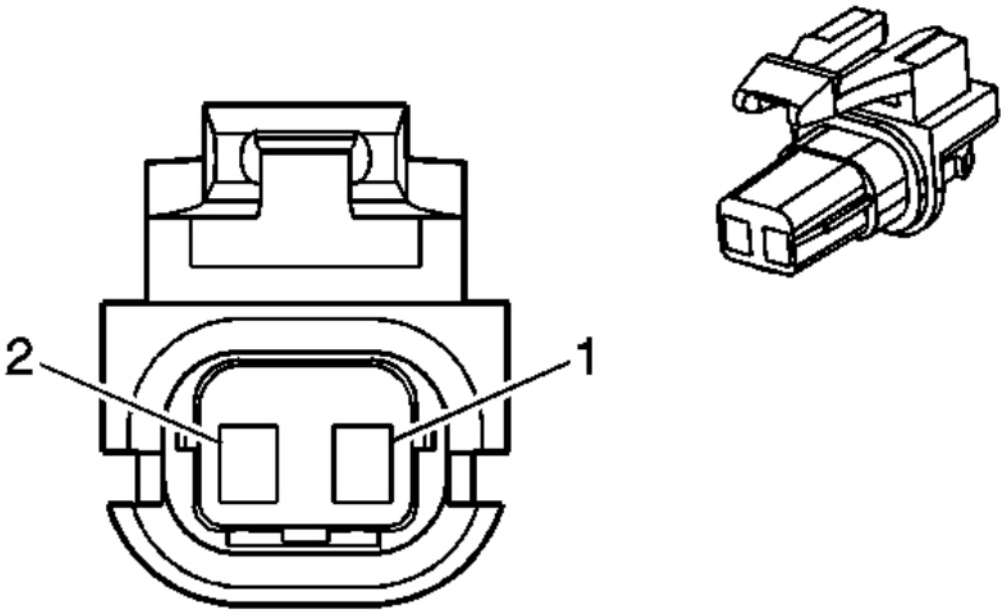


Fig. 13: Inflatable Restraint Front End Sensor - Left Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Front End Sensor - Left Connector Parts Information

Connector Part Information

- OEM: 15356717
- Service: 88953273
- Description: 2-Way F GT 150 (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Inflatable Restraint Front End Sensor - Left Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	YE	354	Discriminating Sensor - Signal
2	TN/OG	5045	Low Reference

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Inflatable Restraint Front End Sensor - Right

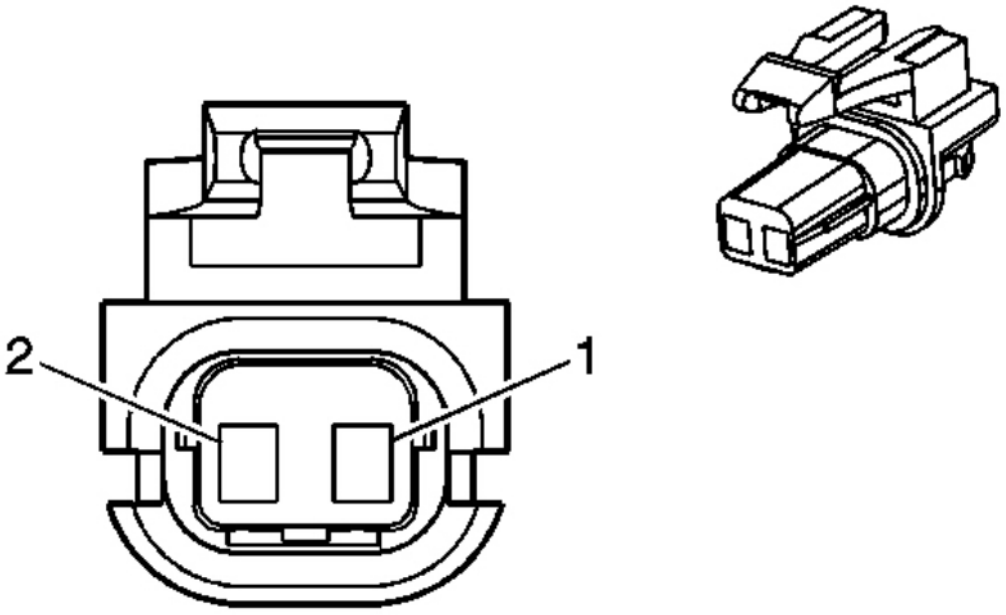


Fig. 14: Inflatable Restraint Front End Sensor - Right Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Front End Sensor - Right Connector Parts Information

Connector Part Information

- OEM: 15356717
- Service: 88953273
- Description: 2-Way F GT 150 (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Inflatable Restraint Front End Sensor - Right Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	D-GN	1409	Discriminating Sensor - Right - Signal

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2	GY	5600	Low Reference

Inflatable Restraint I/P Module

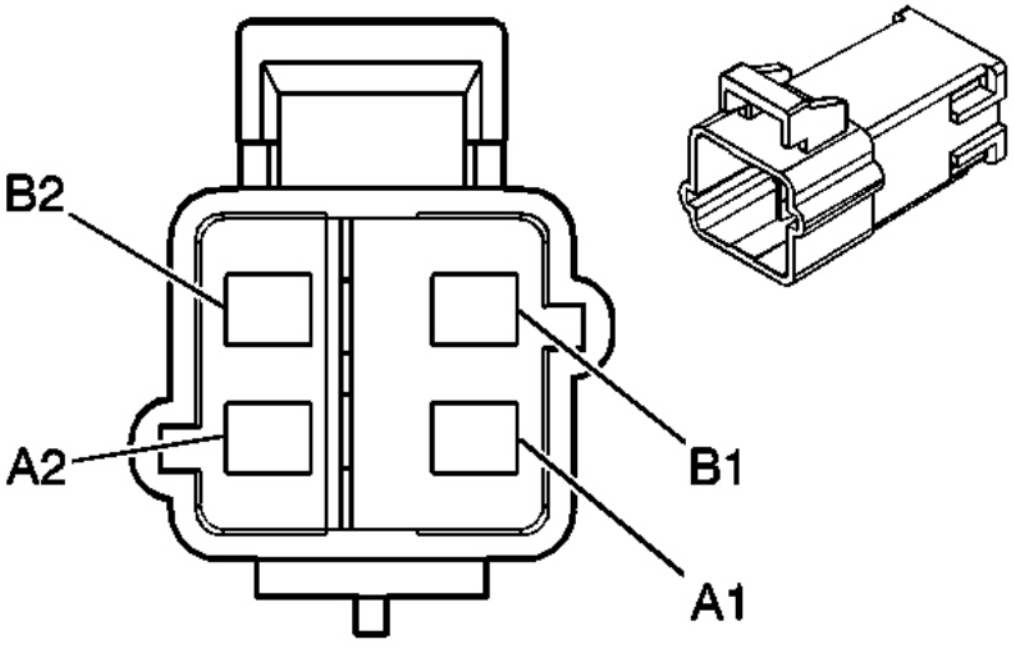


Fig. 15: Inflatable Restraint I/P Module Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint I/P Module Connector Parts Information

Connector Part Information

- OEM: 15336476
- Service: 15306363
- Description: 4-Way M Metri-Pack 280 Series (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12094430/J-35616-5 (PU)

Inflatable Restraint I/P Module Connector Terminal Identification

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Pin	Wire Color	Circuit No.	Function
A1	YE	3025	I/P Module - Stage 1 - High Control
A2	OG	3024	I/P Module - Stage 1 - Low Control
B1	GY	3027	I/P Module - Stage 2 - High Control
B2	PU	3026	I/P Module -- Stage 2 - Low Control

Inflatable Restraint Passenger Air Bag ON/OFF Indicator

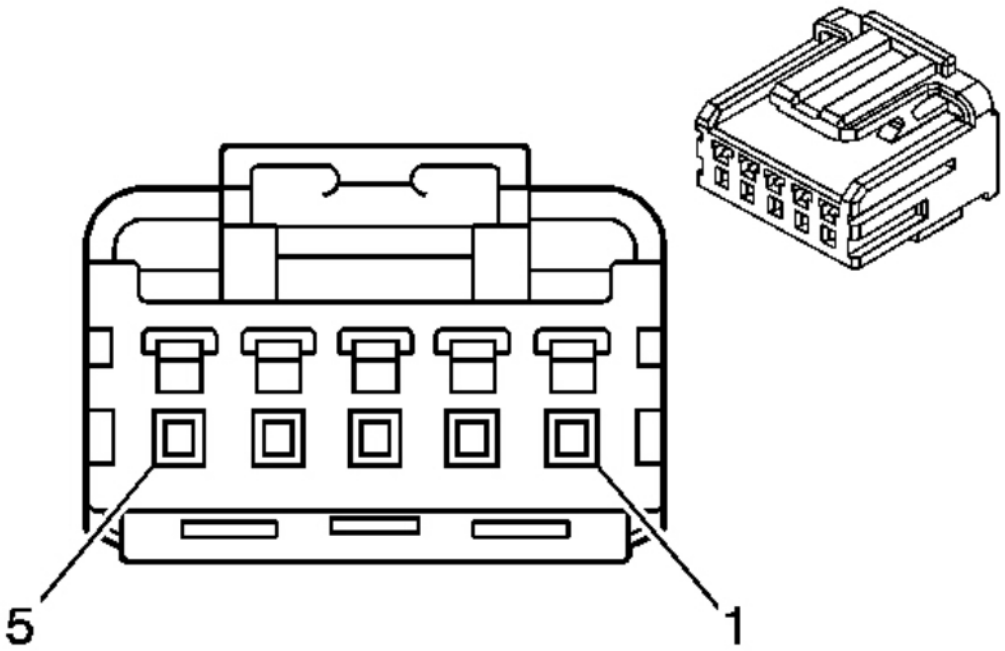


Fig. 16: Inflatable Restraint Passenger Air Bag ON/OFF Indicator Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Passenger Air Bag ON/OFF Indicator Connector Parts Information

Connector Part Information

- OEM: 15398877
- Service: 88953369
- Description: 5-Way F HCM Series (NA)

Terminal Part Information

- Terminal/Tray: Service with Pigtail

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- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12094429/J-35616-64B (L-BU)

Inflatable Restraint Passenger Air Bag ON/OFF Indicator Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	D-BU	2307	Passenger Air Bag On Indicator Control
2	BK	1050	Ground
3	D-GN/BK	2308	Passenger Air Bag Off Indicator Control
4	PK	1139	Ignition 1 Voltage
5	PU	5234	Passenger Seat Belt Indicator

Inflatable Restraint Roof Rail Module - LF (ASF)

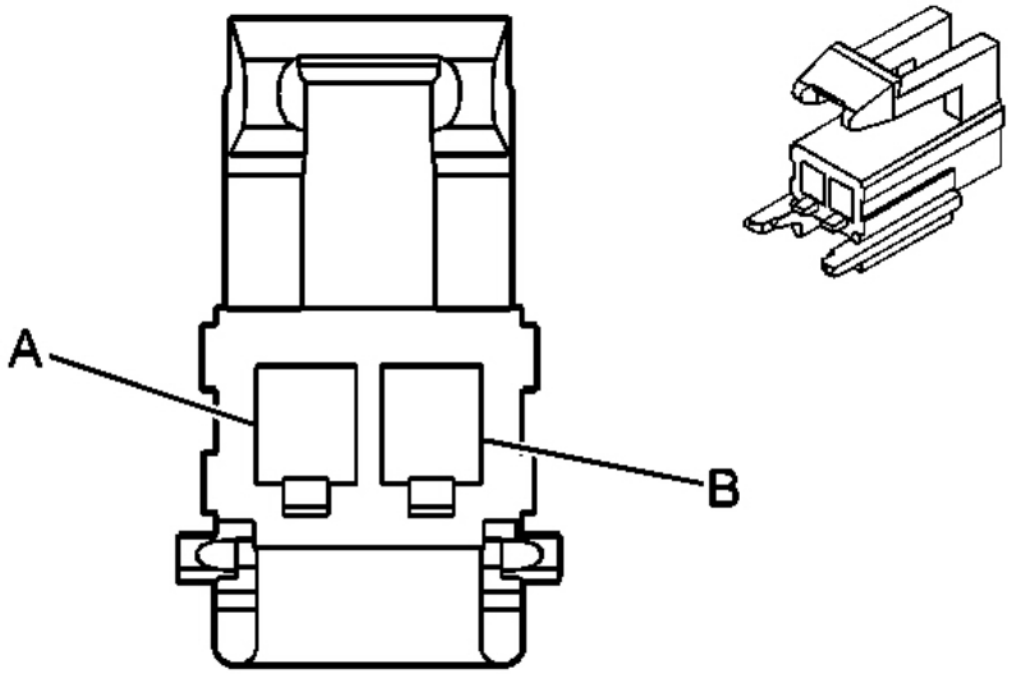


Fig. 17: Inflatable Restraint Roof Rail Module - LF (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module - LF (ASF) Connector Parts Information

Connector Part Information

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- OEM: 12110505
- Service: 15306044
- Description: 2-Way F Metri-Pack 150 Series (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

Inflatable Restraint Roof Rail Module - LF (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	PK	5020	Roof Rail Module - Left - Low Control
B	PU/WH	5019	Roof Rail Module - Left - High Control

Inflatable Restraint Roof Rail Module - LR (ASF)

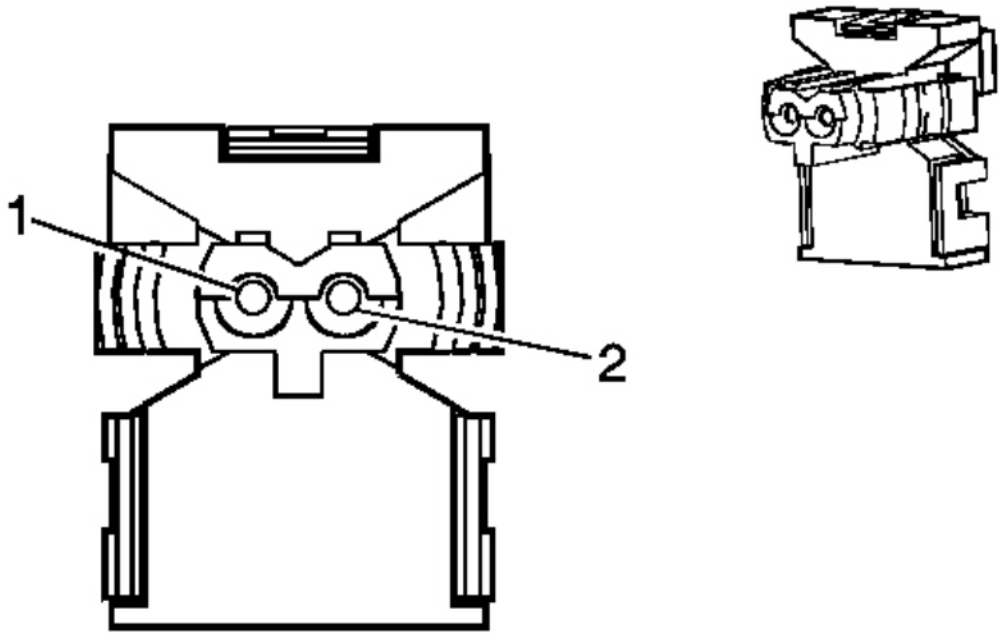


Fig. 18: Inflatable Restraint Roof Rail Module - LR (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

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Inflatable Restraint Roof Rail Module - LR (ASF) Connector Parts Information

Connector Part Information

- OEM: 15136347
- Service: See Catalog
- Description: 2-Way F

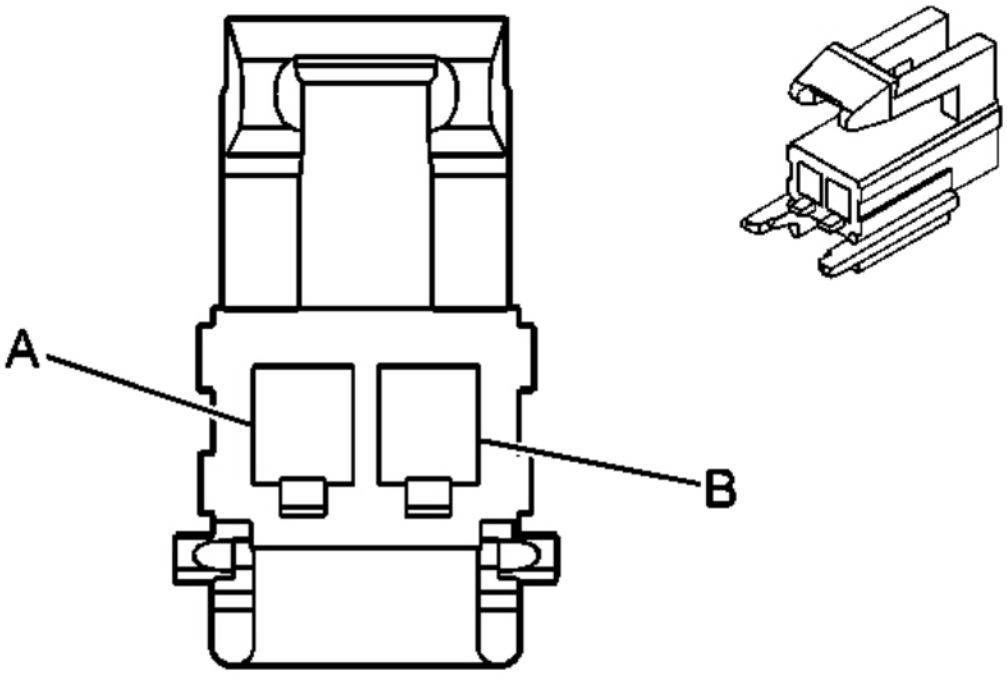
Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: TBD

Inflatable Restraint Roof Rail Module - LR (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	TN	7014	Left Rear Head Curtain Module Low Control
2	YE	7013	Left Rear Head Curtain Module High Control

Inflatable Restraint Roof Rail Module - RF (ASF)



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Fig. 19: Inflatable Restraint Roof Rail Module - RF (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module - RF (ASF) Connector Parts Information

Connector Part Information

- OEM: 12110505
- Service: 15306044
- Description: 2-Way F Metri-Pack 150 Series (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

Inflatable Restraint Roof Rail Module - RF (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	WH/BK	5022	Roof Rail Module - Right - Low Control
B	YE/BK	5021	Roof Rail Module - Right - High Control

Inflatable Restraint Roof Rail Module - RR (ASF)

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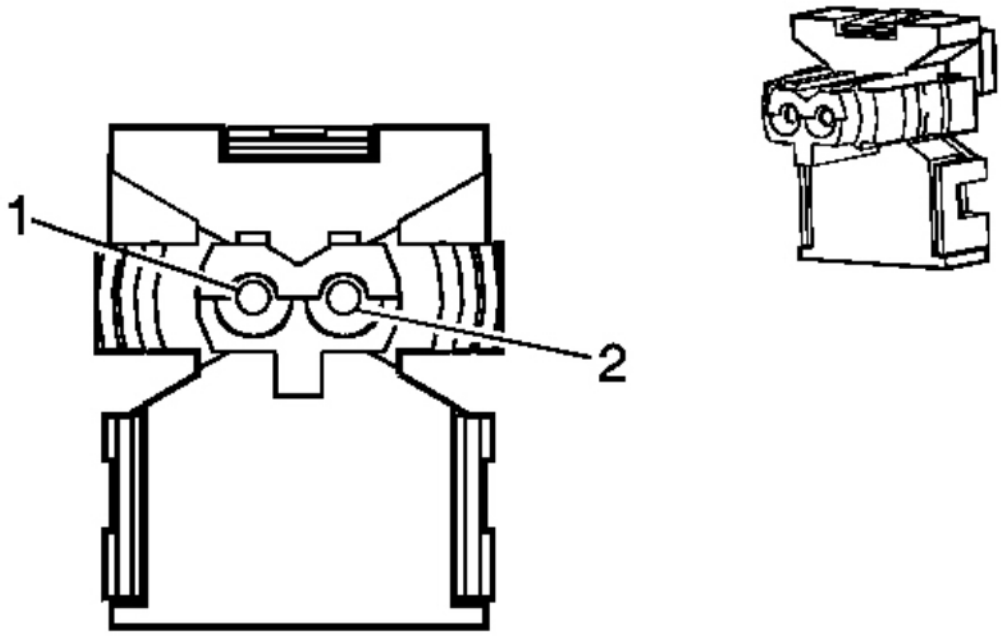


Fig. 20: Inflatable Restraint Roof Rail Module - RR (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module - RR (ASF) Connector Parts Information

Connector Part Information

- OEM: 15136347
- Service: See Catalog
- Description: 2-Way F

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: TBD

Inflatable Restraint Roof Rail Module - RR (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	TN/BK	7016	Right Rear Head Curtain Module Low Control

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2	L-BU	7015	Right Rear Head Curtain Module High Control

Inflatable Restraint Seat Position Sensor (SPS) - Left

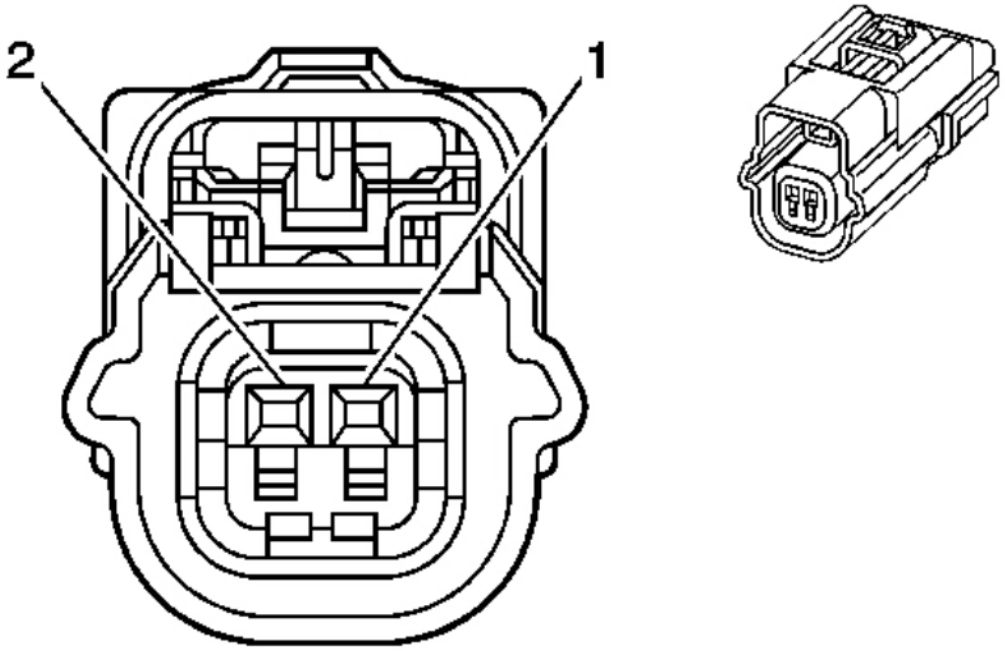


Fig. 21: Inflatable Restraint Seat Position Sensor (SPS) - Left Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Seat Position Sensor (SPS) - Left Connector Parts Information

Connector Part Information

- OEM: 54390239
- Service: See Catalog
- Description: 2-Way F (BK)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: TBD

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Inflatable Restraint Seat Position Sensor (SPS) - Left Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	PK	5057	Low Reference
2	L-GN	5055	Driver Seat Position Switch Signal

Inflatable Restraint Sensing and Diagnostic Module (SDM) (Except ASF)

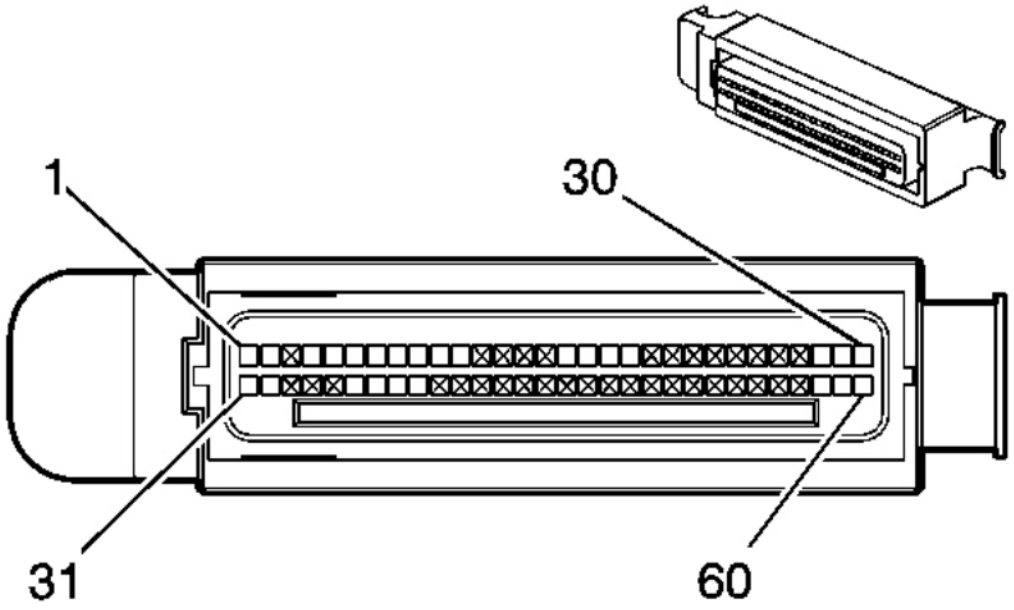


Fig. 22: Inflatable Restraint Sensing and Diagnostic Module (SDM) (Except ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Sensing and Diagnostic Module (SDM) (Except ASF) Connector Parts Information

Connector Part Information

- OEM: 13514533
- Service: 19115672
- Description: 25-Way F Receptacle 0.64 Series, Sealed (GY)

Terminal Part Information

- Terminal/Tray: Service with Terminated Lead
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

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Inflatable Restraint Sensing and Diagnostic Module (SDM) (Except ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	BK/WH	2751	Low Reference
2	D-GN	5060	Low Speed GMLAN Serial Data
3	-	-	Not Available
4	PK	3022	Steering Wheel Module - Stage2 - Low Control
5	WH	3023	Steering Wheel Module - Stage2 - High Control
6	GY	3027	I/P -- High Control
7	PU	3026	I/P Module - Stage 2 - Low Control
8	BN	3020	Steering Wheel Module - Stage1 - Low Control
9	TN	3021	Steering Wheel Module - Stage1 - High Control
10	YE	3025	I/P Module - Stage 1 - High Control
11	OG	3024	I/P Module - Stage 1 - Low Control
12-15	-	-	Not Available
16	OG/BK	2119	Seat Belt Pretensioner - Left - Low Control
17	TN/WH	2118	Seat Belt Pretensioner - Left - High Control
18	L-GN	2116	Seat Belt Pretensioner - Right - High Control
19	OG	2117	Seat Belt Pretensioner - Right - Low Control
20-27	-	-	Not Available
28	PK	5057	Seat Position Sensor - Low Reference
29	L-GN	5055	Seat Position Sensor - Left - Signal
30	L-BU	5056	Seat Position Sensor - Right - Signal
31	RD/WH	4440	Battery Positive Voltage
32	PK	1139	Ignition 1 Voltage
33-35	-	-	Not Available
36	YE	354	Discriminating Sensor - Signal
37	D-GN	1409	Discriminating Sensor - Right - Signal
38	TN/OG	5045	Discriminating Sensor - Low Reference
39	GY	5600	Right Front Discriminating Sensor Low Reference
40-58	-	-	Not Available
59	TN/WH	238	Seat Belt Switch - Left
60	OG	1362	Seat Belt Switch - Right - Signal

Inflatable Restraint Sensing and Diagnostic Module (SDM) (ASF)

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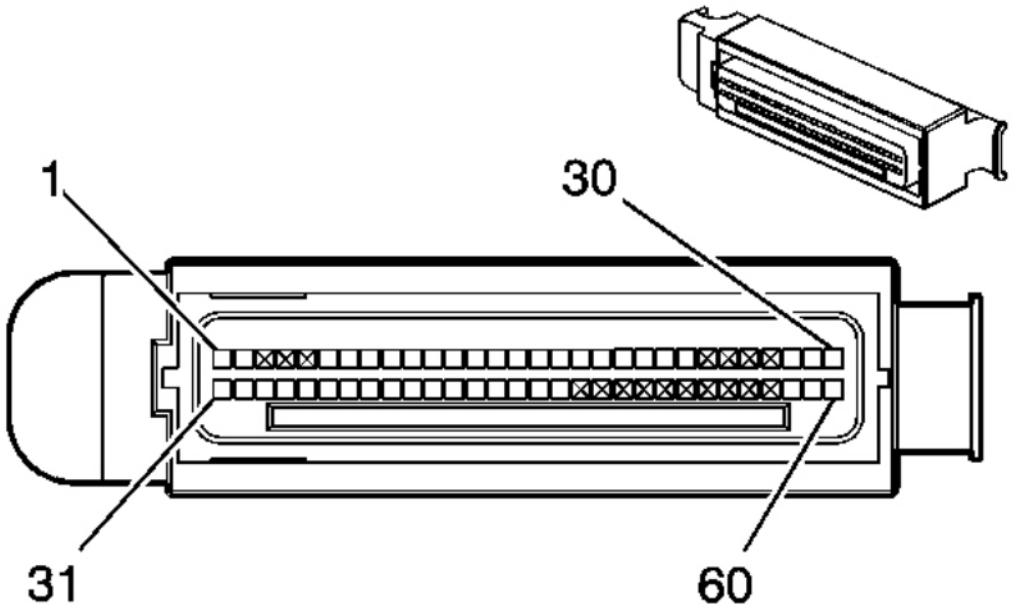


Fig. 23: Inflatable Restraint Sensing and Diagnostic Module (SDM) (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Sensing and Diagnostic Module (SDM) (ASF) Connector Parts Information

Connector Part Information

- OEM: 13514532
- Service: 19115660
- Description: 42-Way F Receptacle 0.64 Series, Sealed (GN)

Terminal Part Information

- Terminal/Tray: Service with Terminated Lead
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

Inflatable Restraint Sensing and Diagnostic Module (SDM)(ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	BK/WH	2751	Low Reference
2	D-GN	5060	Low Speed GMLAN Serial Data
3	-	-	Not Available
			Steering Wheel Module - Stage 2 - Low

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4	PK	3022	Control
5	WH	3023	Steering Wheel Module - Stage 2 - High Control
6	GY	3027	I/P Module - Stage 2 - High Control
7	PU	3026	I/P Module - Stage 2 - Low Control
8	BN	3020	Steering Wheel Module - Stage1 - Low Control
9	TN	3021	Steering Wheel Module - Stage1 - High Control
10	YE	3025	I/P Module - Stage 1 - High Control
11	OG	3024	I/P Module - Stage 1 - Low Control
12	PK	5020	Roof Rail Module - Left - Low Control
13	PU/WH	5019	Roof Rail Module - Left - High Control
14	YE/BK	5021	Roof Rail Module - Right - High Control
15	WH/BK	5022	Roof Rail Module - Right - Low Control
16	OG/BK	2119	Seat Belt Pretensioner - Left - Low Control
17	TN/WH	2118	Seat Belt Pretensioner - Left - High Control
18	L-GN	2116	Seat Belt Pretensioner - Right - High Control
19	OG	2117	Seat Belt Pretensioner - Right - Low Control
20	TN	7014	Left Rear Head Curtain Module Low Control
21	YE	7013	Left Rear Head Curtain Module High Control
22	L-BU	7015	Right Rear Head Curtain Module High Control
23	TN/BK	7016	Right Rear Head Curtain Module Low Control
24-27	-	-	Not Available
28	PK	5057	Seat Position Sensor - Low Reference
29	L-GN	5055	Seat Position Sensor - Left - Signal
30	L-BU	5056	Seat Position Sensor - Right - Signal
31	RD/WH	4440	Battery Positive Voltage
32	PK	1139	Ignition 1 Voltage
33-35	-	-	Not Available
36	YE	354	Discriminating Sensor - Signal
37	D-GN	1409	Discriminating Sensor - Right - Signal
38	TN/OG	5045	Discriminating Sensor - Low Reference
39	GY	5600	Right Front Discriminating Sensor Low Reference
40	PU/WH	6628	Left Front Side Impact Sensing Module Low Reference
41	WH/BK	6629	Right Front Side Impact Sensing Module Low Reference
42	WH	2132	Side Impact Sensing Module - Left - Signal

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43	D-GN	2134	Side Impact Sensing Module - Right - Signal
44	L-BU	6622	Left Rear Side Impact Sensing Module Signal
45	L-BU/WH	6626	Right Rear Side Impact Sensing Module Signal
46	L-GN/BK	6623	Left Rear Side Impact Sensing Module Low Reference
47	PK/BK	6627	Right Rear Side Impact Sensing Module Low Reference
48-57	-	-	Not Available
58	YE/BK	5229	Roll Over Sensor High Signal
59	TN/WH	238	Seat Belt Switch - Left
60	OG	1362	Seat Belt Switch - Right - Signal

Inflatable Restraint Side Impact Sensor (SIS) - LF (ASF)

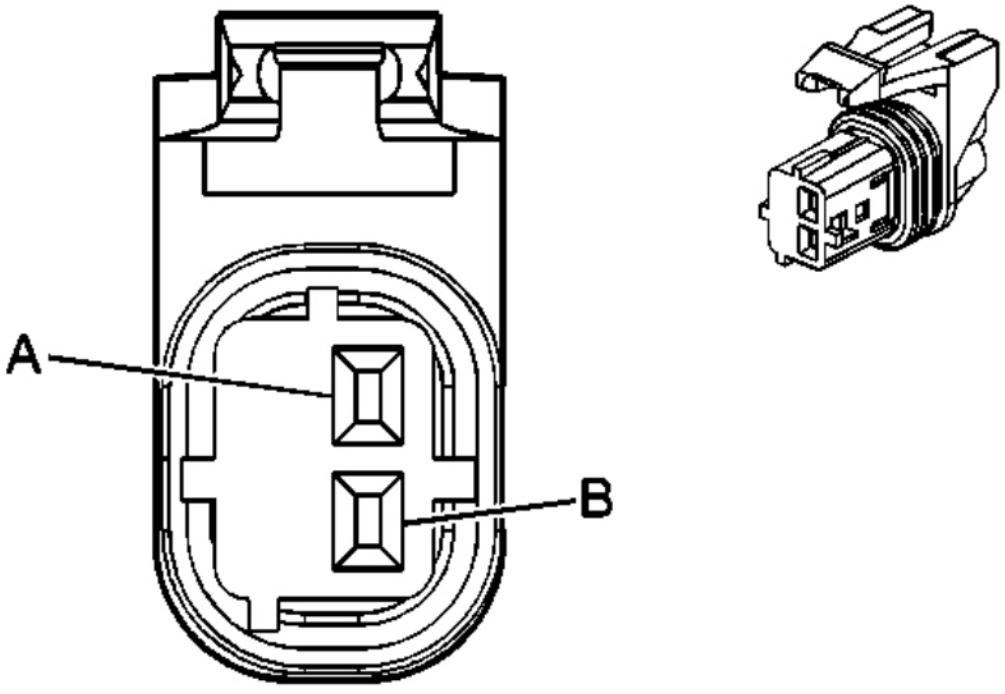


Fig. 24: Inflatable Restraint Side Impact Sensor (SIS) - LF (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

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Inflatable Restraint Side Impact Sensor (SIS) - LF (ASF) Connector Parts Information

Connector Part Information

- OEM: 12110505
- Service: 15306044
- Description: 2-Way Metri-Pack 150 Series (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

Inflatable Restraint Side Impact Sensor (SIS) - LF (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	PU/WH	6628	Left Front Side Impact Sensing Module Low Reference
B	WH	2132	Side Impact Sensing Module - Left - Signal

Inflatable Restraint Side Impact Sensor (SIS) - LR (ASF)

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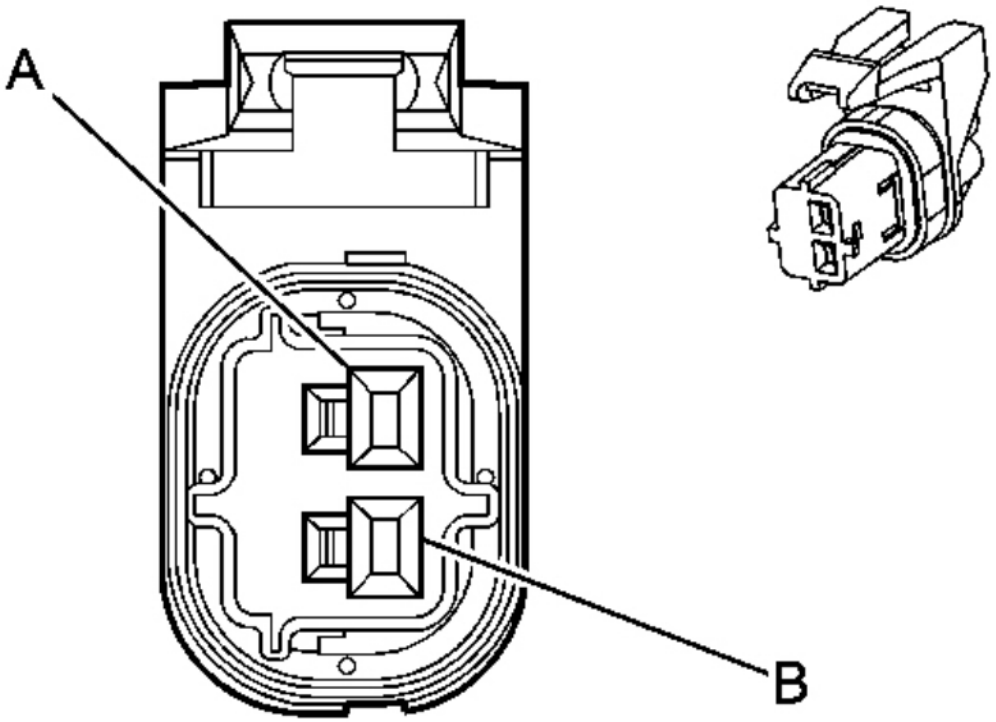


Fig. 25: Inflatable Restraint Side Impact Sensor (SIS) - LR (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Side Impact Sensor (SIS) - LR (ASF) Connector Parts Information

Connector Part Information

- OEM: 15356725
- Service: 88986455
- Description: 2-Way F GT 150 Sealed (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Inflatable Restraint Side Impact Sensor (SIS) - LR (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function

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A	L-GN/BK	6623	Left Rear Side Impact Sensing Module Low Reference
B	L-BU	6622	Left Rear Side Impact Sensing Module Signal

Inflatable Restraint Side Impact Sensor (SIS) - RF (ASF)

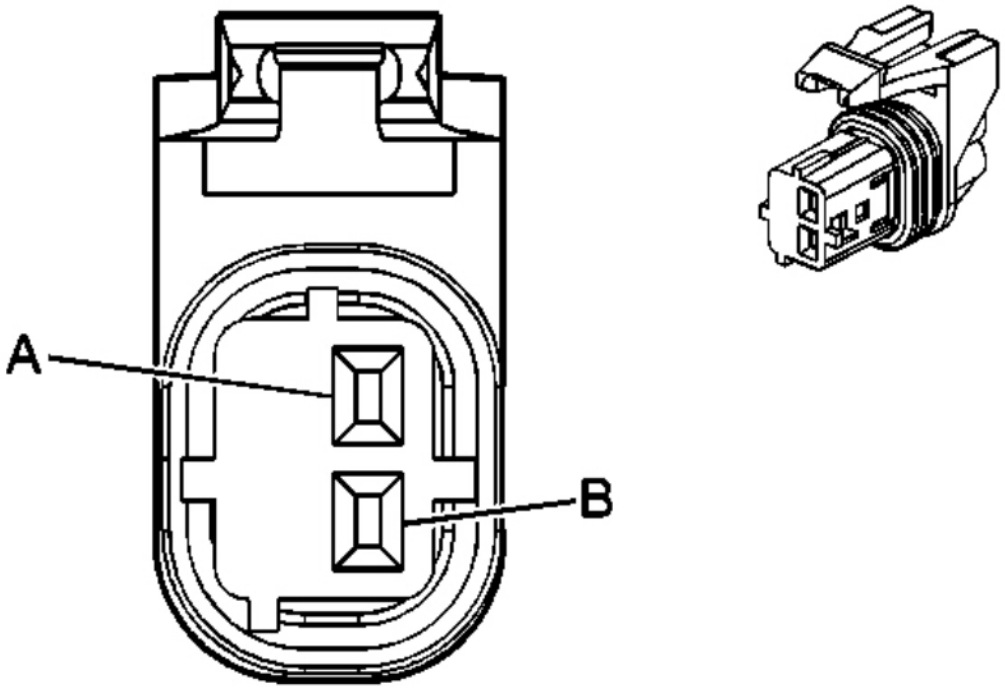


Fig. 26: Inflatable Restraint Side Impact Sensor (SIS) - RF (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Side Impact Sensor (SIS) - RF (ASF) Connector Parts Information

Connector Part Information

- OEM: 15356722
- Service: 15306405
- Description: 2-Way F GT 150 Sealed 4.0 (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail

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

Inflatable Restraint Side Impact Sensor (SIS) - RF (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	WH/BK	6629	Right Front Side Impact Sensing Module Low Reference
B	D-GN	2134	Side Impact Sensing Module - Right - Signal

Inflatable Restraint Side Impact Sensor (SIS) - RR (ASF)

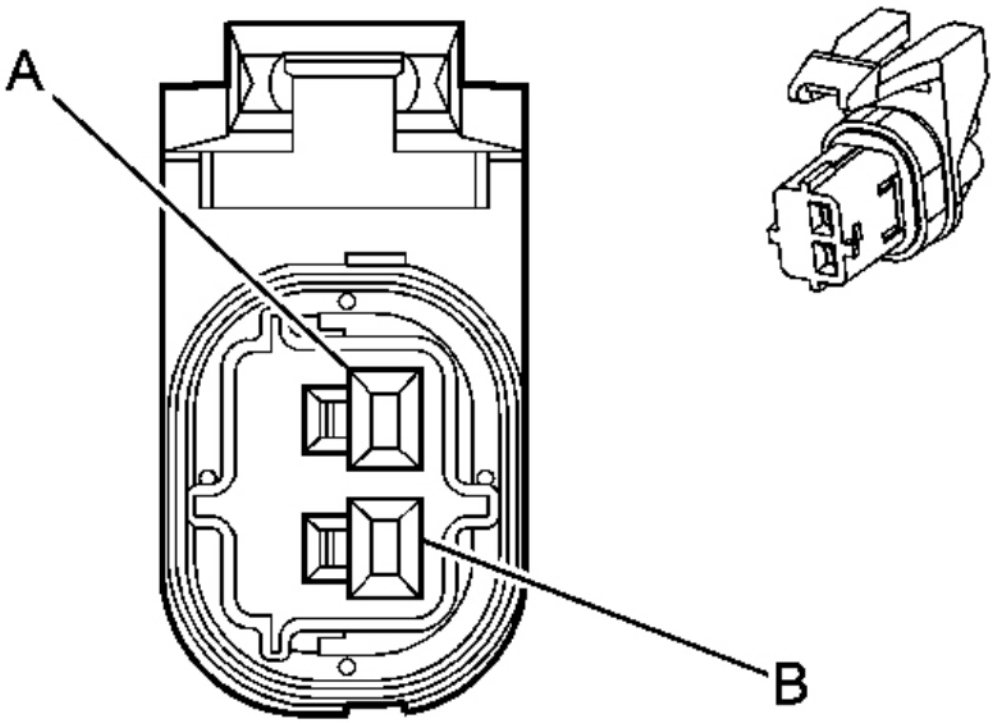


Fig. 27: Inflatable Restraint Side Impact Sensor (SIS) - RR (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Side Impact Sensor (SIS) - RR (ASF) Connector Parts Information

Connector Part Information

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- OEM: 15356725
- Service: 88986455
- Description: 2-Way F GT 150 Sealed (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Inflatable Restraint Side Impact Sensor (SIS) - RR (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	PK/BK	6627	Right Rear Side Impact Sensing Module Low Reference
B	L-BU/WH	6626	Right Rear Side Impact Sensing Module Signal

Inflatable Restraint Steering Wheel Module C1

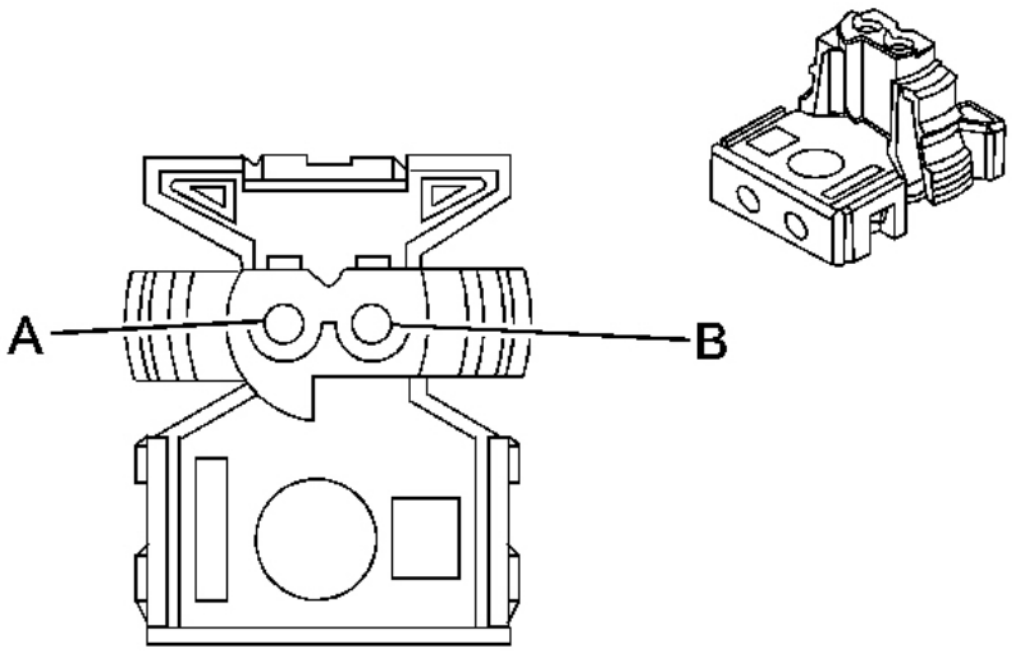


Fig. 28: Inflatable Restraint Steering Wheel Module C1 Connector End View
Courtesy of GENERAL MOTORS CORP.

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Inflatable Restraint Steering Wheel Module C1 Connector Parts Information

Connector Part Information

- OEM: 54560236
- Service: See Catalog
- Description: 2-Way F ABX-4 Code B (WH)

Terminal Part Information

- Terminal/Tray: Not serviced in kit
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: N/A

Inflatable Restraint Steering Wheel Module C1 Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	TN	3021	Steering Wheel Module - Stage 1 - High Control
B	BN	3020	Steering Wheel Module - Stage 1 - Low Control

Inflatable Restraint Steering Wheel Module C2

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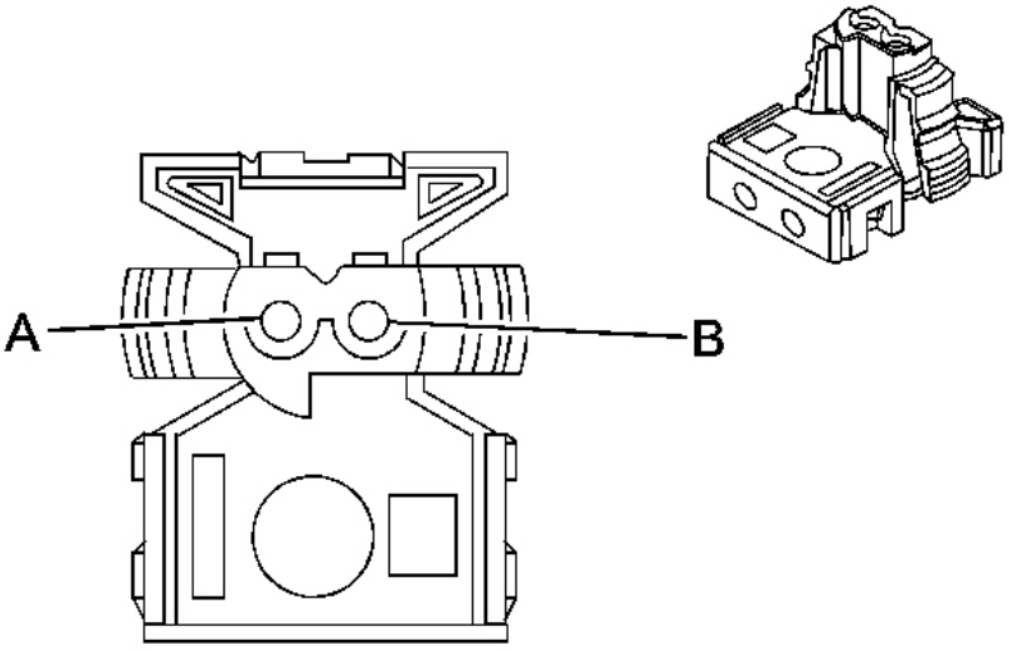


Fig. 29: Inflatable Restraint Steering Wheel Module C2 Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Steering Wheel Module C2 Connector Parts Information

Connector Part Information

- OEM: 54560222
- Service: See Catalog
- Description: 2-Way F ABX-4 Code G (PK)

Terminal Part Information

- Terminal/Tray: Not serviced in kit
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: N/A

Inflatable Restraint Steering Wheel Module C2 Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	WH	3023	Steering Wheel Module - Stage 2 - High Control
			Steering Wheel Module - Stage 2 - Low

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B	PK	3022	Control

Inflatable Restraint Steering Wheel Module Coil C1

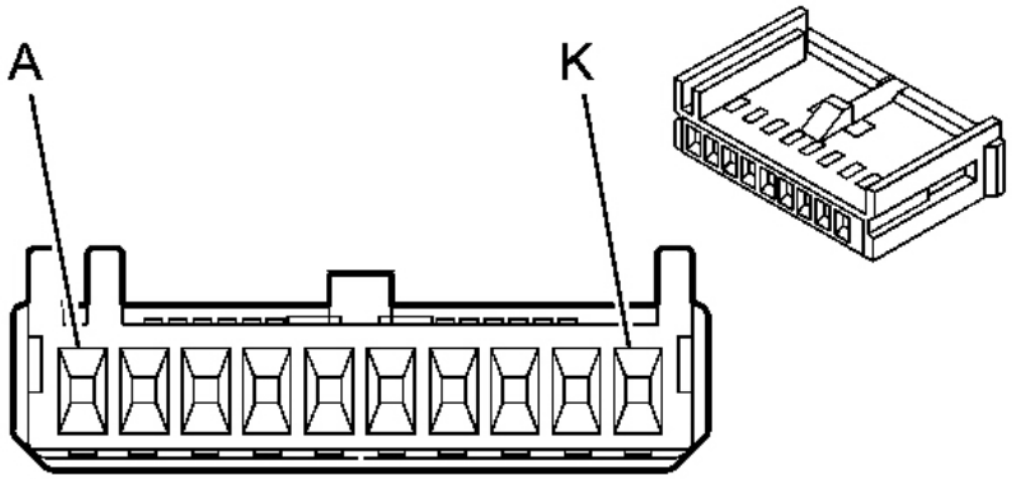


Fig. 30: Inflatable Restraint Steering Wheel Module Coil C1 Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Steering Wheel Module Coil C1 Connector Parts Information

Connector Part Information

- OEM: 15393433
- Service: See Catalog
- Description: 10-Way F (N/A)

Terminal Part Information

- Terminal/Tray: Service with Terminated Lead
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12180559-1/J-35616-64B (L-BU)

Inflatable Restraint Steering Wheel Module Coil C1 Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	BK	1050	Ground
B	TN	28	Horn Relay Control
C	D-GN/WH	7158	Cruise Control Indicator Dimming Signal

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D-E	-	-	Not Used
F	PK/BK	1444	12-Volt Reference or I/P Dimming Control
G	BN	6136	Supply Voltage
H	L-GN	6818	Steering Wheel Resistor Ladder Signal #1
J	-	-	Not Used
K	GY	1884	Cruise Control Switch Signal

Inflatable Restraint Steering Wheel Module Coil C2

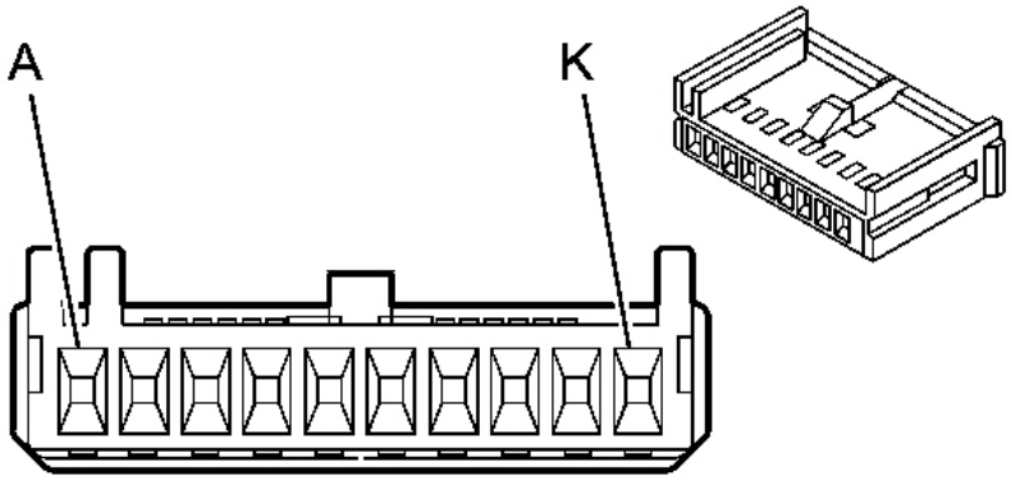


Fig. 31: Inflatable Restraint Steering Wheel Module Coil C2 Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Steering Wheel Module Coil C2 Connector Parts Information

Connector Part Information

- OEM: 15393433
- Service: See Catalog
- Description: 10-Way F (N/A)

Terminal Part Information

- Terminal/Tray: Service with Terminated Lead
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12180559-1/J-35616-64B (L-BU)

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Inflatable Restraint Steering Wheel Module Coil C2 Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	GY	1884	Cruise Control Switch Signal
B	-	-	Not Used
C	L-GN	6818	Steering Wheel Resistor Ladder Signal #1
D	BN	6136	Supply Voltage
E	PK/BK	1444	12-Volt Reference or I/P Dimming Control
F-G	-	-	Not Used
H	D-GN/WH	7158	Cruise Control Indicator Dimming Signal
J	TN	28	Horn Relay Control
K	BK	1050	Ground

Inflatable Restraint Vehicle Rollover Sensor (ASF)

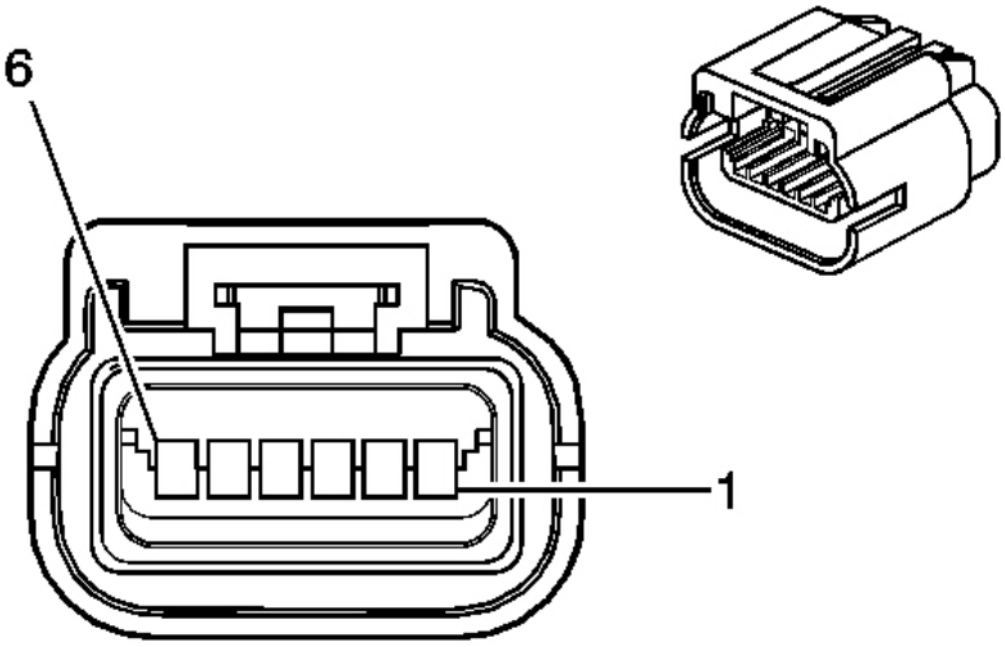


Fig. 32: Inflatable Restraint Vehicle Rollover Sensor (ASF) Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Vehicle Rollover Sensor (ASF) Connector Parts Information

Connector Part Information

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- OEM: 13551672
- Service: 19149297
- Description: 6-Way F Receptacle 0.64 Series (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: TBD

Inflatable Restraint Vehicle Rollover Sensor (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	RD/WH	4440	Battery Positive Voltage
2	-	-	Not Used
3	D-GN	5060	Low Speed GMLAN Serial Data
4	-	-	Not Used
5	YE/BK	5229	Roll Over Sensor High Signal
6	BK/WH	2751	Low Reference

Seat Belt Pretensioner - Driver

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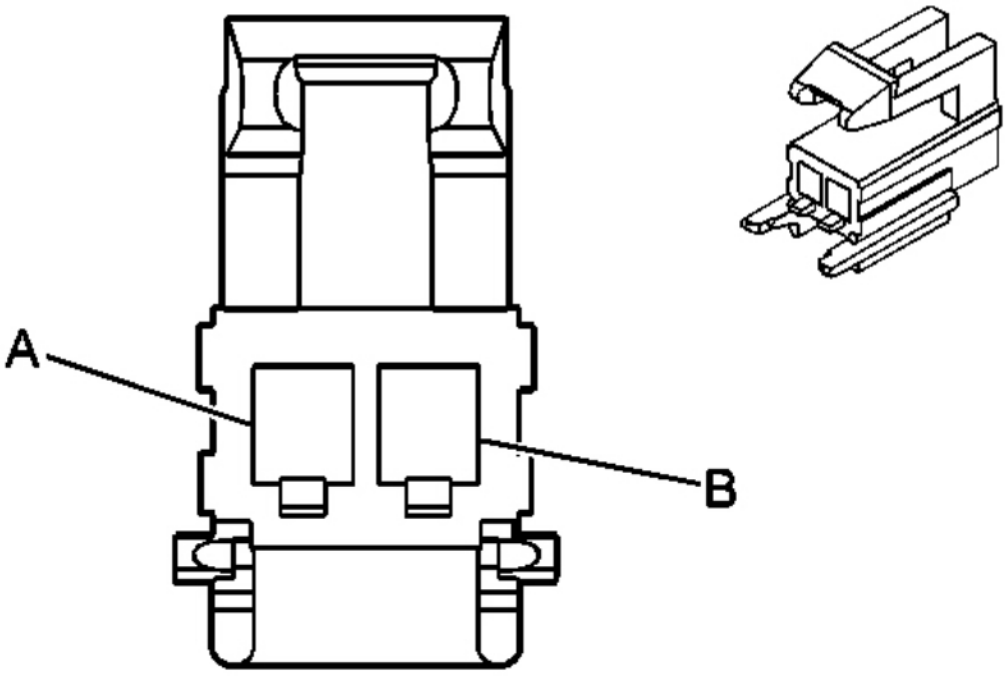


Fig. 33: Seat Belt Pretensioner - Driver Connector End View
Courtesy of GENERAL MOTORS CORP.

Seat Belt Pretensioner - Driver Connector Parts Information

Connector Part Information

- OEM: 12110505
- Service: 15306044
- Description: 2-Way Metri-Pack 150 Series (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

Seat Belt Pretensioner - Driver Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	OG/BK	2119	Seat Belt Pretensioner - Left - Low Control
B	TN/WH	2118	Seat Belt Pretensioner - Left - High Control

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Seat Belt Pretensioner - Passenger

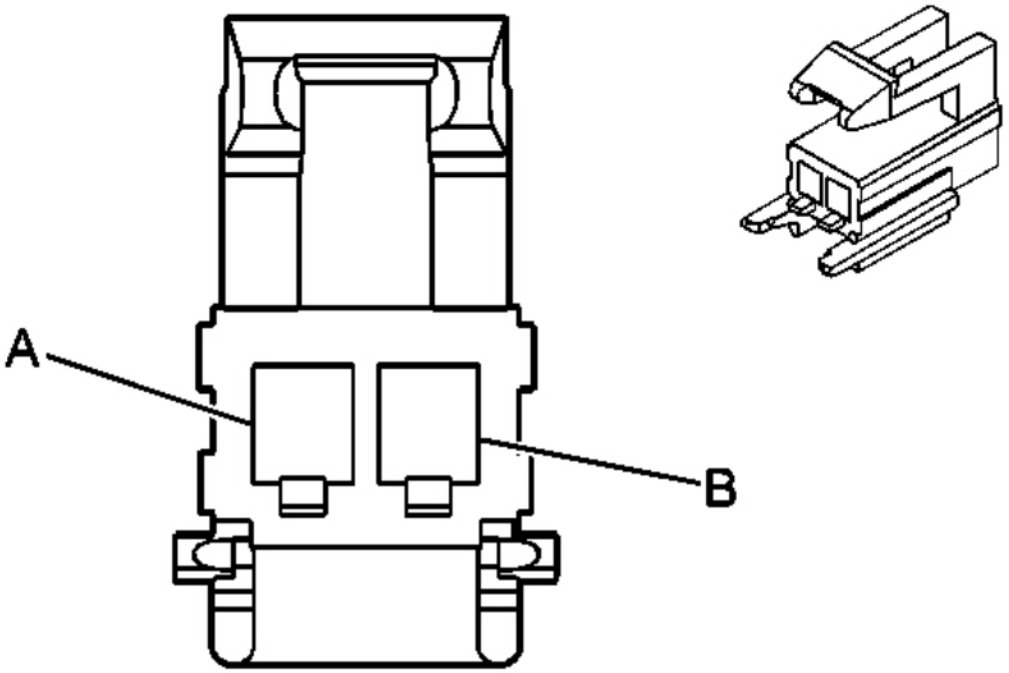


Fig. 34: Seat Belt Pretensioner - Passenger Connector End View
Courtesy of GENERAL MOTORS CORP.

Seat Belt Pretensioner - Passenger Connector Parts Information

Connector Part Information

- OEM: 12110505
- Service: 15306044
- Description: 2-Way Metri-Pack 150 Series (YE)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12094429/J-35616-2A (GY)

Seat Belt Pretensioner - Passenger Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function

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A	OG	2117	Seat Belt Pretensioner - Right - Low Control
B	L-GN	2116	Seat Belt Pretensioner - Right - High Control

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
DTC B0012 or B0013	Driver Frontal Deployment Loop
DTC B0015	Driver Pretensioner Deployment Loop
DTC B0016	Left Roof Rail Initiator 1 Deployment Loop
DTC B0019 or B0020	Passenger Frontal Deployment Loop
DTC B0022	Passenger Pretensioner Deployment Loop
DTC B0023	Right Roof Rail Initiator 1 Deployment Loop
DTC B0033 or B0040	Third Row Left Roof Rail Deployment Loop
DTC B0052 or B0053	Deployment Commanded
DTC B0055	Side Airbag Deployment Commanded
DTC B0056	Passenger Frontal Air Bag Suppressed
DTC B0057	Passenger Side Air Bag Suppressed
DTC B0058	Passenger Pretensioner Suppressed
DTC B0071	Passenger Seat Belt Tension Sensor Circuit Voltage
DTC B0074	Passenger Occupant Classification Circuit
DTC B0079	Driver Seat Position Sensor Circuit
DTC B0081	Passenger Presence System
DTC B0083 or B0084	Front End Sensor
DTC B0085 or B0086	Front Side Impact Sensor
DTC B0087 or B0088	Rear Side Impact Sensor
DTC B0090	Rollover Sensor
DTC B1001 (SDM)	SDM Option Configuration Error
DTC B1001 (ROS)	Option Configuration Error
DTC B1011	System Disabled Information Stored Invalid Serial Data Received
DTC B1019	System Configuration Error
DTC B1370	Device Ignition 1 Circuit Short

DIAGNOSTIC STARTING POINT - SIR

Begin the system diagnosis with **Diagnostic System Check - Vehicle** . The Diagnostic System Check - Vehicle 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

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- The identification of any stored diagnostic trouble codes (DTC) and their status

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

SCAN TOOL DATA LIST

The SIR scan tool data list contains all the restraint system related parameters that are available on the scan tool. The parameters in the list are arranged in alphabetical order. The column, Data List, indicates the location of the parameter within the scan tool menu selections.

Use the SIR scan tool data list as directed by a diagnostic table or in order to supplement the diagnostic procedures. Begin all of the diagnostic procedures with the Diagnostic System Check - SIR. Use the SIR Scan Tool Data List after the following is determined:

- There is no published diagnostic trouble code (DTC) procedure nor published symptom procedure for the customer concern.
- The DTC or symptom diagnostic procedure indicated by the diagnostic system check does not resolve the customer concern.

The typical data values are obtained from a properly operating vehicle under the conditions specified in the second row of the scan tool data list table. Comparison of the parameter values from the suspect vehicle with the typical data values may reveal the source of the customer concern.

SIR Scan Tool Data List

Scan Tool Parameter	Data List	Units Displayed	Typical Data Value
Operating Conditions: Ignition ON/Engine OFF/No DTCs Set/Driver Seat Belt Buckled/Passenger Seat Belt Unbuckled			
Battery Voltage Signal	Data	Volts	12 Volts
Driver Seat Belt Switch	Sensor Data	Buckled/Unbuckled	Buckled
Passenger Seat Belt Switch	Sensor Data	Buckled/Unbuckled	Unbuckled
PPS Type	Sensor Information	Not Present/Manual/Auto/Auto+Manual	Auto
Primary Key Status	Key Identification	Invalid/Valid/Unknown	Valid
Received Primary Key	Key Identification	4-digit number	Varies
Received VIN Digits 2-5	Key Identification	4-digit number	Varies
Received VIN Digits 6-7	Key Identification	2-digit number	Varies
Run/Crank	Data	Active/Inactive	Varies
SDM Primary Key	Key Identification	4-digit number	Varies
Secondary Key Status	Key Identification	Invalid/Valid/Unknown	Valid
SIR Warning Indicator	Data	OFF/ON	OFF

SCAN TOOL DATA DEFINITIONS

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The SIR scan tool data definitions contain a brief description of all SIR related parameters available on the scan tool. The parameters that are available on the scan tool are listed below in alphabetical order.

Battery Voltage

The scan tool displays 0-20 volts. This is the system voltage measured by the SDM between the battery input and ground.

Driver Seat Belt Switch

The scan tool displays whether the driver seat belt is buckled or unbuckled.

Passenger Seat Belt Switch

The scan tool displays whether the passenger seat belt is buckled or unbuckled.

PPS Type

The scan tool displays if there is a passenger airbag suppression device used on this vehicle and if so, whether it is has an automatic, manual key switch or both.

Primary Key Status

The scan tool displays if there is a passenger airbag suppression device used on this vehicle and if so, whether it is has an automatic, manual key switch or both.

Received Primary Key

The scan tool displays what the BCM is sending out as the primary key. The SDM then compares it to what it has stored. This should match the SDM Primary Key.

Received VIN Digits 2-5

The scan tool displays the Secondary Key which includes digits 2 though 5 of the VIN that the BCM sends to the SDM.

Received VIN Digits 6-7

The scan tool displays the Secondary Key which includes digits 6 and 7 of the VIN that the BCM sends to the SDM.

Run/Crank

The scan tool displays what the current power mode of the SDM.

SDM Primary Key

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The scan tool displays primary key that the SDM has stored to memory.

Secondary Key Status

The scan tool displays whether the Secondary Key is valid or invalid. This determines if the VIN stored in SDM memory matches what is stored in the BCM.

SIR Warning Indicator

The scan tool displays whether the SIR warning indicator has been requested ON or OFF.

DTC B0012 OR B0013

DTC Descriptors

DTC B0012 01

Driver Frontal Deployment Loop Stage 1 Short to Battery

DTC B0012 02

Driver Frontal Deployment Loop Stage 1 Short to Ground

DTC B0012 04

Driver Frontal Deployment Loop Stage 1 Open Circuit

DTC B0012 0D

Driver Frontal Deployment Loop Stage 1 Resistance Above Threshold

DTC B0012 0E

Driver Frontal Deployment Loop Stage 1 Resistance Below Threshold

DTC B0013 01

Driver Frontal Deployment Loop Stage 2 Short to Battery

DTC B0013 02

Driver Frontal Deployment Loop Stage 2 Short to Ground

DTC B0013 04

Driver Frontal Deployment Loop Stage 2 Open Circuit

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DTC B0013 0D

Driver Frontal Deployment Loop Stage 2 Resistance Above Threshold

DTC B0013 0E

Driver Frontal Deployment Loop Stage 2 Resistance Below Threshold

Diagnostic Fault Information

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

DTC B0012 or B0013

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Steering Wheel Module Stage 1 High Circuit	B0012 02	B0012 0D	B0012 04	B0012 01	B0012 0E
Steering Wheel Module Stage 1 Low Circuit	B0012 02	B0012 0D	B0012 04	B0012 01	B0012 0E
Steering Wheel Module Stage 2 High Circuit	B0013 02	B0013 0D	B0013 04	B0013 01	B0013 0E
Steering Wheel Module Stage 2 Low Circuit	B0013 02	B0013 0D	B0013 04	B0013 01	B0013 0E

Circuit/System Description

During a frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy the steering wheel module. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage. There are 2 shorting bars used within the steering wheel module coil connector which will short together both steering wheel module stage 1 high circuit and steering wheel module stage 1 low circuit and both steering wheel module stage 2 high circuit and steering wheel module stage 2 low circuit when the connector is disconnected. This will help to prevent unwanted deployment of the inflator module during servicing.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0012 01 Stage 1 or B0013 01 Stage 2

The steering wheel module high and/or low circuit is short to voltage for 120 milliseconds.

B0012 02 Stage 1 or B0013 02 Stage 2

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The steering wheel module high and/or low circuit is short to ground for 120 milliseconds.

B0012 04 Stage 1 or B0013 04 Stage 2

The steering wheel module high and/or low circuit is open for 120 milliseconds.

B0012 0D Stage 1 or B0013 0D Stage 2

The steering wheel module deployment loop resistance is more than 5.1 ohms for 120 milliseconds.

B0012 0E Stage 1 or B0013 0E Stage 2

The steering wheel module deployment loop resistance is less than 1.3 ohms for 120 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM will attempt to deploy the air bag even if a fault is detected.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

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

Special Tools Required

- **J 38715-A** SIR Driver/Passenger Load tool. See **Special Tools**.
- J 38715-80 SIR Load Tool Adapter

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- J 38715-120 SIR Load Tool Adapter (Top of Column)

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The steering wheel coil module**
- **The SDM module**
- **The steering wheel coil module wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, disconnect steering wheel module. Then use J 38715-120 adapter to connect the **J 38715-A** to the upper steering wheel coil module in-line wiring harness connectors. See **Special Tools**. Use the PASSENGER INFLATOR and STEERING COLUMN connectors located on the load tool.
2. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0012 or B0013 are set current.
    - If DTC B0012 or B0013 is history replace the steering wheel module.
3. Ignition OFF, disconnect the steering wheel coil module in-line connector.
4. Use J 38715-80 adapter to connect the **J 38715-A** to the harness side of the steering wheel coil module in-line wiring harness connector. See **Special Tools**. Use the PASSENGER INFLATOR and BASE of COLUMN connectors located on the load tool.
5. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0012 or B0013 are set current.
    - If DTC B0012 or B0013 is history replace the steering wheel coil module.
6. Ignition OFF, disconnect and remove the **J 38715-A** and adapter. See **Special Tools**. Then remove the SDM connector. Refer to **SDM replacement** in Repair Instructions for connector location.
7. Test the high and low circuits between the SDM and steering wheel coil module for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
    - If any of the above conditions are found make the appropriate repair.
8. If all circuits test normal then replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Steering Wheel Module Coil Replacement**
- **Inflatable Restraint Steering Wheel Module Replacement**
- **Control Module References** for SDM replacement, setup, and programming

DTC B0015

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DTC Descriptors

DTC B0015 01

Left Front Seat Belt Pretensioner Deployment Loop Short to Battery

DTC B0015 02

Left Front Seat Belt Pretensioner Deployment Loop Short to Ground

DTC B0015 04

Left Front Seat Belt Pretensioner Deployment Loop Open Circuit

DTC B0015 0D

Left Front Seat Belt Pretensioner Deployment Loop Resistance Above Threshold

DTC B0015 0E

Left Front Seat Belt Pretensioner Deployment Loop Resistance Below Threshold

Diagnostic Fault Information

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

DTC B0015

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Seat Belt Pretensioner - LF High Circuit	B0015 02	B0015 0D	B0015 04	B0015 01	B0015 0E
Seat Belt Pretensioner - LF Low Circuit	B0015 02	B0015 0D	B0015 04	B0015 01	B0015 0E

Circuit/System Description

During a side or frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy the seat belt pretensioner - LF. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage. A shorting bar used within the seat belt pretensioner - LF connector which will short together both seat belt pretensioner - LF high and low circuits when the connector is disconnected, this will help to prevent unwanted deployment of the inflator module during servicing.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

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Conditions for Setting the DTC

B0015 01

The seat belt pretensioner - LF high and/or low circuit is short to voltage for 120 milliseconds.

B0015 02

The seat belt pretensioner - LF high and/or low circuit is short to ground for 120 milliseconds.

B0015 04

The seat belt pretensioner - LF high and/or low circuit is open for 120 milliseconds.

B0015 0D

The seat belt pretensioner - LF deployment loop resistance is more than 3.9 ohms for 120 milliseconds.

B0015 0E

The seat belt pretensioner - LF deployment loop resistance is less than 1.1 ohms for 120 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM will attempt to deploy the seat belt pretensioner even if a fault is detected.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**

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

Special Tools Required

- **J 38715-A** SIR Driver/Passenger Load Tool. See **Special Tools**.
- J 38715-30A SIR Load Tool Adapter

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The seat belt retractor pretensioner - LF**
- **The SDM module**
- **The seat belt retractor pretensioner - LF wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, remove the center pillar trim and disconnect the seat belt retractor pretensioner - LF connector. Refer to **Garnish Molding Replacement - Center Pillar Lower** .
2. Use J 38715-30A adapter to connect the **J 38715-A** to the harness side of the seat belt retractor pretensioner - LF wiring harness connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.
3. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0015 is set current.
    - If DTC B0015 is history replace the seat belt retractor pretensioner - LF.
4. Ignition OFF, disconnect and remove both the **J 38715-A** and adapter. See **Special Tools**. Then remove the SDM connector. Refer to **SDM replacement** in Repair Instructions for connector location.
5. Test the high and low circuits between the SDM and seat belt retractor pretensioner - LF for a short to voltage, short to ground, an open, or low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
    - If any of the above conditions are found make the appropriate repair.
6. If all circuits test normal then replace the SDM.

Repair Procedures

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

- **Seat Belt Retractor Pretensioner Replacement - Front**
- **Control Module References** for SDM replacement, setup, and programming

DTC B0016

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DTC Descriptors

DTC B0016 01

Left Roof Rail Deployment Loop Short to Battery

DTC B0016 02

Left Roof Rail Deployment Loop Short to Ground

DTC B0016 04

Left Roof Rail Deployment Loop Open Circuit

DTC B0016 0D

Left Roof Rail Deployment Loop Resistance Above Threshold

DTC B0016 0E

Left Roof Rail Deployment Loop Resistance Below Threshold

Diagnostic Fault Information

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

DTC B0016

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Roof Rail Module - Left High Circuit	B0016 02	B0016 0D	B0016 04	B0016 01	B0016 0E
Roof Rail Module - Left Low Circuit	B0016 02	B0016 0D	B0016 04	B0016 01	B0016 0E

Circuit/System Description

During a side or frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy the roof rail module. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage.

A shorting bar used within the roof rail module connector which will short together both roof rail module - left high and low circuits when the connector is disconnected, this will help to prevent unwanted deployment of the inflator module during servicing.

Conditions for Running the DTC

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Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0016 01

The roof rail module - left high and/or low circuit is short to voltage for 120 milliseconds.

B0016 02

The roof rail module - left high and/or low circuit is short to ground for 120 milliseconds.

B0016 04

The roof rail module - left high and/or low circuit is open for 120 milliseconds.

B0016 0D

The roof rail module - left deployment loop resistance is more than 3.9 ohms for 120 milliseconds.

B0016 0E

The roof rail module - left deployment loop resistance is less than 1.1 ohms for 120 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM will attempt to deploy the air bag even if a fault is detected.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

- **Circuit Testing**

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

Special Tools Required

J 38715-A SIR Driver and Passenger Load Tool. See **Special Tools**.

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The roof rail module - left**
- **The SDM module**
- **The roof rail module - left wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, remove the center pillar trim and disconnect the roof rail module - left connector. Refer to **Garnish Molding Replacement - Center Pillar Upper** .
2. Connect the **J 38715-A** to the harness side of the roof rail module - left connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.
3. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0016 is set in history.
   - If DTC B0016 is history replace the roof rail module - left.
4. Ignition OFF, disconnect and remove the **J 38715-A** . See **Special Tools**. Then remove the SDM connector. Refer to **SDM replacement** in Repair Instructions for connector location.
5. Test the high and low circuits between the SDM and roof rail module - left for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
   - If any of the above conditions are found make the appropriate repair.
6. If circuits test good then replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Roof Rail Module Replacement (Front LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement**

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(Rear RH, Avalanche/Escalade EXT) or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Tahoe/Yukon)**

- **Control Module References** for SDM replacement, setup, and programming

DTC B0019 OR B0020

DTC Descriptors

DTC B0019 01

Passenger Frontal Deployment Loop Stage 1 Short to Battery

DTC B0019 02

Passenger Frontal Deployment Loop Stage 1 Short to Ground

DTC B0019 04

Passenger Frontal Deployment Loop Stage 1 Open Circuit

DTC B0019 0D

Passenger Frontal Deployment Loop Stage 1 Resistance Above Threshold

DTC B0019 0E

Passenger Frontal Deployment Loop Stage 1 Resistance Below Threshold

DTC B0020 01

Passenger Frontal Deployment Loop Stage 2 Short to Battery

DTC B0020 02

Passenger Frontal Deployment Loop Stage 2 Short to Ground

DTC B0020 04

Passenger Frontal Deployment Loop Stage 2 Open Circuit

DTC B0020 0D

Passenger Frontal Deployment Loop Stage 2 Resistance Above Threshold

DTC B0020 0E

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Passenger Frontal Deployment Loop Stage 2 Resistance Below Threshold

Diagnostic Fault Information

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

DTC B0019 or B0020

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
I/P Module Stage 1 High Circuit	B0019 02	B0019 0D	B0019 04	B0019 01	B0019 0E
I/P Module Stage 1 Low Circuit	B0019 02	B0019 0D	B0019 04	B0019 01	B0019 0E
I/P Module Stage 2 High Circuit	B0020 02	B0020 0D	B0020 04	B0020 01	B0020 0E
I/P Module Stage 2 Low Circuit	B0020 02	B0020 0D	B0020 04	B0020 01	B0020 0E

Circuit/System Description

If a malfunction is detected, a DTC will be stored in non-volatile memory. During a side or frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy the instrument panel (I/P) module. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage. There are 2 shorting bars used within the I/P module connector which will short together both I/P module stage 1 high and low circuits, and both I/P module stage 2 high and low circuits, when the connector is disconnected. This will help to prevent unwanted deployment of the inflator module during servicing.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0019 01 Stage 1 or B0020 01 Stage 2

The I/P module high and/or low circuit is short to voltage for 120 milliseconds.

B0019 02 Stage 1 or B0020 02 Stage 2

The I/P module high and/or low circuit is short to ground for 120 milliseconds.

B0019 04 Stage 1 or B0020 04 Stage 2

The I/P module high and/or low circuit is open for 120 milliseconds.

B0019 0D Stage 1 or B0020 0D Stage 2

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The I/P module deployment loop resistance is more than 5.1 ohms for 120 milliseconds.

B0019 0E Stage 1 or B0020 0E Stage 2

The I/P module deployment loop resistance is less than 1.3 ohms for 120 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM will attempt to deploy the air bag even if a fault is detected.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

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

Special Tools Required

- **J 38715-A** SIR Driver/Passenger Load tool. See **Special Tools**.
- J 38715-80 Driver/Passenger Load Tool Adapter

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The I/P module**

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- **The SDM module**
- **The I/P module wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, disconnect I/P module in-line connector.
2. Use J 38715-80 adapter to connect the **J 38715-A** to the harness side of the I/P module in-line wiring harness connector. See **Special Tools**. Use the PASSENGER INFLATOR and BASE of COLUMN connectors located on the load tool.
3. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0019 or B0020 are set current.
    - If DTC B0019 or B0020 is history replace the I/P module.
4. Ignition OFF, disconnect and remove the **J 38715-A** and adapter. See **Special Tools**. Then remove the SDM connector. Refer to **SDM Replacement** in Repair Instructions for connector location.
5. Test the high and low circuits between the SDM and I/P module for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
    - If any of the above conditions are found make the appropriate repair.
6. If all circuits test normal then replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Instrument Panel Module Replacement**
- **Control Module References** for SDM replacement, setup, and programming

DTC B0022

DTC Descriptors

DTC B0022 01

Right Front Seat Belt Pretensioner Deployment Loop Short to Battery

DTC B0022 02

Right Front Seat Belt Pretensioner Deployment Loop Short to Ground

DTC B0022 04

Right Front Seat Belt Pretensioner Deployment Loop Open Circuit

DTC B0022 0D

Right Front Seat Belt Pretensioner Deployment Loop Resistance Above Threshold

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DTC B0022 0E

Right Front Seat Belt Pretensioner Deployment Loop Resistance Below Threshold

Diagnostic Fault Information

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

DTC B0022

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Seat Belt Pretensioner - RF High Circuit	B0022 02	B0022 0D	B0022 04	B0022 01	B0022 0E
Seat Belt Pretensioner - RF Low Circuit	B0022 02	B0022 0D	B0022 04	B0022 01	B0022 0E

Circuit/System Description

During a side or frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy the seat belt pretensioner - RF. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage. A shorting bar used within the seat belt pretensioner - RF connector which will short together both seat belt pretensioner - RF high and low circuits when the connector is disconnected, this will help to prevent unwanted deployment of the inflator module during servicing.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0022 01

The seat belt pretensioner - RF high and/or low circuit is short to voltage for 120 milliseconds.

B0022 02

The seat belt pretensioner - RF high and/or low circuit is short to ground for 120 milliseconds.

B0022 04

The seat belt pretensioner - RF high and/or low circuit is open for 120 milliseconds.

B0022 0D

The seat belt pretensioner - RF deployment loop resistance is more than 3.9 ohms for 120 milliseconds.

B0022 0E

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The seat belt pretensioner - RF deployment loop resistance is less than 1.1 ohms for 120 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM will attempt to deploy the seat belt pretensioner even if a fault is detected.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

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

Special Tools Required

- **J 38715-A** SIR Driver/Passenger Load Tool. See **Special Tools**.
- J 38715-30A SIR Load Tool Adapter

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The seat belt retractor pretensioner - RF**
- **The SDM module**
- **The seat belt retractor pretensioner - RF wiring harness connector**
- **The SDM wiring harness connector**

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1. Ignition OFF, remove the center pillar trim and disconnect the seat belt retractor pretensioner - RF connector. Refer to **Garnish Molding Replacement - Center Pillar Lower** .
2. Use J 38715-30A adapter to connect the **J 38715-A** to the harness side of the seat belt retractor pretensioner - RF wiring harness connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.
3. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0022 is set current.
    - If DTC B0022 is history replace the seat belt retractor pretensioner - RF.
4. Ignition OFF, disconnect and remove both the **J 38715-A** and adapter. See **Special Tools**. Then remove the SDM connector. Refer to **SDM Replacement** in Repair Instructions for connector location.
5. Test the high and low circuits between the SDM and seat belt retractor pretensioner - RF for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
    - If any of the above conditions are found make the appropriate repair.
6. If all circuits test normal then replace the SDM.

Repair Procedures

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

- **Seat Belt Retractor Pretensioner Replacement - Front**
- **Control Module References** for SDM replacement, setup, and programming

DTC B0023

DTC Descriptors

DTC B0023 01

Right Roof Rail Deployment Loop Short to Battery

DTC B0023 02

Right Roof Rail Deployment Loop Short to Ground

DTC B0023 04

Right Roof Rail Deployment Loop Open Circuit

DTC B0023 0D

Right Roof Rail Deployment Loop Resistance Above Threshold

DTC B0023 0E

Right Roof Rail Deployment Loop Resistance Below Threshold

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Diagnostic Fault Information

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

DTC B0023

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Roof Rail Module - Right High Circuit	B0023 02	B0023 0D	B0023 04	B0023 01	B0023 0E
Roof Rail Module - Right Low Circuit	B0023 02	B0023 0D	B0023 04	B0023 01	B0023 0E

Circuit/System Description

During a side or frontal crash of sufficient force, the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy the roof side rail module. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage. A shorting bar used within the roof rail module connector will short together both roof rail module - right high and low circuits when the connector is disconnected; this will help to prevent unwanted deployment of the inflator module during servicing.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0023 01

The roof rail module - right high and/or low circuit is short to voltage for 120 milliseconds.

B0023 02

The roof rail module - right high and/or low circuit is short to ground for 120 milliseconds.

B0023 04

The roof rail module - right high and/or low circuit is open for 120 milliseconds.

B0023 0D

The roof rail module - right deployment loop resistance is more than 3.9 ohms for 120 milliseconds.

B0023 0E

The roof rail module - right deployment loop resistance is less than 1.1 ohms for 120 milliseconds.

Action Taken When the DTC Sets

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- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM will attempt to deploy the air bag even if a fault is detected.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

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

Special Tools Required

J 38715-A SIR Driver/Passenger Load Tool. See **Special Tools**.

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The roof rail module - right**
- **The SDM module**
- **The roof rail module - right wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, remove the center pillar trim and disconnect the roof rail module - right connector. Refer to **Garnish Molding Replacement - Center Pillar Upper** .
2. Connect the **J 38715-A** to the harness side of the roof rail module - right connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.

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3. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0023 is set in history.
    - If DTC B0023 is history replace the roof rail module - right.
4. Ignition OFF, disconnect and remove the **J 38715-A** . See **Special Tools**. Then remove the SDM connector. Refer to **SDM Replacement** in Repair Instructions for connector location.
5. Test the high and low circuits between the SDM and roof rail module - right for a short to voltage, short to ground, or open/low resistance.
    - If any of the above conditions are found make the appropriate repair.
6. If all circuits test normal then replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Roof Rail Module Replacement (Front LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Tahoe/Yukon)**
- **Control Module References** for SDM replacement, setup, and programming

DTC B0033 OR B0040

DTC Descriptors

DTC B0033 01

Left Third Row Roof Rail Deployment Loop Short to Battery

DTC B0033 02

Left Third Row Roof Rail Deployment Loop Short to Ground

DTC B0033 04

Left Third Row Roof Rail Deployment Loop Open Circuit

DTC B0033 0D

Left Third Row Roof Rail Deployment Loop Resistance Above Threshold

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DTC B0033 0E

Left Third Row Roof Rail Deployment Loop Resistance Below Threshold

DTC B0040 01

Right Third Row Roof Rail Deployment Loop Short to Battery

DTC B0040 02

Right Third Row Roof Rail Deployment Loop Short to Ground

DTC B0040 04

Right Third Row Roof Rail Deployment Loop Open Circuit

DTC B0040 0D

Right Third Row Roof Rail Deployment Loop Resistance Above Threshold

DTC B0040 0E

Right Third Row Roof Rail Deployment Loop Resistance Below Threshold

Diagnostic Fault Information

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

DTC B0033 or B0040

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Roof Rail Module - Left Third Row High Circuit	B0033 02	B0033 0D	B0033 04	B0033 01	B0033 0E
Roof Rail Module - Left Third Row Low Circuit	B0033 02	B0033 0D	B0033 04	B0033 01	B0033 0E
Roof Rail Module - Right Third Row High Circuit	B0040 02	B0040 0D	B0040 04	B0040 01	B0040 0E
Roof Rail Module - Right Third Row Low Circuit	B0040 02	B0040 0D	B0040 04	B0040 01	B0040 0E

Circuit/System Description

During a side or frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy the roof rail module. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage.

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A shorting bar used within the roof rail module connector which will short together both roof rail module third row high and low circuits when the connector is disconnected, this will help to prevent unwanted deployment of the inflator module during servicing.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0033 01 or B0040 01

The roof rail module third row high and/or low circuit is short to voltage for 120 milliseconds.

B0033 02 or B0040 02

The roof rail module third row high and/or low circuit is short to ground for 120 milliseconds.

B0033 04 or B0040 04

The roof rail module third row high and/or low circuit is open for 120 milliseconds.

B0033 0D or B0040 0D

The roof rail module third row deployment loop resistance is more than 3.9 ohms for 120 milliseconds.

B0033 0E or B0040 0E

The roof rail module third row deployment loop resistance is less than 1.1 ohms for 120 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM will attempt to deploy the air bag even if a fault is detected.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

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SIR Connector End Views

Electrical Information Reference

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

Special Tools Required

- **J 38715-A** SIR Driver/Passenger Load Tool. See **Special Tools**.
- **J 38715-30A** SIR Load Tool Adapter. See **Special Tools**

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The roof rail module - left/right rear**
- **The SDM module**
- **The roof rail module - wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, remove the left rear trim and disconnect the roof rail module connector. Refer to **Garnish Molding Replacement - Rear Upper (Avalanche/Escalade EXT)** .
2. Use J 38715-30A adapter to connect the **J 38715-A** to the harness side of the roof rail module connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.
3. Ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0033 or B0040 is set in history.
   - If DTC B0033 or B0040 is history replace the roof rail module third row.
4. Ignition OFF, disconnect and remove the **J 38715-A** . See **Special Tools**. Then remove the SDM connector. Refer to **SDM Replacement** in Repair Instructions for connector location.
5. Test the high and low circuits between the SDM and roof rail module for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
   - If any of the above conditions are found make the appropriate repair.
6. If circuits test good then replace the SDM.

Repair Procedures

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

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- **Inflatable Restraint Roof Rail Module Replacement (Front LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Tahoe/Yukon)**
- **Control Module References** for SDM replacement, setup, and programming

DTC B0052 OR B0053

DTC Descriptors

DTC B0052

Deployment Commanded

DTC B0053

Deployment Commanded with Loop DTCs Present

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) contains a sensing device that converts vehicle velocity changes into an electrical signal. The SDM compares this electrical signal to a value stored in memory. When the generated signal exceeds the stored value, the SDM performs additional signal processing and compares the generated signals to values stored in memory. When 2 of the generated signals exceed the stored values, the SDM will cause current to flow through the deployment loops, deploying the air bags and/or pretensioners causing DTC B0052 to set.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0052

- The SDM detects a frontal impact of sufficient force to warrant deployment of the frontal modules.
- The SDM detects a side impact of sufficient force to warrant deployment of a side impact module and/or

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roof rail module.
- The SDM has deployed the seat belt pretensioner for 3 separate deployments.

B0053

SDM commands inflators deployment with loop faults present.

Action Taken When the DTC Sets

- The SDM will only set DTC B0052 or the SDM sets DTC B0053 along with DTC B0052.
- The SDM commands the AIR BAG warning lamp ON via serial data communications.
- The SDM records crash data.

Conditions for Clearing the DTC

DTC B0052 can be cleared if the following conditions are met.

- Three consecutive seat belt pretensioner deployment events have not occurred.
- One frontal or side air bag deployment has not occurred.

DTC B0052 becomes a latched code after 3 consecutive pretensioner deployments or 1 frontal or side air bag deployment. You cannot clear a latched code. Replace the SDM after following the instructions in the diagnostic table.

Diagnostic Aids

IMPORTANT: The seat belt pretensioners may deploy for impacts that are not severe enough to warrant frontal or side air bag deployment. The SDM is capable of sustaining 3 pretensioner deployment events, or one frontal or side deployment event. After the maximum number of deployments has occurred, DTC B0052 sets and becomes a latched code, which cannot be cleared.

When DTC B0053 is accompanied by additional DTCs, other than B0052, repair the malfunction causing the other DTCs before replacing SDM.

Reference Information

Electrical Information Reference

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

Circuit/System Verification

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1. Ignition OFF, inspect the vehicle for signs of inflator module or pretensioner deployment. Verify that the vehicle does not show any signs of inflator deployment.
   - If the vehicle displays any signs of inflator deployment, refer to **Repairs and Inspections Required After a Collision**.
2. Use a scan tool to clear DTCs. Verify that DTC B0052 does not reset.
   - If the DTC resets, replace the SDM.

Repair Procedures

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

Control Module References for SDM replacement, setup, and programming

DTC B0055

DTC Descriptor

DTC B0055 00

Side Airbag Deployment Commanded

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) contains a sensing device that converts vehicle velocity changes into an electrical signal. The SDM compares this electrical signal to a value stored in memory. When the generated signal exceeds the stored value, the SDM performs additional signal processing and compares the generated signals to values stored in memory. When 2 of the generated signals exceed the stored values, the SDM will cause current to flow through the inflator modules, deploying the side air bags and causing DTC B0055 to set. This DTC is set when the SDM has commanded an air bag deployment with no faults present.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Action Taken When the DTC Sets

- The SDM sets a DTC.
- DTC B0052 or B0053 will set.
- The SDM commands ON the AIR BAG warning lamp via serial data communications.
- The SDM records crash data.

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Conditions for Clearing the DTC

DTC B0055 is a latched code. You cannot clear a latched code. Replace the SDM after following the instructions in the diagnostic table.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

1. Ignition OFF, inspect the vehicle for signs of side impact or frontal inflator module deployment.

   Verify that the vehicle does not show any signs of inflator deployment.

   - If the vehicle displays any signs of inflator deployment, refer to **Repairs and Inspections Required After a Collision**.
2. Use a scan tool and observe the SIR DTC display. Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** . The scan tool should indicate DTC B0055 is not set.
   - If DTC B0055 is set, replace the SDM.

Repair Procedures

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

Control Module References for SDM replacement, setup, and programming

DTC B0056

DTC Descriptor

DTC B0056 00

Passenger Frontal Airbag Suppressed

Diagnostic Fault Information

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

Circuit/System Description

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When the ignition is turned ON, the passenger presence system (PPS) and the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within itself. The PPS is used to monitor the weight of an occupant in the front passenger seat. If the pressure from the occupant's weight is less than a specified value or an empty seat is detected, the PPS module will send a suppress signal to the SDM to disable the instrument panel (I/P) module. When the PPS detects a fault within itself, then the PPS will communicate to the SDM through GMLAN communications that a PPS fault is present. The SDM will suppress the deployment of the module and then turn the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

This DTC is set when the SDM has commanded an air bag deployment while the PPS has determined that the front passenger seat has one the following conditions:

- The pressure from the occupant's weight is less than a specified value. The PPS module sent a suppress signal to the SDM to suppress the I/P module.
- Empty front passenger seat
- A PPS fault was detected

Action Taken When the DTC Sets

- The SDM sets a DTC B0056.
- DTC B0052, B0053, or B0055 will set along with this DTC.
- The SDM commands ON the AIR BAG warning lamp via serial data communications.

Conditions for Clearing the DTC

This code will set along with one of the following latched codes: DTC B0052, B0053, or B0055. You cannot clear a latched code.

Diagnostic Aids

This code set because the PPS commanded to suppress the I/P module when the vehicle was involved in a collision and the SDM has commanded an air bag deployment.

Reference Information

Electrical Information Reference

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

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Circuit/System Testing

1. Ignition OFF, inspect the vehicle for signs of inflator module or pretensioner deployment. Verify that the vehicle does not show any signs of inflator deployment.
   - If the vehicle displays any signs of inflator deployment, refer to **Repairs and Inspections Required After a Collision**.
2. Use a scan tool and observe the SIR DTC display. The scan tool should indicate DTC B0052, B0053, or B0055 is set.
3. Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** and follow the repair for the DTC set.

Repair Procedures

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

DTC B0057

DTC Descriptor

DTC B0057 00

Passenger Side Airbag Suppressed

Diagnostic Fault Information

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

Circuit/System Description

When the ignition is turned ON, the passenger presence system (PPS) and the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within itself. The PPS is used to monitor the weight of an occupant in the front passenger seat. If the pressure from the occupant's weight is less than a specified value or an empty seat is detected, the PPS module will send a suppress signal to the SDM to disable the passenger side impact module (front seat air bag). When the PPS detects a fault within itself, then the PPS will communicate to the SDM through GMLAN communications that a PPS fault is present. The SDM will suppress the deployment of the module and then turn the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

This DTC is set when the SDM has commanded an air bag deployment while the PPS has determined that the front passenger seat has one the following conditions:

- The pressure from the occupant's weight is less than a specified value. The PPS module sent a suppress signal to the SDM to suppress the side impact module.

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- Empty front passenger seat
- A PPS fault was detected

Action Taken When the DTC Sets

- The SDM sets a DTC B0057.
- DTC B0052, B0053, or B0055 will set along with this DTC.
- The SDM commands ON the AIR BAG warning lamp via serial data communications.

Conditions for Clearing the DTC

This code will set along with one of the following latched codes: DTC B0052, B0053, or B0055. You cannot clear a latched code.

Diagnostic Aids

This code set because the PPS commanded to suppress the side impact module when the vehicle was involved in a collision and the SDM has commanded an air bag deployment.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

1. Ignition OFF, inspect the vehicle for signs of inflator module or pretensioner deployment. Verify that the vehicle does not show any signs of inflator deployment.
    - If the vehicle displays any signs of inflator deployment, refer to **Repairs and Inspections Required After a Collision**.
2. Use a scan tool and observe the SIR DTC display. The scan tool should indicate DTC B0052, B0053, or B0055 is set.
3. Refer to **Diagnostic Trouble Code (DTC) List - Vehicle** and follow the repair for the DTC set.

Repair Procedures

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

DTC B0058

DTC Descriptor

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DTC B0058 00

Passenger Pretensioner Suppressed

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) will set DTC B0058 00 when a pretensioner deployment has been commanded but the passenger seat belt pretensioner is suppressed. The seat belt pretensioner can be suppressed at the request of the passenger presence system.

Conditions for Running the DTC

This DTC is set when a pretensioner deployment has been commanded and the passenger seat belt pretensioner has been suppressed.

Action Taken When the DTC Sets

- The SDM sets a DTC B0058.
- The SDM commands ON the AIR BAG warning lamp via serial data communications.
- DTC B0052, B0053, or B0055 will set along with this DTC.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

Ignition ON, check for latched codes DTC B0052, B0053, or B0055. Go to the SDM menu and retrieve the DTC.

- If the latched codes DTC B0052, B0053, or B0055 are set, refer to the **Diagnostic Trouble Code (DTC) List - Vehicle** .

Repair Procedures

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

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Control Module References for SDM replacement, setup, and programming

DTC B0071

DTC Descriptors

DTC B0071 03

Passenger Seat Belt Tension Sensor Circuit

DTC B0071 07

Passenger Seat Belt Tension Sensor Circuit

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint seat belt tension sensor is a 3-wire potentiometer mounted on the retractor or buckle side of the seat belt and provides an input to the passenger presence system (PPS). When an infant car seat is properly restrained on the front passenger seat, the seat belt is tightly secured through the car seat. The seat belt pulls on the tension sensor and changes the voltage signal to the PPS module. The PPS monitors the seat belt tension sensor circuit and if a fault is detected, DTC will be set. When the PPS detects this DTC within the PPS, it will notify the customer of the enable/disable status by turning ON the OFF indicator on the PASSENGER AIR BAG ON/OFF indicators. Then the PPS will communicate to the sensing and diagnostic module (SDM) through a serial data communications that a PPS fault is present. The SDM will then suppress the deployment of the instrument panel (I/P) module and then turn the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

- The PPS detects the voltage at the passenger seat belt tension retractor sensor signal is less than 0.05 volt or greater than 4.5 volts for 500 milliseconds.
- The PPS detects the voltage at the passenger seat belt tension retractor sensor 5-volt reference is less than 4.5 volts or greater than 9.1 volts for 500 milliseconds.
- The PPS detects the amperage at the passenger seat belt tension retractor sensor low reference is 25 MA or greater for 500 milliseconds.

Action Taken When the DTC Sets

- The PPS will set a DTC, and then communicate with the SDM via serial data communications.
- The SDM disables the I/P module deployment loop.

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- The PPS will turn ON the passenger air bag status OFF indicator.
- The SDM commands the AIR BAG indicator ON via GMLAN serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

Inspect the passenger seat belt tension retractor sensor signal, 5-volt reference, and low reference circuits carefully for cutting and/or chafing.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT:

- **The seat belt tension retractor sensor is not serviced separately. The seat belt retractor pretensioner replacement - right front with the seat belt tension retractor sensor must be serviced as a complete unit.**
- **When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:**
  - **The seat belt retractor pretensioner - RF**
  - **The PPS module**
  - **The seat belt retractor pretensioner - RF wiring harness connector**
  - **The PPS wiring harness connector**

1. Ignition OFF, disconnect the seat belt tension retractor sensor. Refer to **Seat Belt Retractor Replacement - Right Front** for location of connector.
2. Disconnect the PPS module connector.
3. Test the seat belt tension retractor sensor signal circuit for a short to ground, a high resistance, or an open. Verify that a short to ground, a high resistance, or an open does not exist.
   - If any of the above conditions are found, make the appropriate repair.
4. Test the seat belt tension retractor sensor 5-volt reference circuit for a short to ground, a short to voltage,

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a high resistance, or an open. Verify that a short to ground, a short to voltage, a high resistance, or an open does not exist.

- If any of the above conditions are found, make the appropriate repair.

5. Test the seat belt tension retractor sensor low reference circuit for a short to ground, a short to voltage, a high resistance, or an open. Verify that a short to ground, a short to voltage, a high resistance, or an open does not exist.
   - If any of the above conditions are found, make the appropriate repair
6. Ignition ON, engine OFF test the seat belt tension retractor sensor circuit with a DMM. Measure the voltage of the seat belt tension retractor sensor circuit harness side and ground. The voltage should read 0.05-4.5 volts.
   - If the voltage is more than 5 volts, test the seat belt tension retractor sensor circuit for a short to voltage. If the circuit tests good, replace the PPS.
7. Reconnect all PPS components. Use the scan tool to clear all PPS DTCs. Rezero the PPS. Refer to **Passenger Presence System Rezeroing**. Verify DTC B0071 does not exist.
   - If DTC B0071 reset, replace the PPS.

Repair Procedures

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

- **Seat Belt Retractor Pretensioner Replacement - Front**
- **Control Module References** for PPS replacement, setup, and programming

DTC B0074

DTC Descriptors

DTC B0074 03

Passenger Occupant Classification Sensor Circuit Voltage Below Threshold

DTC B0074 07

Passenger Occupant Classification Circuit Voltage Above Threshold

DTC B0074 08

Passenger Occupant Classification Circuit Signal Invalid

Diagnostic Fault Information

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

Circuit/System Description

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The passenger presence system (PPS) uses a silicone filled sensor pad located underneath the passenger seat foam cushion and is connected by a hose clamp to a pressure sensor. The weight of the occupant sitting in the front passenger seat is measured as a pressure change within the bladder by the pressure sensor. The pressure sensor is a 3-wire sensor consisting of a power, ground, and signal circuit. The PPS continually monitors itself and if a fault in this circuit occurs, a DTC will set. When the sensing and diagnostic module (SDM) detects this DTC within the PPS, it will notify the customer of the enable/disable status by turning ON the OFF indicator on the PASSENGER AIR BAG ON/OFF indicators. Then the PPS will communicate to the SDM through serial data communications that a PPS fault is present. The SDM will then suppress the deployment of the instrument panel (I/P) module and then turn the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

- The PPS detects the voltage at the PPS sensor signal is less than 0.05 volt or greater than 4.5 volts for 500 milliseconds.
- The PPS detects the voltage at the PPS sensor 5-volt reference is less than 4.5 volts or greater than 9.1 volts for 500 milliseconds.
- The PPS detects the amperage at the PPS sensor low reference is 25 mA or greater for 500 milliseconds.

Action Taken When the DTC Sets

- The PPS will set a DTC, and then communicate with the SDM via serial data communications.
- The SDM disables the I/P module deployment loop.
- The PPS will turn ON the passenger air bag status OFF indicator.
- The SDM commands ON the AIR BAG warning lamp via serial data communications.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:

- **The PPS pressure sensor**

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- **The PPS module**
- **The PPS pressure sensor wiring harness connector**
- **The PPS module wiring harness connector**

1. Ignition OFF, inspect the component and harness sides of the connector for the PPS pressure sensor. Verify there is no damage or corrosion is found.
2. Disconnect the PPS module connector.
3. Test the PPS sensor signal circuit for a short to ground, a high resistance, or an open. Verify that a short to ground, a high resistance, or an open does not exist.
    - If any of the above conditions are found, make the appropriate repair.
4. Test the PPS sensor low reference circuit for a short to ground, a short to voltage, a high resistance, or an open. Verify that a short to ground, a short to voltage, a high resistance, or an open does not exist.
    - If any of the above conditions are found, make the appropriate repair.
5. Test the PPS sensor 5-volt reference circuit for a short to ground, a short to voltage, a high resistance, or an open. Verify that a short to ground, a short to voltage, a high resistance, or an open does not exist.
    - If any of the above conditions are found, make the appropriate repair.
6. Ignition ON, engine OFF test the PPS sensor signal circuit with a DMM. Measure the voltage of the PPS sensor circuit harness side and ground. The voltage should read 0.05-4.5 volts.
    - If the voltage is more than 5 volts, test the PPS sensor signal circuit for a short to voltage. If the circuit tests good, replace the PPS.
7. Reconnect all PPS components. Use the scan tool to clear all PPS DTCs. Rezero the PPS. Refer to **Passenger Presence System Rezeroing**. Verify DTC B0074 does not exist.
    - If DTC B0074 reset, replace the PPS.

Repair Procedures

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

Control Module References for PPS replacement, setup, and programming

DTC B0079

DTC Descriptors

DTC B0079 01

Driver Seat Position Sensor Circuit Short to Battery

DTC B0079 02

Driver Seat Position Sensor Circuit Short to Ground

DTC B0079 04

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Driver Seat Position Sensor Circuit Open

DTC B0079 06

Driver Seat Position Sensor Circuit Short to Ground or Open Circuit

DTC B0079 08

Driver Seat Position Sensor Circuit Signal Invalid

Diagnostic Fault Information

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

DTC B0079

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Seat Position Sensor Left Low Reference	B0079 02, 06	-	B0079 04	B0079 01	B0079 08
Seat Position Sensor Left Signal	B0079 02, 06	-	B0079 04	B0079 01	B0079 08

Circuit/System Description

The inflatable restraint seat position sensor (SPS) is used to determine the proximity of a front driver or passenger seat position with respect to the frontal air bag. The SPS interfaces with the sensing and diagnostic module (SDM). The state of the SPS allows the SDM to disable stage 2 of the frontal air bag for a front seat that is forward of a forward/rearward point in seat track travel. The SPS is a hall effect sensor that is mounted on the outboard seat track of the driver and passenger seats. The seat track includes a metal bracket that shunts the SPS magnetic circuit creating 2 states of seat position. The shunted state represents a rearward seat position. The non-shunted state represents a forward position. The SPS provides 2 current ranges, one range for the shunted state and a second range for a non-shunted state. These 2 states are inputs to the SDM, state 1 (shunted) being the rearward threshold and state 2 (non-shunted) being the forward threshold. When the SDM receives input from a SPS that state 1 threshold is reached (seat is rearward), the SDM will not disable stage 2 deployment, if required by the deployment sensors. When state 2 threshold is reached (seat is forward), the SDM will disable stage 2 deployment on the side the seat is forward. The SDM monitors the SPS circuit and if a fault is detected, the SDM will set codes B0079 and defaults to disabling stage 2 frontal deployment.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0079 01

The SDM detects the SPS circuit is shorted to voltage for 500 milliseconds.

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B0079 06

The SDM detects the SPS circuit is shorted to ground or an open occur for 500 milliseconds.

B0079 08

The SDM detects the SPS signal circuit is invalid for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM sets a DTC B0079.
- The SDM defaults the SPS to seat rearward threshold.
- The SDM commands ON the AIR BAG warning lamp via serial data communications.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:

- **The seat position sensor**
- **The SDM module**
- **The seat position sensor wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, if DTC B0079 is current, disconnect the left SPS connector. Refer to **Seat Position Sensor Replacement** in Repair Instructions for location of connector.
2. Remove the SDM connector. Refer to **SDM Replacement** in Repair Instructions for connector location.
3. Test the low reference and signal circuits between the SDM and SPS. Verify that a short to voltage, short

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to ground, or open/low resistance does not exist.
    - If any of the above conditions are found, make the appropriate repair.
4. Reconnect all SIR components. Ignition ON, use the scan tool to clear the DTCs then recheck for DTCs. Verify DTC B0079 does not set.
    - If DTC B0079 was current, replace the left SPS. After replacement, refer to **Repair Verification**.

Repair Procedures

- **Inflatable Restraint Seat Position Sensor Replacement**
- **Control Module References** for SDM replacement, setup, and programming

Repair Verification

Ignition ON, use the scan tool to clear the DTCs then recheck for DTCs. Verify no DTCs are set.

- If DTC B0079 was current, replace the SDM.

DTC B0081

DTC Descriptors

DTC B0081 0F

Passenger Presence System Erratic

DTC B0081 3A

Passenger Presence System Incorrect Component Installed

DTC B0081 4B

Passenger Presence System Calibration Not Learned

DTC B0081 5A

Passenger Presence System Plausibility Failure

DTC B0081 39

Passenger Presence System Internal Electronic Failure

DTC B0081 71

Passenger Presence System Invalid Serial Data Received

Diagnostic Fault Information

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

Circuit/System Description

When the ignition is turned ON, the passenger presence system (PPS) and the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within itself. When the SDM has completed the power-up mode, the SDM will establish communication with the PPS. The SDM will also request the instrument panel cluster to command both of the PASSENGER AIR BAG ON/OFF indicators ON for 5 seconds. The SDM will then transmit a request message to the PPS to receive the PPS verification ID. The PPS will transmit the verification ID to the SDM, and the SDM will compare the ID received to data stored in memory. If the data stored in memory does not match the information transmitted by the PPS or the SDM has detects that the PPS has set a current DTC, the SDM will then disable the instrument panel (I/P) module deployment loop, set DTC B0081, and command the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

All of the following conditions must exist for 5 seconds:

B0081 0F

- The SDM has received a fault present message from the PPS.
- The PPS is in assembly plant mode and the SDM is in production mode.

B0081 3A

- The SDM has received an ID message from the PPS which does not match the ID stored in the SDM memory.
- The SDM has reset the PPS twice without detecting the correct ID message.

B0081 4B

The PPS has failed the Rezeroing procedure.

B0081 5A

- The PPS has lost communications with the SDM.
- When the PPS has requested the passenger air bag indicator to change states (from ON to OFF or OFF to ON) and the SDM change states message does not match with the PPS message.
- After the PPS change states, the SDM signal stating the Passenger Status Data Received is not valid within 2.6 seconds.

B0081 39

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- The SDM has received a NOK message from the PPS.
- The SDM has not received a message.

B0081 71

The SDM has received invalid serial data from the PPS.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The I/P module deployment loop will be disable.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

If either the SDM or PPS were replaced, verify that the correct part numbers were used for the vehicle application.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:

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- **The PPS module**
- **The SDM module**
- **The PPS module harness connector**
- **The SDM wiring harness connector**

1. Ignition ON, the PPS should turn ON the PPS ON/OFF indicators. Verify the PPS illuminates the PPS ON/OFF indicators.
   - If the passenger air bag ON/OFF status indicator does not illuminate, refer to **Passenger Presence System Indicator Circuit Malfunction**.
2. Ignition ON, use the scan tool. Go to the PPS menu, then retrieve the DTCs. Verify no PPS DTCs are set.
   - If the PPS has any current or history DTCs stored, you must address the PPS DTCs first. Refer to the **Diagnostic Trouble Code (DTC) List - Vehicle** .
3. Check to see if the PPS was replaced. Verify that the correct PPS was installed into the vehicle.
   - If the wrong PPS was installed, then replace the correct PPS.
4. Ignition OFF, disconnect the PPS module connector. Refer to**PPS Replacement** in repair instructions for connector location.
5. Remove the SDM connector. Refer to **SDM Replacement** in repair instructions for connector location.
6. Test the GMLAN serial data circuit for an open or high resistance between the PPS and SDM connector. Verify no open or high resistance exists.
   - If any of the above conditions are found, make the appropriate repair.
7. Test the PPS ignition 1 voltage circuit for a short to ground, a high resistance, or an open. Verify no short to ground, a high resistance, or an open exists.
   - If any of the above conditions are found, make the appropriate repair.
8. Replace the PPS.
9. Ignition ON, use the scan tool to clear the DTCs then recheck for DTC B0081. Verify that the DTC does not reset.
   - If DTC B0081 was current, replace the SDM.

Repair Procedures

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

Control Module References for PPS and SDM replacement, setup, and programming

DTC B0083 OR B0084

DTC Descriptors

DTC B0083 00

Front End Sensor 1 No Additional Information (Left)

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DTC B0083 39

Front End Sensor 1 Internal Electronic Failure (Left)

DTC B0083 0F

Front End Sensor 1 Incorrect Component Installed (Left)

DTC B0083 3A

Front End Sensor 1 Invalid Serial Data Received (Left)

DTC B0084 00

Front End Sensor 2 No Additional Information (Right)

DTC B0084 39

Front End Sensor 2 Internal Electronic Failure (Right)

DTC B0084 0F

Front End Sensor 2 Incorrect Component Installed (Right)

DTC B0084 3A

Front End Sensor 2 Invalid Serial Data Received (Right)

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint front end sensor utilizes a unidirectional 2-wire circuit. The front end sensor modulates current on the interface to send ID, state of health, and deployment commands to the inflatable restraint sensing and diagnostic module (SDM). The SDM serves as a power source and a ground for the front end sensor. When the ignition is turned ON and input power from the SDM is first detected, the front end sensor responds by performing internal diagnostics and sending an ID to the SDM. The SDM considers the ID to be valid if the response time is less than 5 seconds. The front end sensor continually communicates status messages to the SDM, which determines if a fault is present in the front end sensor circuit. When a fault is detected, the SDM may reset the front end sensor up to 2 times by removing and reapplying power to it. If the fault is still present, the SDM will set a DTC.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

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Conditions for Setting the DTC

B0083 00 or B0084 00

- The front end sensor has been shorted to voltage, open or shorted to ground.
- The front end sensor current has been above 23 mA for longer than 5 milliseconds.
- The SDM has not received a message from the front end sensor for more than 375 milliseconds.

B0083 39 or B0084 39

- The SDM has received a NOK message from the front end sensor.
- The SDM has not received a message.
- The SDM has received invalid serial data from the front end sensor.

B0083 0F or B0084 0F

The SDM has received erratic messages from the front end sensor.

B0083 3A or B0084 3A

- The SDM has received an ID message from the front end sensor, which does not match the ID stored in the SDM memory.
- The SDM has reset the front end sensor twice without detecting the correct ID message.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The frontal SIR System is disabled and no frontal deployments are allowed. Side deployments and rollover detection is still enabled

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

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Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:

- **The front end sensor**
- **The SDM module**
- **The front end sensor wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition ON, if DTC B0083 is current, disconnect the front end sensor - left connector. If DTC B0084 is current, disconnect the front end sensor - right connector. Refer to **Front End Sensor Replacement** in Repair Instructions for location of connector.
2. Remove the SDM connector. Refer to **SDM Replacement** in Repair Instructions for connector location.
3. Test the signal and voltage circuits between the SDM and front end sensor for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
    - If any of the above conditions are found, make the appropriate repair.
4. Reconnect all SIR components. With the ignition ON, use the scan tool to clear the DTCs then recheck for DTCs.
    - If DTC B0083 was current, replace the front end sensor - left. If DTC B0084 was current, replace the front end sensor - right. After replacement refer to Repair Verification.

Repair Procedures

- **Inflatable Restraint Front End Sensor Replacement**
- **Control Module References** for SDM replacement, setup, and programming

Repair Verification

Ignition ON, use the scan tool to clear the DTCs, then recheck for DTCs.

- If DTC B0083 or B0084 was current, replace the SDM.

DTC B0085 OR B0086

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DTC Descriptors

DTC B0085 00

Left Front Side Impact Sensor No Additional Information

DTC B0085 39

Left Front Side Impact Sensor Internal Electronic Failure

DTC B0085 0F

Left Front Side Impact Sensor Incorrect Component Installed

DTC B0085 3A

Left Front Side Impact Sensor Invalid Serial Data Received

DTC B0086 00

Right Front Side Impact Sensor No Additional Information

DTC B0086 39

Right Front Side Impact Sensor Internal Electronic Failure

DTC B0086 0F

Right Front Side Impact Sensor Incorrect Component Installed

DTC B0086 3A

Right Front Side Impact Sensor Invalid Serial Data Received

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint side impact sensor (SIS) utilizes a unidirectional 2-wire circuit. The SIS modulates current on the interface to send ID, state of health, and deployment commands to the inflatable restraint sensing and diagnostic module (SDM). The SDM serves as a power source and a ground for the SIS. When the ignition is turned ON and input power from the SDM is first detected, the SIS responds by performing internal diagnostics and sending an ID to the SDM. The SDM considers the ID to be valid if the response time is less than 5 seconds. The SIS continually communicates status messages to the SDM, which determines if a fault is present in the SIS circuit. When a fault is detected, the SDM resets the SIS twice by removing and reapplying

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power to it. If the fault is still present, the SDM will set a DTC.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0085 00 or B0086 00

- The SIS has been shorted to voltage, open or shorted to ground.
- The SIS current has been above 23 mA for longer than 5 milliseconds.
- The SDM has not received a message from the SIS for more than 375 milliseconds.

B0085 39 or B0086 39

- The SDM has received a NOK message from the SIS.
- The SDM has not received a message.

B0085 0F or B0086 0F

The SDM has received erratic messages from the SIS.

B0085 3A or B0086 3A

- The SDM has received an ID message from the SIS which does not match the ID stored in the SDM memory.
- The SDM has reset the SIS twice without detecting the correct ID message.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The side SIR System is disabled and no side deployments are allowed. Frontal deployments and rollover detection are still enabled.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

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Connector End View Reference

SIR Connector End Views

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:

- **The SIS**
- **The SDM module**
- **The SIS wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, if DTC B0085 is current, disconnect the LF SIS connector. If DTC B0086 is current, disconnect the RF SIS connector. Refer to **SIS Replacement** in Repair Instructions for location of connector.
2. Remove the SDM connector. Refer to **SDM Replacement** in Repair Instructions for location of connector.
3. Test the signal and voltage circuits between the SDM and SIS for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
    - If any of the above conditions are found, make the appropriate repair.
4. Reconnect all SIR components, then ignition ON use the scan tool to clear the DTCs then recheck for DTCs.
    - If DTC B0085 was current, replace the LF SIS. If DTC B0086 was current, replace the RF SIS. After replacement, refer to Repair Verification.

Repair Procedures

- **Inflatable Restraint Side Impact Sensor Replacement (Rear Side Door)** or **Inflatable Restraint Side Impact Sensor Replacement (Front Side Door)**
- **Control Module References** for SDM replacement, setup, and programming

Repair Verification

Ignition ON, use the scan tool to clear the DTCs then recheck for DTCs.

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- If DTC B0085 or B0086 was current, replace the SDM.

DTC B0087 OR B0088

DTC Descriptors

DTC B0087 00

Left Rear Side Impact Sensor No Additional Information

DTC B0087 39

Left Rear Side Impact Sensor Internal Electronic Failure

DTC B0087 0F

Left Rear Side Impact Sensor Incorrect Component Installed

DTC B0087 3A

Left Rear Side Impact Sensor Invalid Serial Data Received

DTC B0088 00

Right Rear Side Impact Sensor No Additional Information

DTC B0088 39

Right Rear Side Impact Sensor Internal Electronic Failure

DTC B0088 0F

Right Rear Side Impact Sensor Incorrect Component Installed

DTC B0088 3A

Right Rear Side Impact Sensor Invalid Serial Data Received

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint side impact sensor (SIS) utilizes a unidirectional 2-wire circuit. The SIS modulates current on the interface to send ID, State of Health, and deployment commands to the inflatable restraint sensing and diagnostic module (SDM). The SDM serves as a power source and a ground for the SIS. When the

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ignition is turned ON and input power from the SDM is first detected, the SIS responds by performing internal diagnostics and sending an ID to the SDM. The SDM considers the ID to be valid if the response time is less than 5 seconds. The SIS continually communicates status messages to the SDM, which determines if a fault is present in the SIS circuit. When a fault is detected, the SDM resets the SIS twice by removing and reapplying power to it. If the fault is still present, the SDM will set a DTC.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0087 00 or B0088 00

- The SIS has been shorted to voltage, open or shorted to ground.
- The SIS current has been above 23 mA for longer than 5 milliseconds.
- The SDM has not received a message from the SIS for more than 375 milliseconds.

B0087 0F or B0088 0F

The SDM has received erratic messages from the SIS.

B0087 3A or B0088 3A

- The SDM has received an ID message from the SIS which does not match the ID stored in the SDM memory.
- The SDM has reset the SIS twice without detecting the correct ID message.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The side SIR System is disabled and no side deployments are allowed. Frontal deployments and rollover detection are still enabled.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

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SIR Connector End Views

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- **The SIS**
- **The SDM module**
- **The SIS wiring harness connector**
- **The SDM wiring harness connector**

1. Ignition OFF, if DTC B0087 is current, disconnect the LR SIS connector. If DTC B0088 is current, disconnect the RR SIS connector. Refer to **SIS Replacement** in Repair Instructions for location of connector.
2. Remove the SDM connector, refer to **SDM Replacement** in Repair Instructions for location of connector.
3. Test the signal and voltage circuits between the SDM and SIS for a short to voltage, short to ground, or open/low resistance. Verify that a short to voltage, short to ground, or open/low resistance does not exist.
   - If any of the above conditions are found make the appropriate repair.
4. Reconnect all SIR components, then ignition ON use the scan tool to clear the DTCs then recheck for DTCs.
   - If DTC B0087 was current replace the LR SIS. If DTC B0088 was current replace the RR SIS. After replacement refer to Repair Verification.

Repair Procedures

- **Inflatable Restraint Side Impact Sensor Replacement (Rear Side Door)** or **Inflatable Restraint Side Impact Sensor Replacement (Front Side Door)**
- **Control Module References** for SDM replacement, setup, and programming

Repair Verification

Ignition ON, use the scan tool to clear the DTCs then recheck for DTCs.

- If DTC B0087 or B0088 was current replace the SDM.

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DTC B0090

DTC Descriptors

DTC B0090 0F

Rollover Sensor Erratic

DTC B0090 3A

Rollover Sensor Incorrect Component Installed

DTC B0090 39

Rollover Sensor Internal Electronic Failure

DTC B0090 71

Rollover Sensor Invalid Serial Data Received

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint vehicle rollover sensor (ROS) utilizes battery power supply and a bidirectional interface circuit. The ROS modulates current on the interface to send ID, State of Health, and deployment commands to the inflatable restraint sensing and diagnostic module (SDM). When the ignition is turned on the ROS responds by performing internal diagnostics and sending an ID to the SDM. The ROS continually communicates status messages to the SDM, which determines if a fault is present in the ROS circuit. If the fault is present, the SDM will set a diagnostic trouble code (DTC).

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

All of the following conditions must exist for 5 seconds:

B0090 0F

- The SDM received a fault present message from the ROS.
- The ROS is in assembly plant mode and the SDM is in production mode.
- The SDM has not received any data from the ROS.

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B0090 3A

- The SDM has received an ID message from the vehicle rollover sensor which does not match the ID stored in the SDM memory.
- The SDM has reset the vehicle rollover sensor twice without detecting the correct ID message.

B0090 39

- The SDM has received a NOK message from the vehicle rollover sensor.
- The SDM has not received a message.

B0090 71

The SDM has received invalid serial data from the vehicle rollover sensor.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The side air bag deployment loops will be disabled for rollover events only. For side impact events the side air bags are still enabled.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists and the scan tool Clear DTCs function is used.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aids

If either the SDM or vehicle rollover sensor were replaced verify that the correct part numbers were used for the vehicle application and the components were properly configured. Refer to **Control Module References** for SDM and ROS setup and programming.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

- **Circuit Testing**

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

Circuit/System Testing

IMPORTANT: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector.

- The vehicle rollover sensor
- The SDM module
- The vehicle rollover sensor harness connector
- The SDM wiring harness connector

1. For DTC B0090 39 replace the vehicle rollover sensor.
2. For DTC B0090 0F, B0090 3A and B0090 71 request DTC from ROS and repair any ROS DTC prior to continuing this diagnostic procedure.
3. With Ignition OFF, disconnect the vehicle rollover sensor connector. Refer to**Inflatable Restraint Vehicle Rollover Sensor Replacement** in repair instructions for connector location.
4. Remove the SDM connector. Refer to **SDM Replacement** in repair instructions for connector location.
5. Test the vehicle rollover sensor serial data circuit for an open or high resistance between the vehicle rollover sensor and SDM connector. Verify no open or high resistance exists.
    - If any of the above conditions are found make the appropriate repair.
6. Test the vehicle rollover sensor ignition 1 voltage circuit for a short to ground, a high resistance, or an open. Verify no short to ground, a high resistance, or an open exists.
    - If any of the above conditions are found make the appropriate repair.
7. Replace the inflatable restraint vehicle rollover sensor. Perform the **Inflatable Restraint Vehicle Rollover Sensor Programming and Setup** procedure.
8. Ignition ON, use the scan tool to clear the DTCs, then recheck for DTC B0090. Verify that the DTC does not reset.
    - If DTC B0090 was current replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Vehicle Rollover Sensor Replacement**
- **Control Module References** for SDM and ROS replacement, setup, and programming.

DTC B1001 (SDM)

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DTC Descriptor

DTC B1001 00

SDM Option Configuration Error

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) stores a primary data key, which is a 4-digit number, and a secondary data key, which is a portion of the vehicle identification number (VIN). When the ignition is turned ON, the SDM compares this information to the information stored in the body control module (BCM) over the serial data communication circuit. If there is a mismatch between the information stored in the SDM and BCM, DTC B1001 will set.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

- The 4-digit primary data key stored in the SDM does not match the 4 digits stored in the BCM.
- The VIN stored in the BCM does not match that of the vehicle.

Action Taken When the DTC Sets

- The SDM commands ON the AIR BAG warning lamp via serial data communications.
- The SDM disables all deployments.

Conditions for Clearing the DTC

- The last 4-digit Primary Data Key in the SDM match the last 4 digits stored in the BCM.
- The VIN that is stored in the SDM matches the VIN stored in the BCM.

Diagnostic Aids

This DTC is an indication that an incorrect SDM is installed in the vehicle, or that the SDM and/or the BCM was replaced without reprogramming the BCM with the new information.

Reference Information

Electrical Information Reference

- **Circuit Testing**

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

Circuit/System Testing

1. Ignition ON, use the scan tool to request SIR DTCs. Verify that DTC B1001 is set as current.
   - If DTC B1001 is history, clear codes and recheck.
2. Use the scan tool in the SIR menu, go to Data Display then SIR menu, then go to Key Identification menu. Look at the Secondary Key Status to see if the scan tool show this as being Valid. Verify the scan tool shows this Secondary Key Status is Valid.
   - If the Secondary Key Status is not valid then look at the Received VIN Digits 2-7. Compare Received VIN Digits to the vehicle VIN.
   - If the VIN is different from the vehicle, then the BCM has the incorrect VIN programmed. Use the scan tool to program the BCM. Refer to BCM reprogramming in Repair Instructions for reprogramming procedure.
3. Use the scan tool in the SIR menu, go to Data Display then SIR menu, then go to Key Identification menu. Look at the Primary Key Status to see if the scan tool shows this as being Valid. Verify the scan tool shows the Primary Key Status is Valid.
   - If the Primary Key Status is not valid, then look at the Received Primary Key. Compare Received Primary Key to the stored SDM Primary Key. If the SDM Primary Key differs from the Received Primary Key, use the scan tool to Setup SDM Primary Key into BCM procedure. Refer to **SDM Reprogramming** in Repair Instructions for reprogramming procedure.
4. Ignition ON, use the scan tool to clear the DTCs. Verify that DTC B1001 is cleared.
   - If DTC B1001 is still current, replace the SDM.

Repair Procedures

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

Control Module References for SDM and BCM replacement, setup, and programming.

DTC B1001 (ROS)

DTC Descriptor

DTC B1001 00

Option Configuration Error

Diagnostic Fault Information

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

Circuit/System Description

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The inflatable restraint sensing and diagnostic module (SDM) stores a 4-digit primary key for the inflatable restraint vehicle rollover sensor (ROS). The SDM sends the ROS the primary key. If the ROS determines that it is the wrong primary key, the ROS will set DTC B1001 and send the SDM a vehicle mismatch message. The SDM then will set DTC B0090 3A and turn the SIR Warning Indicator ON. The ROS does not use a secondary key.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

The 4-digit primary key stored in the SDM does not match the 4-digit key stored in the ROS.

Action Taken When the DTC Sets

- The SDM commands ON the AIR BAG warning lamp via serial data communications.
- The SDM disables all rollover related deployments.

Conditions for Clearing the DTC

The 4-digit Primary Key in the SDM and in the ROS match.

Diagnostic Aids

This DTC is an indication that the ROS was not set-up correctly, is not the correct part number or that the ROS is defective.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

1. Ignition ON, use the scan tool to request ROS DTC. Verify that DTC B1001 is set as current.
    - If DTC B1001 is history, clear codes and recheck.
2. After clearing codes, if DTC B1001 is current, with the scan tool perform the Setup New ROS procedure for the ROS.
3. Ignition ON, use the scan tool to clear the DTC. Verify that DTC B1001 is cleared.
    - If DTC B1001 is still current, replace the ROS and with the scan tool perform the Setup New ROS procedure for the ROS.

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Repair Procedures

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

Control Module References for ROS replacement, setup, and programming.

DTC B1011

DTC Descriptor

DTC B1011 00

System Disabled Information Stored Invalid Serial Data Received

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint vehicle rollover sensor (ROS) utilizes battery power supply and a bidirectional interface circuit. The ROS modulates current on the interface to send ID, State of Health, and deployment commands to the inflatable restraint sensing and diagnostic module (SDM). When the ignition is turned on the ROS responds by performing internal diagnostics and sending an ID to the SDM. The ROS continually communicates status messages to the SDM, which determines if a fault is present in the ROS circuit. If the fault is present, the ROS will set a diagnostic trouble code (DTC).

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Clearing the DTC

Scan tool CLEAR DTC command.

Diagnostic Aids

DTC B1011 does not indicate a system malfunction and will not cause any warning indicators to illuminate. When DTC B1011 sets, cycle the ignition and use the scan tool to clear the code, no further diagnosis is necessary.

DTC B1019

DTC Descriptors

DTC B1019 00

System Configuration Error

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DTC B1019 3A

Incorrect Component Installed

Diagnostic Fault Information

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

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) runs continuous diagnostic tests on the restraints system. If the SDM does not detect the passenger presence system (PPS) indicator or detects a fault in the PPS indicator circuit, DTC B1019 3A will set.

After the SDM is programmed, the SDM setup procedure is required. During this set up procedure, the SDM will compare the content that was just programmed to the actual components that are installed on the vehicle. If the SDM detects that there are too few or too many components on the system, DTC B1019 00 will set and not allow the setup procedure to complete. After using the SDM special function SET UP NEW SDM, DTC B1019 may set along with other loop or sensor DTC. You must address the loop or sensor DTC and then use the SET UP NEW SDM special function again until all faults are corrected.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

DTC B1019 00

- The SDM was programmed with the wrong options for the vehicle.
- The wrong components were installed for the content of the vehicle.
- SDM Connector may have bent pins or shorting bars causing the SDM to learn deployment loops that are not actually present.

DTC B1019 3A

- The vehicle was configured for PPS but the SDM does not detect that the PPS indicator is present due to loss of power at indicator.
- The vehicle is not configured for PPS and the SDM detects that the PPS indicator is present.

Action Taken When the DTC Sets

- The SDM commands ON the AIR BAG warning lamp via serial data communications.
- The SDM disables all deployments when B1019 00 DTC is set current, not for B1019 3A.

Conditions for Clearing the DTC

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- The correct SDM must be installed.
- The correct components must be installed.
- The PPS Indicator operates as indicated in the **SIR System Description and Operation**.

Diagnostic Aids

If the SDM has been replaced, make sure that the correct part number was installed for this vehicle. If after programming the SDM and the B1019 00 sets current, check for bent pins or shorting bars at the SDM connector.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: If DTC B1001 is set current, diagnose that fault prior to following this diagnostic procedure.

DTC B1019 3A

1. If the vehicle is equipped with a PPS system, verify the PPS indicator is present.
   - If not present, install the PPS status indicator
2. Verify the PPS Indicator operates as indicated in the **SIR System Description and Operation**.
   - If operation differs from that outlined in the Description and Operation, correct the fault in the PPS indicator circuit; refer to **Passenger Presence System Indicator Circuit Malfunction** to correct the condition.

DTC B1019 00

1. Verify that the vehicle is equipped with all the SIR components it was configured for.
   - Restore the vehicle to the original content and perform the Setup New SDM special function in the scan tool.
2. Remove the SDM connector and verify the SDM connector is in good condition and has no bent pins, terminals or shorting bars.
   - If damage is found, repair the bent pins, terminals or shorting bars as needed and then perform the Setup New SDM special function in the scan tool.
3. Verify the correct SDM part number was installed.

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- If wrong SDM was installed, replace SDM

4. Verify the SDM was programmed with the correct software.
   - If SDM was not programmed correctly, reprogram SDM. Use the Scan Tool to program the SDM. Refer to **Repair Instructions** for programming procedure.

Repair Procedures

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

Control Module References for SDM or BCM replacement, setup, and programming

DTC B1370

DTC Descriptors

DTC B1370 01

Device Ignition 1 Circuit Short to Battery

DTC B1370 06

Device Ignition 1 Circuit Short to Ground or Open

Diagnostic Fault Information

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

DTC B1370

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Ignition 1 Circuit	B1370 06	-	B1370 06	B1370 01	B1370 06

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) monitors the ignition 1 signal from the ignition switch. When the vehicle ignition switch is placed in the RUN or CRANK position, the switch supplies voltage to the SDM ignition 1 input terminal. If an open, short to voltage, or short to ground in this SDM ignition 1 circuit is detected, then DTC B1370 will set.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

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The following conditions exist for at least 10 seconds.

B1370 01

The SDM detects a short to battery in the ignition 1 voltage circuit when the switch is in the OFF position.

B1370 06

The SDM detects a short to ground or an open in the ignition 1 voltage circuit when the ignition switch is in RUN or CRANK.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via serial data communications.
- The SDM stores DTC to memory.
- The SDM determines its power mode only from the GMLAN power mode messages and discards the ignition 1 input for the remainder of the ignition cycle.

Conditions for Clearing the DTC

- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the module ignition cycle counter reaches the reset threshold, without a repeat of the malfunction.

Diagnostic Aids

A history DTC maybe caused by an intermittent short or open in the ignition 1 circuit.

Reference Information

Electrical Information Reference

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

Circuit/System Testing

IMPORTANT: When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:

- **The SDM module**
- **The SDM wiring harness connector**

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1. Ignition OFF, remove the Air Bag fuse from the underhood fuse center. Ignition ON, engine OFF test the voltage from the supply voltage side of the AIR BAG fuse to a ground with a DMM. The voltage should read 9-16 volts.
    - If the voltage is less than 9-16 volts, refer to **DTC B1370** .
2. Remove the SDM connector. Refer to **SDM replacement** in Repair Instructions for connector location.
3. With the Air Bag fuse removed, test the ignition 1 voltage circuit between the underhood fuse center and the SDM for a short to voltage or an open. Verify that a short to voltage or an open does not exist.
    - If any of the above conditions are found, make the appropriate repair.
4. If all circuits test normal, replace the SDM.

Repair Procedures

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

Control Module References for SDM replacement, setup, and programming

PASSENGER PRESENCE SYSTEM REZEROING

Introduction

The Inflatable Restraints Passenger Presence System (PPS) is a calibrated system that requires rezeroing anytime the seat cushion trim attachments have been removed or the PPS has been replaced. The procedures below are designed to assist in the rezeroing of the PPS. Before you start, read these procedures carefully and completely. For further information regarding the PPS refer to **SIR System Description and Operation**.

IMPORTANT: The following procedures must be followed:

1. Read this procedure carefully and completely.
2. The PPS will not function properly if the PPS rezeroing procedure is not performed.
3. Perform the **Diagnostic System Check - Vehicle** after successfully completing the rezeroing procedure to ensure the system is functioning properly.

Passenger Presence System (PPS) Rezeroing Procedure

IMPORTANT: Before rezeroing the PPS, the front passenger seat must be completely empty of all items. The presence of any items on the front passenger seat will affect the calibration and operation of the PPS.

1. Empty the front outboard passenger seat.
2. Verify that all SIR and PPS components, connectors, and connector position assurances (CPAs) are properly connected and mounted.
3. Install a scan tool.
4. Turn ON the ignition, with the engine OFF.

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IMPORTANT: DTC B0081 4B may be set prior to rezeroing the system if the system was replaced with a service kit. All other SIR and PPS DTCs must be cleared before rezeroing the PPS. The presence of current or history DTCs will prevent the PPS from rezeroing and may set additional DTCs.

5. Use the scan tool in order to clear the SIR and PPS DTCs.
6. With a scan tool, request the PPS rezeroing procedure.
7. Initiate the PPS rezeroing procedure. The PPS will illuminate both PASSENGER AIR BAG ON and OFF indicators until the rezeroing procedure has been completed.
8. When the rezeroing procedure has been successfully completed, the PPS will display the current system status.
9. If the rezeroing procedure was unsuccessful, repeat this procedure. Due to the communication status between the SDM and the PPS module, this procedure may have to be repeated until a successful rezero attempt has been achieved.
10. After the PPS has been successfully rezeroed, perform the **Diagnostic System Check - Vehicle** .

SYMPTOMS - SIR

IMPORTANT: The following steps must be completed before using the Symptom Tables.

1. **Perform the Diagnostic System Check - Vehicle , before using the Symptom Tables in order to verify that all of the following are true:**
   - **There are no DTCs set.**
   - **The control module(s) can communicate via the serial data link.**
2. **Review the system operation in order to familiarize yourself with the system functions. Refer to SIR System Description and Operation.**

Visual/Physical Inspection

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

Intermittent

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

Symptom List

Refer to **Air Bag Indicator Circuit Malfunction** in order to diagnose the symptom.

Refer to **Passenger Presence System Indicator Circuit Malfunction** in order to diagnose the symptom.

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AIR BAG INDICATOR CIRCUIT MALFUNCTION

Diagnostic Fault Information

IMPORTANT: Always perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.

Circuit/System Description

When the ignition is turned ON, the instrument panel cluster (IPC) flashes the AIR BAG indicator 7 times. The inflatable restraint sensing and diagnostic module (SDM) performs diagnostic tests on the SIR system and then commands the IPC to turn the AIR BAG indicator OFF if no SIR malfunction exists. The AIR BAG indicator is controlled by the SDM via serial data communications. If the ignition 1 voltage is outside of the normal operating voltage range 9-16 volts, the SDM will command the IPC to turn the AIR BAG indicator ON with no DTCs present then disables all deployment loops.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Diagnostic Aids

A DTC B1370 may set if the ignition 1 circuit is outside the 9-16 volts range.

Circuit/System Testing

1. Ignition ON, use the scan tool to request the SIR data list display. Observe the Battery Voltage Parameter. The battery voltage on the scan tool should read 9-16 volts.
   - If the voltage is less than 9 volts, refer to **Diagnostic System Check - Vehicle** .
2. Ignition ON, monitor the IPC. The SIR warning indicator should flash then turn OFF. Verify that the SIR warning indicator flash and then turn OFF.
   - If the SIR warning indicator continually flashes then reprogrammed the SDM, refer to **SDM programming** in Repair Instructions.
3. Using the scan tool, go to Body and Accessories, then go onward to Special Functions to Instrument Panel Cluster, and then go to Display Test. In the Display Test mode you can turn ON or OFF all the instrument panel indicators when commanded ON. Commanded the IPC indicators ON. The Air Bag indicator should turn ON.
   - If the Air Bag indicator does not turn ON, replace the IPC.

     Note: The AIR BAG warning indicator is not serviceable separately. The IPC must be

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serviced/replaced as a complete unit.

4. If the scan tool commands the Air Bag indicator ON and OFF, replace the SDM.

Repair Procedures

IMPORTANT: Always perform the Diagnostic Repair Verification after completing the diagnostic procedure.

Control Module References for IPC and SDM replacement, setup, and programming

PASSENGER PRESENCE SYSTEM INDICATOR CIRCUIT MALFUNCTION

Diagnostic Fault Information

IMPORTANT: Always perform the Diagnostic System Check - Vehicle prior to using this diagnostic procedure.

Circuit/System Description

The PASSENGER AIR BAG ON/OFF indicators are used to notify the driver when the Passenger Presence System (PPS) has enabled or disabled the instrument panel (I/P) inflator module. When the ignition is turned ON, the PPS module will commands both PASSENGER AIR BAG ON/OFF indicators ON for 5 seconds. The PPS module conducts tests on the PPS components and circuits while both PASSENGER AIR BAG ON/OFF indicators are ON. If no malfunctions are detected, the PPS module will turn the PASSENGER AIR BAG indicator ON or OFF, depending on the status of the PPS. If a malfunction is detected, the PPS module will store a DTC, default the PPS to the OFF state, and communicate with the sensing and diagnostic module (SDM) that a DTC has been set. The SDM will request the instrument panel cluster (IPC) to turn the AIR BAG indicator ON to notify the driver of a malfunction.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Electrical Information Reference

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

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Circuit/System Testing

IMPORTANT: When removing connectors, inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected component/connector:

- **The IPC module**
- **The PPS module**
- **The SDM module**
- **The IPC module wiring harness connector**
- **The PPS module wiring harness connector**
- **The SDM wiring harness connector**

1. Using the scan tool, go to Body and Accessories, then go onward to Special Functions to Instrument Panel Cluster (IPC), and then go to Display Test. In the Display Test mode you can turn ON or OFF all the instrument panel indicators when commanded ON. Commanded the IPC indicators ON. The PPS indicators should turn ON.
   - If the passenger AIR BAG ON/OFF indicator does not turn ON, remove the connector from the PPS indicator display.
   - On the PPS connector, test and repair the passenger AIR BAG ON/OFF indicator voltage circuit for a short to ground, a high resistance, or an open. If any of these conditions are found, make the appropriate repair.
   - Connect a test lamp between the ignition 1 voltage circuit and passenger AIR BAG OFF indicator control circuit on the passenger AIR BAG ON/OFF indicator connector. With the passenger seat empty, use a scan tool to command the display test. Verify the test lamp illuminates.
     - If test lamp illuminates, replace the passenger AIR BAG ON/OFF indicator.
   - Remove the IPC connector. Test and repair both ON and OFF indicator control circuits between the PPS indicator and the IPC for a short to voltage, high resistance, or an open. If any of these conditions are found, make the appropriate repair.

     Refer to **IPC replacement** in Repair Instructions for connector location.

   - If passenger AIR BAG ON/OFF indicator voltage, ON, and OFF circuits test good, replace the IPC.

     Note: The IPC must be serviced/replaced as a complete unit.

2. PPS indicators turns ON when command ON then replace the PPS.

Repair Procedures

IMPORTANT: Always perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- **Instrument Panel Inflatable Restraint Module Indicator Replacement (w/o U19)** or **Instrument**

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Panel Inflatable Restraint Module Indicator Replacement (w/U19)

- **Control Module References** for IPC and PPS replacement, setup, and programming

SIR DISABLING AND ENABLING

SIR component location affects how a vehicle should be serviced. There are parts of the SIR system installed in various locations around a vehicle. To find the location of the SIR components refer to **SIR Identification Views**.

There are several reasons for disabling the SIR system, such as repairs to the SIR system or servicing a component near or attached to an SIR component. There are several ways to disable the SIR system depending on what type of service is being performed. The following information covers the proper procedures for disabling/enabling the SIR system.

SIR Disabling and Enabling

Condition	Action
If the vehicle was involved in an accident with an air bag deployment.	Disconnect the negative battery cable(s) *. Refer to **Repairs and Inspections Required After a Collision**.
When performing SIR diagnostics.	Follow the appropriate SIR service manual diagnostic procedure(s) *
When removing or replacing an SIR component or a component attached to an SIR component.	Disconnect the negative battery cable(s) *
If the vehicle is suspected of having shorted electrical wires.	Disconnect the negative battery cable(s) *
When performing electrical diagnosis on components other than the SIR system.	Remove the SIR/Airbag fuse(s) when indicated by the diagnostic procedure to disable the SIR system
* DTCs will be lost when the negative battery cable is disconnected.	

SIR Service Precautions

CAUTION: When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Failure to observe the correct procedure could cause deployment of the SIR components. Serious injury can occur. Failure to observe the correct procedure could also result in unnecessary SIR system repairs.

The inflatable restraint sensing and diagnostic module (SDM) maintains a reserved energy supply. The reserved energy supply provides deployment power for the air bags if the SDM loses battery power during a collision. Deployment power is available for as much as 1 minute after disconnecting the vehicle power. Waiting 1 minute before working on the system after disabling the SIR system prevents deployment of the air bags from the reserved energy supply.

General Service Instructions

The following are general service instructions which must be followed in order to properly repair the vehicle

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and return it to its original integrity:

- Do not expose inflator modules to temperatures above 65°C (150°F).
- Verify the correct replacement part number. Do not substitute a component from a different vehicle.
- Use only original GM replacement parts available from your authorized GM dealer. Do not use salvaged parts for repairs to the SIR system.

Discard any of the following components if it has been dropped from a height of 91 cm (3 feet) or greater:

- Inflatable restraint sensing and diagnostic module (SDM)
- Any Inflatable restraint air bag module
- Inflatable restraint steering wheel module coil
- Any Inflatable restraint sensor
- Inflatable restraint seat belt pretensioners
- Inflatable restraint Passenger Presence System (PPS) module or sensor

Disabling Procedure - Air Bag Fuse

1. Turn the steering wheel so that the vehicles wheels are pointing straight ahead.
2. Place the ignition in the OFF position.

IMPORTANT: The SDM may have more than one fused power input. To ensure there is no unwanted SIR deployment, personal injury, or unnecessary SIR system repairs, remove all fuses supplying power to the SDM. With all SDM fuses removed and the ignition switch in the ON position, the AIR BAG warning indicator illuminates. This is normal operation, and does not indicate a SIR system malfunction.

3. Locate and remove the fuse(s) supplying power to the SDM. Refer to **SIR Schematics** or **Electrical Center Identification Views** .
4. Wait 1 minute before working on the system.

Enabling Procedure - Air Bag Fuse

1. Place the ignition in the OFF position.
2. Install the fuse(s) supplying power to the SDM. Refer to **SIR Schematics** or **Electrical Center Identification Views** .
3. Turn the ignition switch to the ON position. The AIR BAG indicator will flash then turn OFF.
4. Perform the Diagnostic System Check - Vehicle if the AIR BAG warning indicator does not operate as described. Refer to **Diagnostic System Check - Vehicle** .

Disabling Procedure - Negative Battery Cable

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1. Turn the steering wheel so that the vehicles wheels are pointing straight ahead.
2. Place the ignition in the OFF position.
3. Disconnect the negative battery cable from the battery. Refer to **Battery Negative Cable Disconnection and Connection** .
4. Wait 1 minute before working on system.

Enabling Procedure - Negative Battery Cable

1. Place the ignition in the OFF position.
2. Connect the negative battery cable to the battery. Refer to **Battery Negative Cable Disconnection and Connection** .
3. Turn the ignition switch to the ON position. The AIR BAG indicator will flash then turn OFF.
4. Perform the Diagnostic System Check - Vehicle if the AIR BAG warning indicator does not operate as described. Refer to **Diagnostic System Check - Vehicle** .

REPAIR INSTRUCTIONS

SIR SERVICE PRECAUTIONS

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. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.

The inflatable restraint sensing and diagnostic module (SDM) maintains a reserved energy supply. The reserved energy supply provides deployment power for the air bags. Deployment power is available for as much as 1 minute after disconnecting the vehicle power. Disabling the SIR system prevents deployment of the air bags from the reserved energy supply.

General Service Instructions

The following are general service instructions which must be followed in order to properly repair the vehicle and return it to its original integrity:

- Do not handle the inflatable restraint vehicle rollover sensor when connected to vehicle power.
- Do not expose inflator modules to temperatures above 65°C (150°F).
- Verify the correct replacement part number. Do not substitute a component from a different vehicle.
- Use only original GM replacement parts available from your authorized GM dealer. Do not use salvaged parts for repairs to the SIR system.

Discard any of the following components if it has been dropped from a height of 91 cm (3 ft) or greater:

- Inflatable restraint front end sensor
- Inflatable restraint instrument panel (I/P) module

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- Inflatable restraint passenger presence system (PPS)
- Inflatable restraint roof rail module
- Inflatable restraint SDM
- Inflatable restraint side impact sensor (SIS)
- Inflatable restraint steering wheel module
- Inflatable restraint steering wheel module coil
- Inflatable restraint vehicle rollover sensor
- Seat belt pretensioner

INFLATABLE RESTRAINT FRONT END SENSOR REPLACEMENT

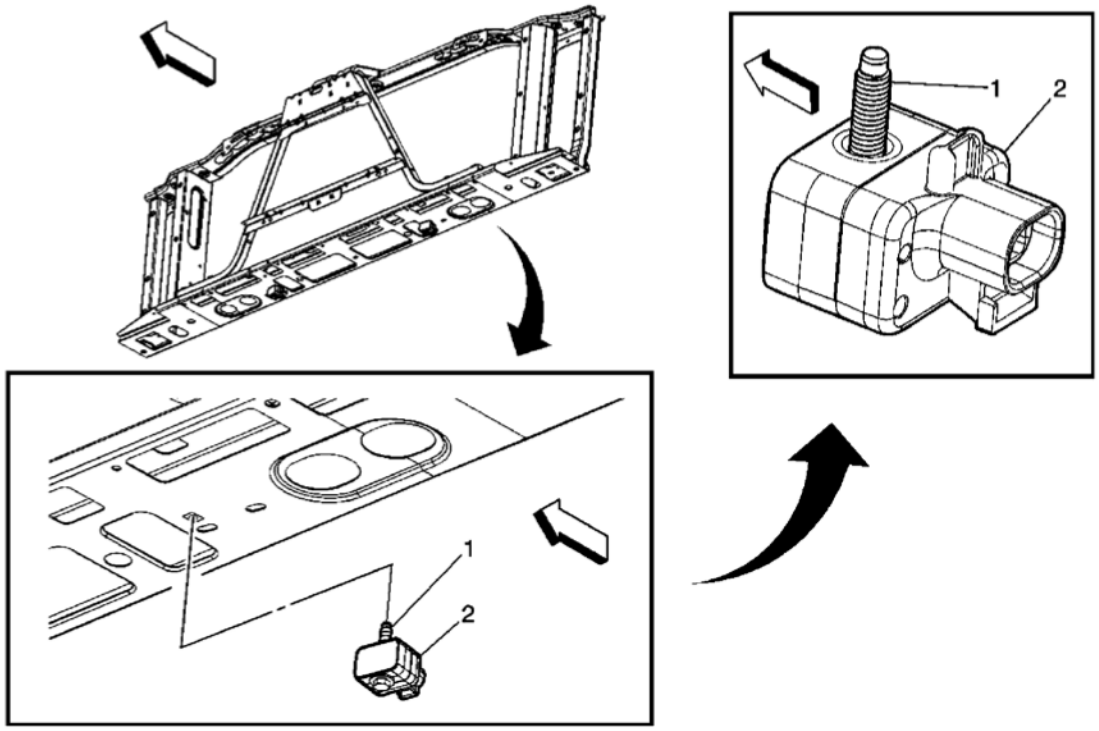


Fig. 35: View Of SIR Front End Sensor Assembly & Bolt
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Front End Sensor Replacement

Callout	Component Name
CAUTION: **Do not strike or jolt the inflatable restraint front end sensor. Before applying power to the front end sensor make sure that it is securely fastened. Failure to observe the correct installation procedure could cause SIR deployment, personal injury, or unnecessary SIR system repairs.** **Preliminary Procedures**	

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1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Raise and support the vehicle. Refer to **Lifting and Jacking the Vehicle** .

1	Supplemental Inflatable Restraint Front End Discriminating Sensor Bolt **NOTE:** **Refer to Fastener Notice .** **Tighten:** 8 N.m (71 lb in) **Tip:** Loosen bolt in order to remove sensor.
2	Supplemental Inflatable Restraint Front End Discriminating Sensor Assembly **Tip:** 1. Remove connector position assurance (CPA) retainer. 2. Disconnect electrical connector.

INFLATABLE RESTRAINT SIDE IMPACT SENSOR REPLACEMENT (REAR SIDE DOOR)

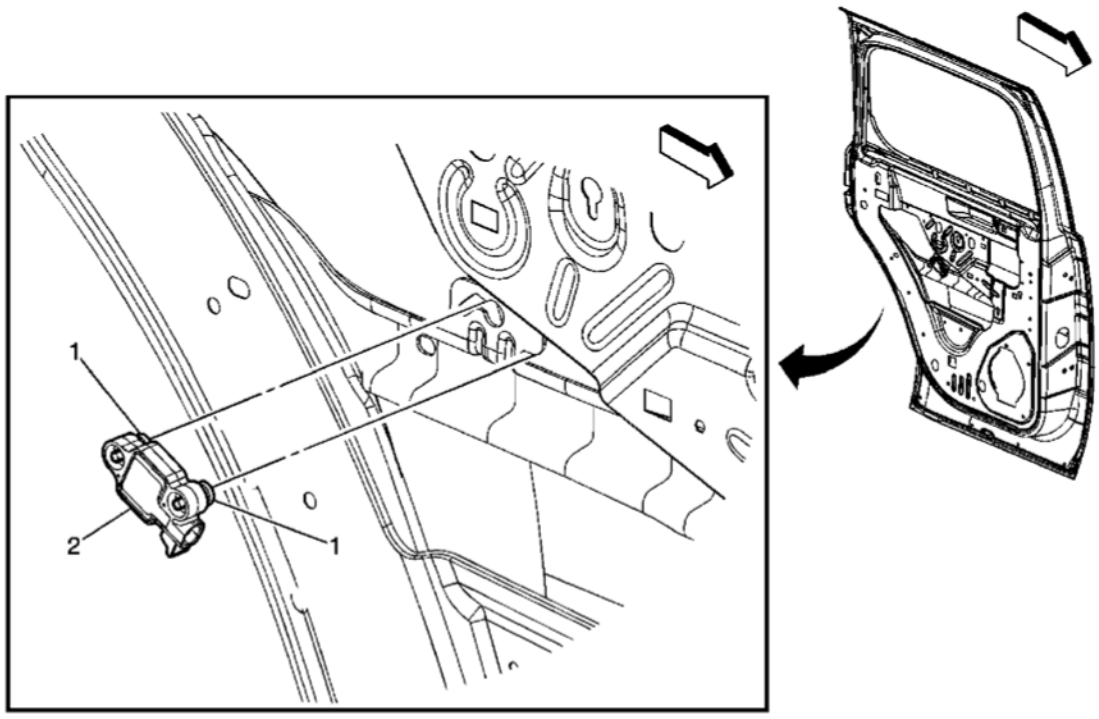


Fig. 36: Inflatable Restraint Side Impact Sensor Module Assembly & Bolts
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Side Impact Sensor Replacement (Rear Side Door)

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Callout	Component Name
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. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.** **CAUTION:** **Do not strike or jolt the inflatable restraint side impact sensor (SIS). Before applying power to the SIS make sure that it is securely fastened. Failure to observe the correct installation procedures could cause SIR deployment, personal injury, or unnecessary SIR system repairs.** **Preliminary Procedures** 1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**. 2. Remove rear side door trim panel. Refer to **Rear Side Door Trim Panel Replacement (Suburban/Yukon XL/Escalade ESV)** or **Rear Side Door Trim Panel Replacement (Tahoe/Yukon/Escalade)** . 3. Remove rear side door water deflector. Refer to **Rear Side Door Water Deflector Replacement** .	
1	Inflatable Restraint Side Impact Sensor Module Bolt (Qty: 2) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in) **Tip:** Loosen bolts and slide sensor out of key hole slots.
2	Inflatable Restraint Side Impact Sensor Module Assembly

INFLATABLE RESTRAINT SIDE IMPACT SENSOR REPLACEMENT (FRONT SIDE DOOR)

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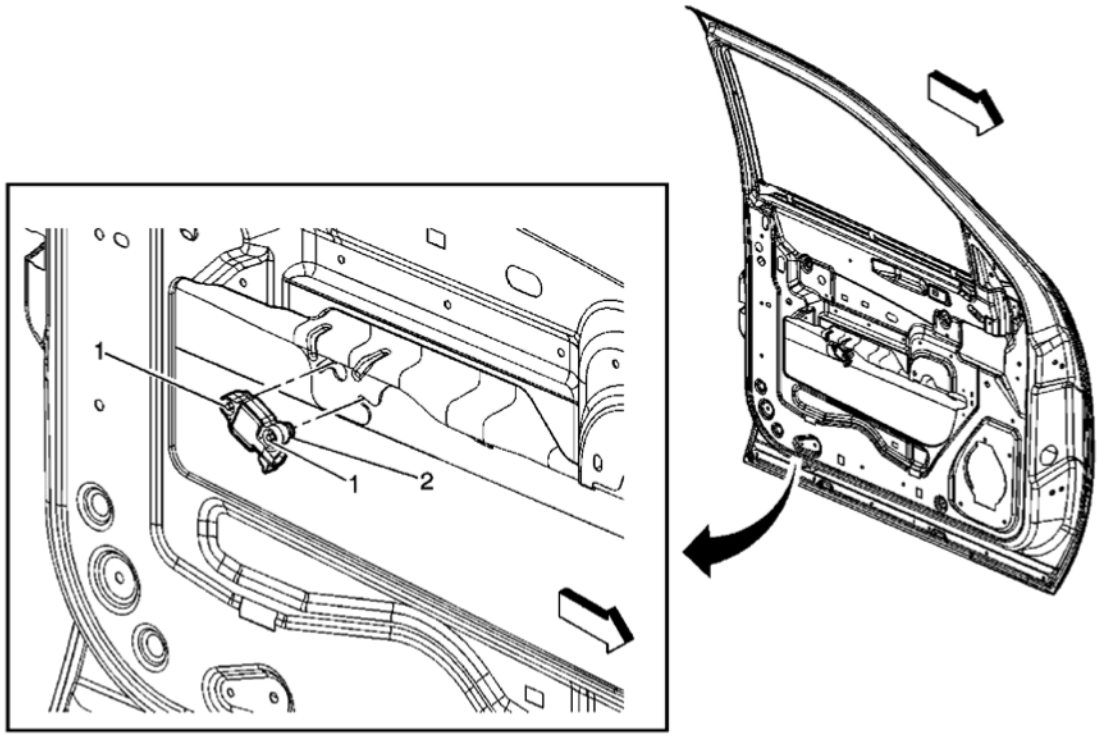


Fig. 37: View Of Inflatable Restraint Side Impact Sensor Module Assembly & Bolts
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Side Impact Sensor Replacement (Front Side Door)

Callout	Component Name
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. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.** **CAUTION:** **Do not strike or jolt the inflatable restraint side impact sensor (SIS). Before applying power to the SIS make sure that it is securely fastened. Failure to observe the correct installation procedures could cause SIR deployment, personal injury, or unnecessary SIR system repairs.** **Preliminary Procedures** 1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**. 2. Remove front side door trim panel. Refer to **Front Side Door Trim Panel Replacement** . 3. Remove front side door water deflector. Refer to **Front Side Door Water Deflector Replacement** .	
	Inflatable Restraint Side Impact Sensor Module Bolt (Qty: 2)

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1	**NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in) **Tip:** Loosen bolts and slide sensor out of key hole slots.
2	Inflatable Restraint Side Impact Sensor Module Assembly

INFLATABLE RESTRAINT VEHICLE ROLLOVER SENSOR REPLACEMENT

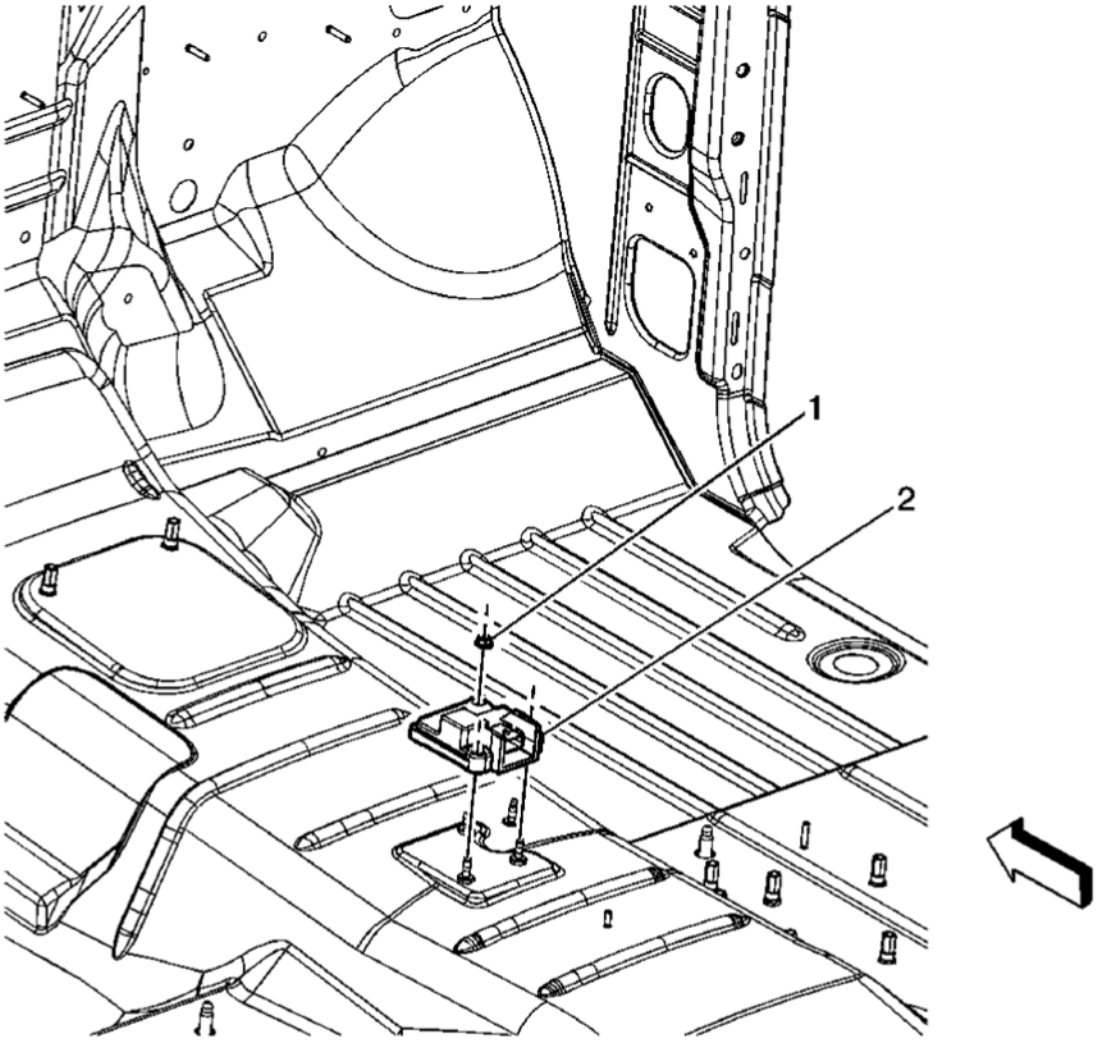


Fig. 38: View Of Inflatable Restraint Vehicle Rollover Sensor & Nuts
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Vehicle Rollover Sensor Replacement

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Callout	Component Name
CAUTION: **Refer to SIR Caution .** **Preliminary Procedures** 1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**. 2. Remove front center floor console, if equipped. Refer to **Console Replacement - Front Floor (Cadillac)** or **Console Replacement - Front Floor (Except Cadillac)** . 3. Remove center seat, if equipped. Refer to **Seat Replacement - Center** .	
1	Inflatable Restraint Vehicle Rollover Sensor Nut (Qty: 3) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 10 N.m (88 lb in)
2	Inflatable Restraint Vehicle Rollover Sensor Assembly **Tip:** 1. Reposition carpet and/or wiring harness in order to access sensor. 2. Disconnect the electrical connectors.

INFLATABLE RESTRAINT SENSING AND DIAGNOSTIC MODULE REPLACEMENT

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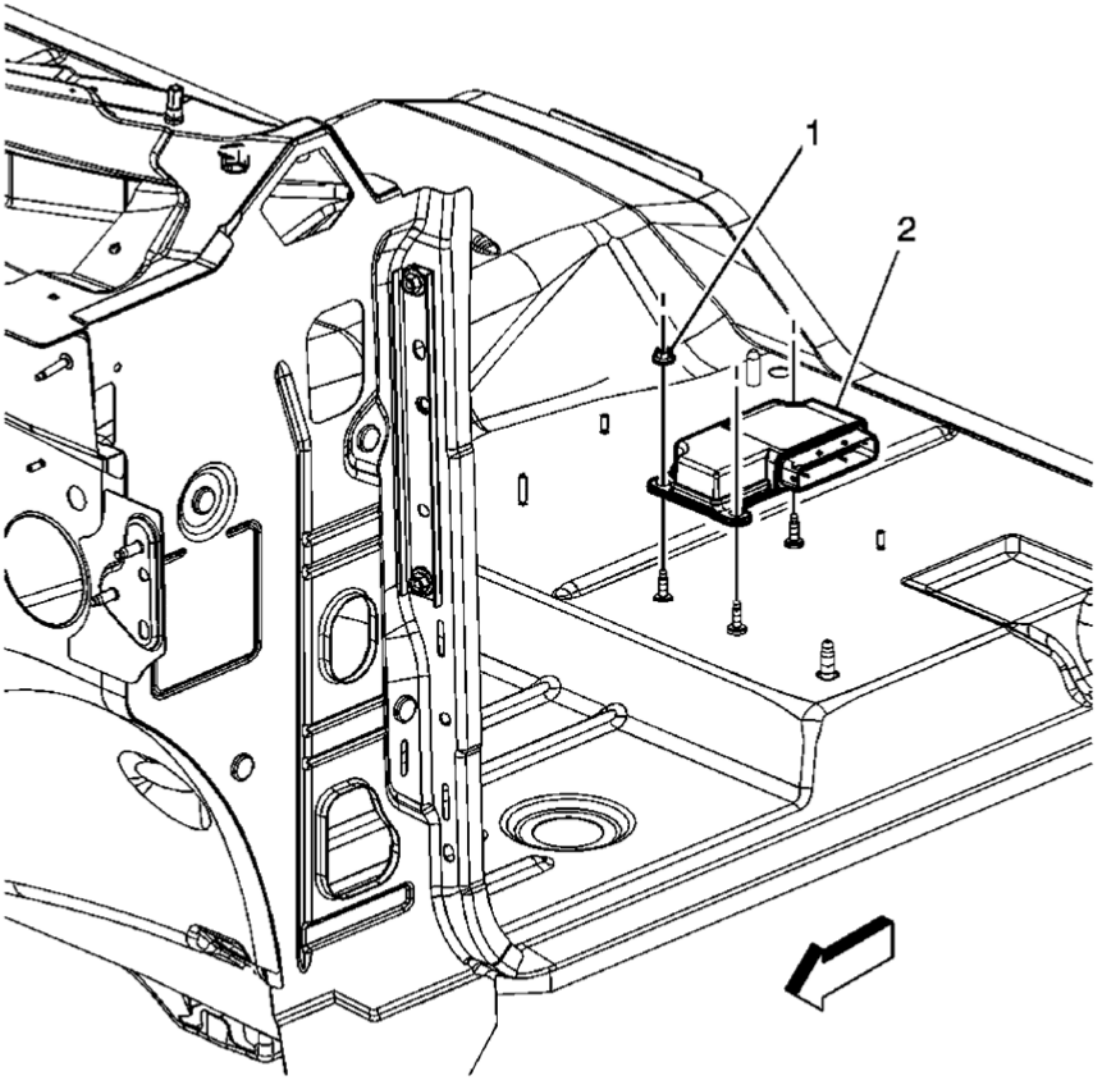


Fig. 39: View Of Inflatable Restraint Sensing & Diagnostic Module Assembly & Nuts
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Sensing and Diagnostic Module Replacement

Callout	Component Name

CAUTION:
Do not strike or jolt the inflatable restraint sensing and diagnostic module (SDM). Before applying power to the SDM, make sure that it is securely fastened with the arrow facing toward the front of the vehicle. Failure to observe the correct installation procedure could cause SIR deployment, personal injury, or unnecessary SIR system repairs.

CAUTION:
Refer to SIR Caution .

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Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove driver front bucket seat. Refer to **Front Seat Replacement - Bucket** .

2	Inflatable Restraint Sensing and Diagnostic Module Nuts (Qty: 3) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 7 N.m (56 lb in)
3	Inflatable Restraint Sensing and Diagnostic Module Assembly **Tip:** 1. Position carpet in order to access module. 2. Disconnect the electrical connectors. 3. When installing, ensure arrow on module is pointed towards front of vehicle.

INFLATABLE RESTRAINT STEERING WHEEL MODULE REPLACEMENT

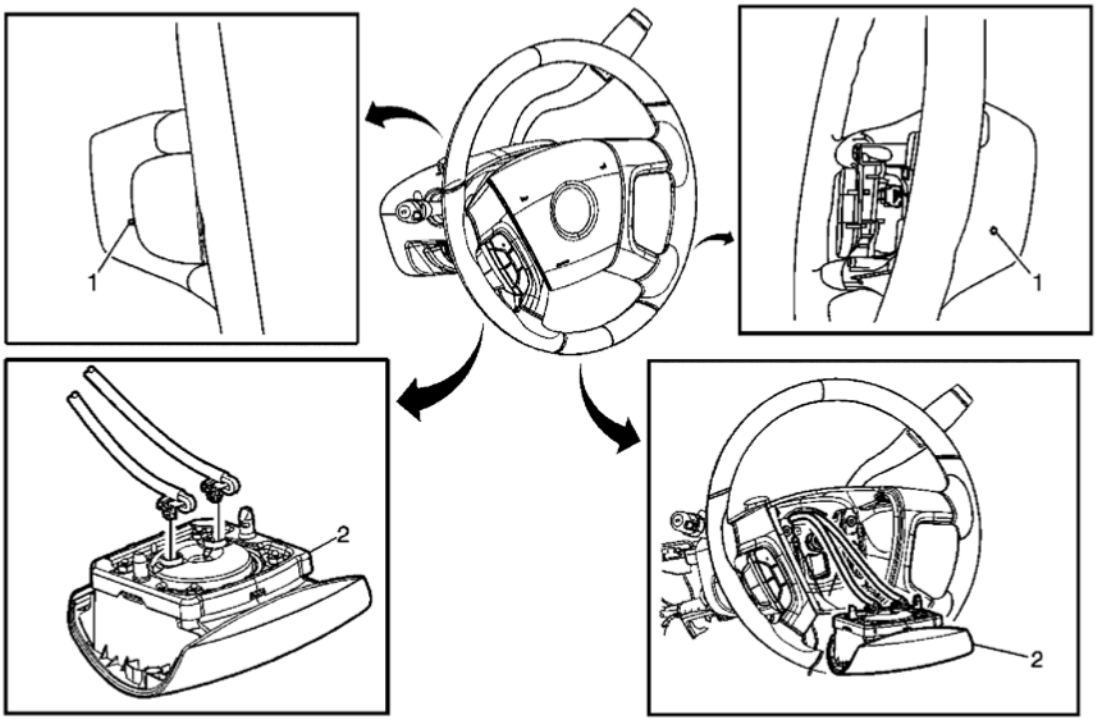


Fig. 40: View Of Steering Wheel Inflatable Restraint Module
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Steering Wheel Module Replacement

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Callout	Component Name
CAUTION: **Refer to SIR Inflator Module Handling and Storage Caution .** **CAUTION:** **Refer to SIR Caution .** **Fastener Tightening Specifications:** Refer to **Fastener Tightening Specifications**. **Preliminary Procedures** 1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**. 2. On back side of the steering wheel are 2 openings, place the wheel so that one opening is on top. 3. Using a blunt-ended tool, push the spring fastener inward through the access hole. Repeat the step for the other opening.	
1	Steering Wheel Inflatable Restraint Module **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Fully deploy the module before disposal. If the module was replaced under warranty, fully deploy and dispose of the module after the required retention period. Refer to **Inflator Module Handling and Scrapping**.

INFLATABLE RESTRAINT STEERING WHEEL MODULE COIL REPLACEMENT

Tools Required

J 42640 Steering Column Anti Rotation Pin. See **Special Tools**.

Removal Procedure

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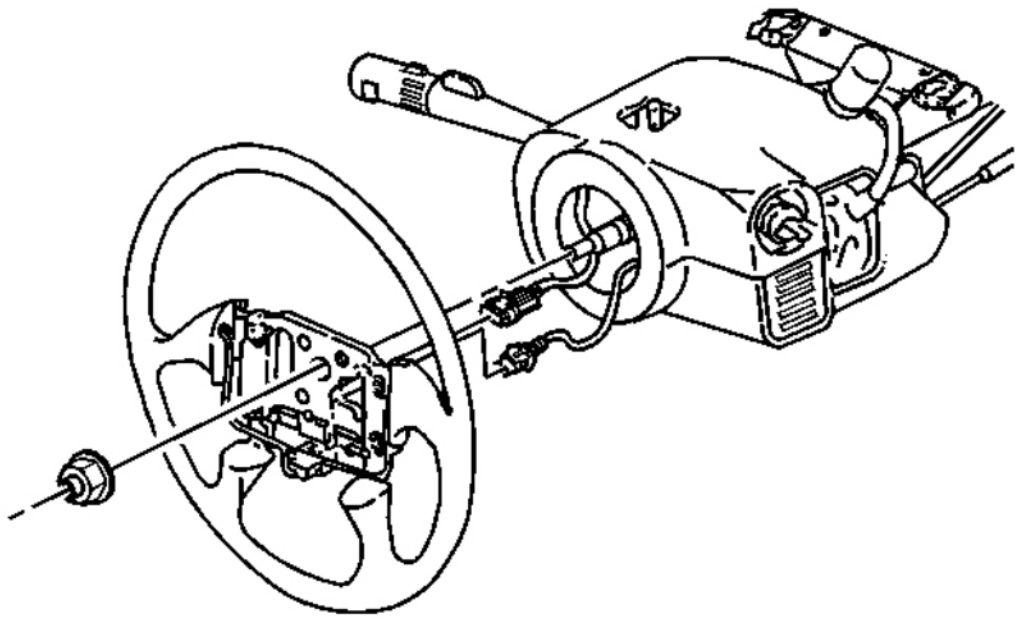


Fig. 41: View Of Steering Wheel, Shaft & Nut
Courtesy of GENERAL MOTORS CORP.

CAUTION: Refer to SIR Caution .

1. Disable the SIR System. Refer to **SIR Disabling and Enabling**.

NOTE: The wheels of the vehicle must be straight ahead and the steering column in the LOCK position before disconnecting the steering column or intermediate shaft from the steering gear. Failure to do so will cause the SIR coil assembly to become uncentered, which may cause damage to the coil assembly.

2. Verify the following before removing the SIR coil:
   - The wheels on the vehicle are straight ahead.
   - That **J 42640** is installed or the ignition switch is in the LOCK position. See **Special Tools**.
3. Remove the steering wheel from the steering shaft. Refer to **Steering Wheel Replacement** .
4. Remove the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .

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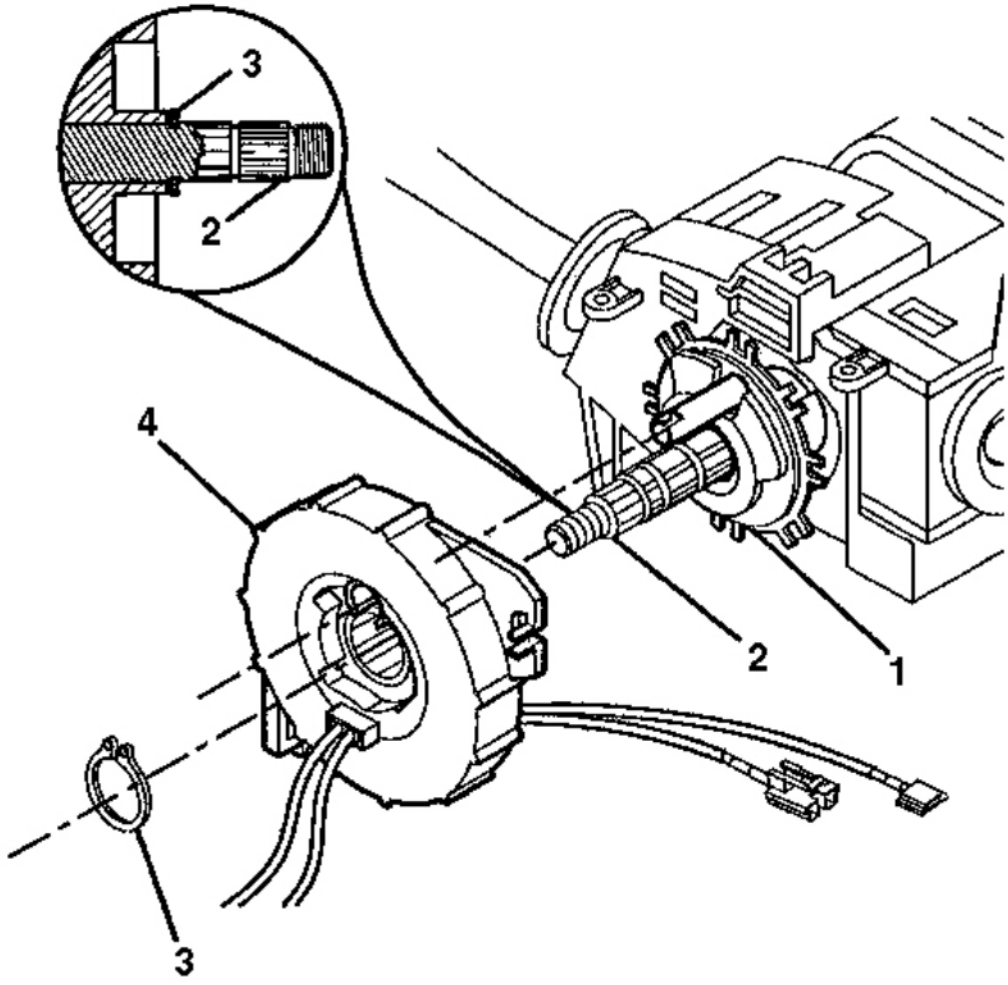


Fig. 42: Identifying SIR Coil, Steering Shaft Assembly & Retaining Ring
Courtesy of GENERAL MOTORS CORP.

5. Remove the wire harness straps from the steering wheel column wire harness.
6. Remove the retaining ring (3).
7. Remove the SIR coil (4) from the steering shaft.
8. If replacing, discard the SIR coil.

Installation Procedure

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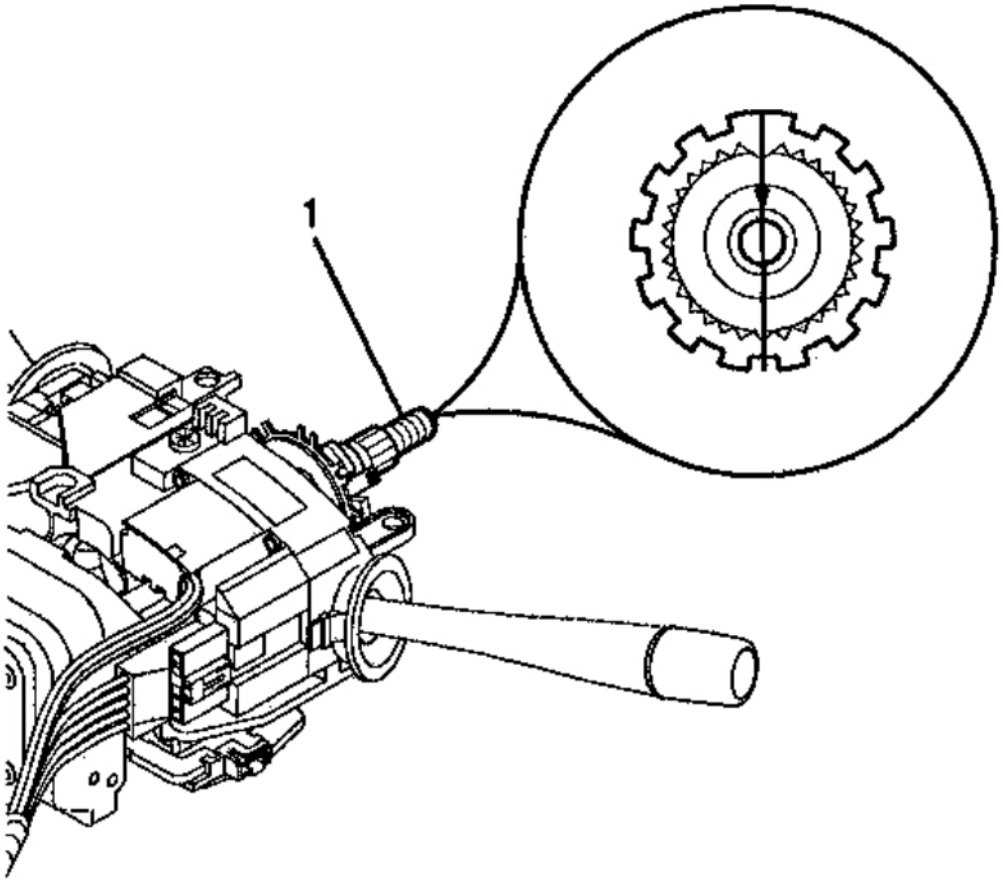


Fig. 43: View Of Block Tooth Of Steering Shaft Assembly In 12 O'clock Position
Courtesy of GENERAL MOTORS CORP.

NOTE: **The new SIR coil assembly will be centered. Improper alignment of the SIR coil assembly may damage the unit, causing an inflatable restraint malfunction.**

NOTE: **The wheels of the vehicle must be straight ahead and the steering column in the LOCK position before disconnecting the steering column or intermediate shaft from the steering gear. Failure to do so will cause the SIR coil assembly to become uncentered, which may cause damage to the coil assembly.**

1. Verify the following:

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- The wheels on the vehicle are straight ahead.
- That **J 42640** is installed or the ignition switch is in the LOCK position. See **Special Tools**.

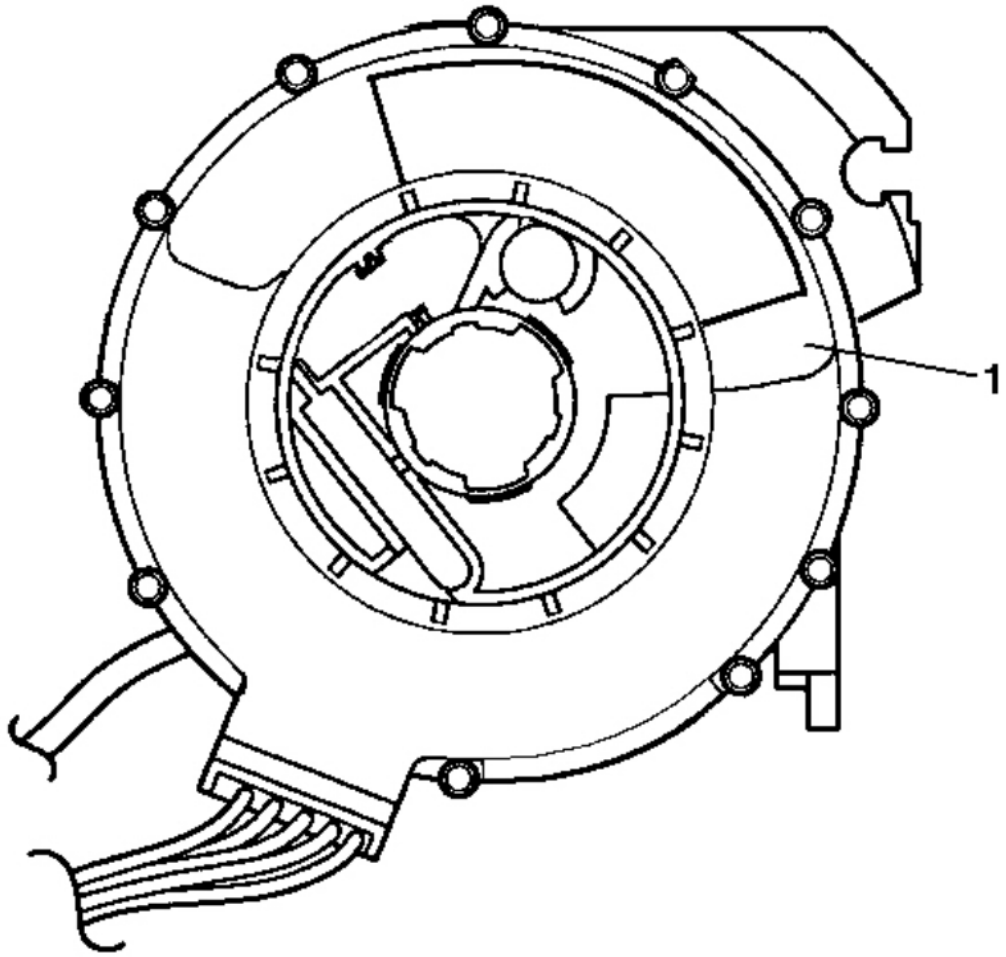


Fig. 44: View Of SIR Coil
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Do not remove the centering tab from the new SIR coil until the installation is complete. If the SIR coil does not come with a centering tab, you must center the SIR coil.

2. If reusing the existing coil it MUST be centered, refer to **Inflatable Restraint Steering Wheel Module Coil Centering**.

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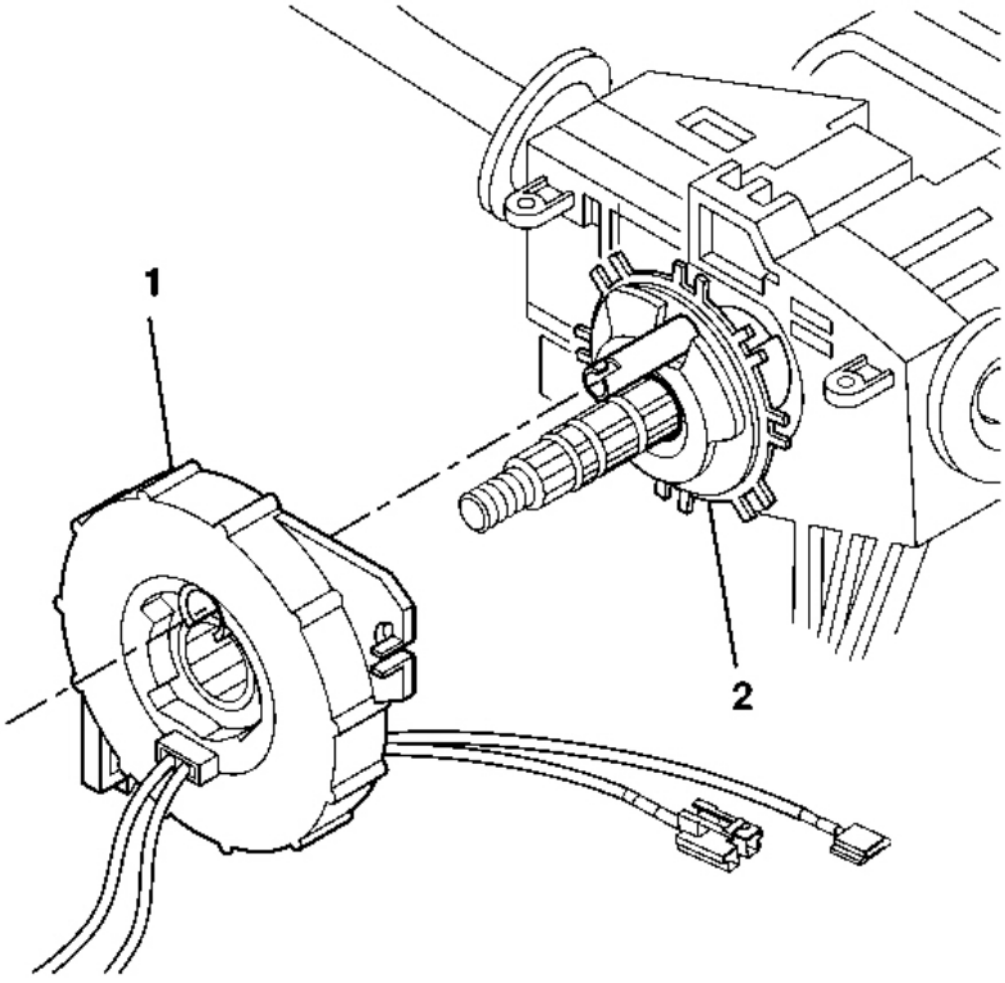


Fig. 45: Aligning SIR Coil Assembly With Horn Tower
Courtesy of GENERAL MOTORS CORP.

3. Align the SIR coil assembly (1) with the horn tower on the turn signal cancel cam assembly (2).

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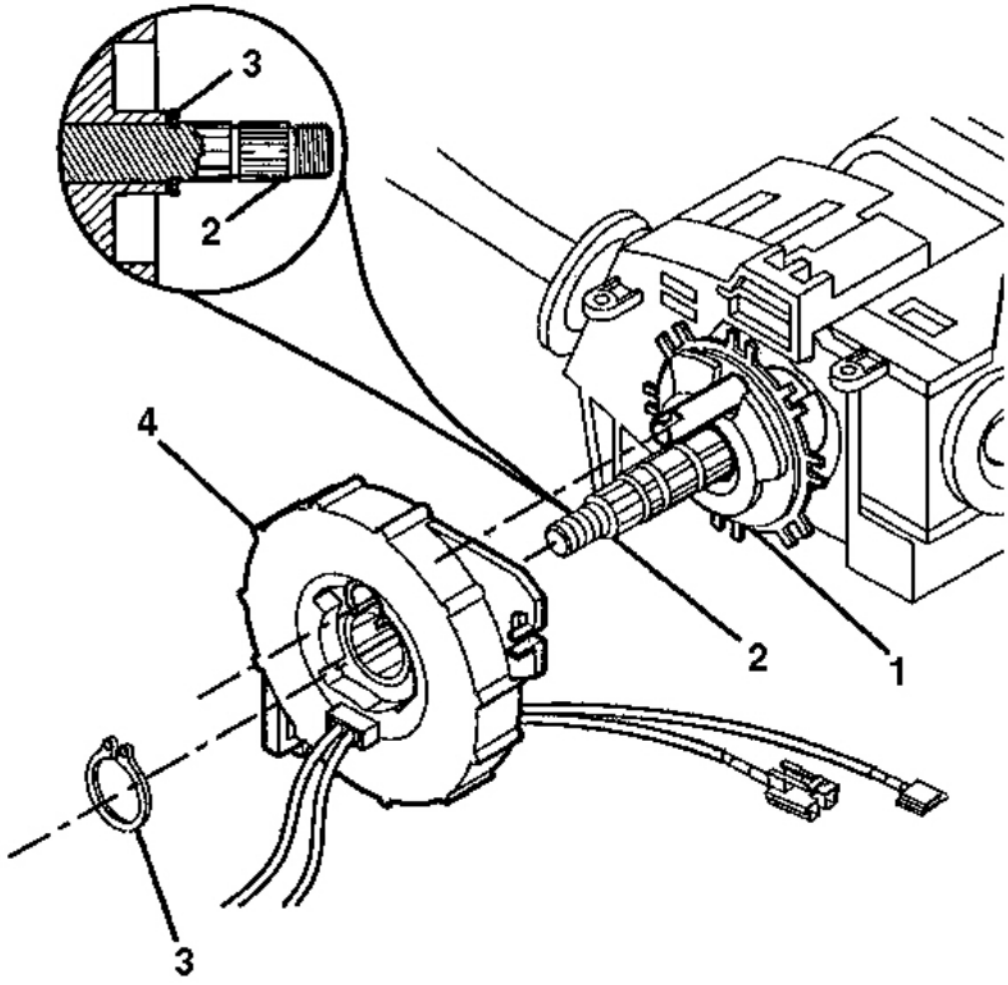


Fig. 46: Identifying SIR Coil, Steering Shaft Assembly & Retaining Ring
Courtesy of GENERAL MOTORS CORP.

4. Slide the SIR coil (4) onto the steering shaft assembly (2).
5. Firmly seat the retaining ring (3) into the groove on the steering shaft assembly (2).
6. Remove and discard the centering tab from the new SIR coil (4).
7. Install the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .

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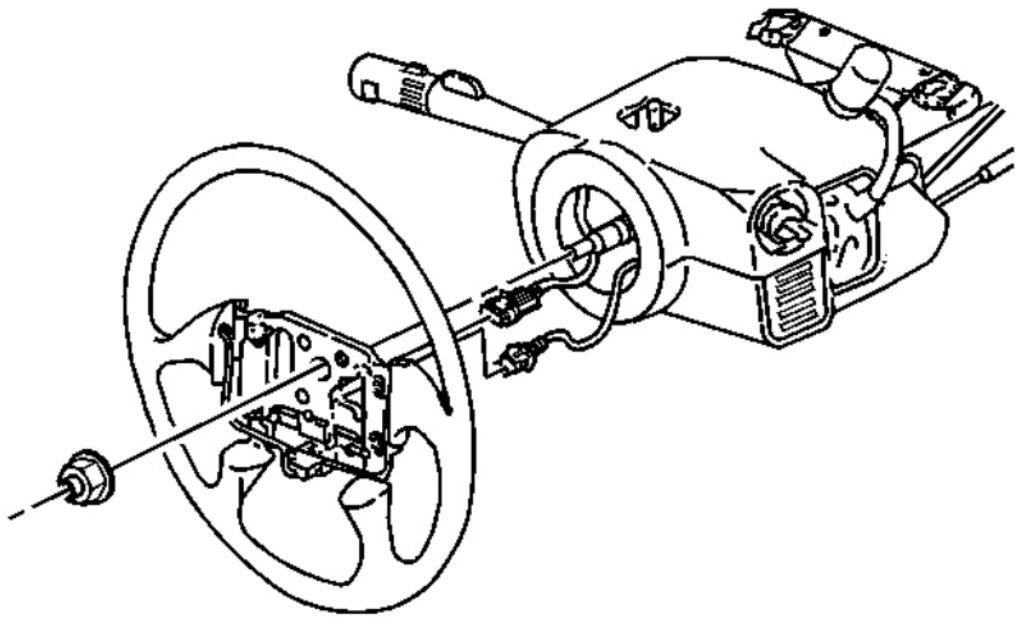


Fig. 47: View Of Steering Wheel, Shaft & Nut
Courtesy of GENERAL MOTORS CORP.

8. Install the steering wheel. Refer to **Steering Wheel Replacement** .
9. Enable the SIR system. Refer to **SIR Disabling and Enabling**.

INFLATABLE RESTRAINT STEERING WHEEL MODULE COIL CENTERING

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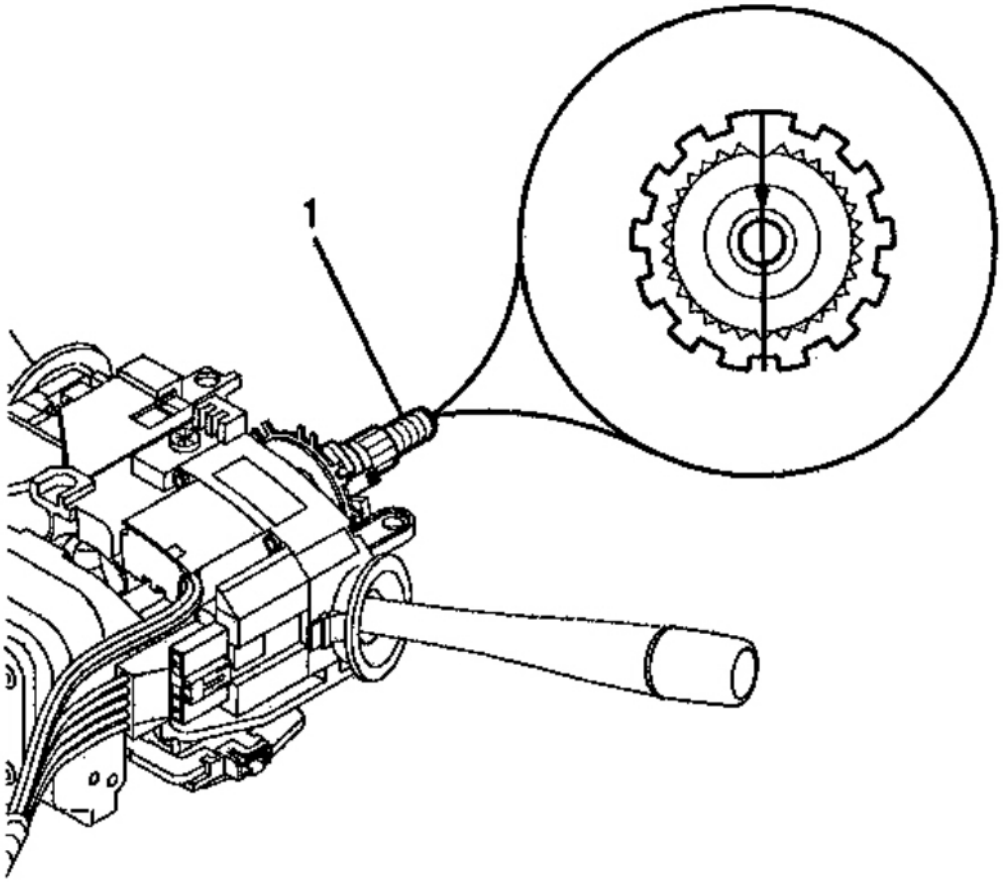


Fig. 48: View Of Block Tooth Of Steering Shaft Assembly In 12 O'clock Position
Courtesy of GENERAL MOTORS CORP.

NOTE: **The new SIR coil assembly will be centered. Improper alignment of the SIR coil assembly may damage the unit, causing an inflatable restraint malfunction.**

IMPORTANT: **If double wire harness strap is installed onto the wire harness assembly and column, you must reuse the holder for the wire straps during installation.**
Remove the wire harness strap(s) where necessary.

1. Verify the following conditions before centering the SIR coil:
   - The wheels on the vehicle are straight ahead.

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- The block tooth (1) of the steering shaft assembly is in the 12 o'clock position.
- The ignition switch is in the LOCK position.

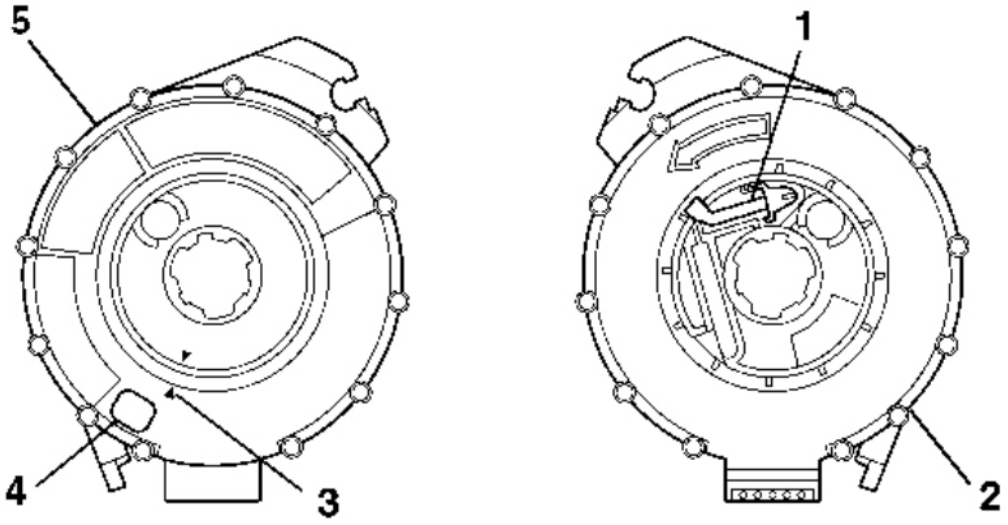


Fig. 49: Centering SIR Coil (With Centering Window & Spring Service Lock)
Courtesy of GENERAL MOTORS CORP.

2. If the front (5) of the SIR coil has a centering window (4), and the back side (2) includes a spring service lock (1), perform the following steps:
    1. Hold the SIR coil with the face up.
    2. While depressing the spring service lock, rotate the coil hub clockwise until the coil ribbon stops.
    3. Rotate the coil hub slowly, counterclockwise, until the centering window appears yellow and both arrows (3) line up.
    4. Release spring service lock between the locking tab. The SIR coil is now centered.
    5. Align the centered SIR coil with the horn tower and slide onto the steering shaft assembly.

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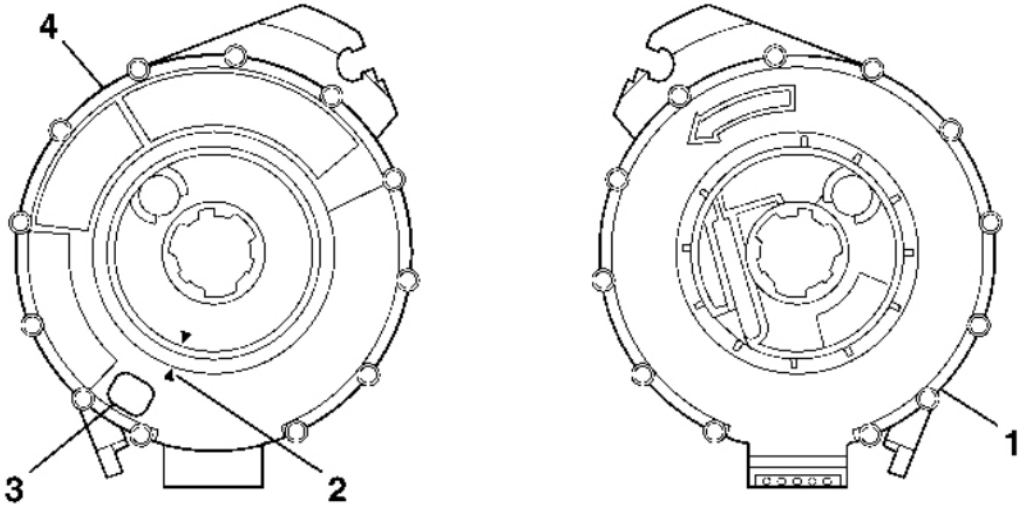


Fig. 50: Centering SIR Coil (With Centering Window, Without Spring Service Lock)
Courtesy of GENERAL MOTORS CORP.

3. If the front (4) of the SIR coil has a centering window (3), and the back side (1) includes NO spring service lock, perform the following steps:
    1. Hold the SIR coil with the face up.
    2. Rotate the coil hub clockwise until the coil ribbon stops.
    3. Rotate the coil hub slowly, counterclockwise until the centering window appears yellow and both arrows (2) line up. This is the CENTER position.
    4. While holding the coil hub in the CENTER position, align the SIR coil with the horn tower and slide onto the steering shaft assembly.

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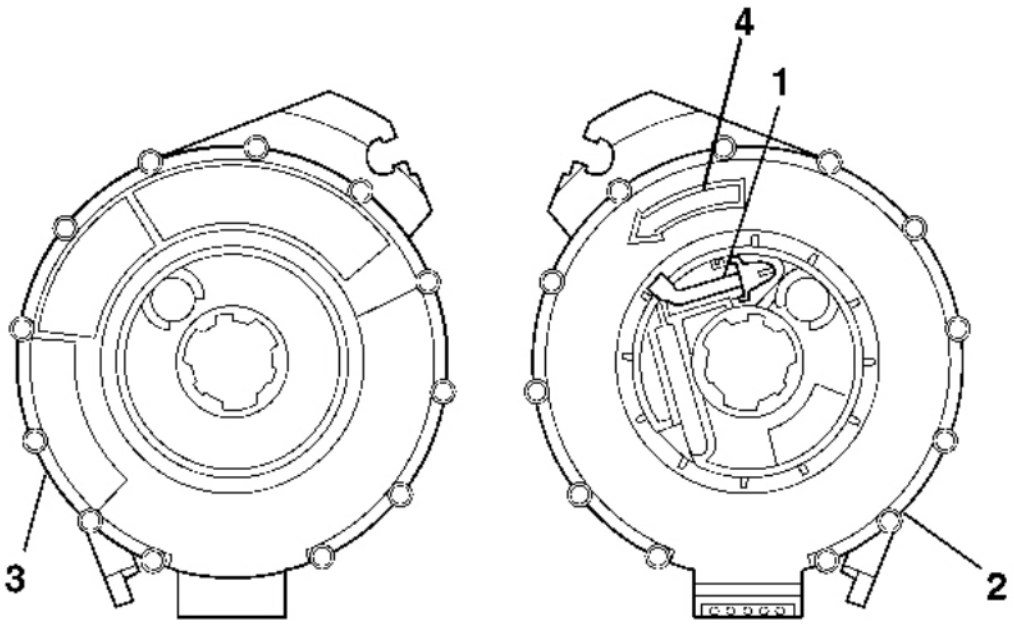


Fig. 51: Centering SIR Coil (No Centering Window, But Back Side Includes A Spring Service Lock)
Courtesy of GENERAL MOTORS CORP.

4. If the front side (3) of the SIR coil has NO centering window, but the back side (2) includes a spring service lock (1), perform the following steps:
    1. Hold the SIR coil with the back side up.
    2. While depressing the spring service lock, rotate the coil hub in the direction of the arrow (4) until the coil ribbon stops.
    3. Still pressing the spring service lock, rotate the coil hub in the opposite direction 21/2 revolutions.
    4. Release the spring service lock between locking tabs. The SIR coil is now centered.
    5. Align the centered SIR coil with the horn tower and slide onto the steering shaft assembly.

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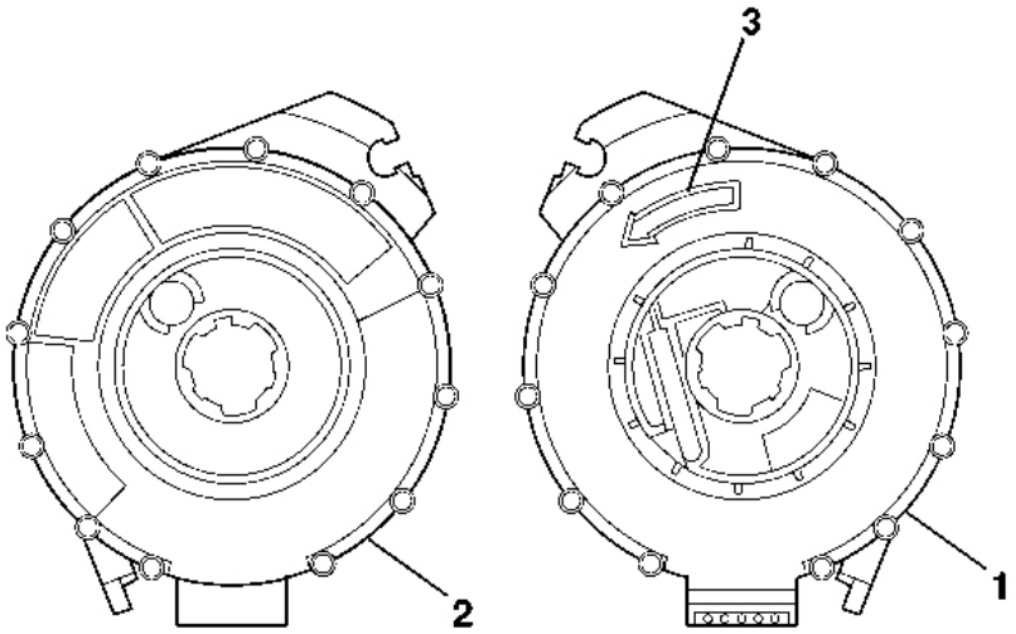


Fig. 52: Centering SIR Coil (Without Centering Window, Without Spring Service Lock)
Courtesy of GENERAL MOTORS CORP.

5. If the front side (2) of the SIR coil has NO centering window, and the back side (1) includes NO spring service lock, perform the following steps:
    1. Hold the SIR coil with the face up.
    2. Rotate the coil hub in the direction of the arrow until the coil ribbon stops.
    3. Rotate the coil hub, slowly, counterclockwise, for 21/2 revolutions. This is the CENTER position.
    4. While maintaining the coil hub in the CENTER position, align the centered SIR coil with the horn tower and slide onto the steering shaft assembly.
6. If double wire harness strap is installed onto the wire harness assembly and column, you must route the wires up against the steering column. One wire harness strap will surround one lead from the coil to the steering column. The other wire harness strap will surround all leads to the steering column.

INFLATABLE RESTRAINT INSTRUMENT PANEL MODULE REPLACEMENT

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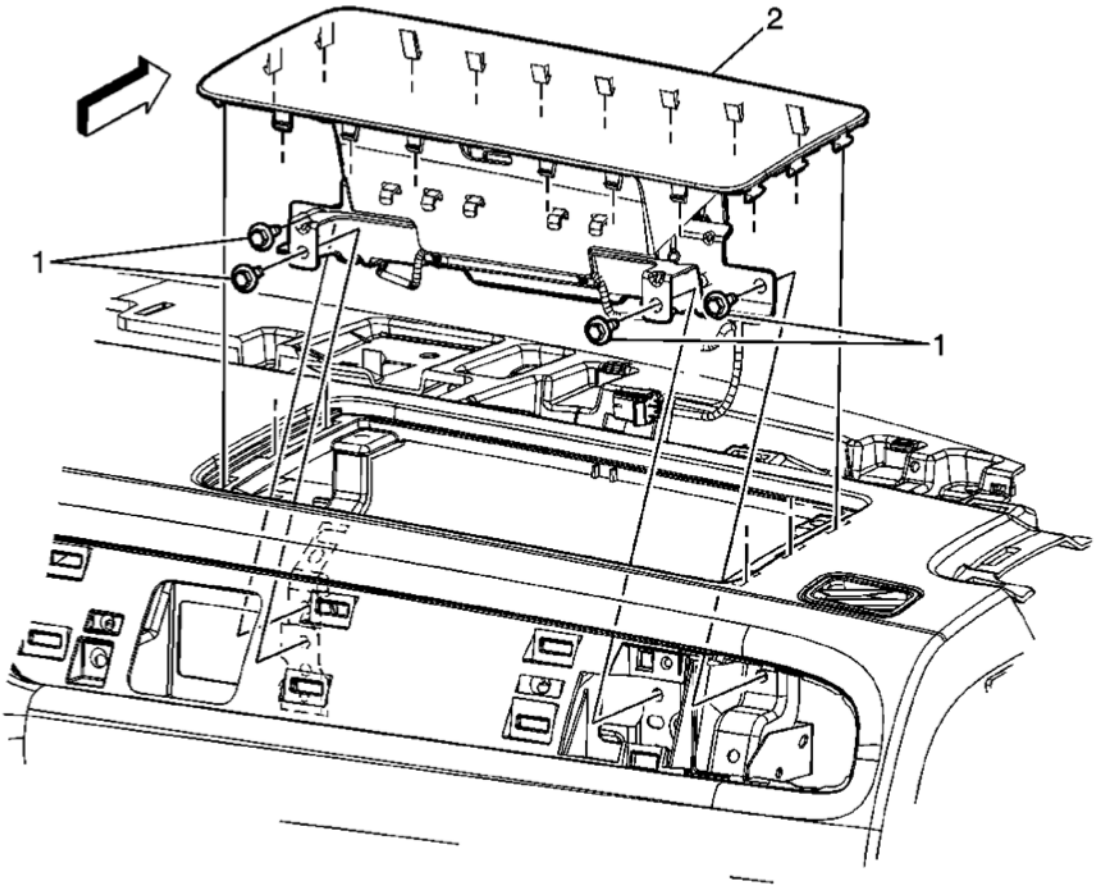


Fig. 53: View Of Instrument Panel Inflatable Restraint Module & Bolts
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Instrument Panel Module Replacement

Callout	Component Name
CAUTION: Refer to **SIR Inflator Module Handling and Storage Caution** . **CAUTION:** Refer to **SIR Caution** . **Preliminary Procedures** 1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**. 2. Remove instrument panel center trim panel. Refer to **Trim Panel Replacement - Instrument Panel (I/P) Center (Cadillac)** or **Trim Panel Replacement - Instrument Panel (I/P) Center (Except Cadillac)** .	
1	Instrument Panel Inflatable Restraint Module Bolt (Qty: 4)

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2	Instrument Panel Inflatable Restraint Module **Tip:** 1. Using a plastic flat-bladed tool, pull up on module to disengage retainers. 2. Disconnect the electrical connectors. 3. Fully deploy the module before disposal. If the module was replaced under warranty, fully deploy and dispose of the module after the required retention period. Refer to **Inflator Module Handling and Scrapping**.

INFLATABLE RESTRAINT SEAT POSITION SENSOR REPLACEMENT

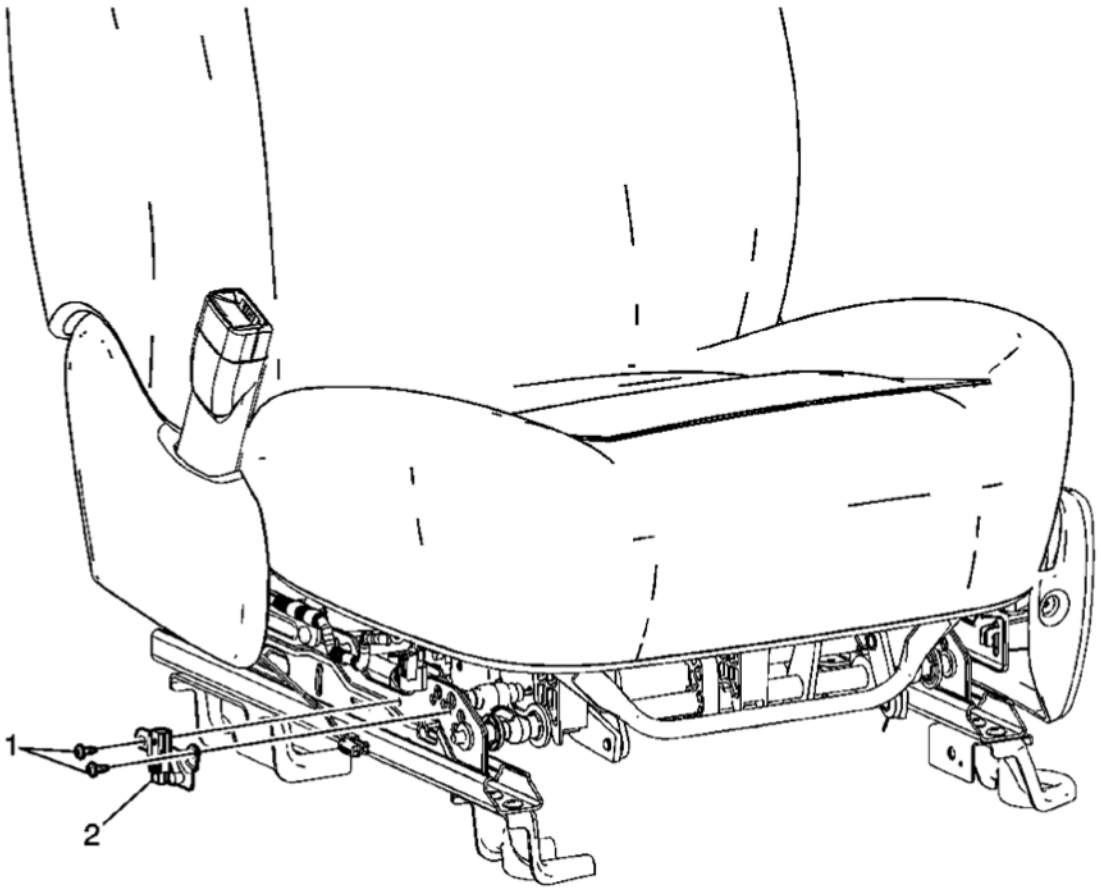


Fig. 54: View Of Inflatable Restraint Position Sensor Assembly & Screws
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Seat Position Sensor Replacement

Callout	Component Name
CAUTION: **Refer to SIR Caution .**	

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Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove the drivers seat. Refer to **Front Seat Replacement - Bucket** .

1	Inflatable Restraint Seat Position Sensor Screw (Qty: 2) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 3 N.m (25 lb in)
2	Inflatable Restraint Position Sensor Assembly **Tip:** Disconnect the electrical connector.

INFLATABLE RESTRAINT PASSENGER PRESENCE SYSTEM REPLACEMENT - FRONT

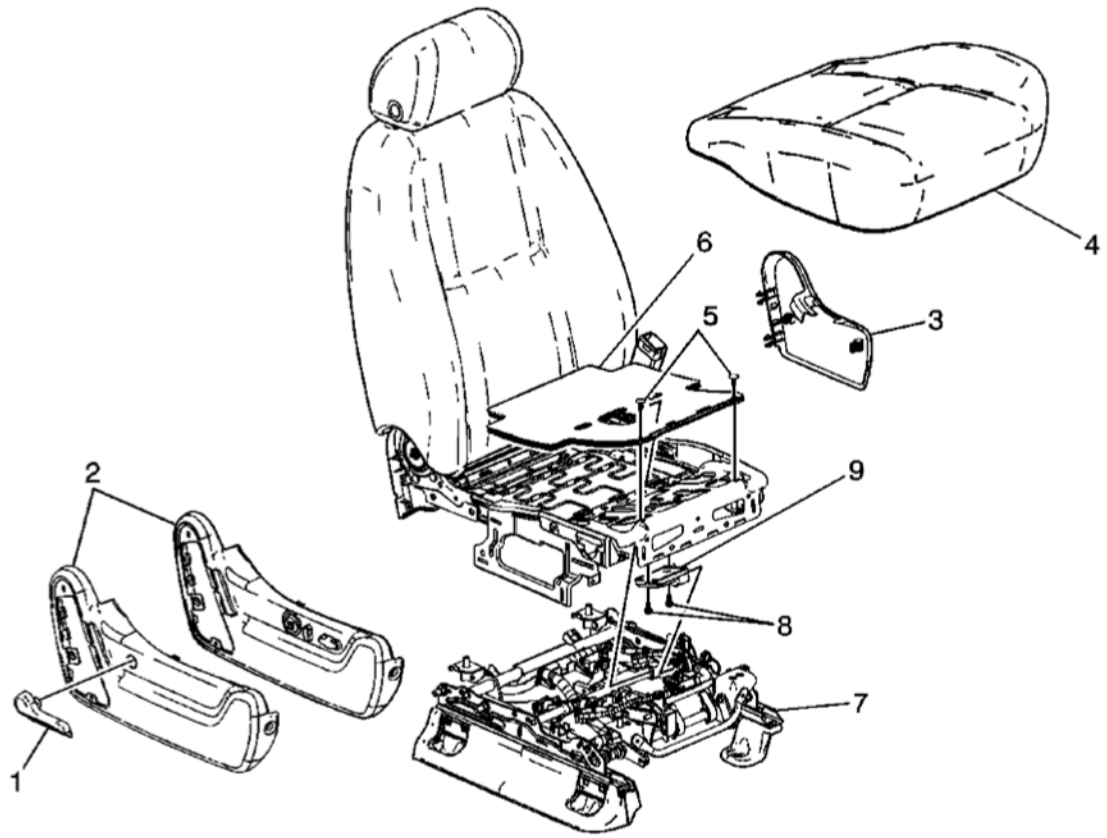


Fig. 55: View Of Passenger Presence System Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Passenger Presence System Replacement - Front

Callout	Component Name

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CAUTION:
Refer to SIR Caution .

Preliminary Procedure

1. Remove the front seat. Refer to **Front Seat Replacement - Bucket** .
2. Re-zero the inflatable restraint passenger presence system whenever the seat cushion or any component of the passenger presence system is removed. Refer to **Passenger Presence System Rezeroing**.

1	Front Seat Recliner Lever (If Equipped) **Tip:** Using a flat-bladed tool, push the retainer clip downward and pull outward to release the knob.
2	Front Seat Adjuster Outer Finish Cover Refer to **Seat Cushion Outer Trim Panel Replacement - Front Seat (Manual)** or **Seat Cushion Outer Trim Panel Replacement - Front Seat (Power)** .
3	Front Seat Adjuster Inner Finish Cover Refer to **Seat Cushion Inner Trim Panel Replacement - Front** .
4	Front Seat Cushion Cover and Pad **Tip:** 1. Disengage the j-channel retainers from the seat cushion frame. 2. Remove the seat cushion cover and pad from the seat cushion frame as an assembly.
5	Inflatable Restraint Front Passenger Presence Sensor Retainer (Qty: 2)
6	Inflatable Restraint Front Passenger Presence Sensor **Tip:** 1. Lay the seat on it's side. 2. Unhook connector from retainer on seat frame and push up through seat pan. 3. Disconnect and remove sensor.
7	Front Seat Adjuster Assembly Refer to **Front Seat Adjuster Replacement (Manual)** or **Front Seat Adjuster Replacement (Power)** .
8	Inflatable Restraint Front Passenger Presence Module Rivets (Qty: 2) **Tip:** Drill out the rivets to remove and install using new rivets.
9	Inflatable Restraint Front Passenger Presence Module

INFLATABLE RESTRAINT SIDE IMPACT MODULE REPLACEMENT - FRONT

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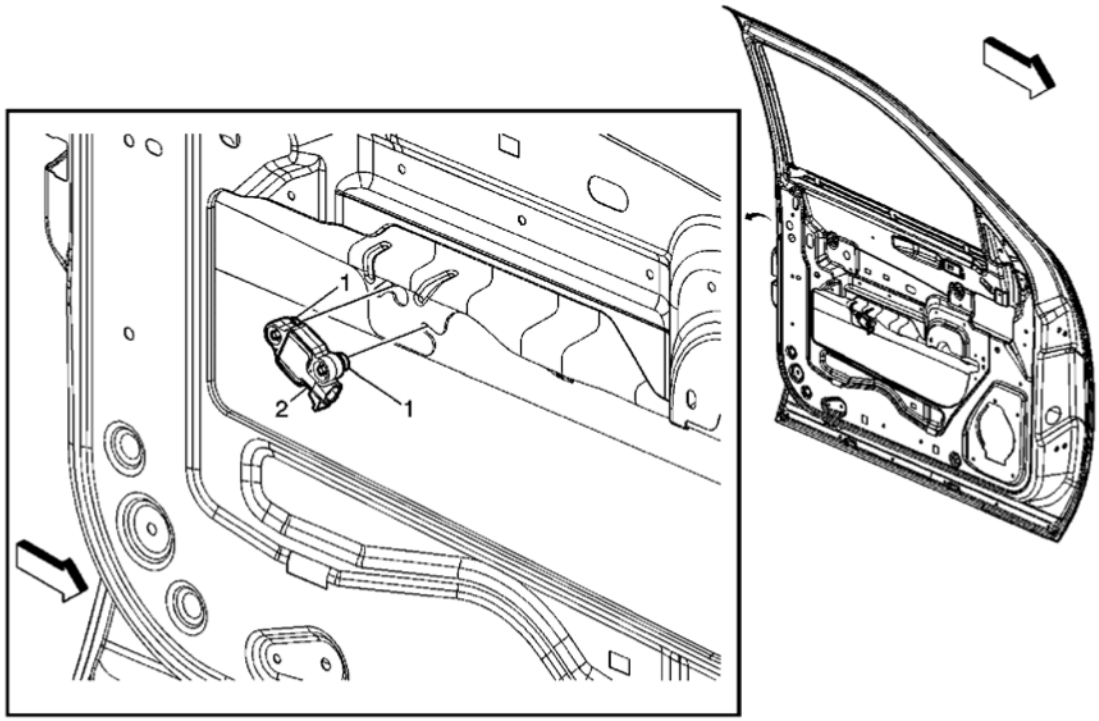


Fig. 56: View Of Inflatable Restraint Side Impact Sensor Module Assembly & Bolts
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Side Impact Module Replacement - Front

Callout	Component Name

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. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.

CAUTION:
Do not strike or jolt the inflatable restraint side impact sensor (SIS). Before applying power to the SIS make sure that it is securely fastened. Failure to observe the correct installation procedures could cause SIR deployment, personal injury, or unnecessary SIR system repairs.

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove upper front side door trim panel. Refer to **Trim Panel Replacement - Upper Extension (Escalade)** or **Trim Panel Replacement - Upper Extension (Tahoe/Yukon)** .
3. Remove front side door trim panel. Refer to **Front Side Door Trim Panel Replacement** .
4. Remove front side door water deflector. Refer to **Front Side Door Water Deflector Replacement** .

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1	Inflatable Restraint Side Impact Sensor Module Bolt (Qty: 2) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb ft) **Tip:** Loosen bolts and slide sensor out of key hole slots.
2	Inflatable Restraint Side Impact Sensor Module Assembly

INSTRUMENT PANEL INFLATABLE RESTRAINT MODULE INDICATOR REPLACEMENT (W/O U19)

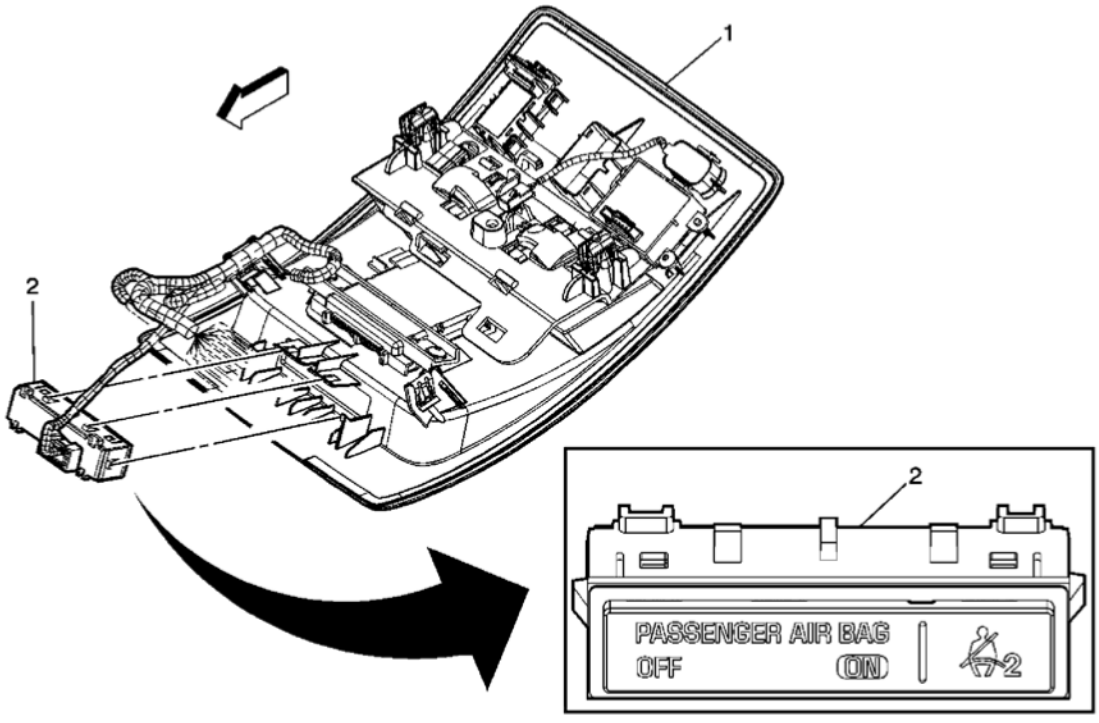


Fig. 57: View Of Instrument Panel Inflatable Restraint Module Indicator Assembly & Overhead Console Assembly
Courtesy of GENERAL MOTORS CORP.

Instrument Panel Inflatable Restraint Module Indicator Replacement (w/o U19)

Callout	Component Name
1	Overhead Console Assembly Refer to **Roof Console Replacement** .
2	Inflatable Restraint Instrument Panel Module indicator Assembly

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2	**Tip:** 1. Disconnect electrical connector. 2. Tabs on overhead console must be fully engaged with snap tab ramps on display to be fully secured.

INSTRUMENT PANEL INFLATABLE RESTRAINT MODULE INDICATOR REPLACEMENT (W/U19)

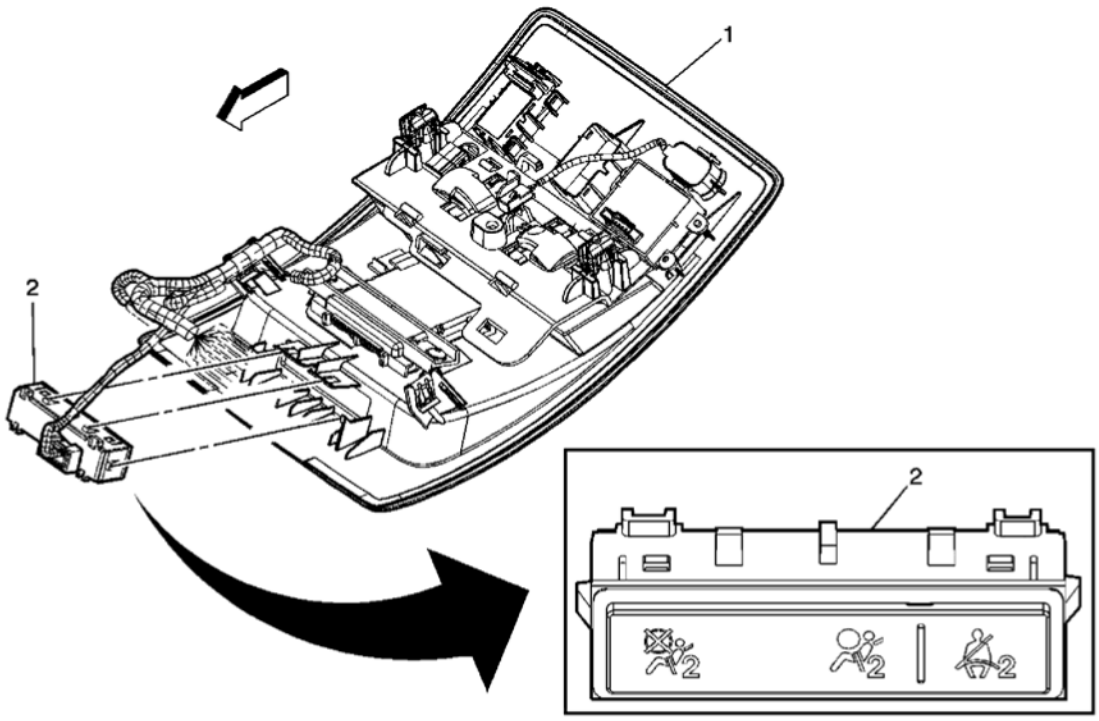


Fig. 58: View Of Instrument Panel Inflatable Restraint Module Indicator Assembly & Overhead Console Assembly
Courtesy of GENERAL MOTORS CORP.

Instrument Panel Inflatable Restraint Module Indicator Replacement (w/U19)

Callout	Component Name
1	Overhead Console Assembly Refer to **Roof Console Replacement** .
2	Inflatable Restraint Instrument Panel Module indicator Assembly **Tip:** 1. Disconnect electrical connector. 2. Tabs on overhead console must be fully engaged with snap tab ramps on display to be fully secured.

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INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (FRONT LH, SUBURBAN/YUKON XL)

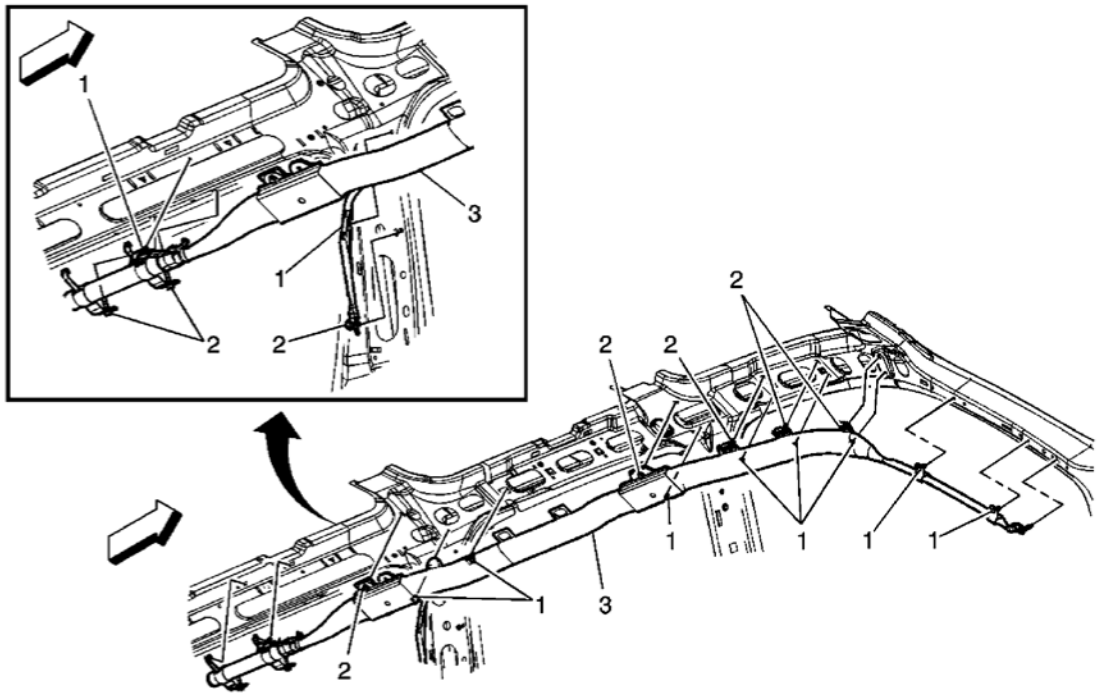


Fig. 59: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Front LH, Suburban/Yukon XL)

Callout	Component Name

CAUTION:
In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove windshield garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** .

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3. Remove upper center pillar trim panel. Refer to **Garnish Molding Replacement - Center Pillar Upper** .
4. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
5. Remove roof rail rear assist handle. Refer to **Roof Rail Rear Assist Handle Replacement** .
6. Remove coat hooks. Refer to **Coat Hook Replacement** .
7. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 8)
2	Inflatable Restraint Roof Rail Bolt (Qty: 8) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
3	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** **1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:**

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	1. Remove the roof rail assist handle bracket if installed. 2. Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter. 4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt. 5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket. 6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly. 7. Reinstall the module. Ensure the module does not get damaged. 8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing. 9. Hand start any other bolts that were removed. 10. Tighten the bolts to original specification.

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (FRONT LH, TAHOE/YUKON)

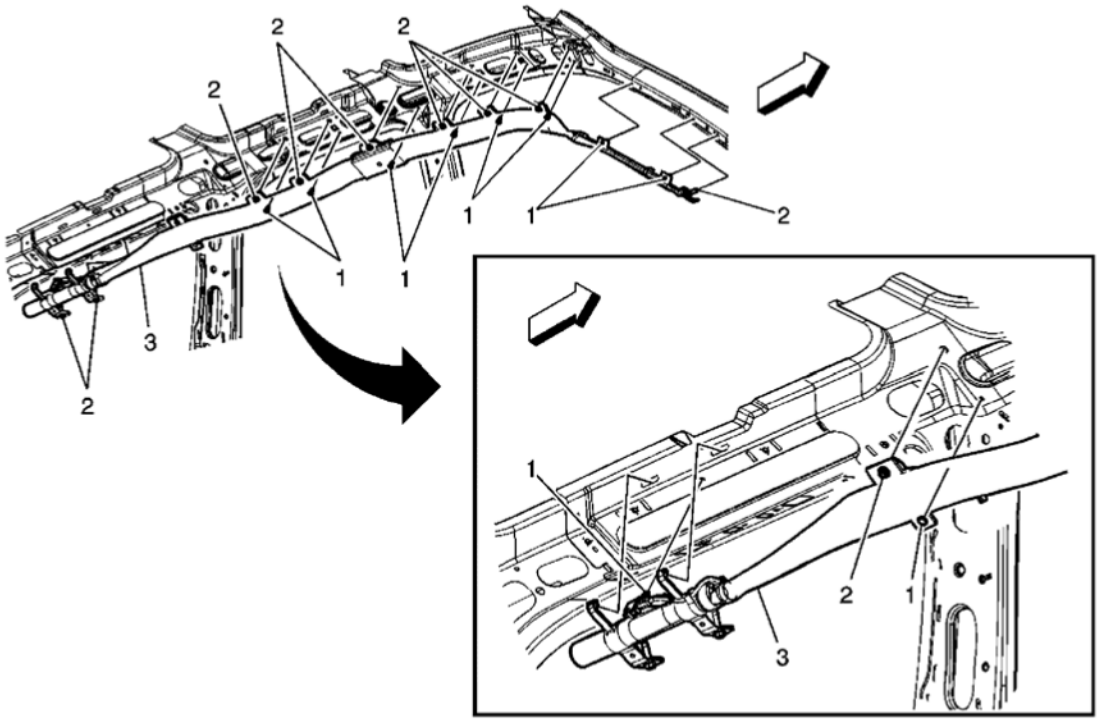


Fig. 60: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Front LH, Tahoe/Yukon)

Callout	Component Name
CAUTION:	

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In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove windshield garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** .
3. Remove upper center pillar trim panel. Refer to **Garnish Molding Replacement - Center Pillar Upper** .
4. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
5. Remove roof rail rear assist handle. Refer to **Roof Rail Rear Assist Handle Replacement** .
6. Remove coat hooks. Refer to **Coat Hook Replacement** .
7. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 10)
2	Inflatable Restraint Roof Rail Bolt (Qty: 10) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
	Inflatable Restraint Roof Rail Module Assembly **Tip:**

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	1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**.
3	**IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** **1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:** **1. Remove the roof rail assist handle bracket if installed.** **2. Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter.** **4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt.** **5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket.** **6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly.** **7. Reinstall the module. Ensure the module does not get damaged.** **8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing.** **9. Hand start any other bolts that were removed.** **10. Tighten the bolts to original specification.**

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (FRONT RH, SUBURBAN/YUKON XL)

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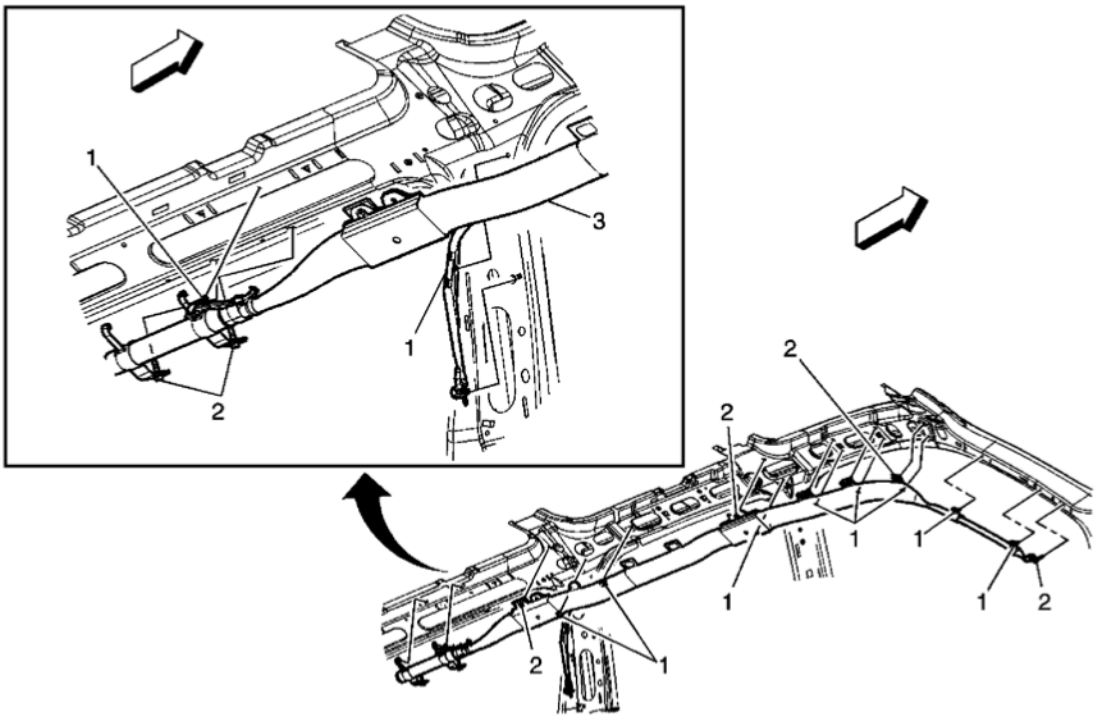


Fig. 61: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Front RH, Suburban/Yukon XL)

Callout	Component Name

CAUTION:
In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove windshield garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** .
3. Remove upper center pillar trim panel. Refer to **Garnish Molding Replacement - Center Pillar Upper** .

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4. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
5. Remove roof rail rear assist handle. Refer to **Roof Rail Rear Assist Handle Replacement** .
6. Remove coat hooks. Refer to **Coat Hook Replacement** .
7. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 6)
2	Inflatable Restraint Roof Rail Bolt (Qty: 6) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
3	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** **1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:** **1. Remove the roof rail assist handle bracket if installed.** **2. Drill out the slot at the location on roof rail assist handle bracket at the**

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	stripped weld-nut location to 8 mm (0.31 in) diameter. 4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt. 5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket. 6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly. 7. Reinstall the module. Ensure the module does not get damaged. 8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing. 9. Hand start any other bolts that were removed. 10. Tighten the bolts to original specification.

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (FRONT RH, TAHOE/YUKON)

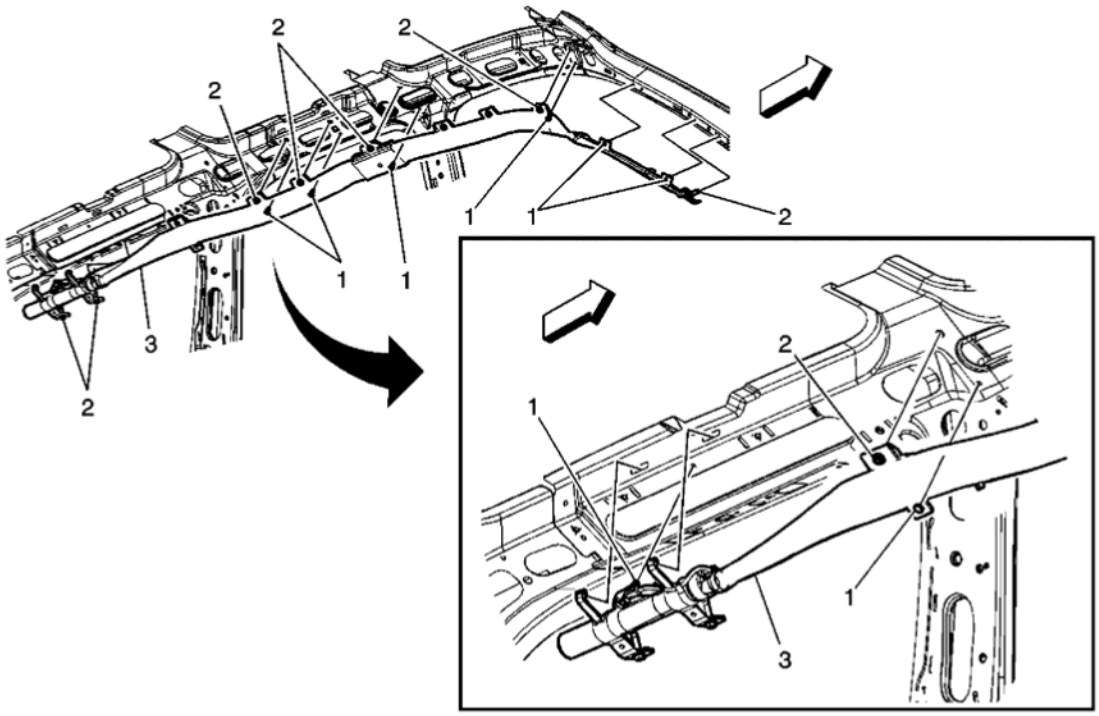


Fig. 62: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Front RH, Tahoe/Yukon)

Callout	Component Name
CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition	

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and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove windshield garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** .
3. Remove upper center pillar trim panel. Refer to **Garnish Molding Replacement - Center Pillar Upper** .
4. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
5. Remove roof rail rear assist handle. Refer to **Roof Rail Rear Assist Handle Replacement** .
6. Remove coat hooks. Refer to **Coat Hook Replacement** .
7. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 8)
2	Inflatable Restraint Roof Rail Bolt (Qty: 8) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer.

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3	2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** **1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:** **1. Remove the roof rail assist handle bracket if installed.** **2. Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter.** **4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt.** **5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket.** **6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly.** **7. Reinstall the module. Ensure the module does not get damaged.** **8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing.** **9. Hand start any other bolts that were removed.** **10. Tighten the bolts to original specification.**

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (REAR LH, AVALANCHE/ESCALADE EXT)

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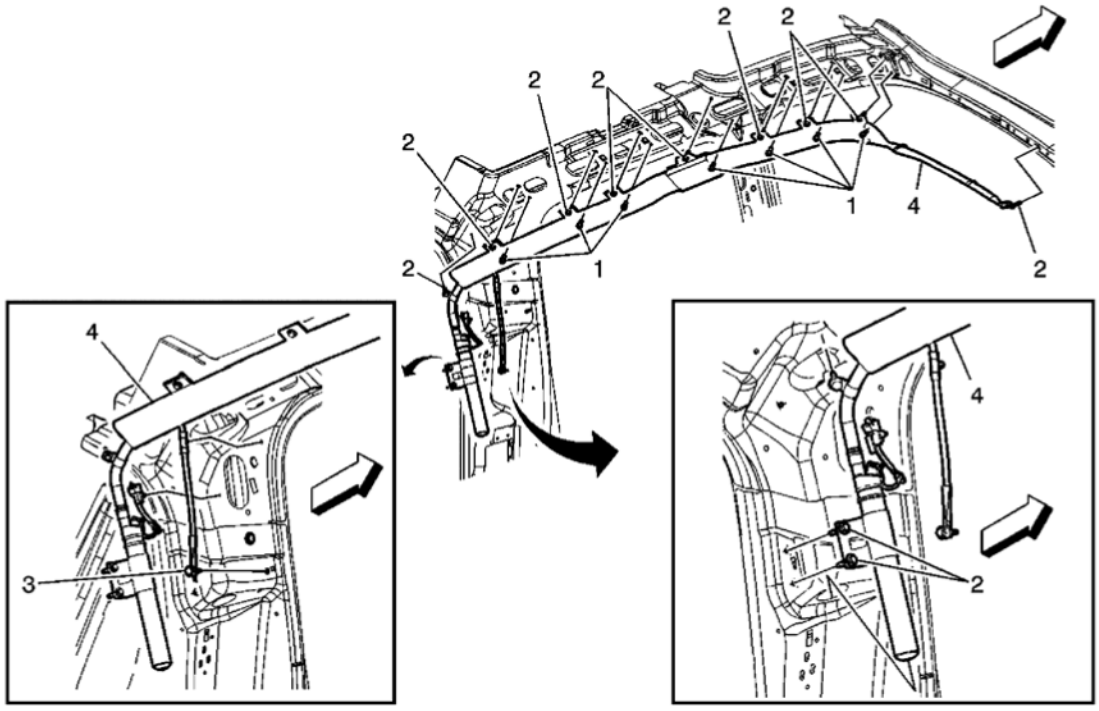


Fig. 63: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Rear LH, Avalanche/Escalade EXT)

Callout	Component Name

CAUTION:
In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove windshield garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** .
3. Remove upper center pillar trim panel. Refer to **Garnish Molding Replacement - Center Pillar Upper** .

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4. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
5. Remove roof rail rear assist handle. Refer to **Roof Rail Rear Assist Handle Replacement** .
6. Remove coat hooks. Refer to **Coat Hook Replacement** .
7. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 7)
2	Inflatable Restraint Roof Rail Bolt (Qty: 11) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb ft)
3	Inflatable Restraint Roof Rail Screw **Tighten:** 2 N.m (18 lb in)
4	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** 1. **Remove the current M-6 bolt.** 2. **Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.**

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	3. If location is at second row roof rail assist handle bracket attachments: 1. Remove the roof rail assist handle bracket if installed. 2. Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter. 4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt. 5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket. 6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly. 7. Reinstall the module. Ensure the module does not get damaged. 8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing. 9. Hand start any other bolts that were removed. 10. Tighten the bolts to original specification.

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (REAR LH, SUBURBAN/YUKON XL)

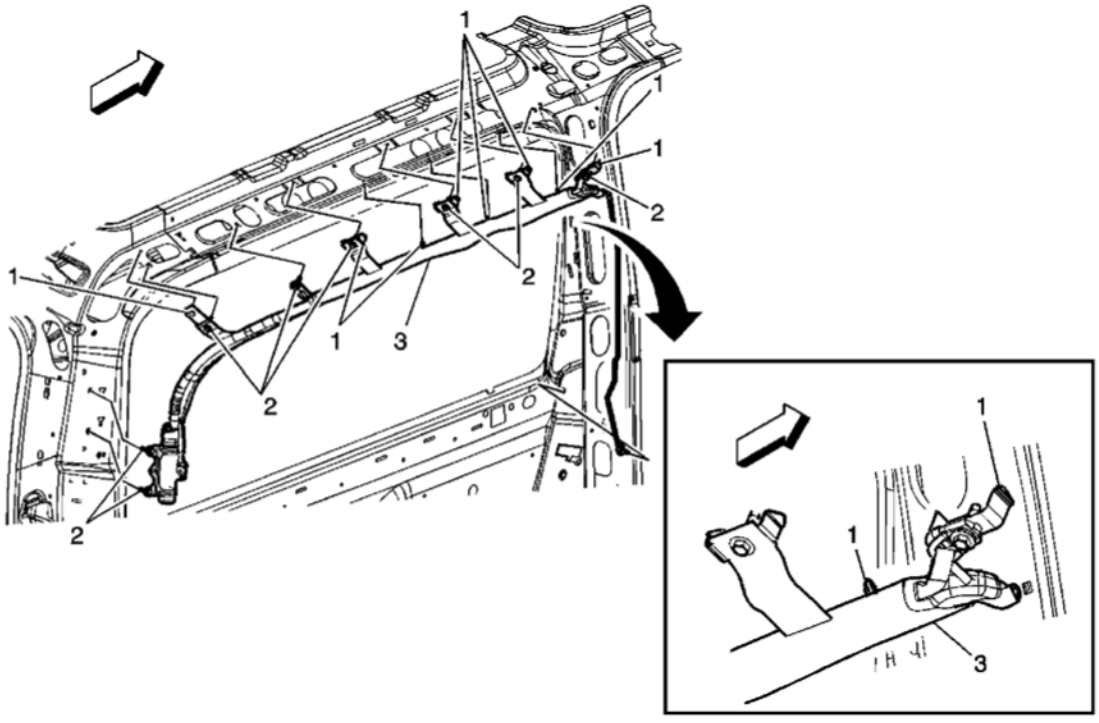


Fig. 64: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Rear LH, Suburban/Yukon XL)

Callout	Component Name

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CAUTION:
In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
3. Remove body rear corner upper garnish molding. Refer to **Garnish Molding Replacement - Rear Corner (Tahoe/Suburban)** .
4. Remove coat hooks. Refer to **Coat Hook Replacement** .
5. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 8)
2	Inflatable Restraint Roof Rail Bolt (Qty: 9) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer.

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	2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:**
3	**1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:** **1. Remove the roof rail assist handle bracket if installed.** **2. Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter.** **4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt.** **5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket.** **6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly.** **7. Reinstall the module. Ensure the module does not get damaged.** **8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing.** **9. Hand start any other bolts that were removed.** **10. Tighten the bolts to original specification.**

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (REAR LH, TAHOE/YUKON)

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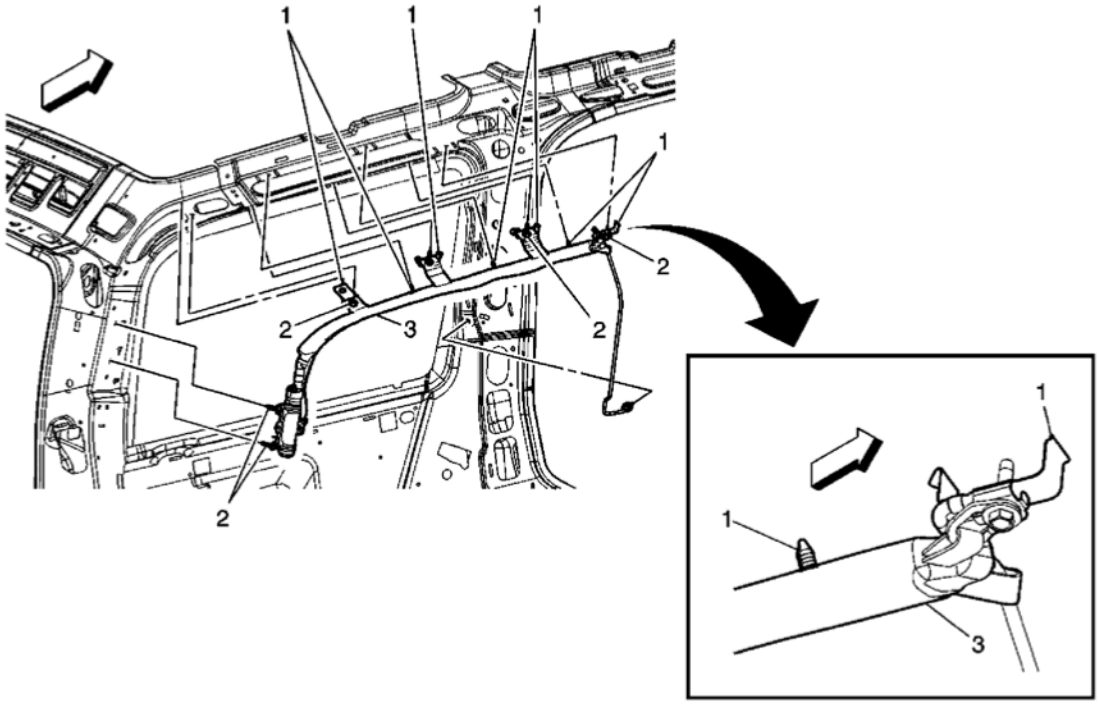


Fig. 65: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Rear LH, Tahoe/Yukon)

Callout	Component Name

CAUTION:
In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
3. Remove body rear corner upper garnish molding. Refer to **Garnish Molding Replacement - Rear**

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Corner (Tahoe/Suburban) .

4. Remove coat hooks. Refer to **Coat Hook Replacement** .
5. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 7)
2	Inflatable Restraint Roof Rail Bolt (Qty: 7) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
3	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** **1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:** **1. Remove the roof rail assist handle bracket if installed.** **2. Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter.** **4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt.** **5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket.**

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	6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly. 7. Reinstall the module. Ensure the module does not get damaged. 8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing. 9. Hand start any other bolts that were removed. 10. Tighten the bolts to original specification.

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (REAR RH, AVALANCHE/ESCALADE EXT)

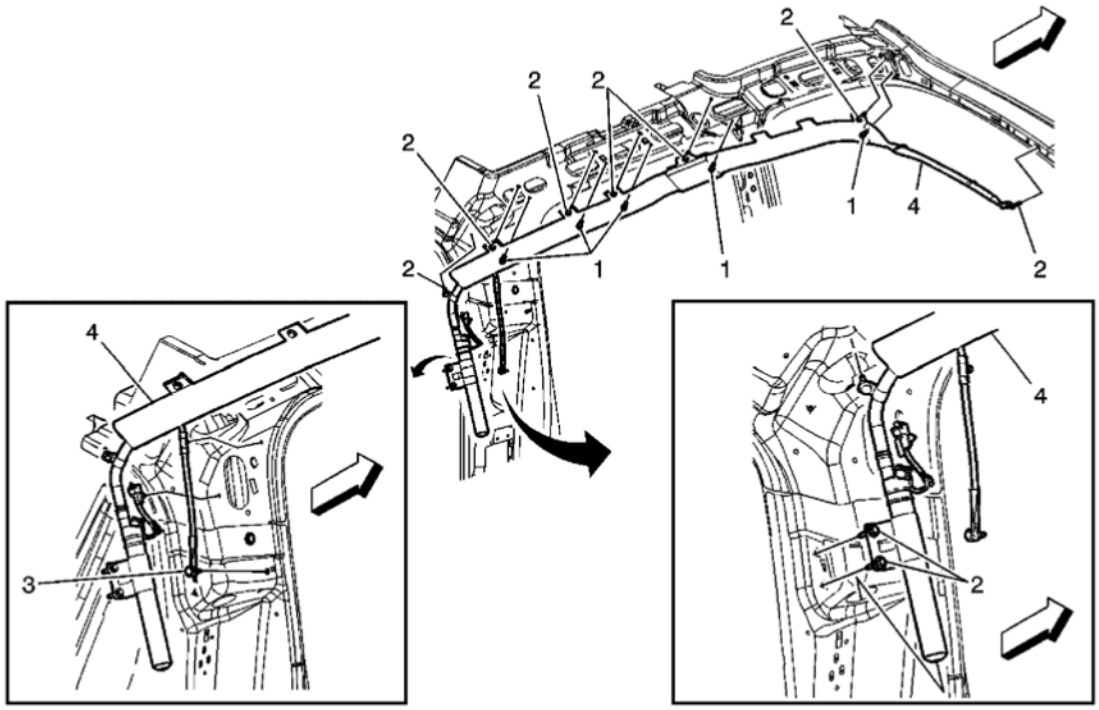


Fig. 66: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Rear RH, Avalanche/Escalade EXT)

Callout	Component Name
CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS. **CAUTION:** Refer to SIR Caution .	

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CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove windshield garnish molding. Refer to **Garnish Molding Replacement - Windshield Pillar** .
3. Remove upper center pillar trim panel. Refer to **Garnish Molding Replacement - Center Pillar Upper** .
4. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
5. Remove roof rail rear assist handle. Refer to **Roof Rail Rear Assist Handle Replacement** .
6. Remove coat hooks. Refer to **Coat Hook Replacement** .
7. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 5)
2	Inflatable Restraint Roof Rail Bolt (Qty: 9) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb ft)
3	Inflatable Restraint Roof Rail Screw **Tighten:** 2 N.m (18 lb in)
	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors.

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4	3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** **1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:** **1. Remove the roof rail assist handle bracket if installed.** **2. Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter.** **4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt.** **5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket.** **6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly.** **7. Reinstall the module. Ensure the module does not get damaged.** **8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing.** **9. Hand start any other bolts that were removed.** **10. Tighten the bolts to original specification.**

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (REAR RH, SUBURBAN/YUKON XL)

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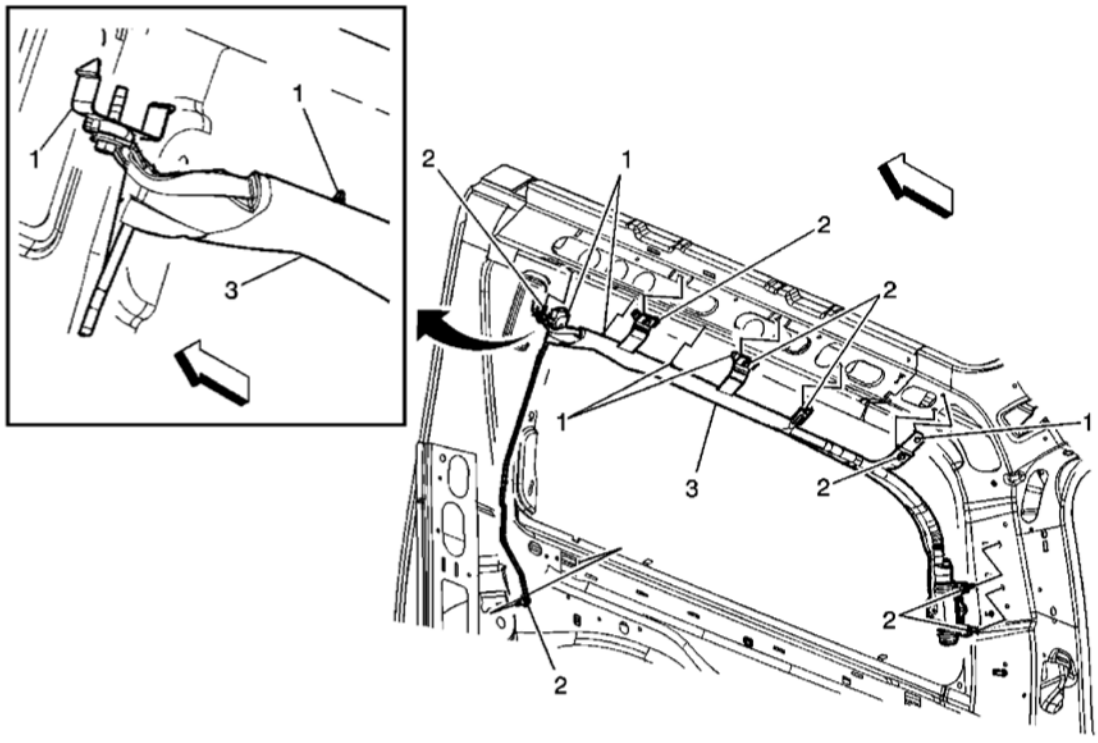


Fig. 67: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Rear RH, Suburban/Yukon XL)

Callout	Component Name

CAUTION:
In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.

CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .

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3. Remove body rear corner upper garnish molding. Refer to **Garnish Molding Replacement - Rear Corner (Tahoe/Suburban)** .
4. Remove coat hooks. Refer to **Coat Hook Replacement** .
5. Remove body side right rear quarter trim panel. Refer to **Trim Panel Replacement - Rear Quarter - Right (Extended Wheelbase)** or **Trim Panel Replacement - Rear Quarter - Right (Standard Wheelbase)** .
6. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 6)
2	Inflatable Restraint Roof Rail Bolt (Qty: 8) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
3	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** **1. Remove the current M-6 bolt.** **2. Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** **3. If location is at second row roof rail assist handle bracket attachments:** **1. Remove the roof rail assist handle bracket if installed.** **2. Drill out the slot at the location on roof rail assist handle bracket at the**

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	stripped weld-nut location to 8 mm (0.31 in) diameter. 4. Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt. 5. If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket. 6. If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly. 7. Reinstall the module. Ensure the module does not get damaged. 8. Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing. 9. Hand start any other bolts that were removed. 10. Tighten the bolts to original specification.

INFLATABLE RESTRAINT ROOF RAIL MODULE REPLACEMENT (REAR RH, TAHOE/YUKON)

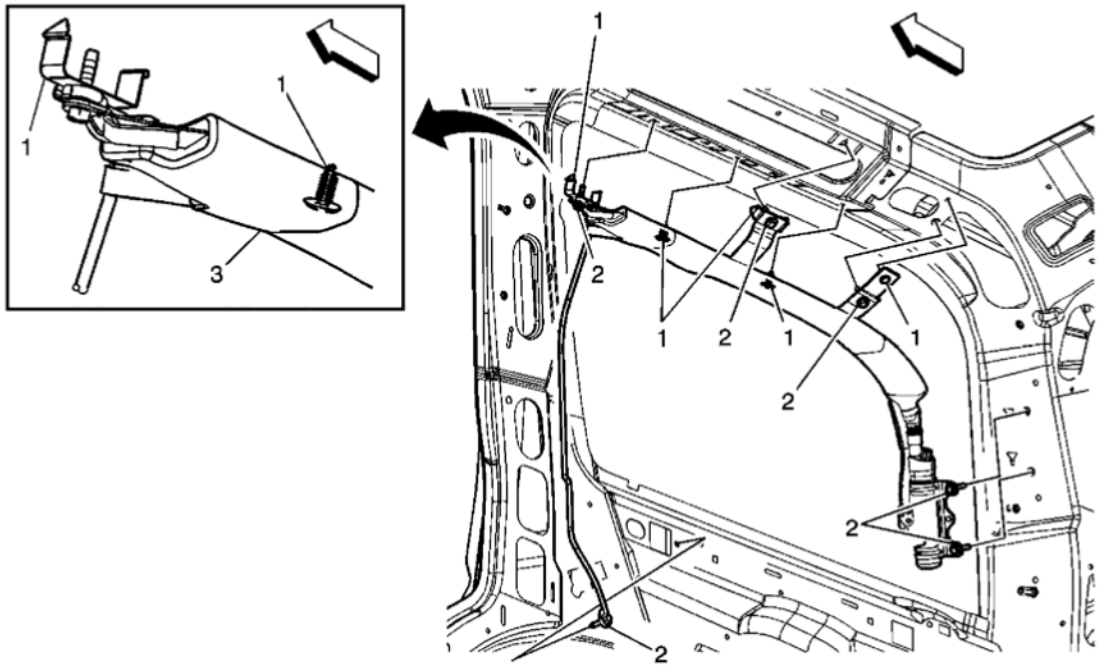


Fig. 68: View Of Inflatable Restraint Roof Rail Module Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Roof Rail Module Replacement (Rear RH, Tahoe/Yukon)

Callout	Component Name
CAUTION: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS.	

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CAUTION:
Refer to SIR Caution .

CAUTION:
Refer to SIR Inflator Module Handling and Storage Caution .

Preliminary Procedures

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove body lock pillar garnish molding. Refer to **Body Lock Pillar Garnish Molding Replacement (Avalanche/Escalade EXT)** or **Body Lock Pillar Garnish Molding Replacement (Suburban/Yukon XL/Escalade ESV)** or **Body Lock Pillar Garnish Molding Replacement (Tahoe/Yukon/Escalade)** .
3. Remove body rear corner upper garnish molding. Refer to **Garnish Molding Replacement - Rear Corner (Tahoe/Suburban)** .
4. Remove coat hooks. Refer to **Coat Hook Replacement** .
5. Remove body side right rear quarter trim panel. Refer to **Trim Panel Replacement - Rear Quarter - Right (Extended Wheelbase)** or **Trim Panel Replacement - Rear Quarter - Right (Standard Wheelbase)** .
6. Lower side of headliner. Refer to **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (Avalanche w/CJ2 w/o CF5 and U42)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/CJ3)** or **Headlining Trim Panel Replacement (Avalanche/Escalade EXT w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (LWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (LWB w/CF5 w/o U42)** or **Headlining Trim Panel Replacement (LWB w/CJ2)** or **Headlining Trim Panel Replacement (LWB w/CJ3)** or **Headlining Trim Panel Replacement (LWB w/U42 w/o CF5)** or **Headlining Trim Panel Replacement (SWB w/CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/CF5 w/oU42)** or **Headlining Trim Panel Replacement (SWB w/CJ3)** or **Headlining Trim Panel Replacement (SWB w/o CF5 and U42)** or **Headlining Trim Panel Replacement (SWB w/U42 w/o CF5)** .

1	Inflatable Restraint Roof Rail Retainer (Qty: 7)
2	Inflatable Restraint Roof Rail Bolt (Qty: 7) **NOTE:** **Refer to Fastener Notice .** **Tighten:** 9 N.m (80 lb in)
	Inflatable Restraint Roof Rail Module Assembly **Tip:** 1. Release the connector position assurance (CPA) retainer. 2. Disconnect the electrical connectors. 3. Ensure roof rail inflator has been fully deployed before disposal. Refer to **Inflator**

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3	**Module Handling and Scrapping**. **IMPORTANT:** **The following repair procedure should be used if an inflatable restraint roof rail module M-6 nut is stripped:** 1. **Remove the current M-6 bolt.** 2. **Retain the module out of the way if necessary. Ensure that the module does not get damaged. Remove any other module bolts if installed, to help retain the module out of the way if necessary.** 3. **If location is at second row roof rail assist handle bracket attachments:** 1. **Remove the roof rail assist handle bracket if installed.** 2. **Drill out the slot at the location on roof rail assist handle bracket at the stripped weld-nut location to 8 mm (0.31 in) diameter.** 4. **Hand tap (thread) stripped weld-nut to M7 X 1.00 thread for M-7 replacement bolt.** 5. **If location is at second row roof rail assist handle bracket attachments, reinstall the roof rail assist handle bracket.** 6. **If present, remove the M-6 bolt and plastic prefixation bracket from the module assembly.** 7. **Reinstall the module. Ensure the module does not get damaged.** 8. **Hand start the replacement M-7 bolt P/N 11609538. For cushion attachments, ensure the bolt goes through both layers of the attachment webbing.** 9. **Hand start any other bolts that were removed.** 10. **Tighten the bolts to original specification.**

SEAT BELT RETRACTOR PRETENSIONER REPLACEMENT - FRONT

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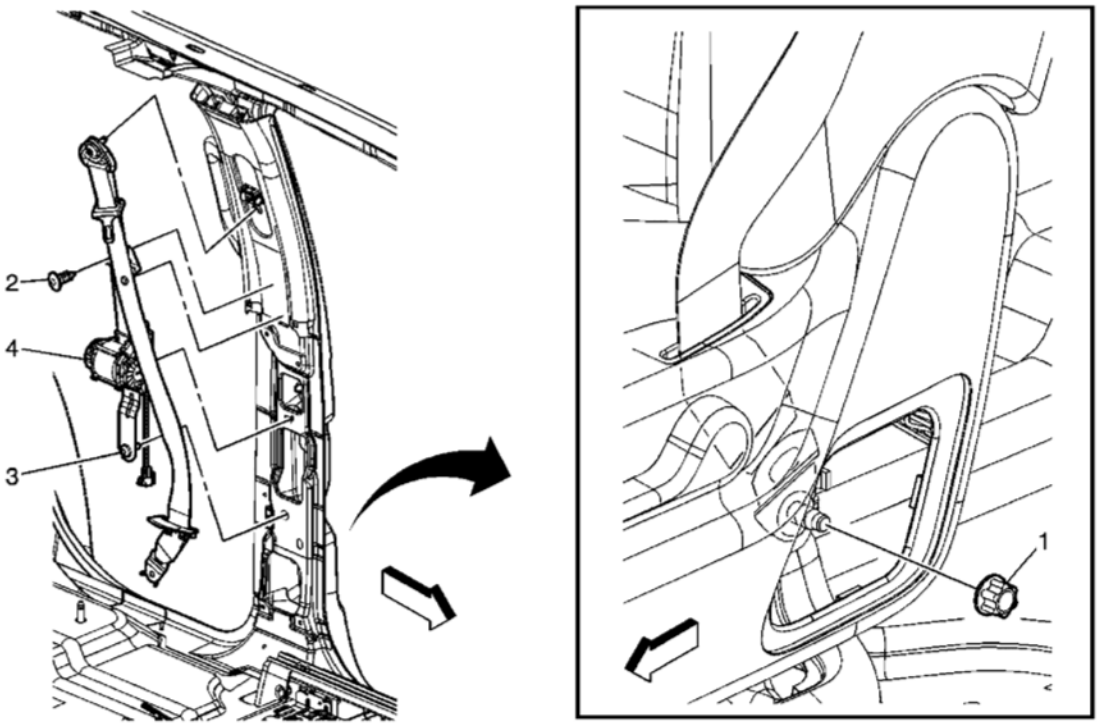


Fig. 69: View Of Front Seat Shoulder Belt Retractor Assembly & Components
Courtesy of GENERAL MOTORS CORP.

Seat Belt Retractor Pretensioner Replacement - Front

Callout	Component Name

CAUTION:
Refer to SIR Caution .

CAUTION:
In order to prevent accidental deployment and the risk of personal injury, do not dispose of an undeployed inflatable restraint seat belt pretensioner as normal shop waste. Undeployed seat belt pretensioners contain substances that could cause severe illness or personal injury if their sealed containers are damaged during disposal. Use the following deployment procedures to safely dispose of an undeployed seat belt pretensioner. Failure to observe the following disposal methods may be a violation of federal, state, or local laws.

Preliminary Procedure

1. Disable the supplemental inflatable restraint (SIR). Refer to **SIR Disabling and Enabling**.
2. Remove front seat shoulder belt adjuster cover. Refer to **Seat Belt Height Adjuster Knob Replacement - Front** .
3. Remove front door sill plate. Refer to **Front Side Door Sill Plate Replacement** .
4. Remove rear door sill plate. Refer to **Rear Side Door Sill Plate Replacement (Extended**

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	Wheelbase) or **Rear Side Door Sill Plate Replacement (Standard Wheelbase)** . 5. Remove center pillar lower garnish molding. Refer to **Garnish Molding Replacement - Center Pillar Lower** .
1	Front Seat Shoulder Belt Anchor Plate Nut **NOTE:** **Refer to Fastener Notice .** **Tighten:** 43 N.m (32 lb ft)
2	Front Seat Shoulder Belt Guide Retainer
3	Front Seat Shoulder Belt Retractor Bolt **Tighten:** 43 N.m (32 lb ft) **Tip:** 1. Disconnect electrical connector. 2. Fully deploy the module before disposal. If the module was replaced under warranty, fully deploy and dispose of the module after the required retention period. Refer to **Pretensioner Handling and Scrapping**.
4	Front Seat Shoulder Belt Retractor Assembly

REPAIRS AND INSPECTIONS REQUIRED AFTER A COLLISION

Accident With or Without Inflator Module Deployment - Component Inspections

CAUTION: Proper operation of the SIR sensing system requires that any repairs to the vehicle structure return the vehicle structure to the original production configuration. Not properly repairing the vehicle structure could cause non-deployment in a collision or deployment for conditions less severe than intended.

After any collision, inspect the following components as indicated. If you detect any damage, replace the component. If you detect any damage to the mounting points or mounting hardware, repair or replace the mounting points and mounting hardware as needed.

- The steering column-Perform the steering column accident damage checking procedures. Refer to **Steering Column Accident Damage Inspection** .
- The instrument panel (I/P) knee bolsters and mounting points-Inspect the knee bolsters for bending, twisting, buckling, or any other type of damage.
- The I/P brackets, braces, etc.-Inspect for bending, twisting, buckling, or any other type of damage.
- The seat belts-Perform the seat belt operational and functional checks. Refer to **Operational and Functional Checks** .

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- The I/P mounting points and brackets-Inspect for bending, twisting, buckling, or any other type of damage.
- The roof rail and roof rail module mounting points-Inspect for bending, twisting, buckling, or any other type of damage.
- The seats and seat mounting points-Inspect for bending, twisting, buckling, or any other type of damage.
- Passenger seat bottom equipped with Passenger Presence System (PPS)-Check for any DTCs or problems that may cause the PPS not to function properly.

Accident With Frontal Air Bag Deployment - Component Replacement and Inspections

After a collision involving air bag deployment, replace the following components. If you detect any damage, replace the component. If you detect any damage to the mounting points or mounting hardware, repair or replace the mounting points and mounting hardware as needed.

IMPORTANT: The front passenger seat is equipped with a PPS, which detects an occupant. If the requirements for disabling the I/P air bag are met then the PPS will communicate with the SDM to disable/turn off the I/P air bag, even in a accident. For more information on the PPS refer to SIR System Description and Operation.

- Inflatable restraint front end sensors
- Inflatable restraint I/P module, if deployed and after performing the necessary inspections listed above
- Inflatable restraint sensing and diagnostic module (SDM)
- Inflatable restraint steering wheel module
- Inflatable restraint steering wheel module coil
- Seat belt pretensioners

Perform additional inspections on the following components:

- Steering wheel module coil and the coil wiring pigtail-Inspect for melting, scorching, or other damage due to excessive heat.
- Mounting points or mounting hardware for the I/P module, steering wheel module, SDM, front end sensors, seat belt pretensioners, and vehicle rollover sensor-Inspect for any damage and repair or replace each component as needed.
- Passenger Presence System (PPS) for damage to the wiring or pressure system

Accident With Side Air Bag Deployment - Component Replacement and Inspections

After a collision involving side air bag deployment, replace the following components:

- Inflatable restraint roof rail module, on the side of the impact.
- Inflatable restraint side impact sensors (SIS) (front/rear), on the side of the impact
- Inflatable restraint SDM

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- Seat belt pretensioner, on the side of impact.

Perform additional inspections on the following components:

- Mounting points or mounting hardware for the SIS, roof rail module (left/right), and seat belt pretensioner on the side of impact-Inspect for any damage and repair or replace each component as needed.
- Mounting points or mounting hardware for the SDM and vehicle rollover sensor-Inspect for any damage and repair or replace each component as needed.

Sensor Replacement Guidelines

The SIR/side air bag sensor replacement policy requires replacing sensors in the area of accident damage. The area of accident damage is defined as the portion of the vehicle which is crushed, bent, or damaged due to a collision. An example of this would be a moderate collision where the front of the vehicle impacts a tree, if the vehicle has an SIR sensor mounted forward of the radiator, replace the SIR sensor.

- Replace the sensor whether or not the air bags have deployed.
- Replace the sensor even if the sensor appears to be undamaged.

Sensor damage which is not visible, such as slight bending of the mounting bracket or cuts in the wire insulation, can cause improper operation of the SIR/side air bag sensing system. Do not try to determine whether the sensor is undamaged. Replace the sensor. Also, if you follow a diagnostic trouble code (DTC) table and a malfunctioning sensor is indicated, replace the sensor.

INFLATOR MODULE HANDLING AND SCRAPPING

Live and Undeployed Inflator Module

CAUTION: Refer to SIR Inflator Module Handling and Storage Caution .

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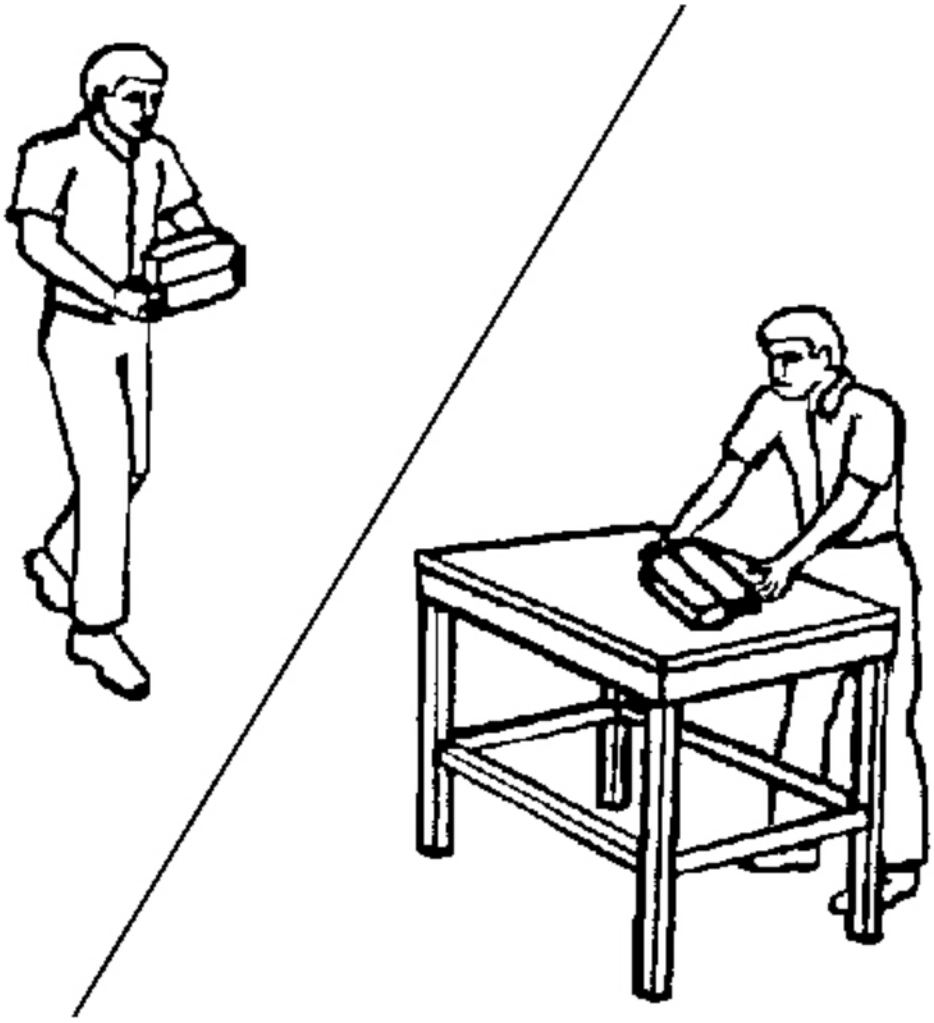


Fig. 70: View Of Proper Handling Of Undeployed Inflator Module
Courtesy of GENERAL MOTORS CORP.

Take special care when handling or storing an undeployed inflator module. An inflator module deployment produces a rapid generation of gas. This may cause the inflator module, or an object in front of the inflator module, to project through the air in the event of an unlikely deployment.

Dual Stage Inflator Module

Dual stage inflator modules have 2 deployment stages. If stage 1 was used to deploy a dual stage inflator

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module, stage 2 may still be active. Therefore, a deployed dual stage inflator module must be treated as an active module. If disposal of a dual stage module is required, both deployment loops must be energized to deploy the air bag.

Scrapping Procedure

During the course of a vehicles useful life, certain situations may arise which will require the disposal of a live and undeployed inflator module. Do NOT dispose a live and undeployed inflator module through normal disposal channels until the inflator module has been deployed.

Do not deploy the inflator module in the following situations:

- After replacement of an inflator module under warranty - the inflator module may need to be returned undeployed to the manufacturer.
- If the vehicle is the subject of a Product Liability report, GM-1241, related to the SIR system and is subject to a preliminary investigation - do NOT alter the SIR system in any manner.
- If the vehicle is involved in a campaign affecting the inflator modules - follow the instructions in the Campaign Service Bulletin for proper SIR handling procedures.

Deployment Procedures

You can deploy the inflator module either inside or outside of the vehicle. The method used depends upon the final disposition of the vehicle. Review the following procedures in order to determine which will work best in a given situation:

Deployment Outside Vehicle - Steering Wheel Module, I/P Module, and Roof Rail Module

Deploy the inflator module outside of the vehicle when the vehicle will be returned to service. Situations that require deployment outside of the vehicle include the following:

- Using the SIR diagnostics, you determine that the inflator module is malfunctioning.
- The inflator module is cosmetically damaged, scratched, or ripped.
- The inflator module pigtail is damaged.
- The inflator module connector is damaged.
- The inflator module connector terminals are damaged.

Deployment and disposal of a malfunctioning inflator module is subject to any required retention period.

CAUTION: In order to prevent accidental deployment and the risk of personal injury, do not dispose of an undeployed inflator module as normal shop waste. Undeployed inflator modules contain substances that could cause severe illness or personal injury if their sealed containers are damaged during disposal. Use the following deployment procedures to safely dispose of an undeployed inflator module. Failure to observe the following disposal methods may be a violation of federal, state, or local laws.

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Tools Required

- **J 39401-B** SIR Deployment Fixture. See **Special Tools**.
- **J 38826** SIR Deployment Harness. See **Special Tools**.
- An appropriate pigtail adapter

1. Turn OFF the ignition.
2. Remove the ignition key.
3. Put on safety glasses.
4. Remove the inflator module.
    - If you are removing the steering wheel module, refer to **Inflatable Restraint Steering Wheel Module Replacement**.
    - If you are removing the I/P module, refer to **Inflatable Restraint Instrument Panel Module Replacement**.
    - If you are removing a roof rail module, refer to **Inflatable Restraint Roof Rail Module Replacement (Front LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Tahoe/Yukon)**.

CAUTION: Refer to SIR Inflator Module Handling and Storage Caution .

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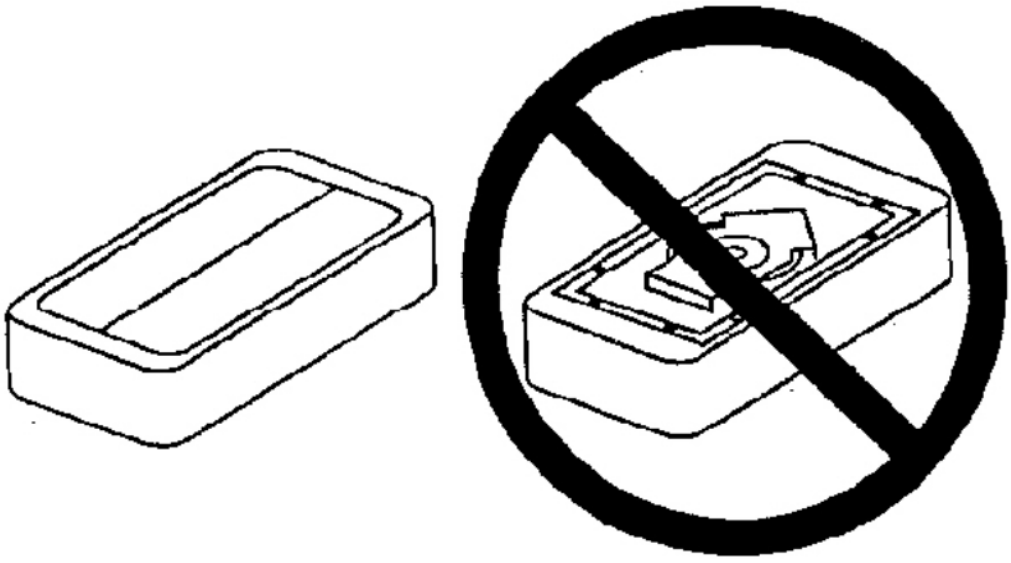


Fig. 71: Illustrating Proper Storage Of Inflator Module
Courtesy of GENERAL MOTORS CORP.

5. Place the inflator module on a work bench, with the vinyl trim cover facing up and away from the surface.

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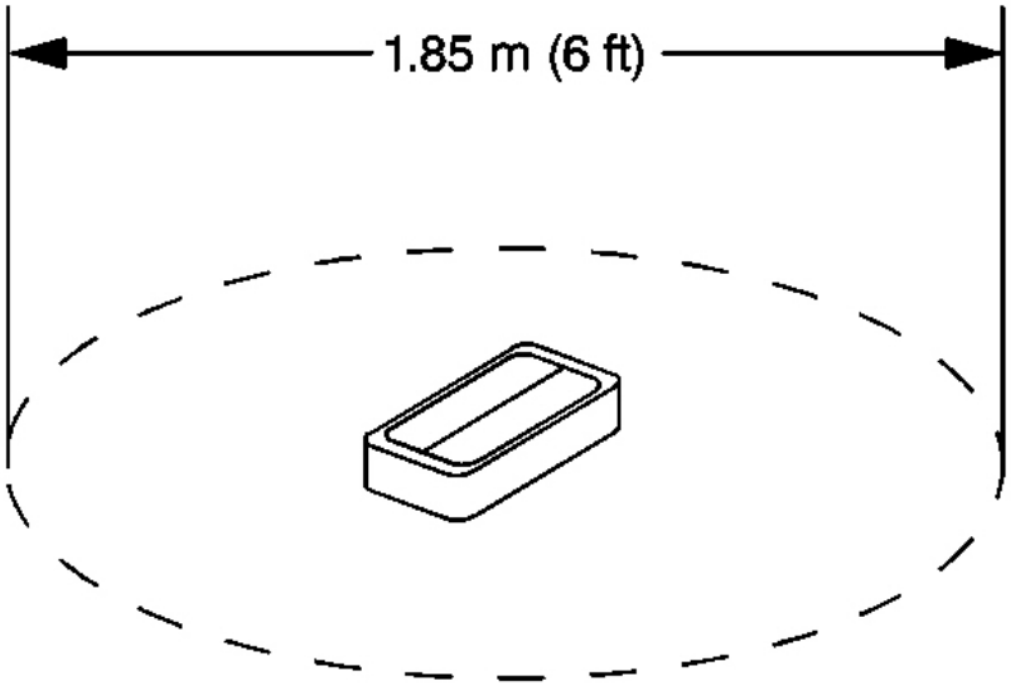


Fig. 72: Clearance For Deployment Of Inflator Module
Courtesy of GENERAL MOTORS CORP.

6. Clear a space on the ground about 1.85 m (6 ft) in diameter for deployment of the inflator module or deployment fixture. If possible, use a paved, outdoor location free of activity. Otherwise, use a space free of activity on the shop floor. Ensure you have sufficient ventilation.
7. Clear the area of loose or flammable objects.

IMPORTANT: Dual stage deployments are only used in steering wheel and I/P inflator modules. If stage 1 was used to deploy a dual stage inflator module, stage 2 may still be active. If disposal of a dual stage module is required, both deployment loops must be energized to deploy the air bag.

8. If you are deploying a steering wheel inflator module, place the inflator module in the center of the space.

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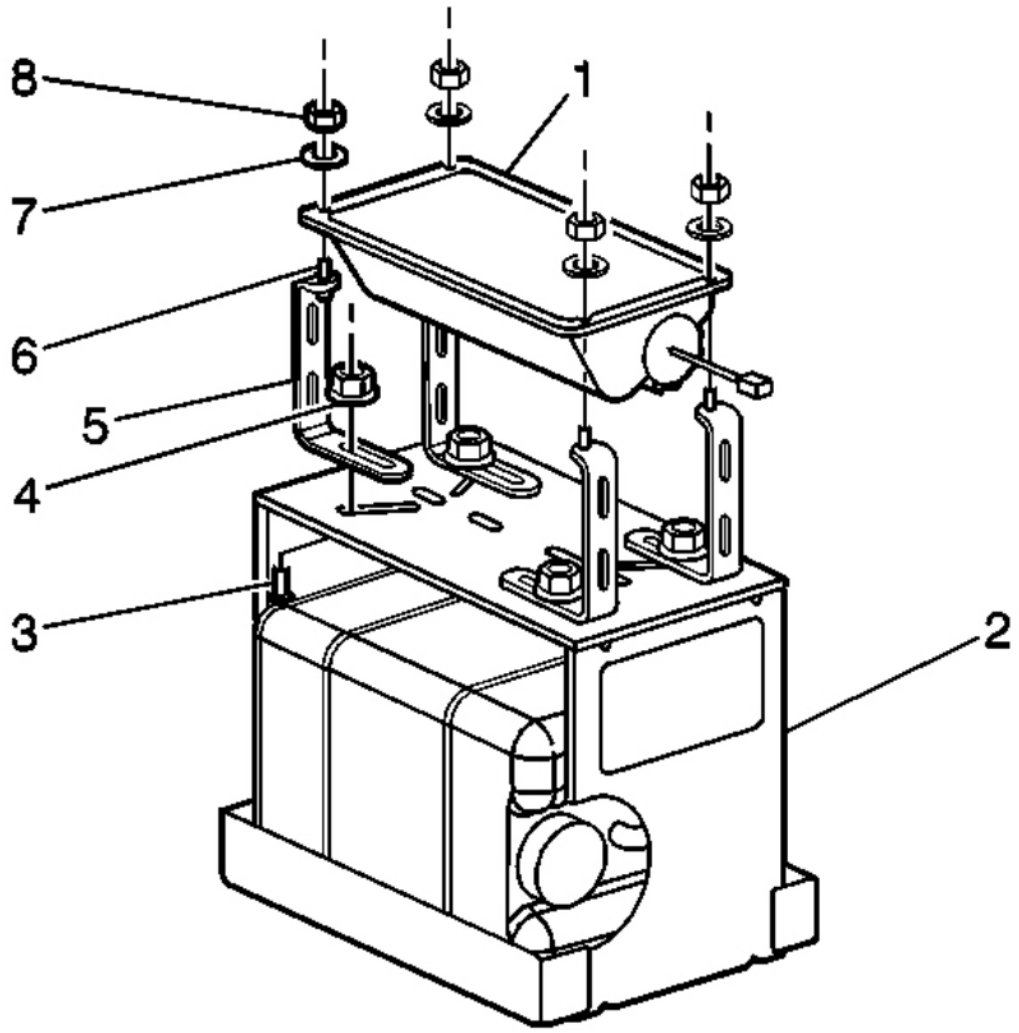


Fig. 73: Identifying I/P Module Components
Courtesy of GENERAL MOTORS CORP.

9. When deploying an I/P inflator module, perform the following instructions:
    1. Place the **J 39401-B** in the center of the cleared area. See **Special Tools**.
    2. Fill the deployment fixture with water or sand.
    3. Using the proper nuts and bolts, mount the I/P module (1) to the deployment fixture (2), with the vinyl trim facing up.
    4. Securely tighten all fasteners that hold the I/P module (1) to the deployment fixture (2).

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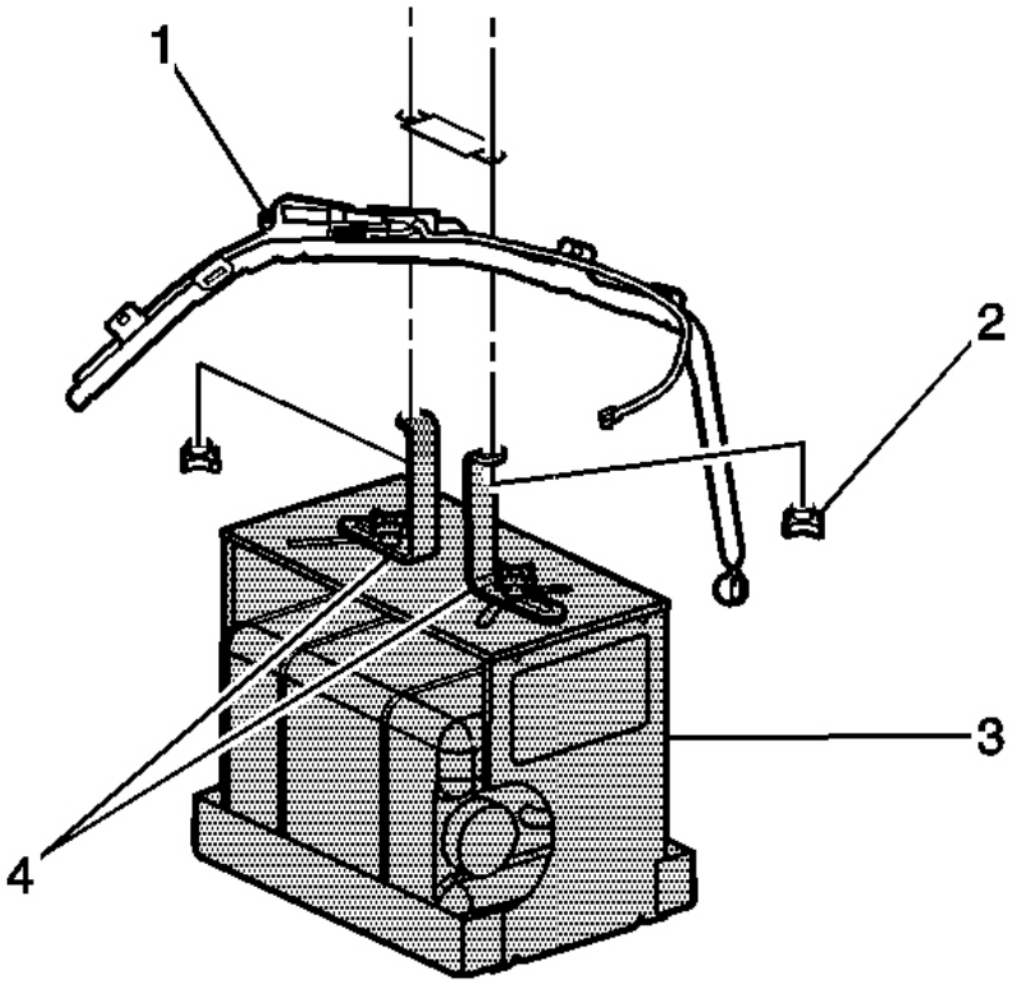


Fig. 74: Identifying Fasteners Holding Side Impact Module To Deployment Fixture
Courtesy of GENERAL MOTORS CORP.

10. When deploying a roof rail module, perform the following instructions:
    1. Place the **J 39401-B** (3) in the center of the cleared area. See **Special Tools**.
    2. Fill the deployment fixture with water or sand to provide sufficient stabilization of fixture during deployment.
    3. Adjust and secure the fixture arms (4) to the deployment fixture (3), using the proper nuts and bolts.
    4. Attach the roof rail module in the deployment fixture and securely tighten all fasteners.

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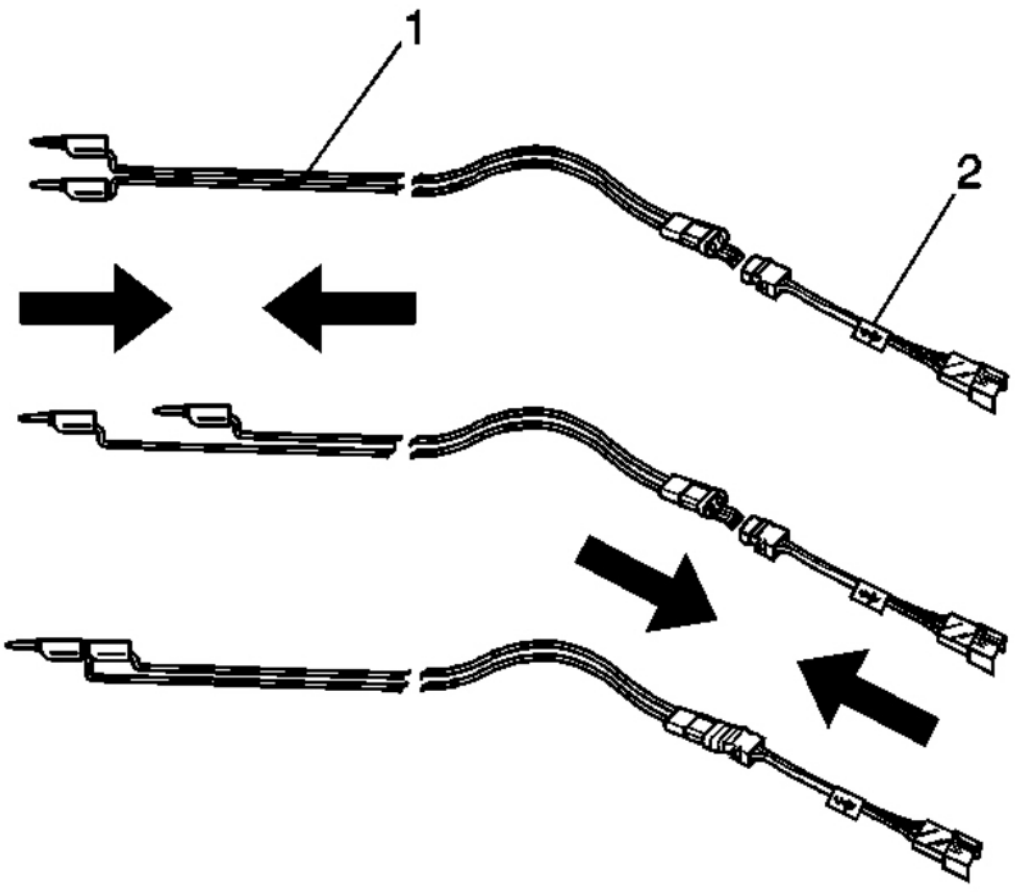


Fig. 75: Identifying SIR Deployment Harness & Adapter
Courtesy of GENERAL MOTORS CORP.

11. Inspect the SIR deployment harness and the appropriate pigtail adapter (2) for damage. Replace as needed.
12. Short the 2 SIR deployment harness leads (1) together using one banana plug seated into the other.
13. Connect the appropriate pigtail adapter (2) to the SIR deployment harness (1).

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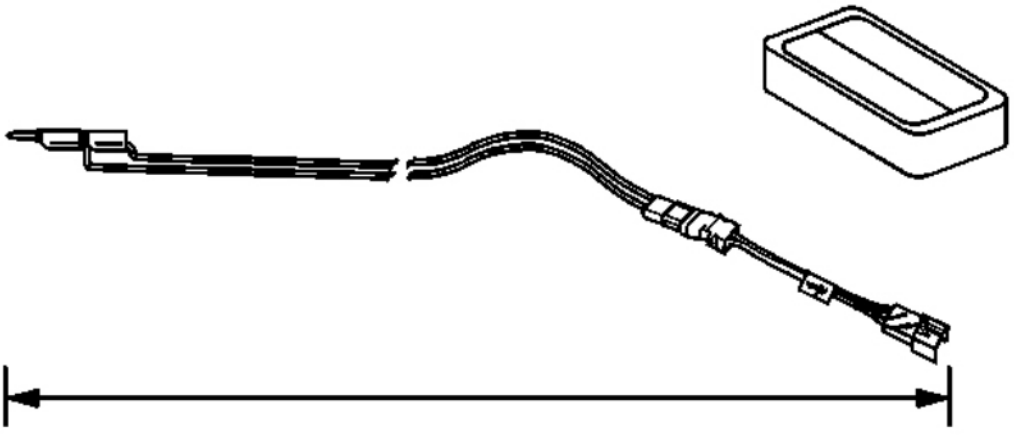
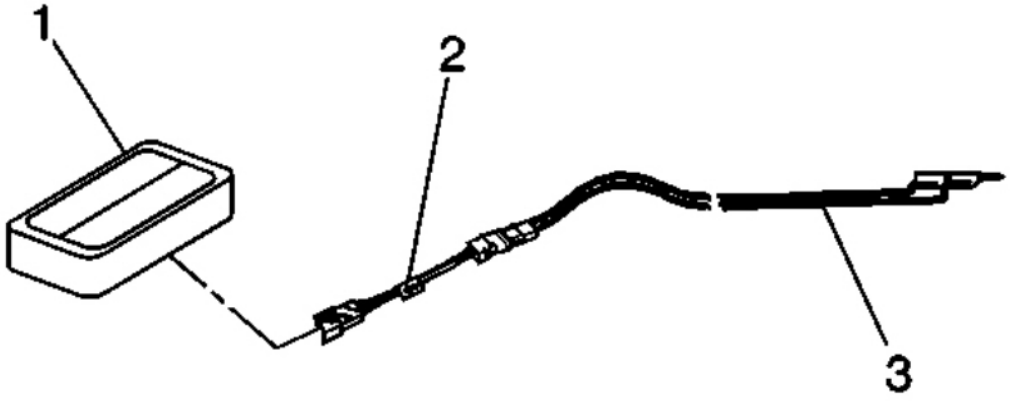


Fig. 76: Extending SIR Deployment Harness & Adapter
Courtesy of GENERAL MOTORS CORP.

14. Extend the SIR deployment harness and adapter to the full length from the deployment fixture or area.

IMPORTANT: On a dual stage inflator module, both connectors must be attached to the deployment harness adapter. This will ensure that both stage 1 and stage 2 of the deployment loops are energized, regardless of the deployment state.



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Fig. 77: Inflator Module & SIR Deployment Harness Adapter
Courtesy of GENERAL MOTORS CORP.

15. Connect the inflator module (1) to the adapter (2) on the SIR deployment harness (3).

IMPORTANT:

- **The rapid expansion of gas involved with deploying an inflator module is very loud. Notify all the people in the immediate area that you intend to deploy the inflator module.**
- **When the inflator module deploys, the deployment fixture may jump about 30 cm (1 ft) vertically. This is a normal reaction of the inflator module due to the force of the rapid expansion of gas inside the inflator module.**
- **If you are deploying a dual stage inflator module with stage 1 already deployed, the fixture may not move and the noise may have been reduced.**

16. Clear the area of people.

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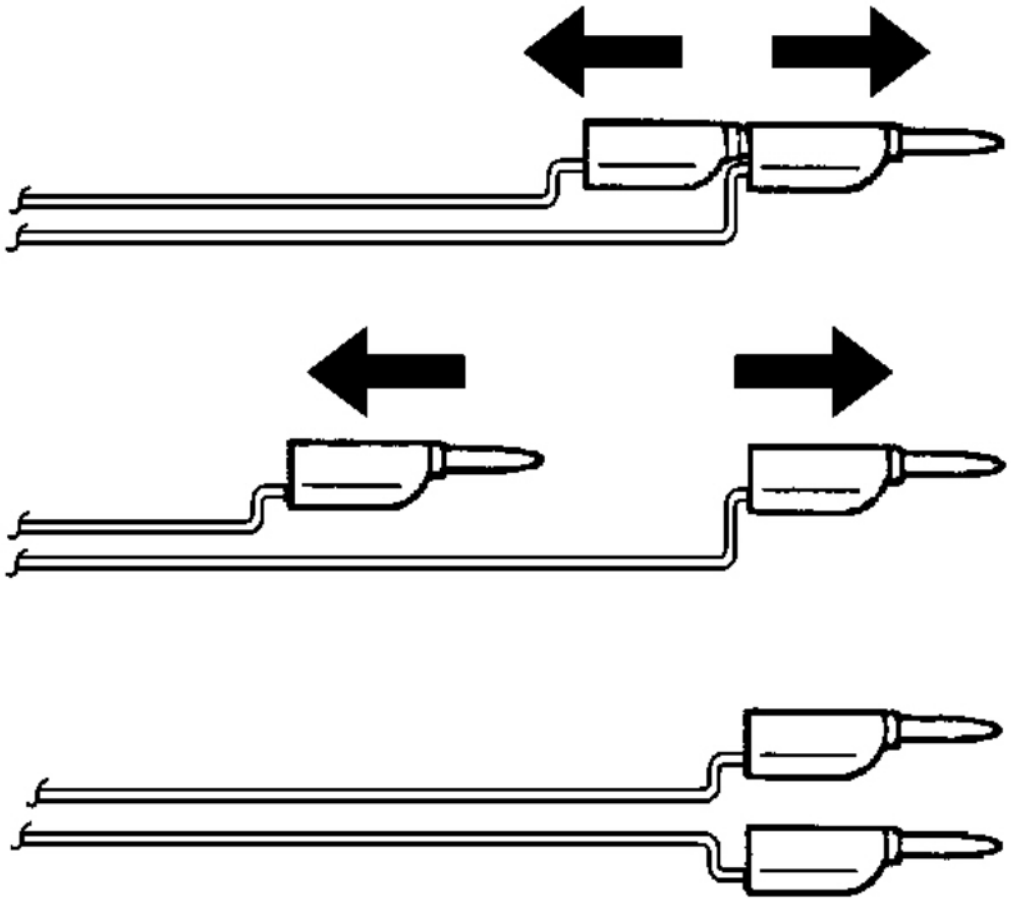


Fig. 78: View Of Banana Plugs
Courtesy of GENERAL MOTORS CORP.

17. Separate the 2 banana plugs on the SIR deployment harness that were shorted together earlier in the procedure.

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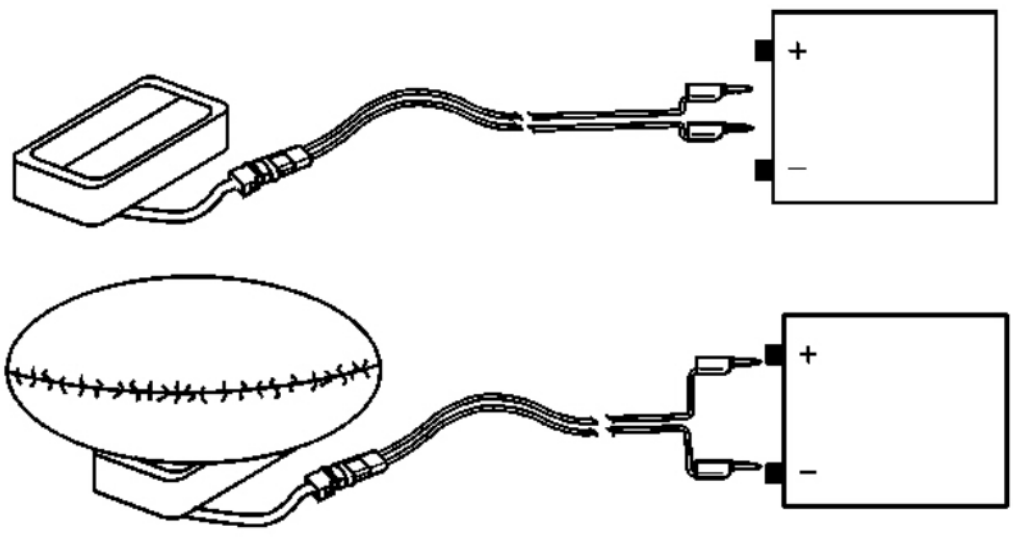


Fig. 79: Identifying SIR Deployment Harness Wires To Power Source
Courtesy of GENERAL MOTORS CORP.

18. Place a 12-volt minimum/2-amp minimum power source, such as a vehicle battery, near the shorted end of the harness.
19. Connect the SIR deployment harness wires to the power source. Deployment of the inflator module will occur when contact is made.

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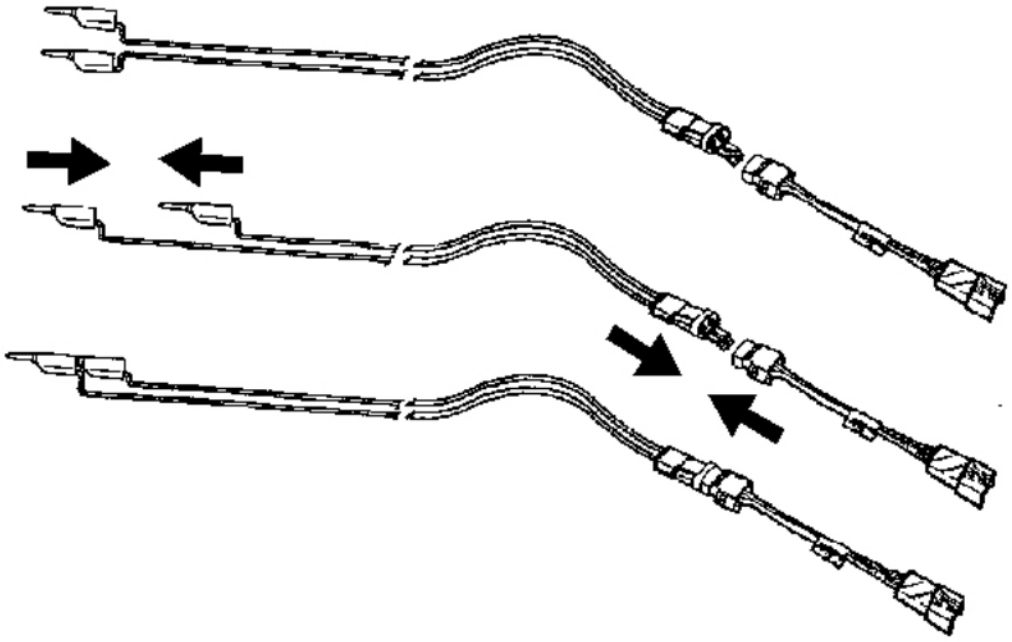


Fig. 80: View Of Deployment Harness Leads
Courtesy of GENERAL MOTORS CORP.

20. Disconnect the SIR deployment harness from the power source after the inflator module deploys.
21. If the inflator module did not deploy, disconnect the adapter and discontinue the procedure and contact the Technical Assistance Group.

If deployment was successful, proceed to the following steps.

CAUTION: After deployment, the metal surfaces of the SIR component may be very hot. To help avoid a fire or personal injury:

- **Allow sufficient time for cooling before touching any metal surface of the SIR component.**
- **Do not place the deployed SIR component near any flammable objects.**

22. Seat one banana plug into the other in order to short the deployment harness leads.

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Fig. 81: Disposing Of Deployed Inflator Module
Courtesy of GENERAL MOTORS CORP.

23. Put on a pair of shop gloves.
24. Disconnect the pigtail adapter from the inflator module as soon as possible.
25. Inspect the pigtail adapter and the SIR deployment harness. Replace as needed.
26. Dispose of the deployed inflator module through normal refuse channels.
27. Wash your hands with a mild soap.

Deployment Inside Vehicle - Vehicle Scrapping Procedure

Deploy the inflator modules inside of the vehicle when destroying the vehicle or when salvaging the vehicle for

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parts. This includes, but is not limited to, the following situations:

- The vehicle has completed all useful life.
- Irreparable damage occurred to the vehicle in a non-deployment type accident.
- Irreparable damage occurred to the vehicle during a theft.
- The vehicle is being salvaged for parts to be used on a vehicle with a different VIN, as opposed to rebuilding as the same VIN.

CAUTION: When deploying a SIR component for disposal, perform the deployment procedures in the order listed. Failure to observe the procedures in the order listed may result in personal injury.

1. Lower the driver and passenger windows.
2. Turn the ignition switch to the OFF position and remove the ignition key.
3. Check that all inflator modules which will be deployed are mounted securely.
   - Driver inflator module is secured to the steering wheel.
   - Passenger inflator module is secured to the instrument panel.
   - Left roof rail inflator module is secured to the left roof rail.
   - Right roof rail inflator module is secured to the right roof rail.
4. Put on safety glasses.
5. Remove all loose objects from the front seats.

CAUTION: A deployed dual stage inflator module will look the same whether one or both stages were used, always assume a deployed dual stage inflator module has an active stage 2. Improper handling or servicing can activate the inflator module and cause personal injury.

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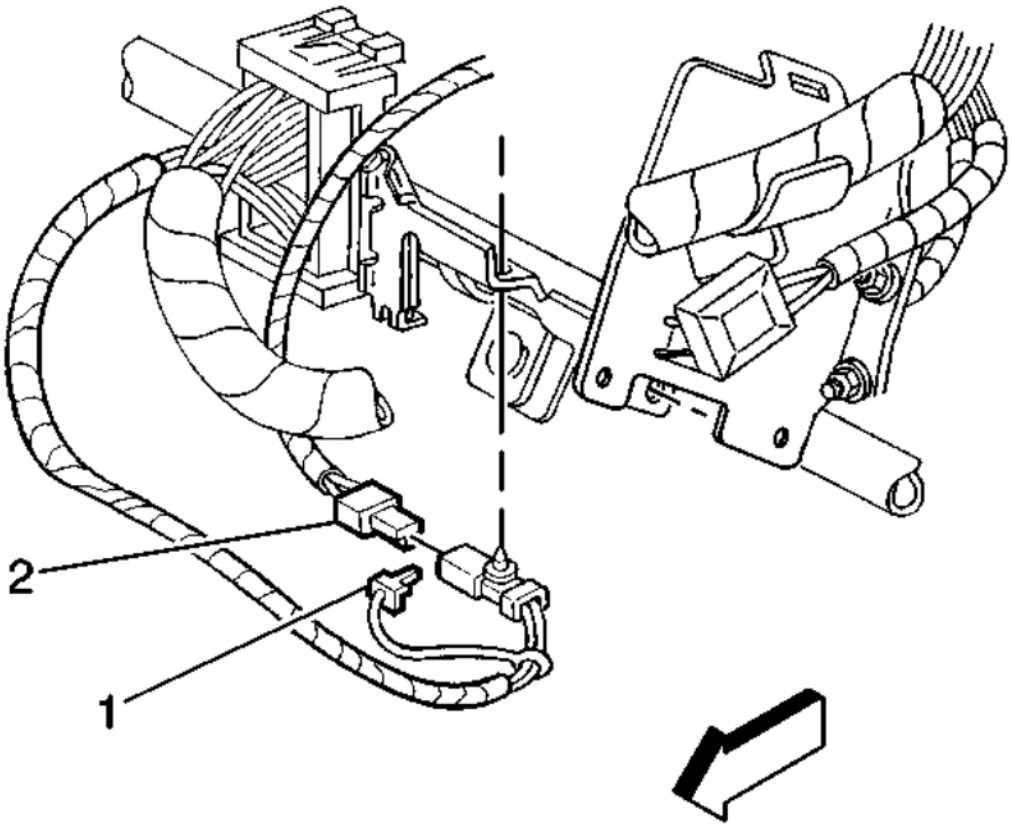


Fig. 82: Locating Inflatable Restraint Steering Wheel Module Connector
Courtesy of GENERAL MOTORS CORP.

6. Disconnect the steering wheel module yellow connector (1) from vehicle harness yellow connector (2).

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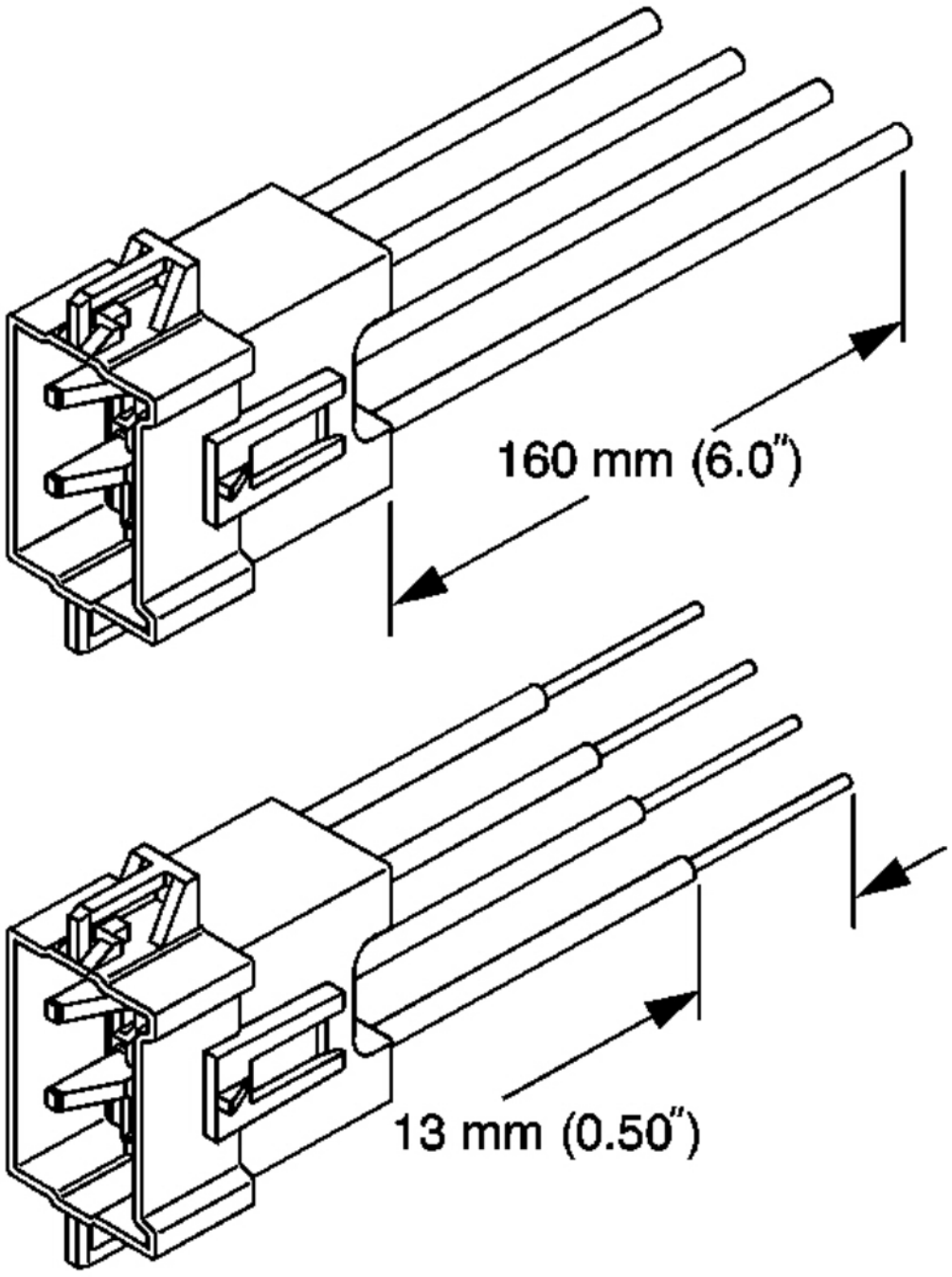


Fig. 83: Identifying Striped SIR Wires
Courtesy of GENERAL MOTORS CORP.

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IMPORTANT: If the vehicle is equipped with dual stage air bags the steering wheel module and I/P module will each have 4 wires. Refer to SIR Connector End Views for determining high and low circuits.

7. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
8. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.

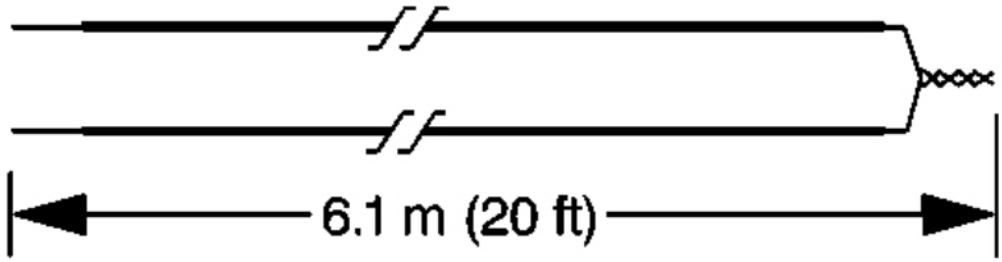


Fig. 84: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

9. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gage) or thicker multi-strand wire. Use these wires to fabricate the driver deployment harness.
10. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
11. Twist together one end from each of the wires in order to short the wires. Deployment wires shall remain shorted, and not connected to a power source until you are ready to deploy the inflator module.

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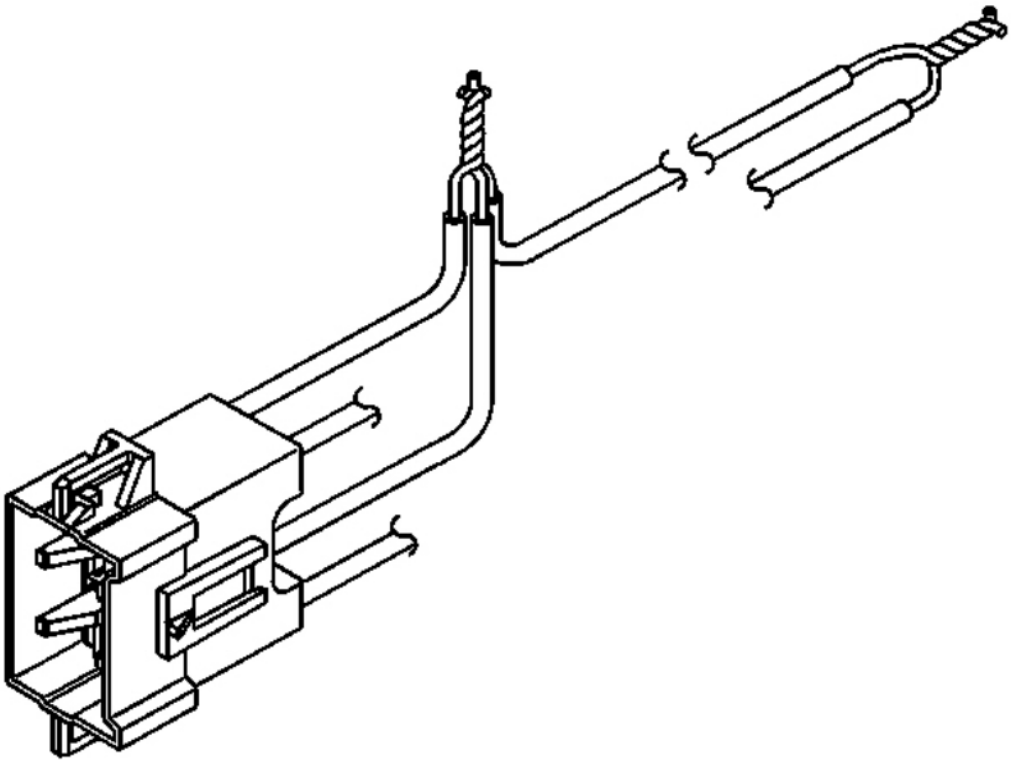


Fig. 85: Twisting Connector Wire Leads (High Circuits) To Deployment Harness Wire
Courtesy of GENERAL MOTORS CORP.

12. Twist together the 2 connector wire leads from the high circuits from both stages of the steering wheel module, to one set of deployment wires. Refer to **SIR Connector End Views** in order to determine the correct circuits.
13. Inspect that the 3-wire connection is secure.

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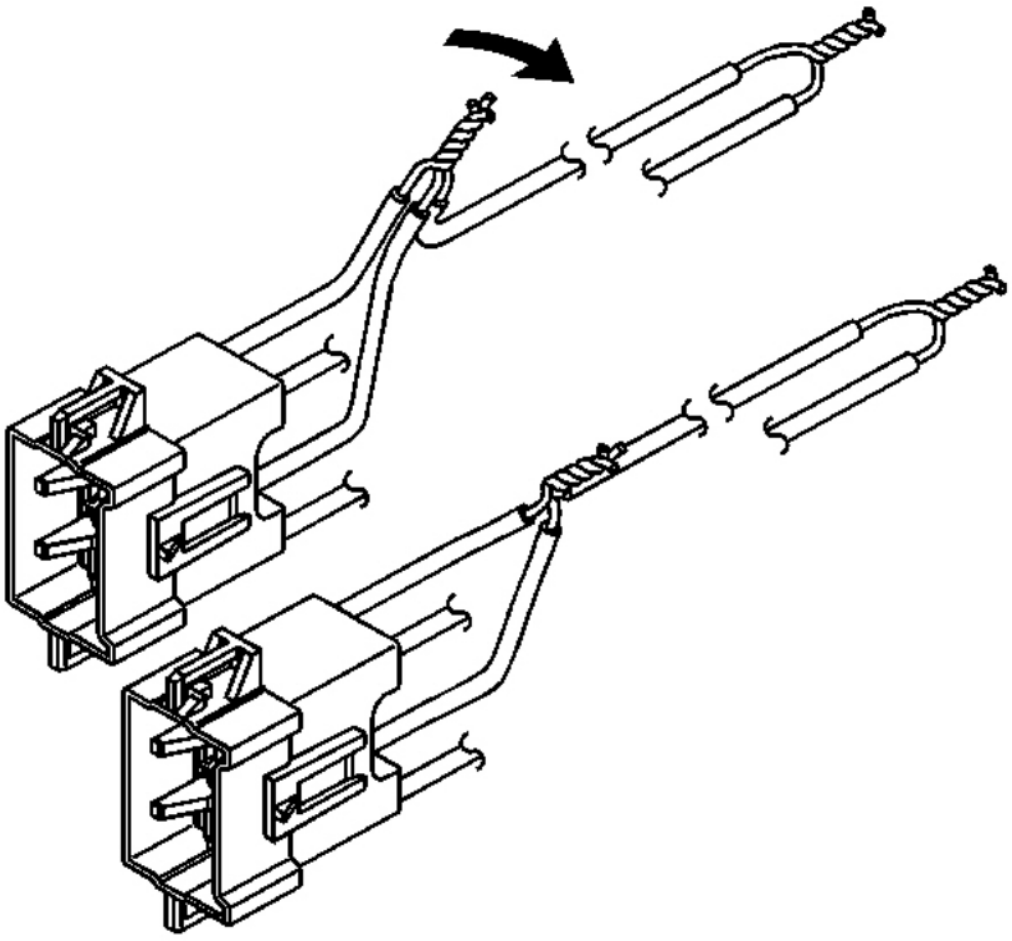


Fig. 86: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

14. Bend flat the twisted connection.

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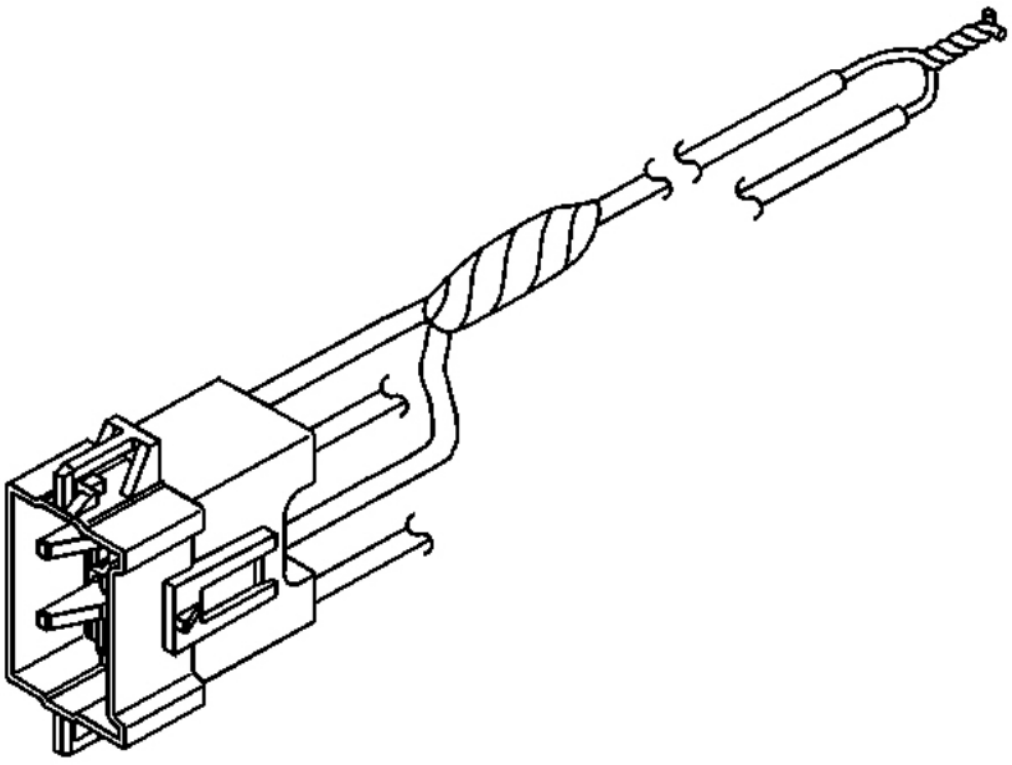


Fig. 87: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

15. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.

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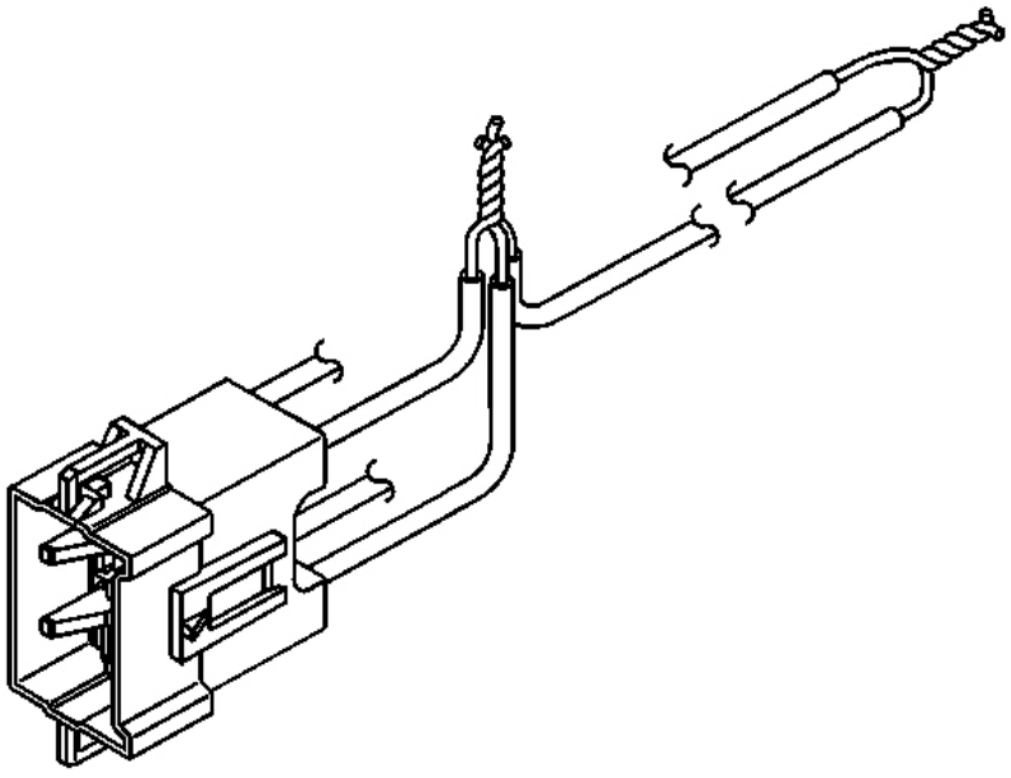


Fig. 88: Twisting Connector Wire Leads (Low Circuits) To Deployment Harness Wire
Courtesy of GENERAL MOTORS CORP.

16. Twist together the 2 connector wire leads from the low circuits from both stages of the steering wheel module, to one set of deployment wires. Refer to **SIR Connector End Views** in order to determine the correct circuits.
17. Inspect that the 3-wire connection is secure.

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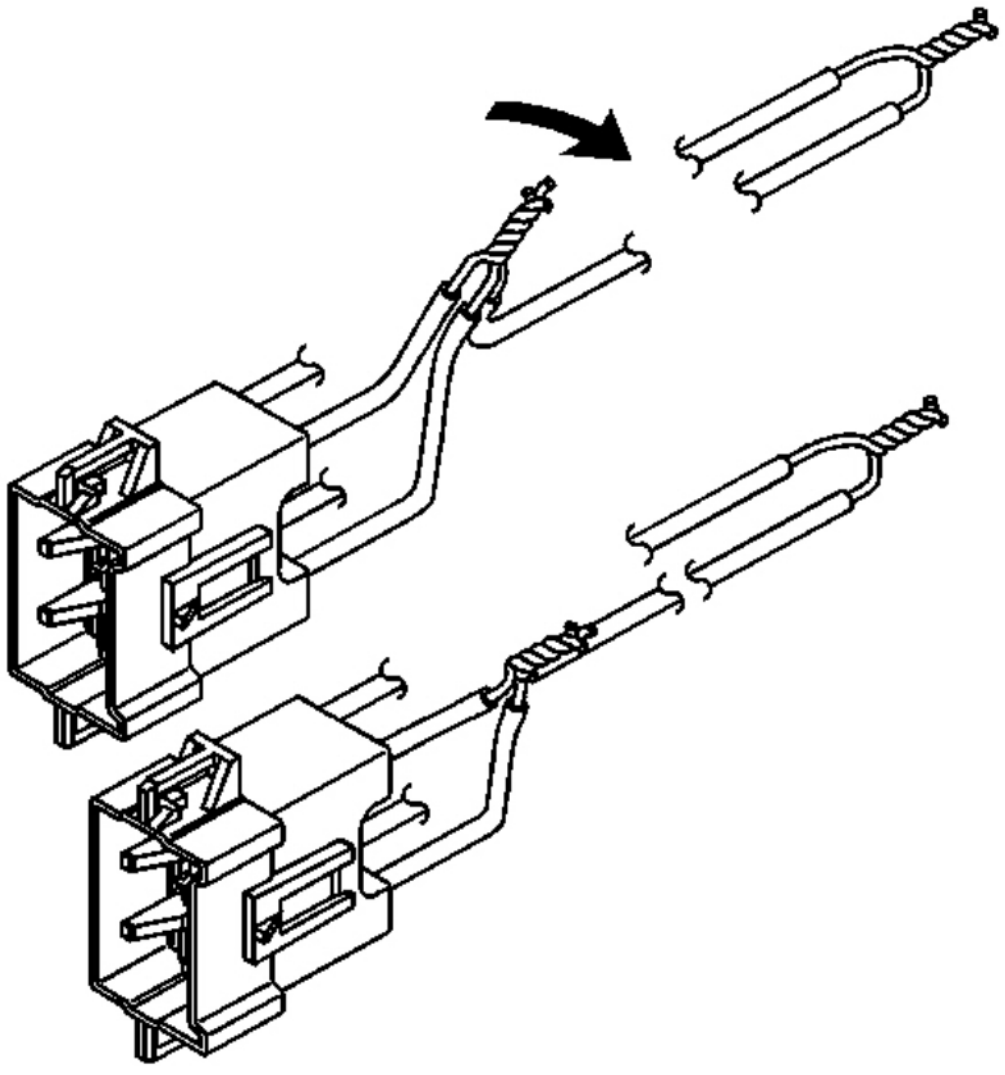


Fig. 89: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

18. Bend flat the twisted connection.

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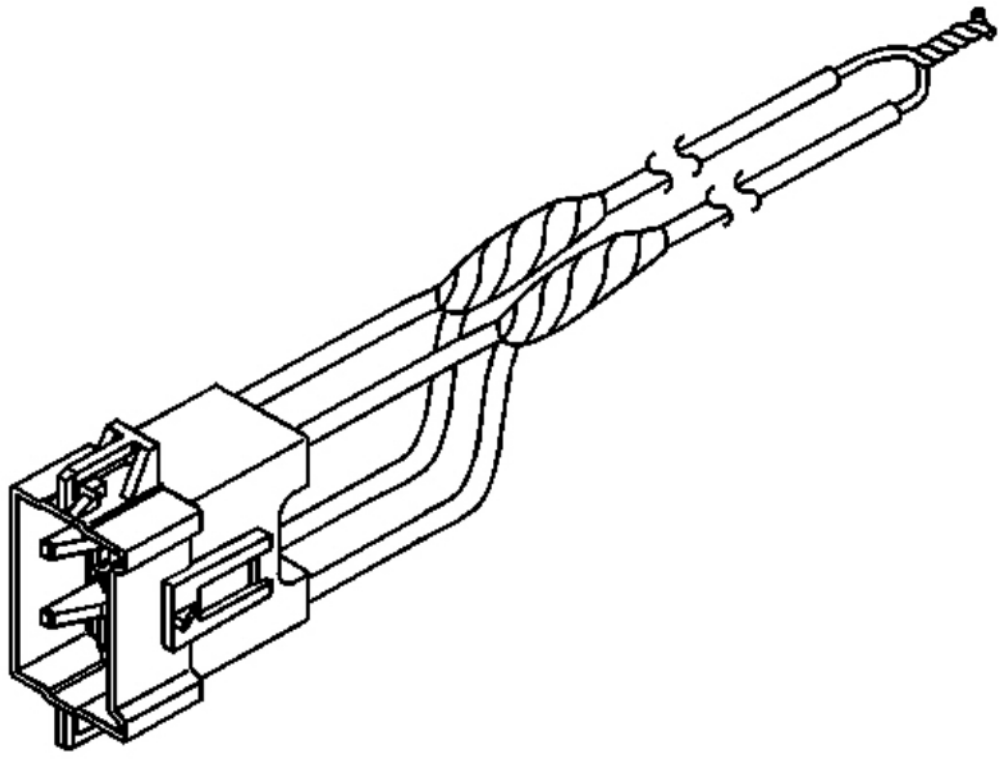


Fig. 90: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

19. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
20. Connect the deployment harness to the connector on the steering wheel module.

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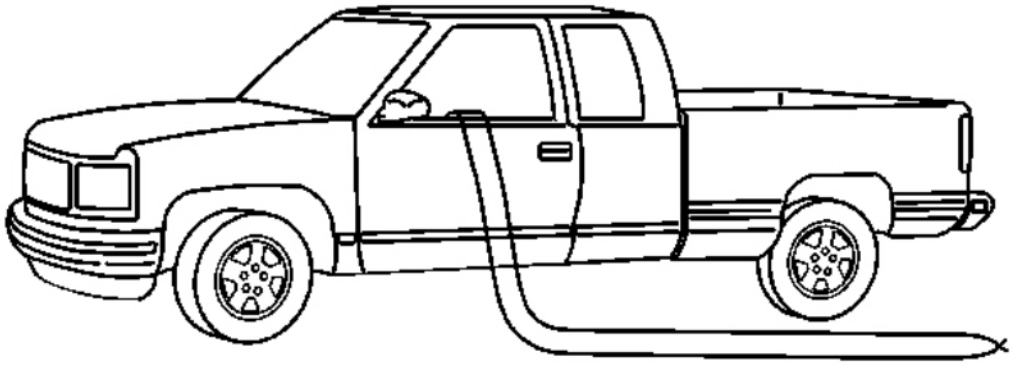


Fig. 91: Routing The Deployment Harness Out Of The Vehicle's Driver Side
Courtesy of GENERAL MOTORS CORP.

21. Route the deployment harness out of the driver side of the vehicle.

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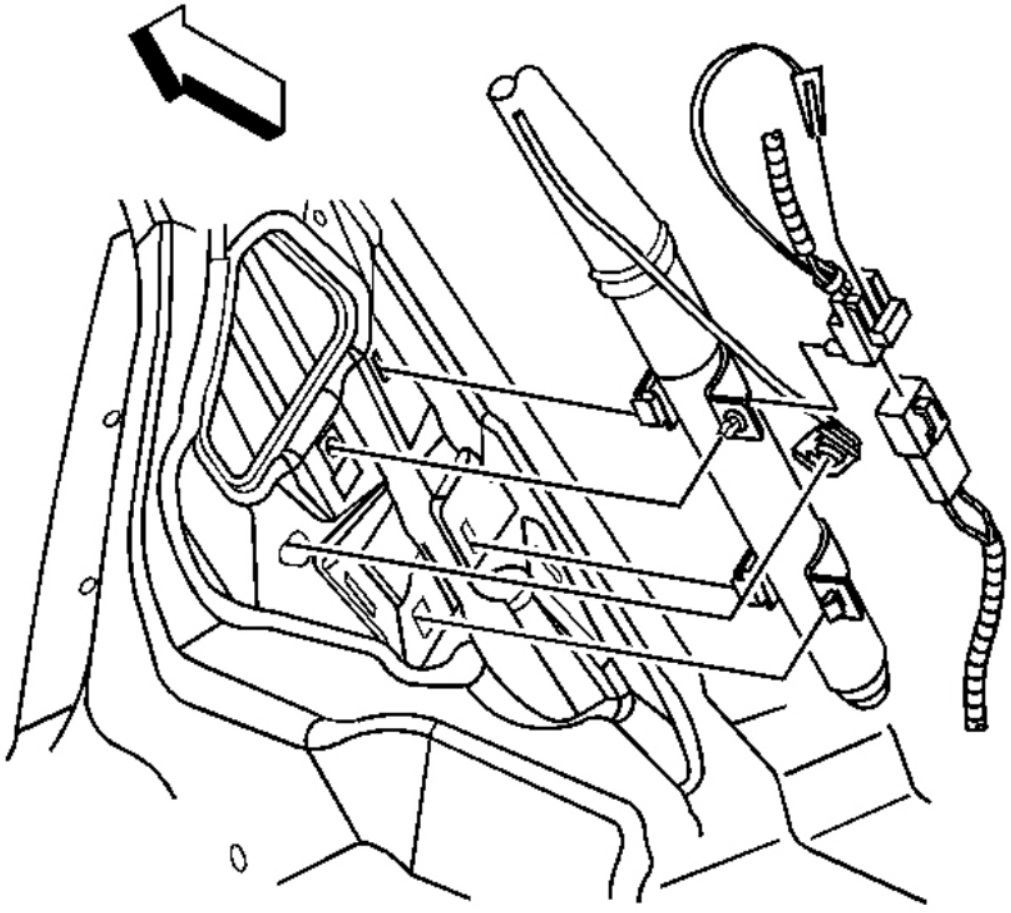


Fig. 92: Locating Roof Rail Module Connector
Courtesy of GENERAL MOTORS CORP.

22. Disconnect the yellow left roof rail harness connector from the vehicle harness connector.

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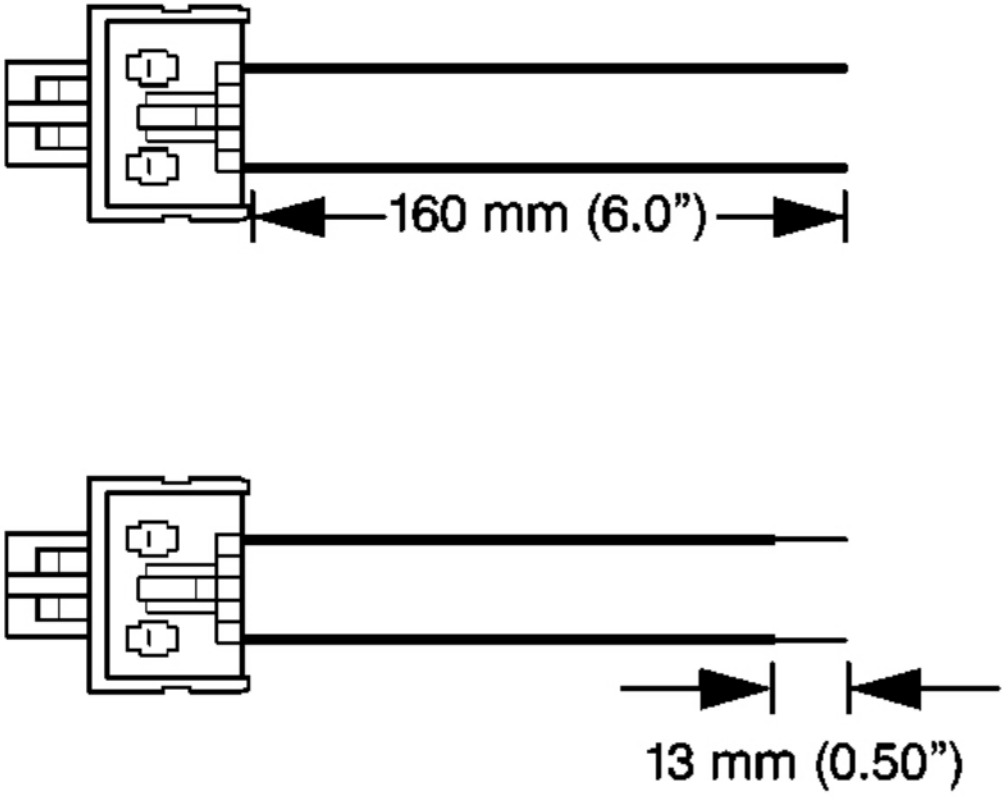


Fig. 93: Identifying Proper Stripping Of Connection Wire Leads
Courtesy of GENERAL MOTORS CORP.

23. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
24. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.

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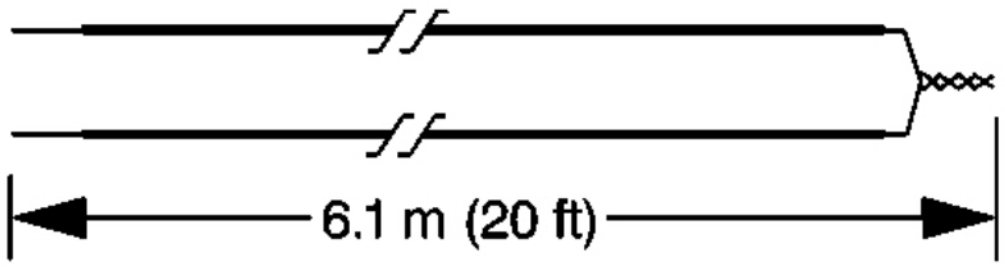


Fig. 94: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

25. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gage) or thicker multi-strand wire. These wires will be used to fabricate the roof rail air bag deployment harness.
26. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
27. Twist together one end from each of the wires in order to short the wires.

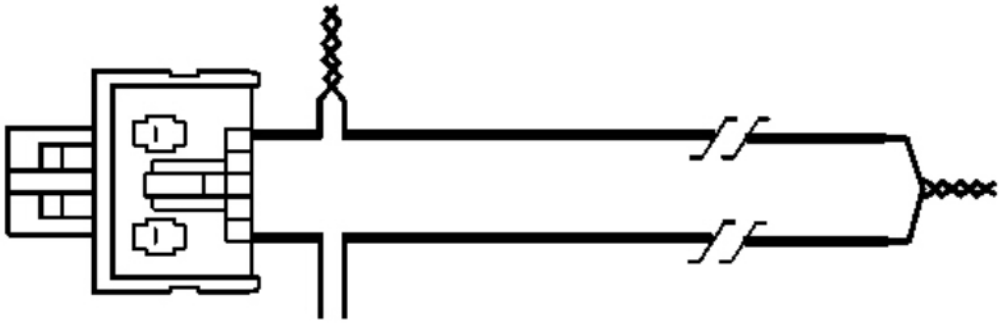


Fig. 95: View Of Proper Twisting Of Connector Wire Lead To Deployment Wire
Courtesy of GENERAL MOTORS CORP.

28. Twist together one connector wire lead to one deployment wire.

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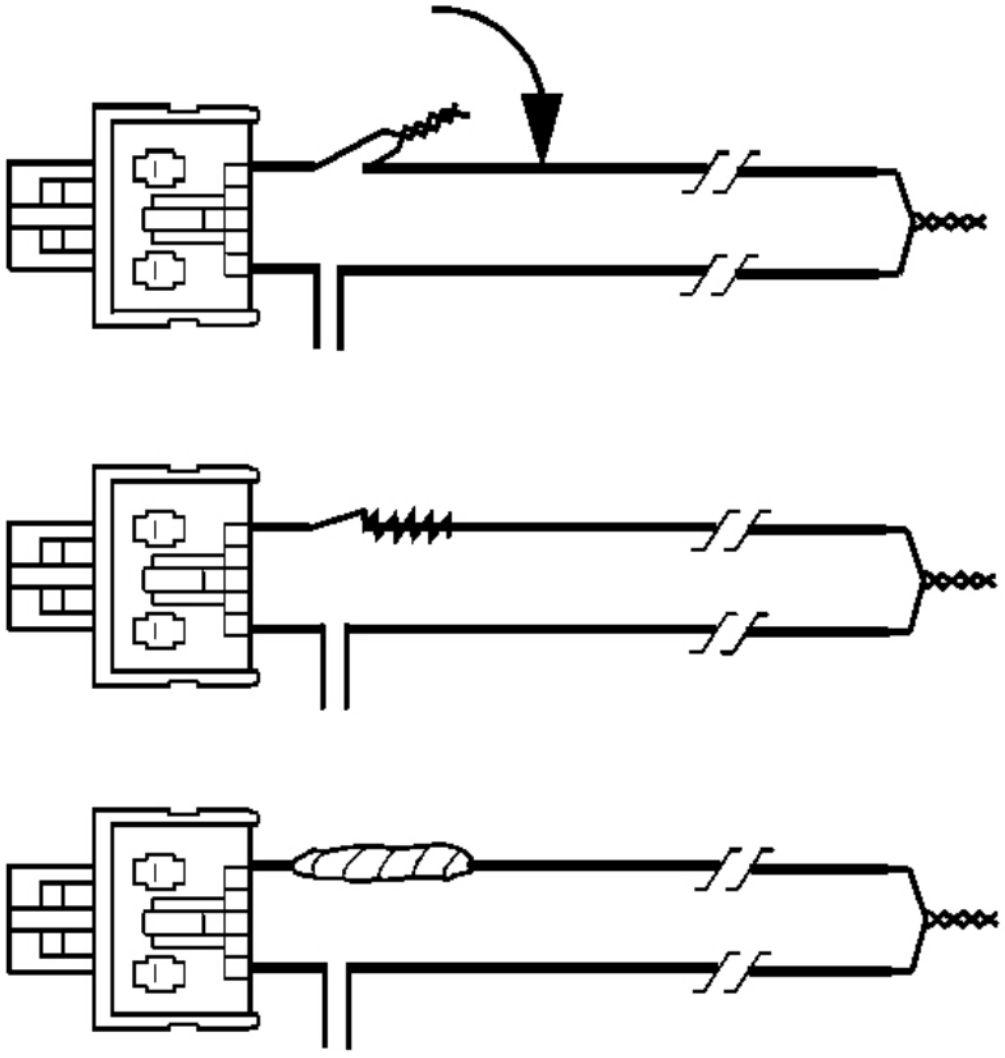


Fig. 96: Bending Twisted Connection Flat & Insulating With Tape
Courtesy of GENERAL MOTORS CORP.

29. Bend flat the twisted connection.
30. Secure and insulate the connection using electrical tape.

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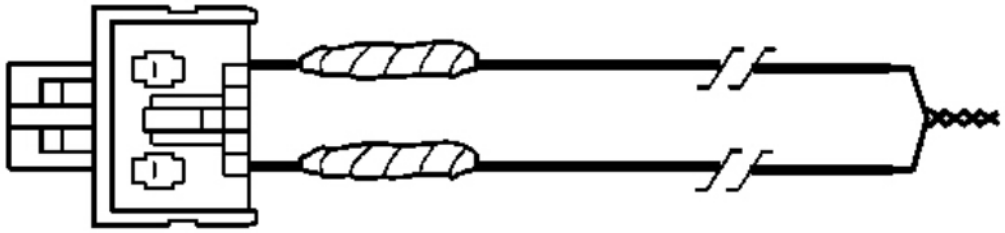


Fig. 97: Taping Remaining Connector Wire Lead To Remaining Deployment Wire
Courtesy of GENERAL MOTORS CORP.

31. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.
32. Connect the deployment harness to the yellow connector of the roof rail module.

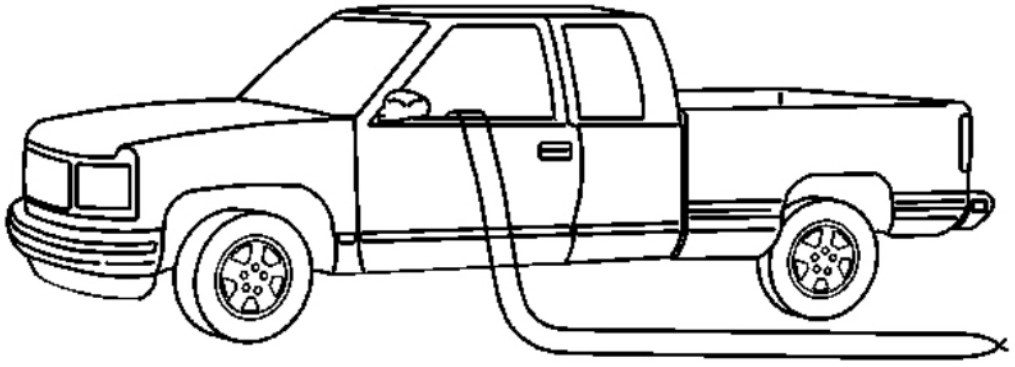


Fig. 98: Routing The Deployment Harness Out Of The Vehicle's Driver Side
Courtesy of GENERAL MOTORS CORP.

33. Route the deployment harness out of the driver side of the vehicle.

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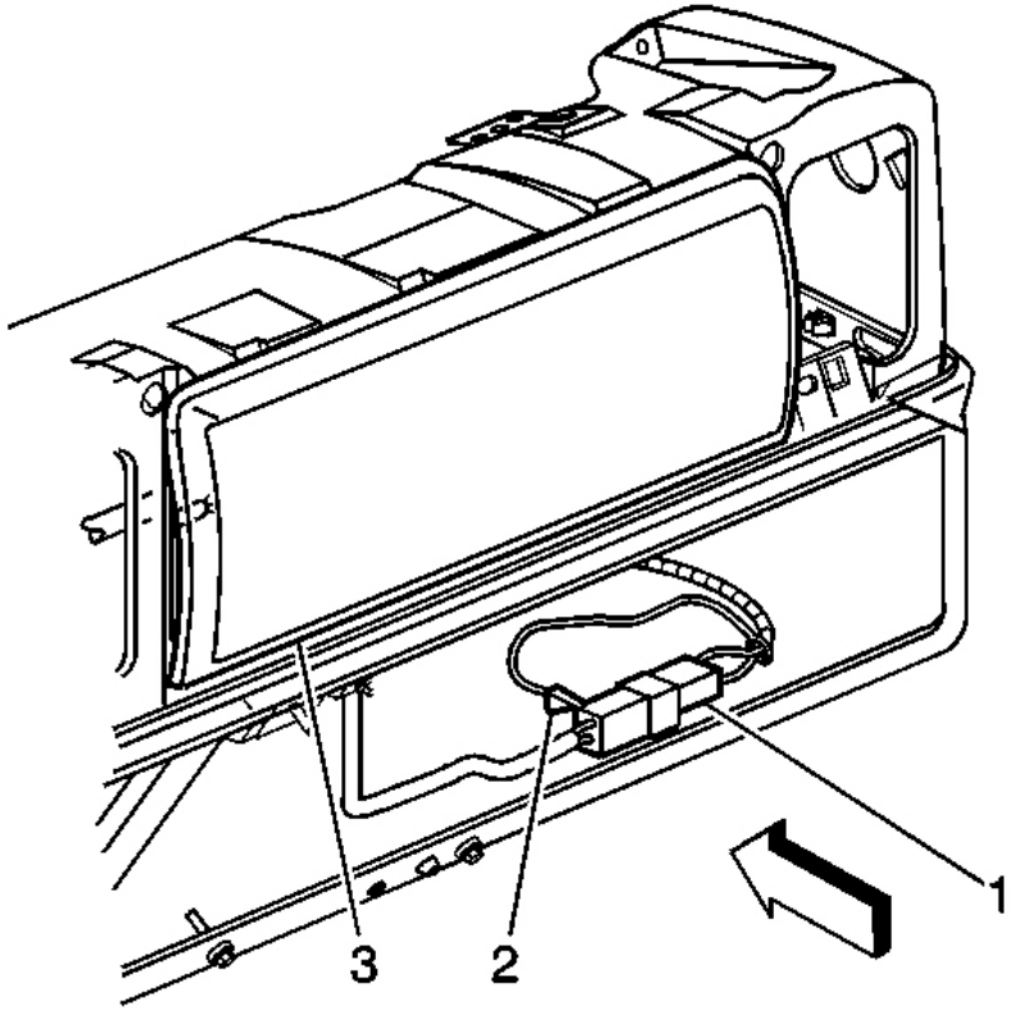


Fig. 99: View Of I/P Module Yellow Harness Connector & Vehicle Harness Connector
Courtesy of GENERAL MOTORS CORP.

34. Disconnect the I/P module yellow harness connector (1) from the vehicle harness connector (2).

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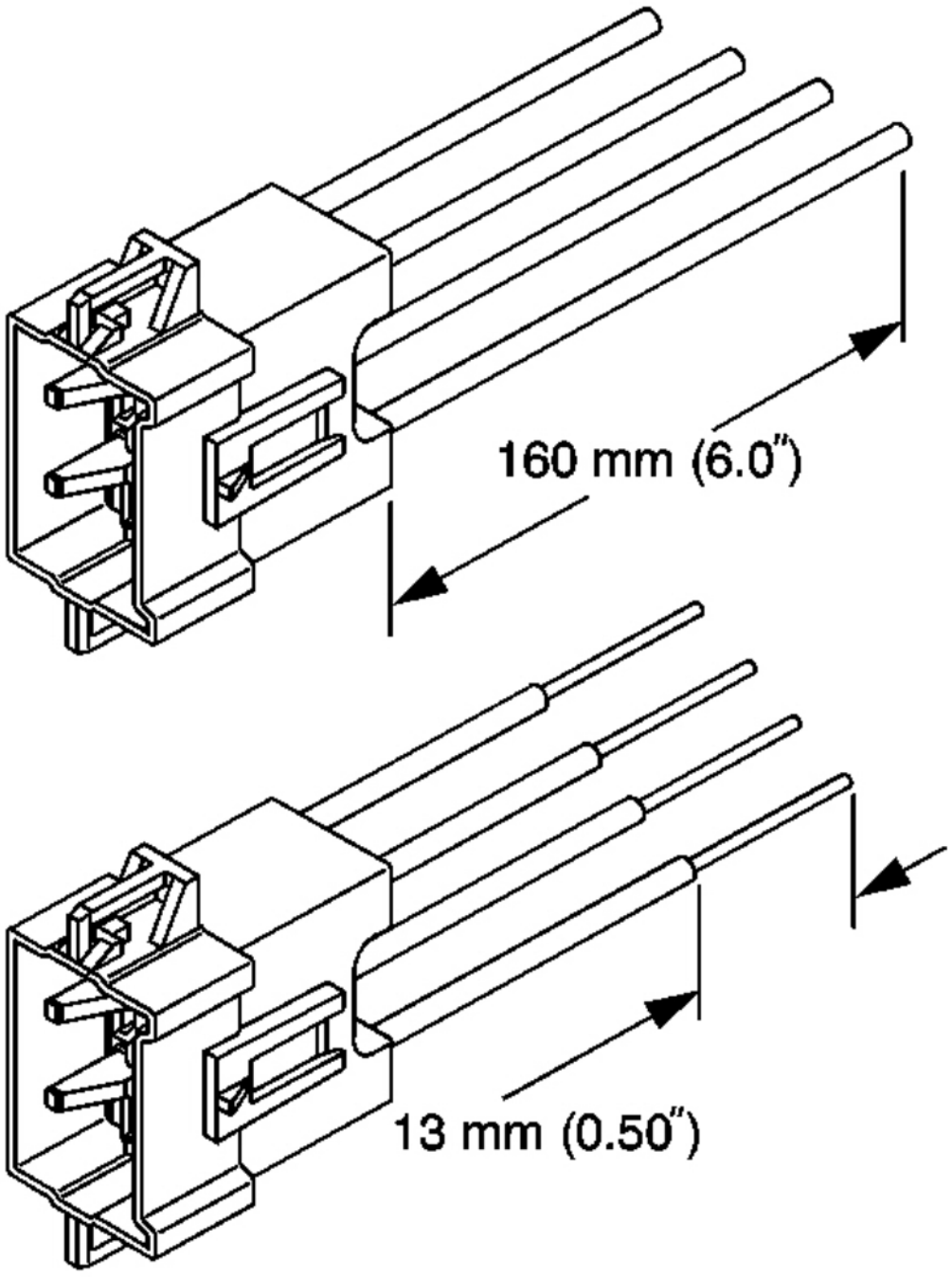


Fig. 100: Identifying Striped SIR Wires
Courtesy of GENERAL MOTORS CORP.

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IMPORTANT: If the vehicle is equipped with dual stage air bags the steering wheel module and I/P module will each have 4 wires. Refer to SIR Connector End Views for determining high and low circuits.

35. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
36. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.

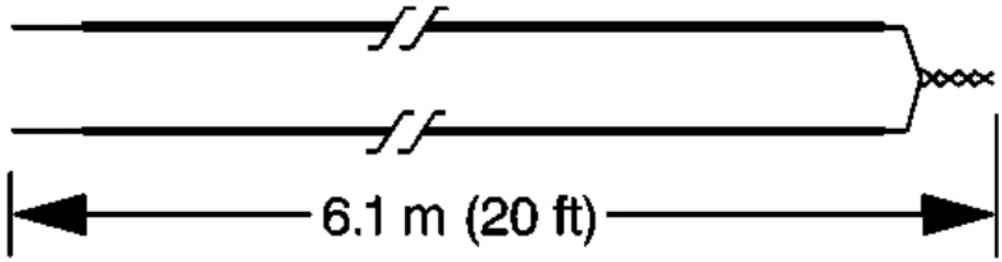


Fig. 101: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

37. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gage) or thicker multi-strand wire. These wires will be used to fabricate the passenger deployment harness.
38. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
39. Twist together one end from each of the wires in order to short the wires.

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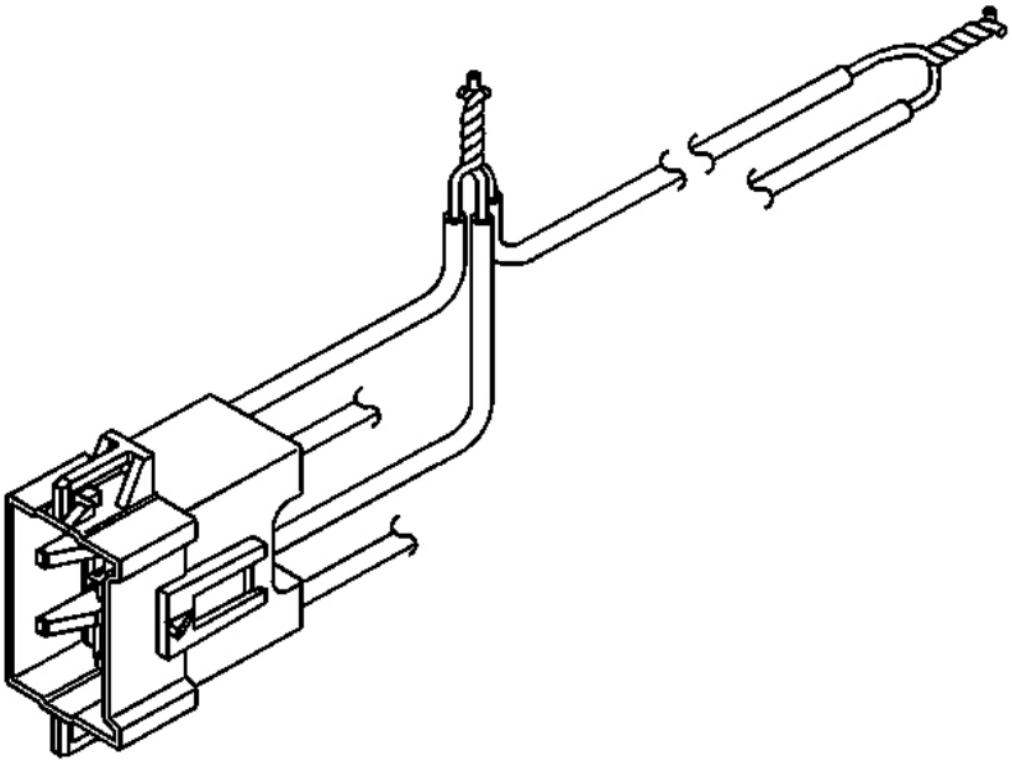


Fig. 102: Twisting Connector Wire Leads (High Circuits) To Deployment Harness Wire
Courtesy of GENERAL MOTORS CORP.

40. Twist together the 2 connector wire leads from the high circuits from both stages of the I/P module to one set of deployment wires. Refer to **SIR Connector End Views** in order to determine the correct circuits.
41. Inspect that the 3-wire connection is secure.

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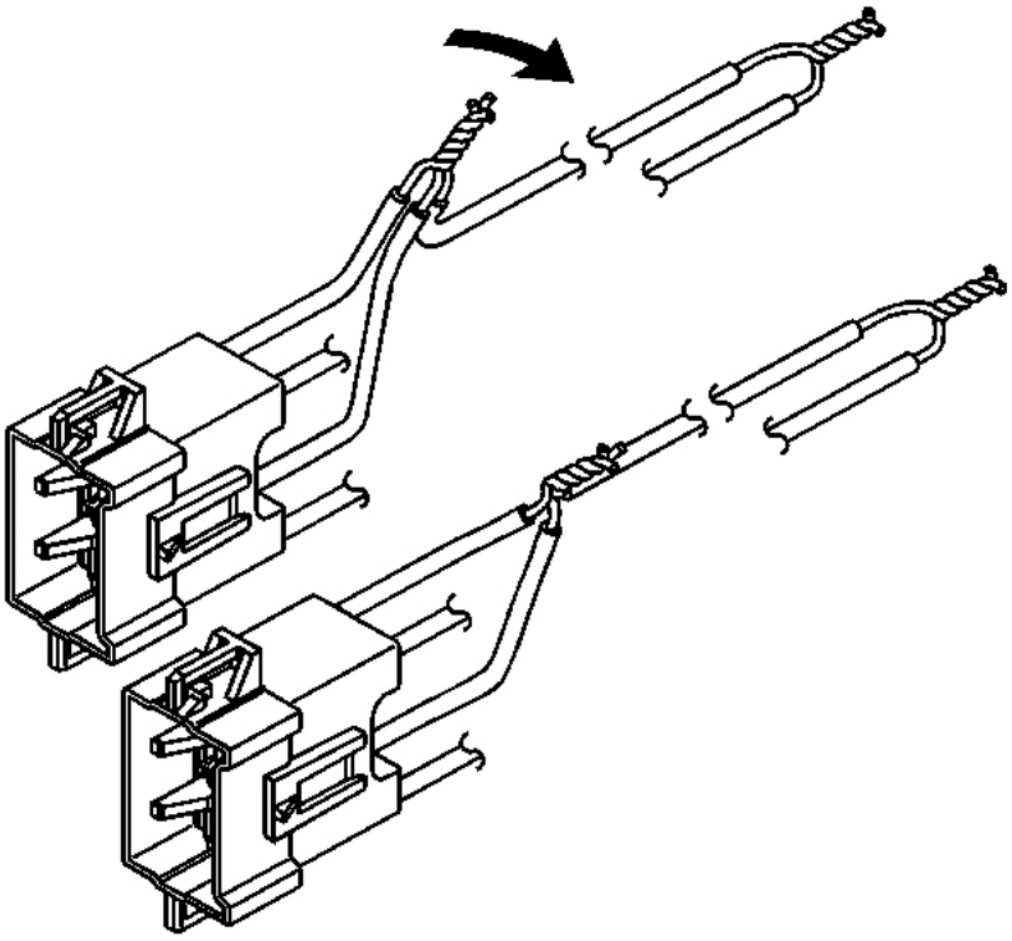


Fig. 103: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

42. Bend flat the twisted connection.

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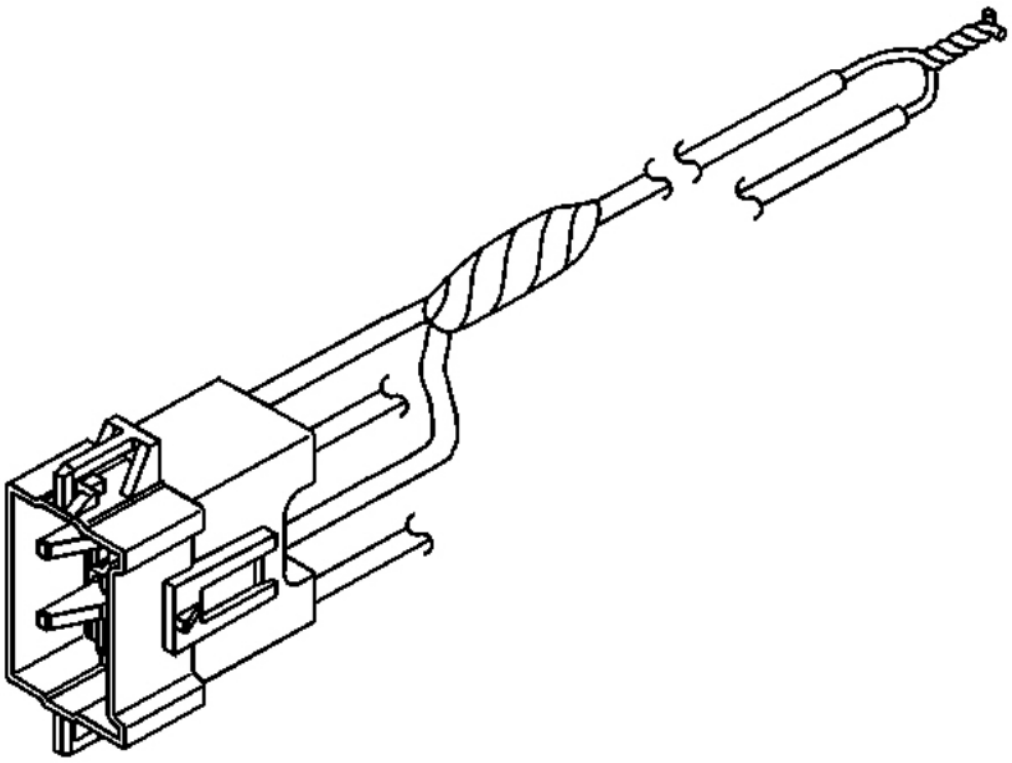


Fig. 104: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

43. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.

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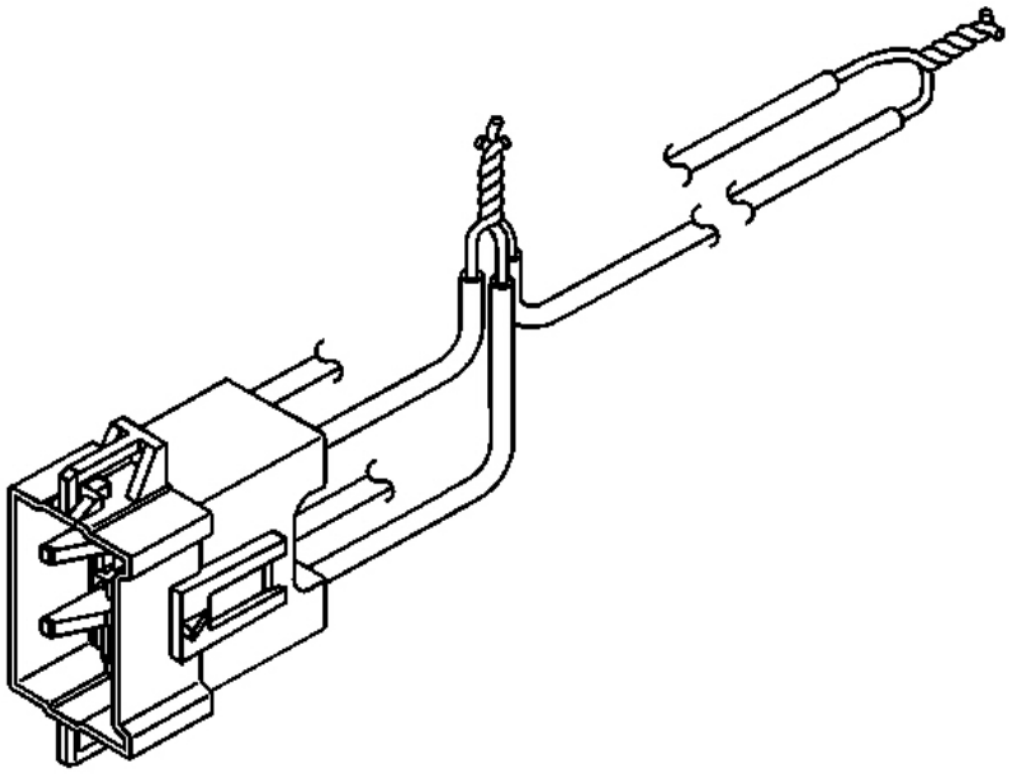


Fig. 105: Twisting Connector Wire Leads (Low Circuits) To Deployment Harness Wire
Courtesy of GENERAL MOTORS CORP.

44. Twist together the 2 connector wire leads from the low circuits from both stages of the I/P module to one set of deployment wires. Refer to **SIR Connector End Views** in order to determine the correct circuits.
45. Inspect that the 3-wire connection is secure.

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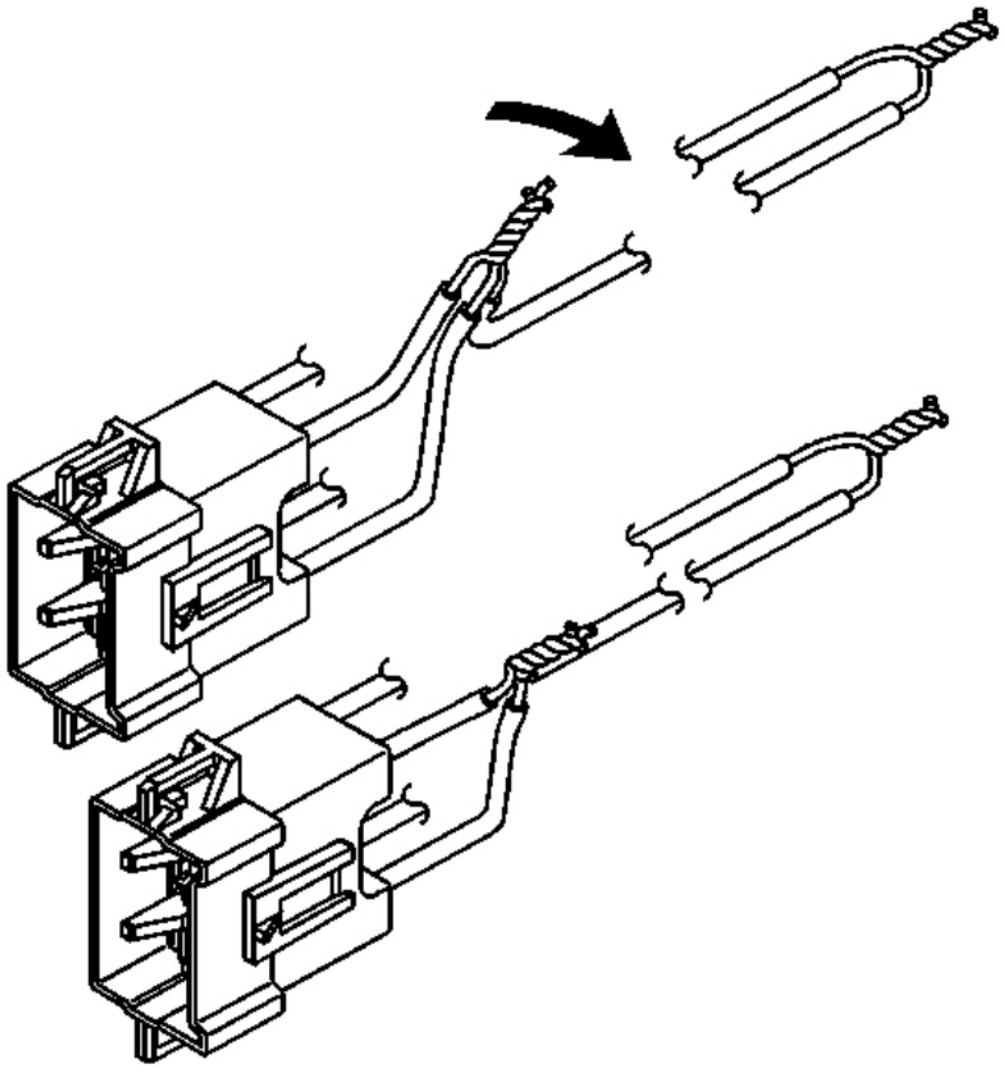


Fig. 106: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

46. Bend flat the twisted connection.

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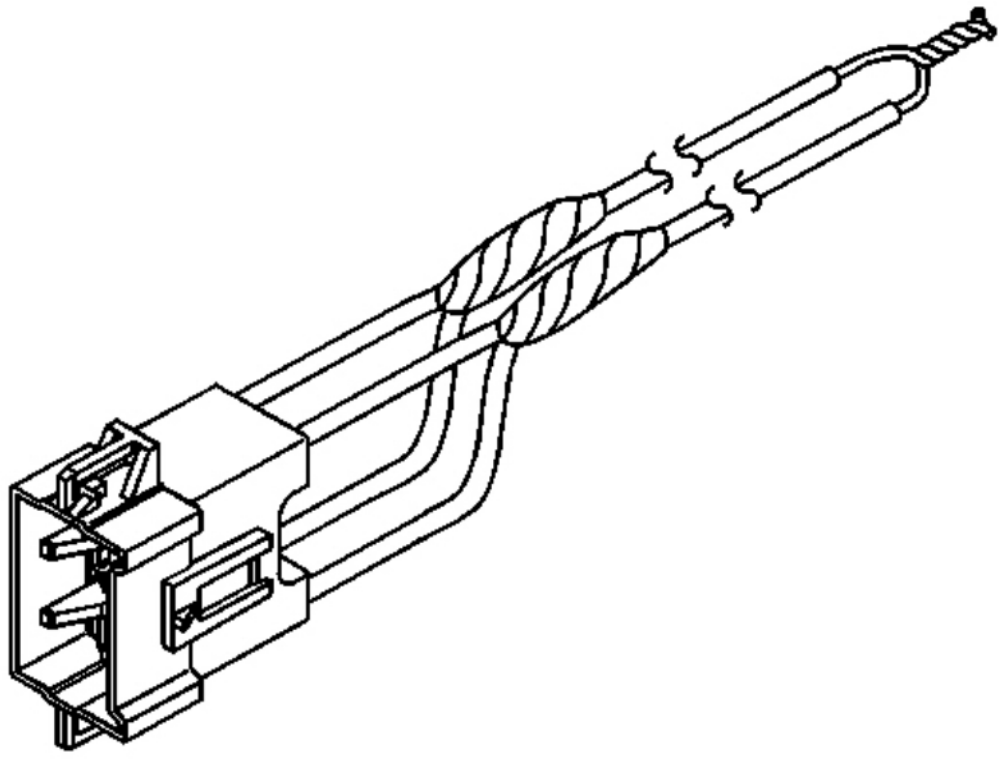


Fig. 107: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

47. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
48. Connect the deployment harness to the I/P module in-line connector.

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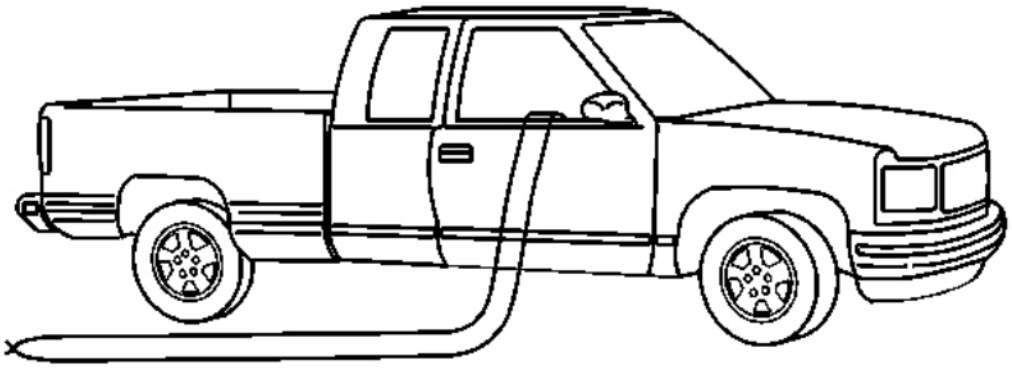


Fig. 108: Routing The Deployment Harness Out Of The Vehicle's Passenger Side
Courtesy of GENERAL MOTORS CORP.

49. Route the deployment harness out of the passenger side of the vehicle.

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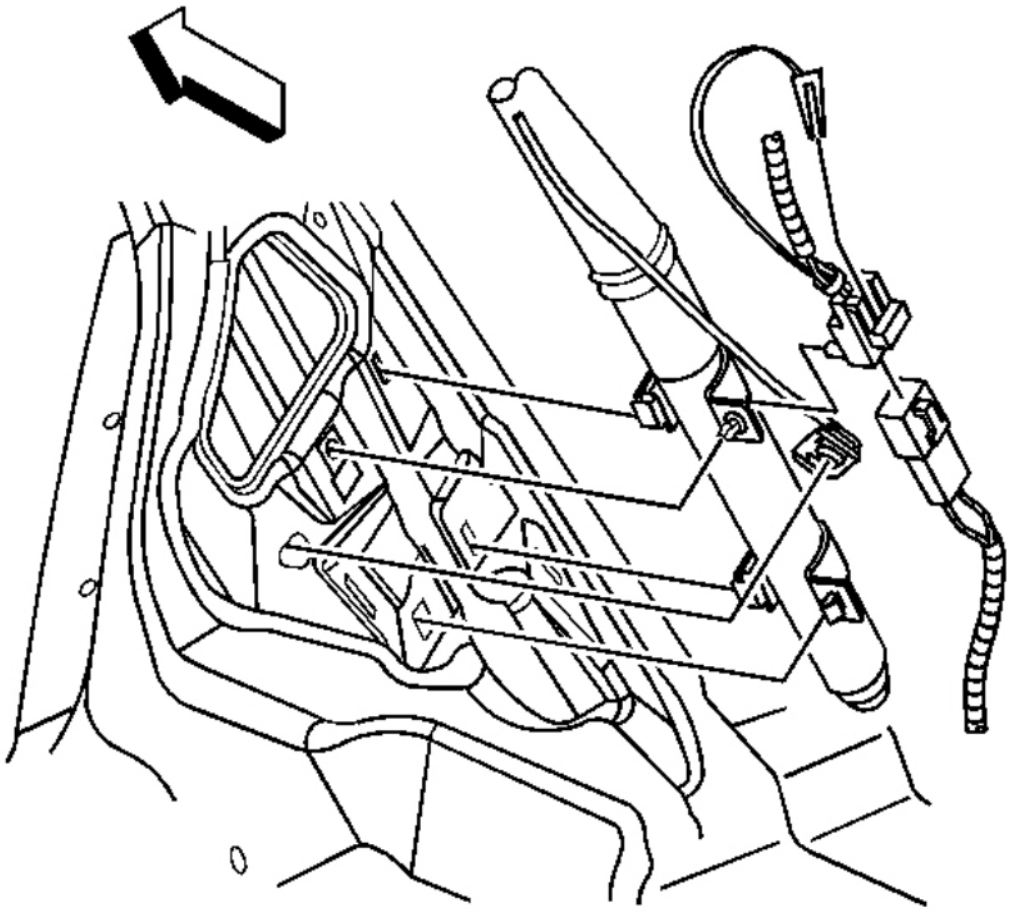


Fig. 109: Locating Roof Rail Module Connector
Courtesy of GENERAL MOTORS CORP.

50. Disconnect the yellow harness connector to the right roof rail air bag from the vehicle harness connector.

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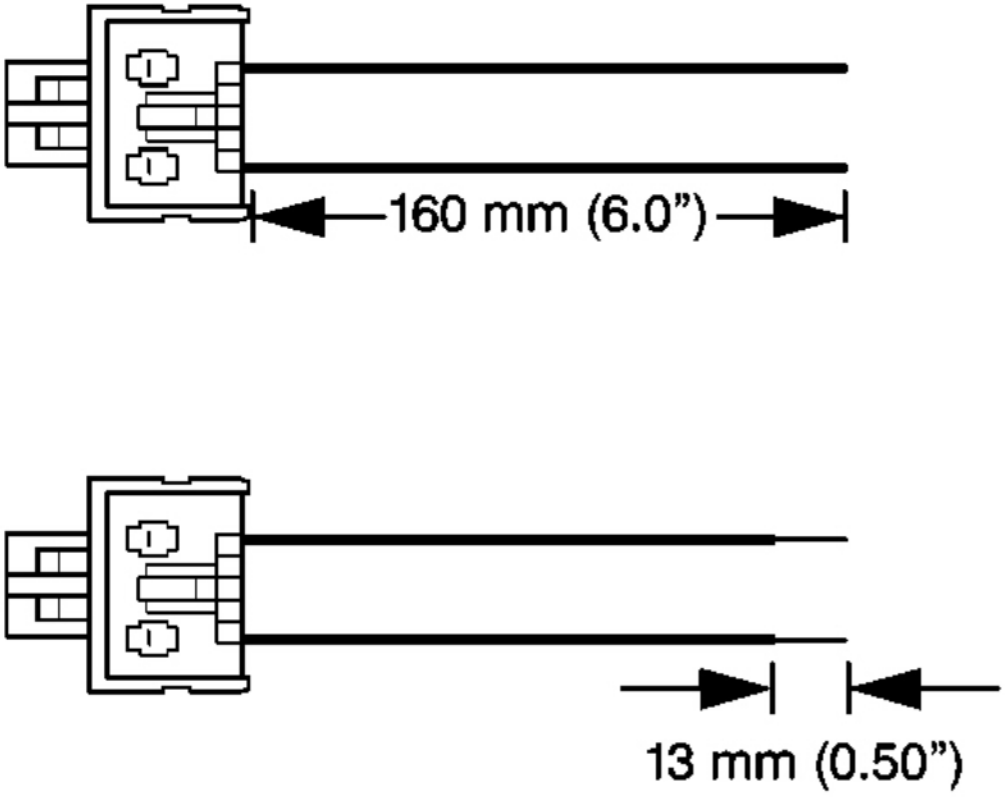


Fig. 110: Identifying Proper Stripping Of Connection Wire Leads
Courtesy of GENERAL MOTORS CORP.

51. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
52. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.

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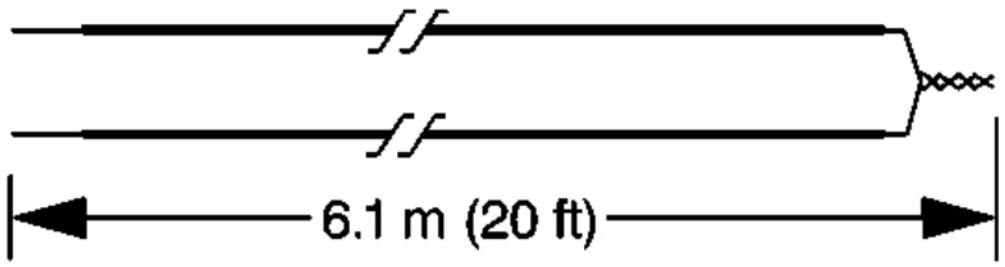


Fig. 111: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

53. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gage) or thicker multi-strand wire. These wires will be used to fabricate the roof rail module deployment harness.
54. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
55. Twist together one end from each of the wires in order to short the wires.

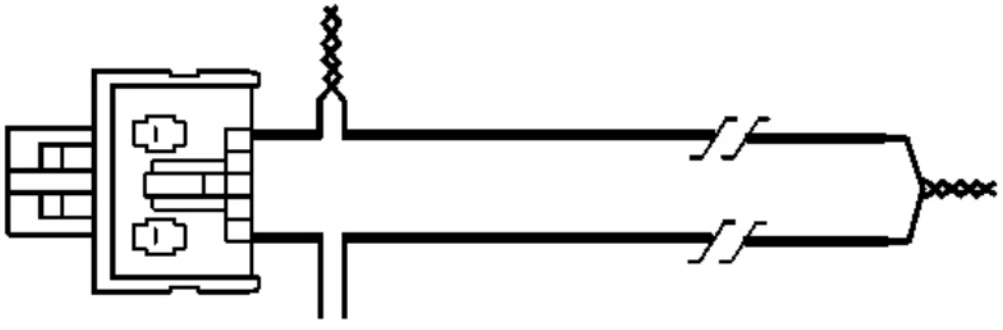


Fig. 112: View Of Proper Twisting Of Connector Wire Lead To Deployment Wire
Courtesy of GENERAL MOTORS CORP.

56. Twist together one connector wire lead to one deployment wire.

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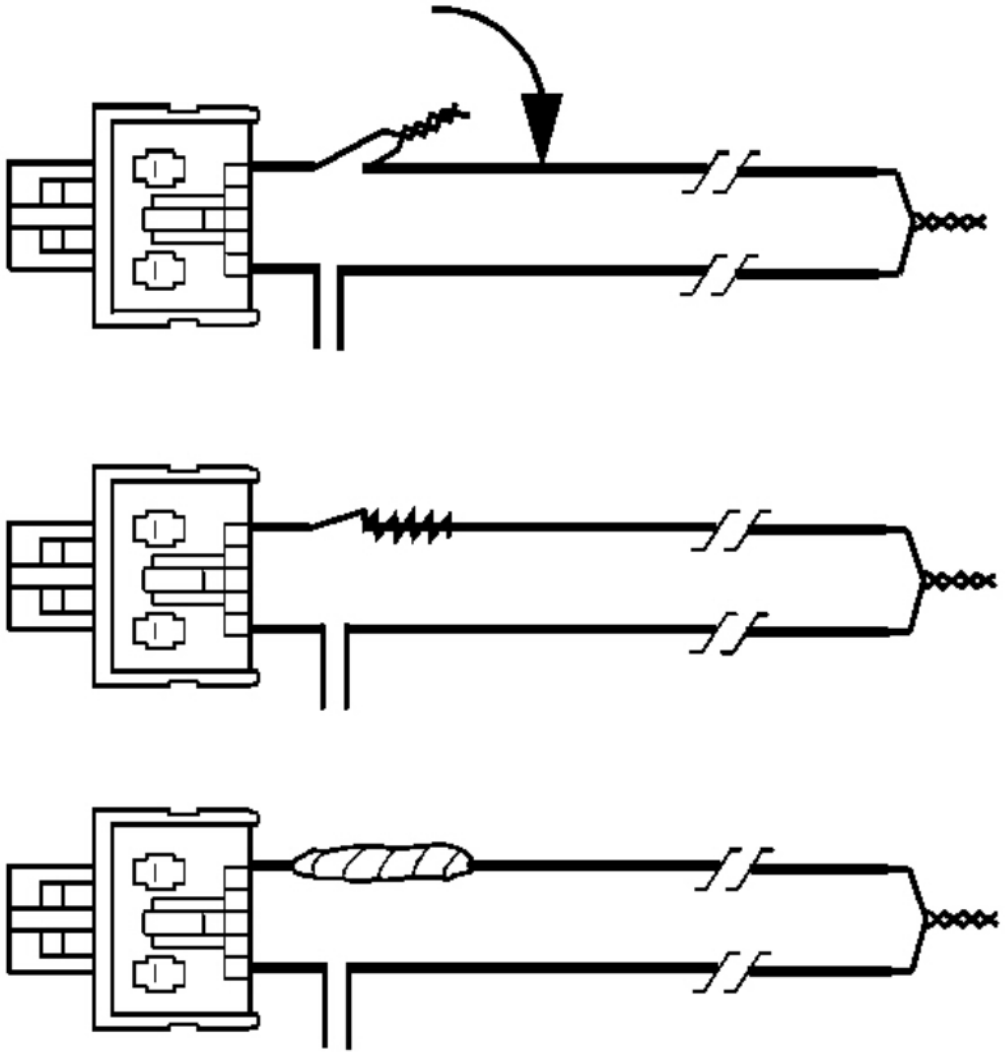


Fig. 113: Bending Twisted Connection Flat & Insulating With Tape
Courtesy of GENERAL MOTORS CORP.

57. Bend flat the twisted connection.
58. Secure and insulate the connection using electrical tape.

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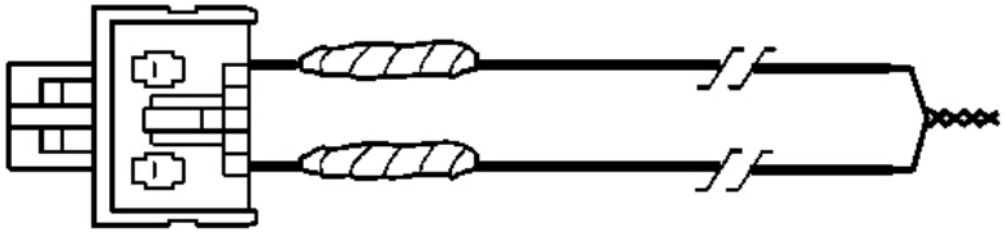


Fig. 114: Taping Remaining Connector Wire Lead To Remaining Deployment Wire
Courtesy of GENERAL MOTORS CORP.

59. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.

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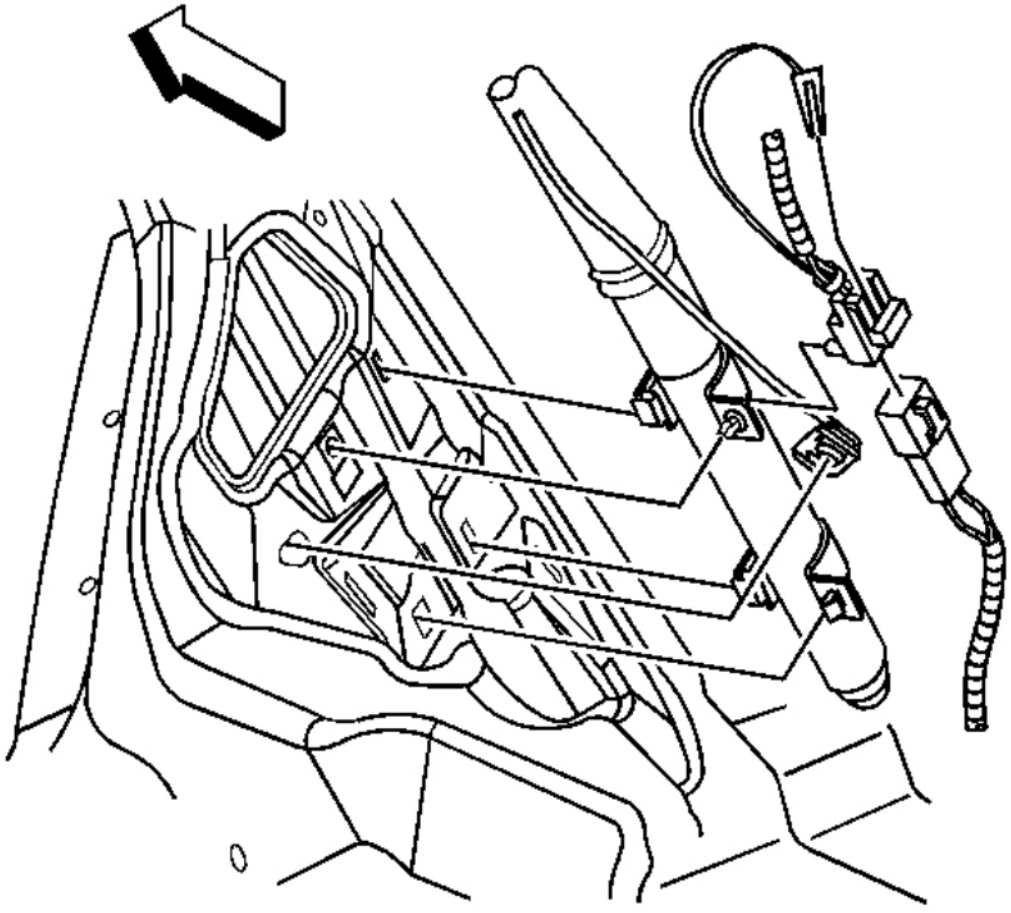


Fig. 115: Locating Roof Rail Module Connector
Courtesy of GENERAL MOTORS CORP.

60. Connect the deployment harness to the roof rail module yellow connector.

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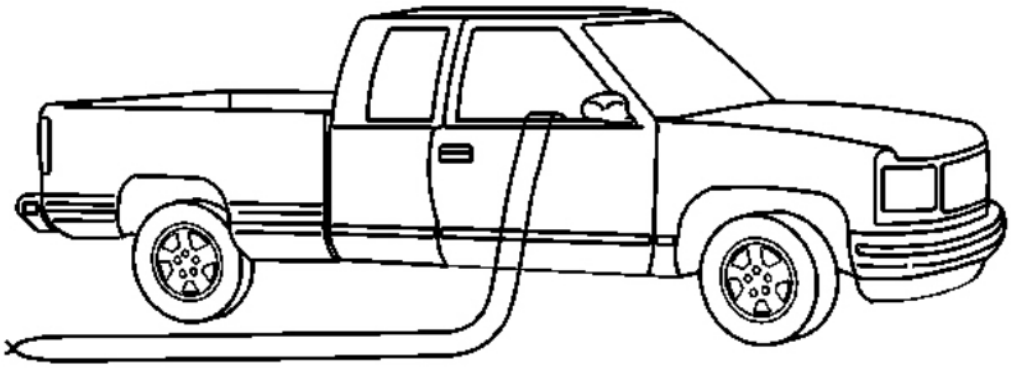


Fig. 116: Routing The Deployment Harness Out Of The Vehicle's Passenger Side
Courtesy of GENERAL MOTORS CORP.

61. Route the deployment harness out of the passenger side of the vehicle.
62. Completely cover the windshield and the front door window openings with a drop cloth.
63. Stretch to the full length all of the deployment harness wires on the right side of the vehicle.
64. Deploy each deployment loop one at a time.
65. Place a power source, 12 V minimum / 2 A minimum, such as a vehicle battery, near the shorted end of the harnesses.
66. Separate one set of wires and touch the wire ends to the power source in order to deploy the selected inflator module.
67. Disconnect the deployment harness from the power source and twist the wire ends together.
68. Continue the same process with the remaining deployment harnesses.

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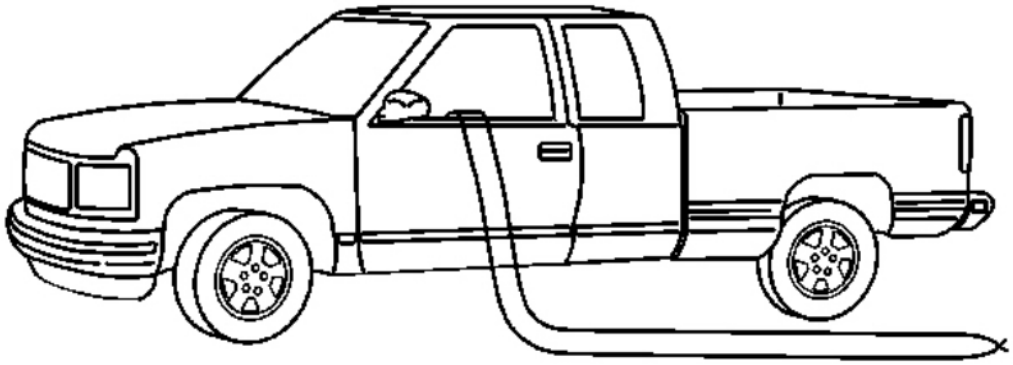


Fig. 117: Routing The Deployment Harness Out Of The Vehicle's Driver Side
Courtesy of GENERAL MOTORS CORP.

69. Stretch to the full length all of the deployment harness wires on the left side of the vehicle.
70. Deploy each deployment loop one at a time.
71. Place a power source, 12 V minimum / 2 A minimum, such as a vehicle battery, near the shorted end of the harnesses.
72. Separate one set of wires and touch the wires ends to the power source in order to deploy the selected inflator modules.
73. Disconnect the deployment harness from the power source and twist the wire ends together.
74. Continue the same process with the remaining deployment harnesses.
75. Remove the drop cloth from the vehicle.
76. Disconnect all harnesses from the vehicle.
77. Discard the harnesses.
78. Scrap the vehicle in the same manner as a non-SIR equipped vehicle.
79. If one or all of the inflator modules did not deploy, perform the following steps to remove the undeployed modules from the vehicle:
    - **Inflatable Restraint Steering Wheel Module Replacement**
    - **Inflatable Restraint Instrument Panel Module Replacement**
    - **Inflatable Restraint Roof Rail Module Replacement (Front LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Front RH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Suburban/Yukon XL)** or **Inflatable Restraint Roof Rail Module Replacement (Rear LH, Tahoe/Yukon)** or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Avalanche/Escalade EXT)** or **Inflatable Restraint Roof Rail Module**

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Replacement (Rear RH, Suburban/Yukon XL) or **Inflatable Restraint Roof Rail Module Replacement (Rear RH, Tahoe/Yukon)**

PRETENSIONER HANDLING AND SCRAPPING

CAUTION: When carrying an undeployed inflatable restraint seat belt pretensioner:

- **Do not carry the seat belt pretensioner by the wires or connector.**
- **Carry the seat belt pretensioner by the piston tube, keeping hands and fingers away from the cable.**
- **Make sure the open end of the seat belt pretensioner piston tube points away from you and other people.**
- **Do not cover the seat belt pretensioner piston tube opening with your hand.**

Failure to observe these guidelines may result in personal injury.

Scrapping Procedure

During the course of a vehicles useful life, certain situations may arise which will require the disposal of a live and undeployed seat belt pretensioner. Do not dispose of a live and undeployed seat belt pretensioner through normal disposal channels until the seat belt pretensioner has been deployed. The following information covers the proper procedures for disposing of a live and undeployed seat belt pretensioner. Do not deploy the seat belt pretensioner in the following situations:

- After replacement of a seat belt pretensioner under warranty. The seat belt pretensioner may need to be returned undeployed to the manufacturer.
- If the vehicle is the subject of a Product Liability report, GM1241, related to the SIR system or the seat belt system. If the vehicle is subject to the Product Liability report, do not alter the SIR or seat belt system in any manner.
- If the vehicle is involved in a campaign affecting the seat belt pretensioners. Follow the instructions in the Campaign Service Bulletin for proper SIR handling procedures.

Deployment Procedures

The seat belt pretensioner can be deployed inside or outside of the vehicle. The method used depends upon the final disposition of the vehicle. Review the following procedures in order to determine which will work best in a given situation.

Deployment Outside Vehicle for Seat Belt Pretensioners

Deploy the seat belt pretensioners outside of the vehicle when the vehicle will be returned to service. Situations that require deployment outside of the vehicle include the following:

- Using the SIR diagnostics, it is determined that the seat belt pretensioner is malfunctioning.

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- The seat belt pretensioner pigtail, if equipped, is damaged.
- The seat belt pretensioner connector is damaged.
- The seat belt pretensioner connector terminals are damaged.

Deployment and disposal of a malfunctioning seat belt pretensioner is subject to any required retention period.

CAUTION: In order to prevent accidental deployment and the risk of personal injury, do not dispose of an undeployed inflatable restraint seat belt pretensioner as normal shop waste. Undeployed seat belt pretensioners contain substances that could cause severe illness or personal injury if their sealed containers are damaged during disposal. Use the following deployment procedures to safely dispose of an undeployed seat belt pretensioner. Failure to observe the following disposal methods may be a violation of federal, state, or local laws.

Tools Required

- **J 39401-B** SIR Deployment Fixture. See **Special Tools**.
- **J 38826** SIR Deployment Harness. See **Special Tools**.
- An appropriate pigtail adaptor

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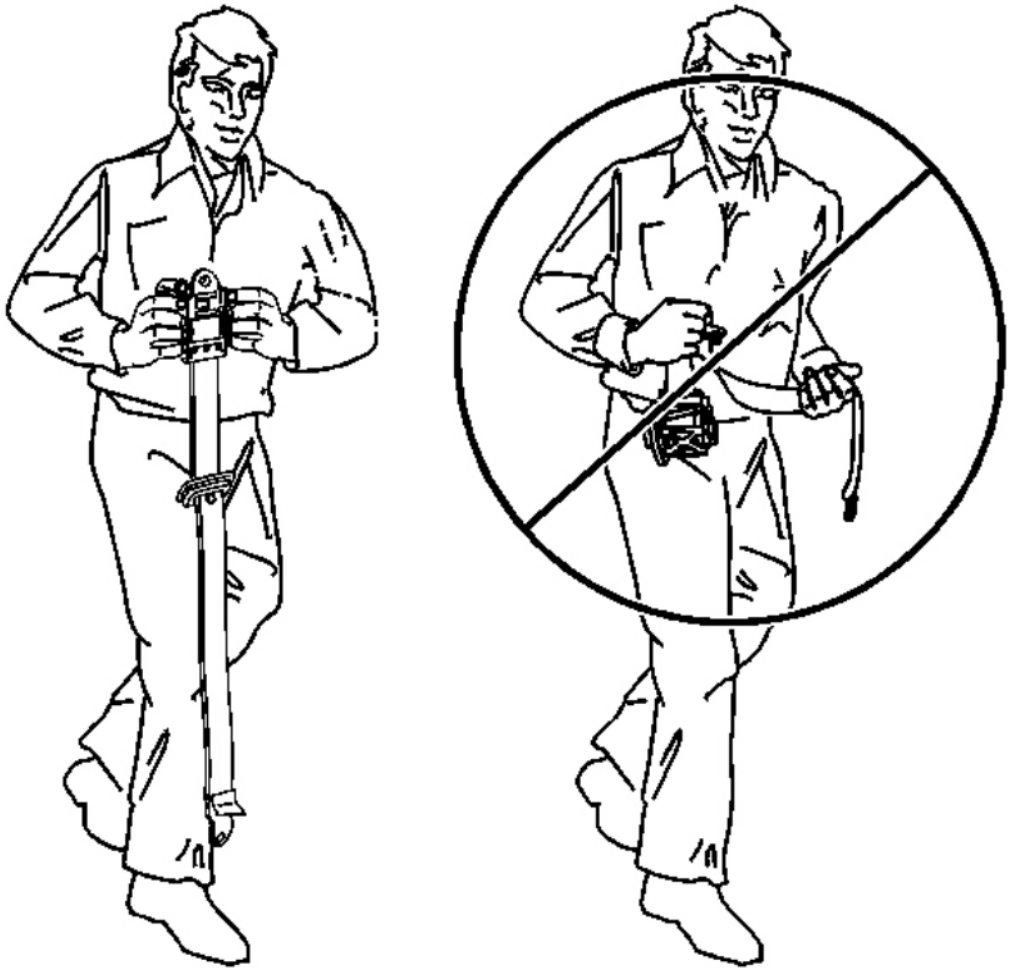


Fig. 118: Proper Transportation of Seat Belt Pretensioner
Courtesy of GENERAL MOTORS CORP.

1. Turn OFF the ignition.
2. Remove the ignition key.
3. Put on safety glasses.
4. Remove the seat belt pretensioner from the vehicle. Refer to **Seat Belt Retractor Pretensioner Replacement - Front**.
5. When carrying a seat belt pretensioner to the deployment area, keep fingers clear of the seat belt webbing.

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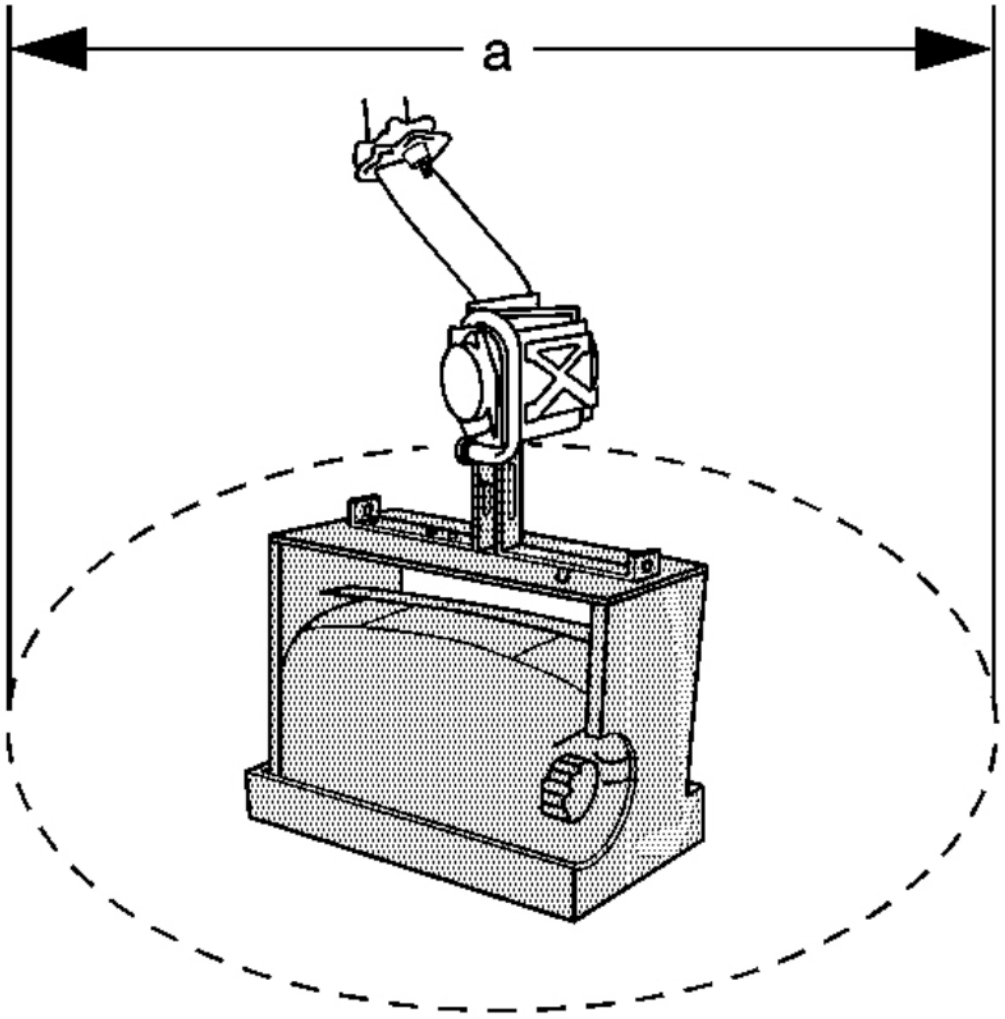


Fig. 119: Illustrating Proper Space For Deployment Of Pretensioner
Courtesy of GENERAL MOTORS CORP.

6. Clear a space on the ground about 1.85 m (6 ft) in diameter for deployment of the seat belt pretensioner. If possible, use a paved, outdoor location free of activity. Otherwise, use a space free of activity on the shop floor. Make sure you have sufficient ventilation.
7. Make sure no loose or flammable objects are in the area.
8. Place the **J 39401-B** in the center of the cleared area. See **Special Tools**.
9. Fill the fixture plastic reservoir with water or sand.

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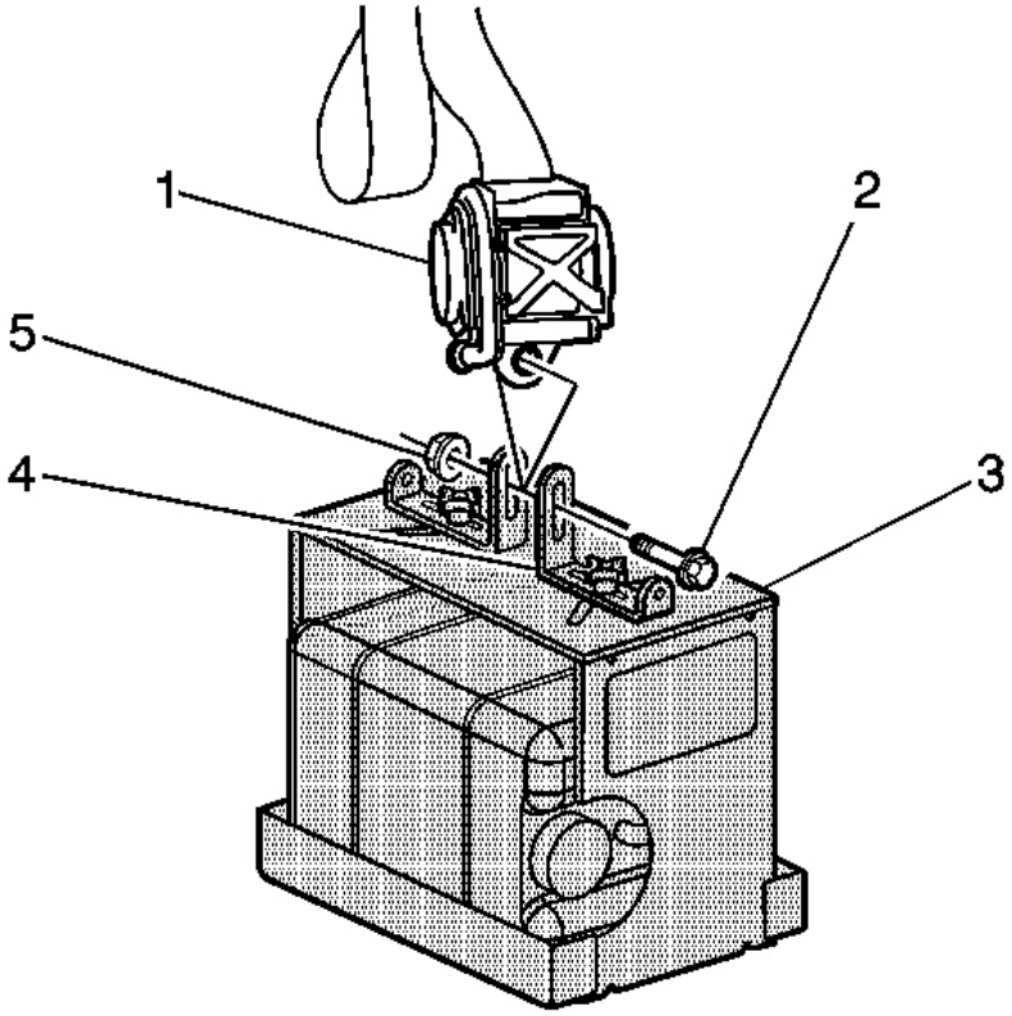


Fig. 120: Seat Belt Pretensioner & SIR Deployment Fixture
Courtesy of GENERAL MOTORS CORP.

10. Mount the seat belt pretensioner (1) in the SIR deployment fixture (3) with the open end facing up using the following mounting method.
    - Adjust and secure the **J 39401-B** arms (4) to the deployment fixture. See **Special Tools**.
    - To mount, use the proper size bolt (2) and nut (5) with washers in order to secure the seat belt pretensioner (1) to the deployment fixture brackets.
    - Securely tighten all fasteners prior to deployment.

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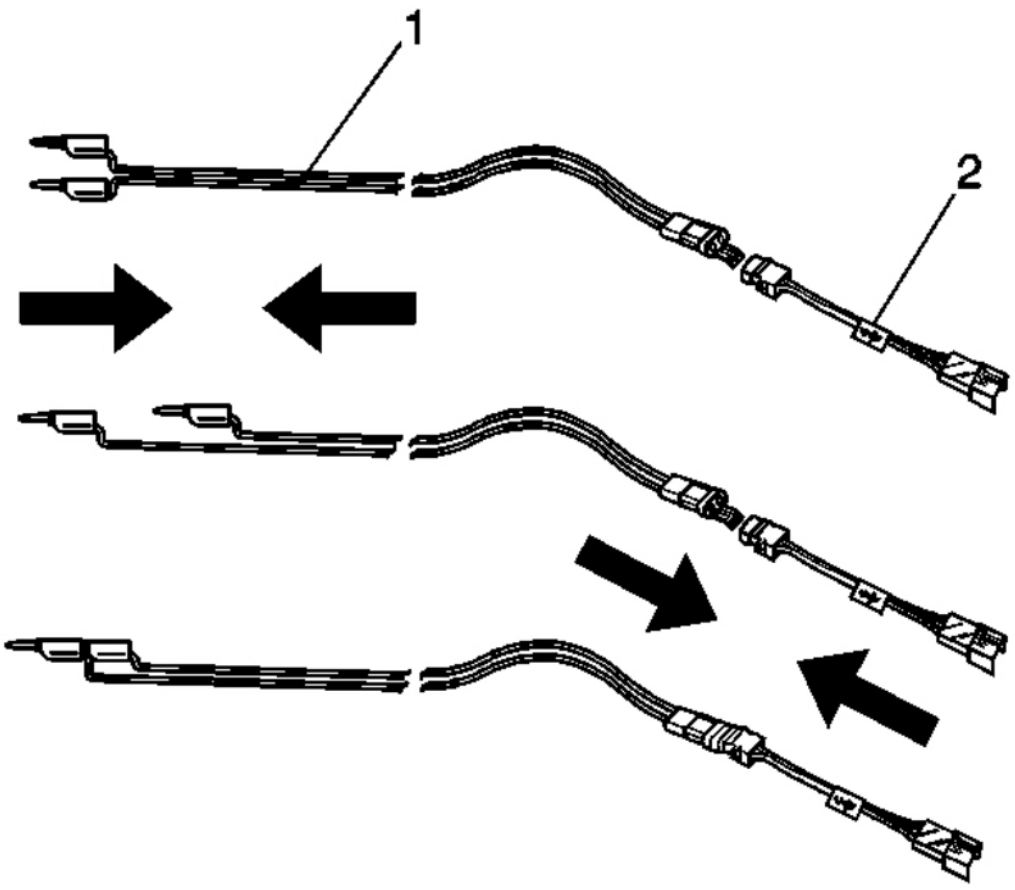


Fig. 121: Identifying SIR Deployment Harness & Adapter
Courtesy of GENERAL MOTORS CORP.

11. Inspect the **J 38826** and the appropriate pigtail adapter for damage. See **Special Tools**. Replace as needed.
12. Short the 2 SIR deployment harness (1) leads together using 1 banana plug seated into the other.
13. Connect the appropriate pigtail adapter (2) to the SIR deployment harness.

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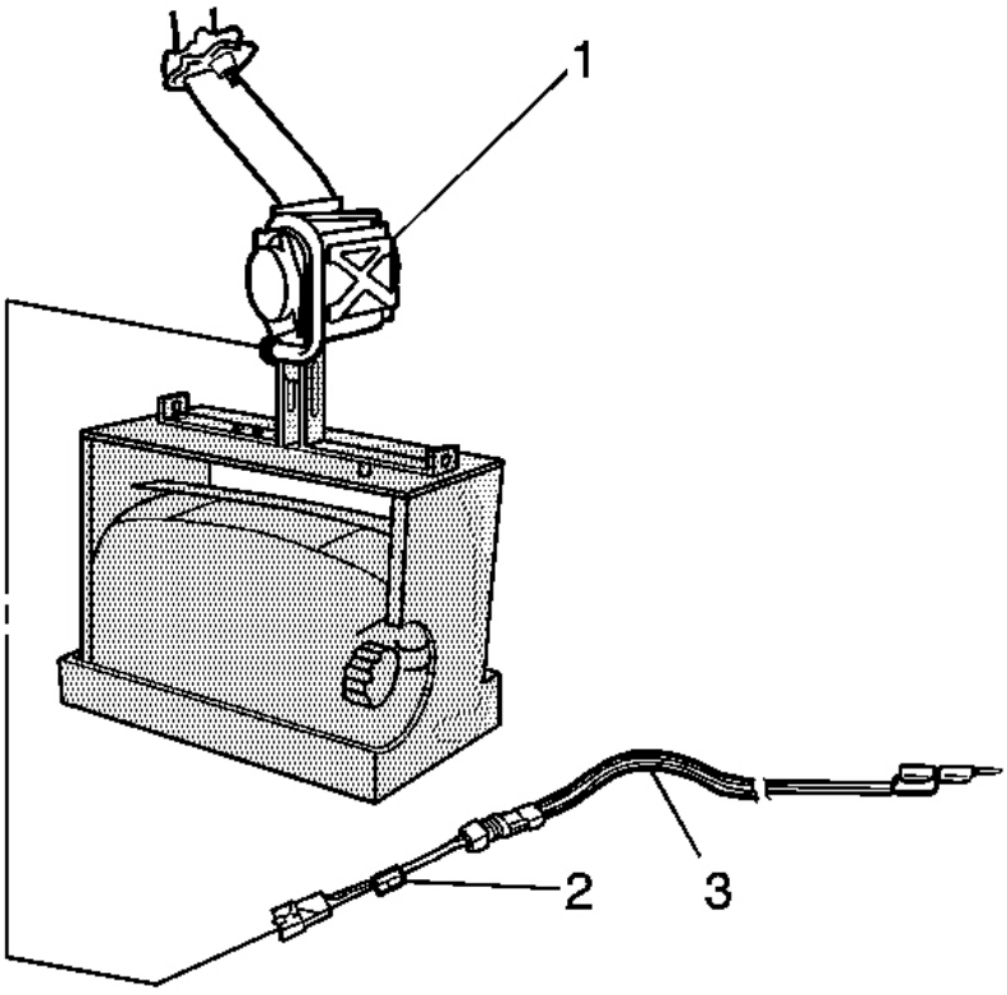


Fig. 122: Identifying Seat Belt Pretensioner Connector, Adapter & Deployment Harness
Courtesy of GENERAL MOTORS CORP.

14. Extend the SIR deployment harness and adapter to full length from the deployment fixture.
15. Connect the seat belt pretensioner connector (1) to the adapter (2) on the deployment harness (3).

IMPORTANT: When deploying a seat belt pretensioner, the rapid expansion of gas is very loud. Notify the people in the immediate area that a seat belt pretensioner will be deployed.

16. Clear the area of people.

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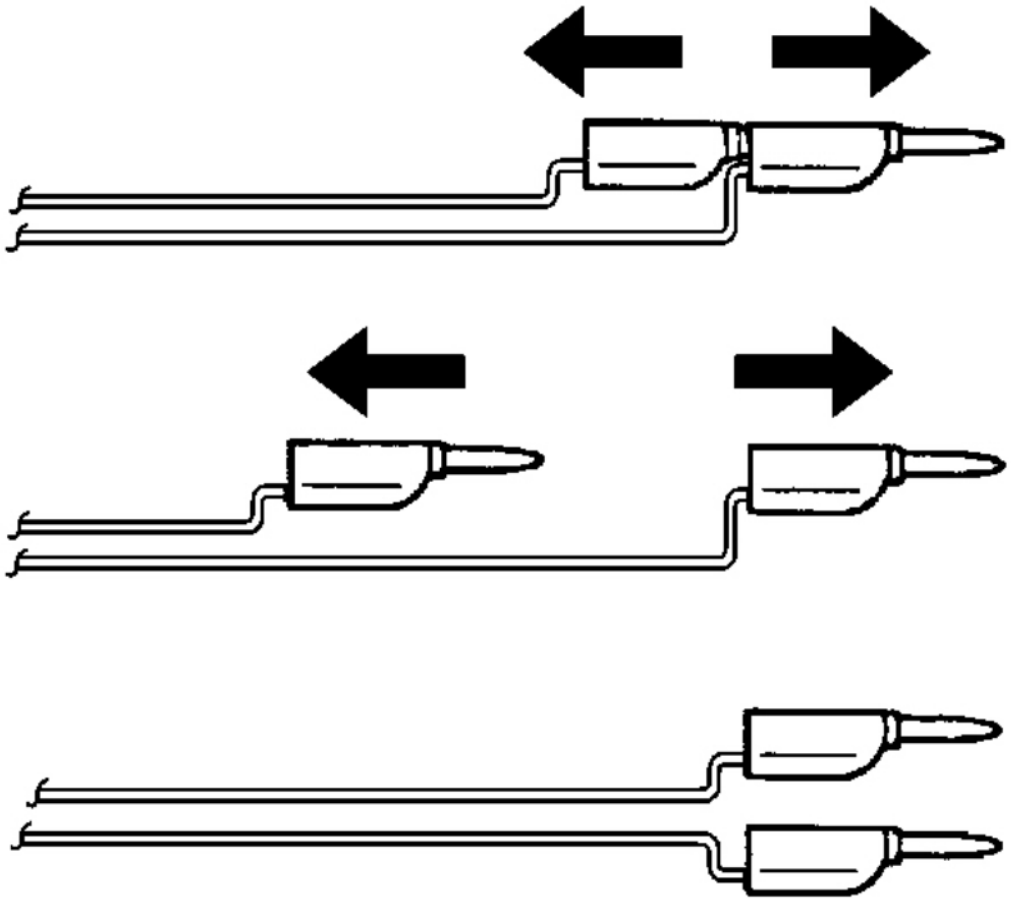


Fig. 123: View Of Banana Plugs
Courtesy of GENERAL MOTORS CORP.

17. Separate the 2 banana plugs on the SIR deployment harness.

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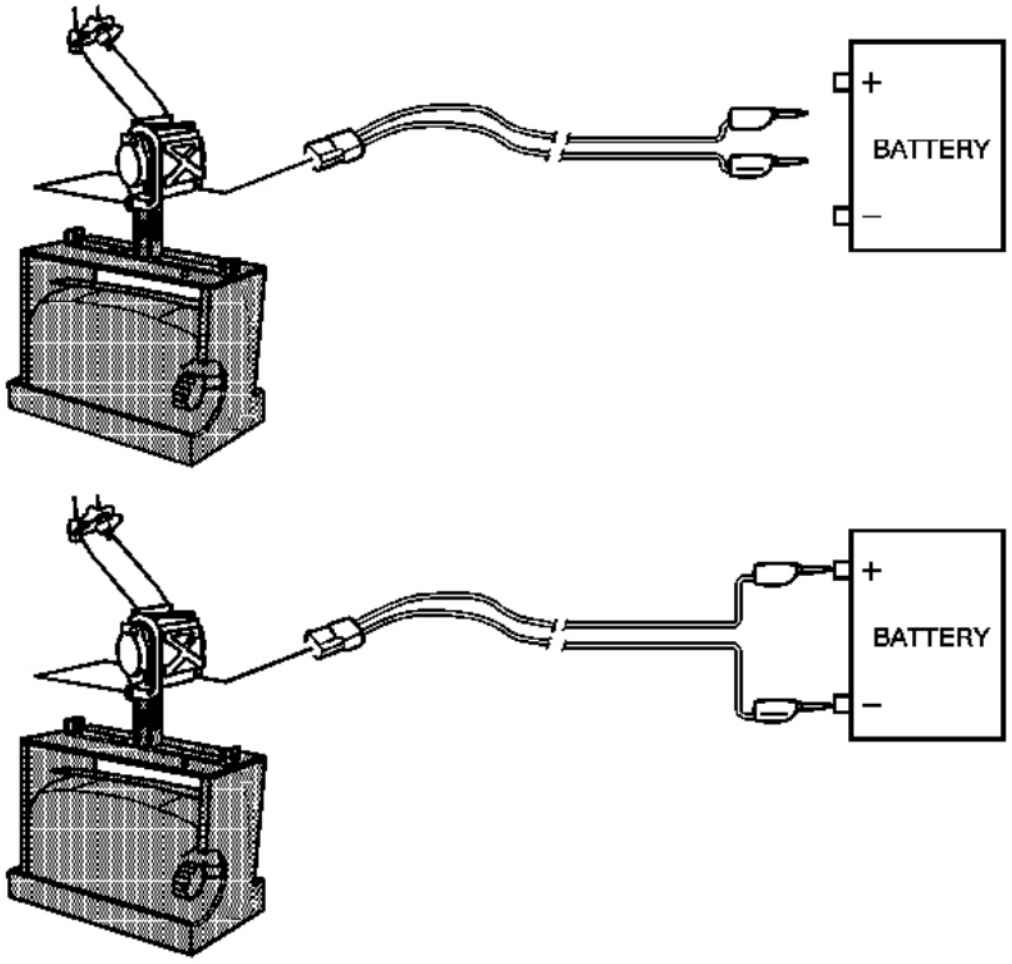


Fig. 124: Deploying Seat Belt Pretensioner
Courtesy of GENERAL MOTORS CORP.

18. Place a 12 volt minimum/2 amp minimum power source, such as a vehicle battery, near the shorted end of the harness.
19. Connect the SIR deployment harness wires to the power source. Seat belt pretensioner deployment will occur when contact is made.
20. Disconnect the SIR deployment harness from the power source after the seat belt pretensioner deploys.

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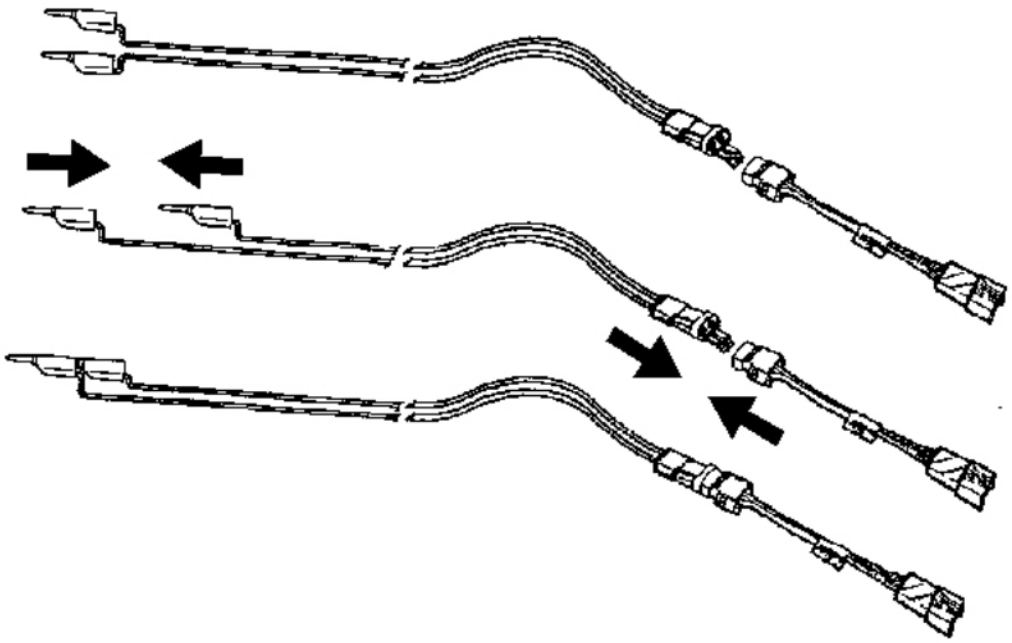


Fig. 125: View Of Deployment Harness Leads
Courtesy of GENERAL MOTORS CORP.

21. Seat one banana plug into the other in order to short the deployment harness leads.
22. If the seat pretensioner did not deploy, disconnect the adapter and discontinue the procedure. Contact the Technical Assistance Group. Otherwise, proceed to the following steps.
23. Put on a pair of shop gloves.
24. Disconnect the pigtail adapter from the seat belt pretensioner as soon as possible.
25. Dispose of the deployed seat belt pretensioner through normal refuse channels.
26. Wash hands with a mild soap.

Deployment Inside Vehicle - Vehicle Scrapping Procedure

Deploy the seat belt pretensioners inside of the vehicle when destroying the vehicle or when salvaging the vehicle for parts. This includes but is not limited to the following situations:

- The vehicle has completed its useful life.
- Irreparable damage occurs to the vehicle in a non-deployment type accident.
- Irreparable damage occurs to the vehicle during a theft.
- The vehicle is being salvaged for parts to be used on a vehicle with a different VIN as opposed to

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rebuilding as the same VIN.

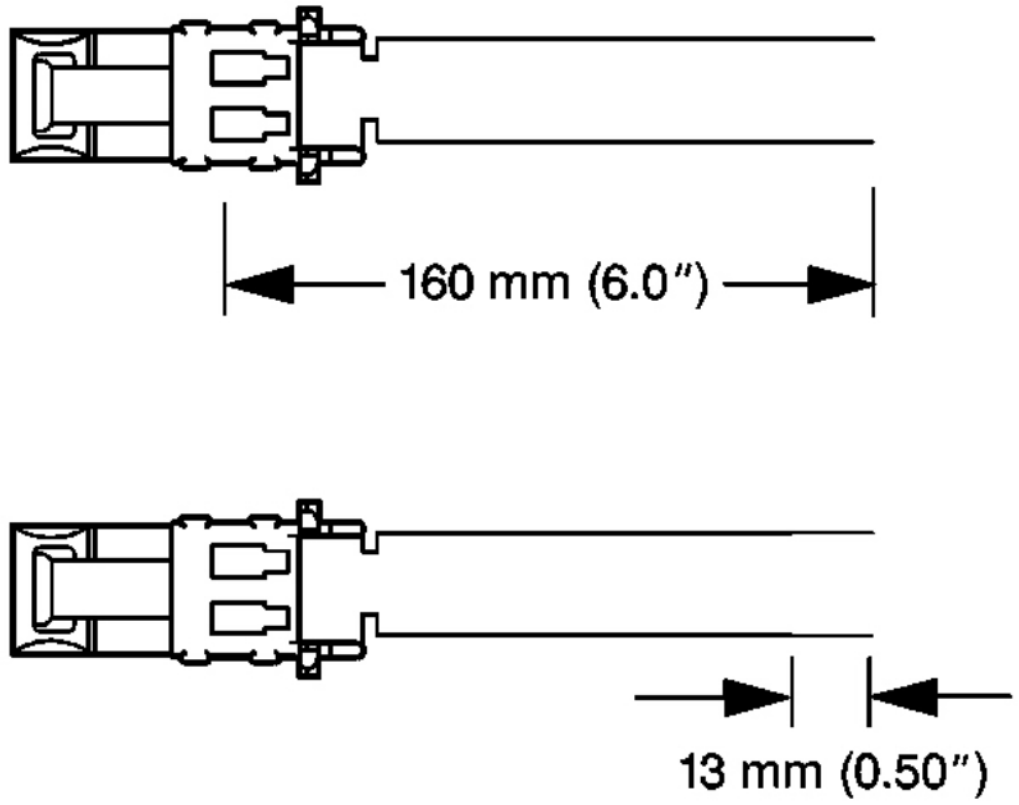


Fig. 126: Stripping Connector Wire Lead
Courtesy of GENERAL MOTORS CORP.

1. Turn OFF the ignition.
2. Remove the ignition key.
3. Put on safety glasses.
4. Remove all loose objects from the front seats.
5. Disconnect the seat belt pretensioner connector. Refer to **Seat Belt Retractor Pretensioner Replacement - Front**.
6. Cut the seat belt pretensioner harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
7. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.

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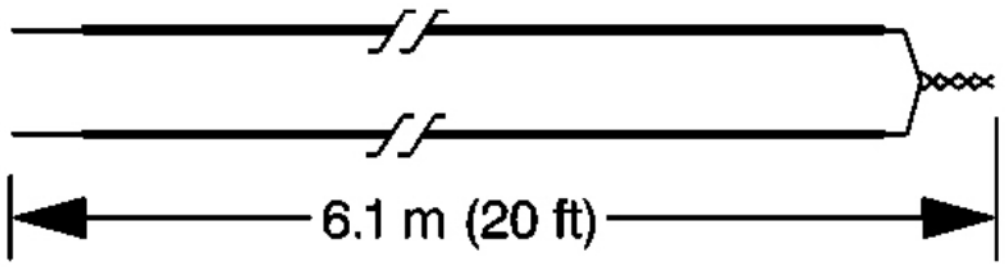


Fig. 127: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

8. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gage) or thicker multi-strand wire. These wires will be used for the seat belt pretensioner deployment harness.
9. Strip 13 mm (0.5 in) of insulation from both ends of the wires cut in the previous step.
10. Twist together one end from each of the wires in order to short the wires. Deployment wires shall remain shorted, and not connected to a power source until you are ready to deploy the seat belt pretensioner.

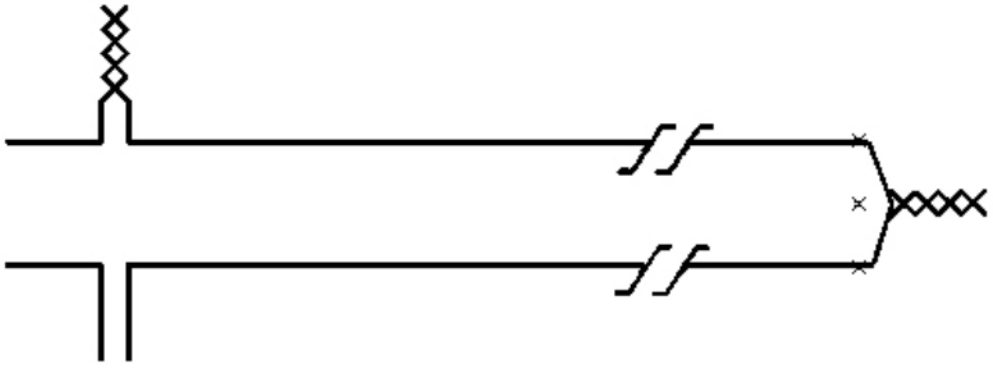


Fig. 128: Twisting Together Connector Wire Lead To Deployment Wire
Courtesy of GENERAL MOTORS CORP.

11. Twist together one connector wire lead to one deployment wire.

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12. Inspect that the previous connections is secure.

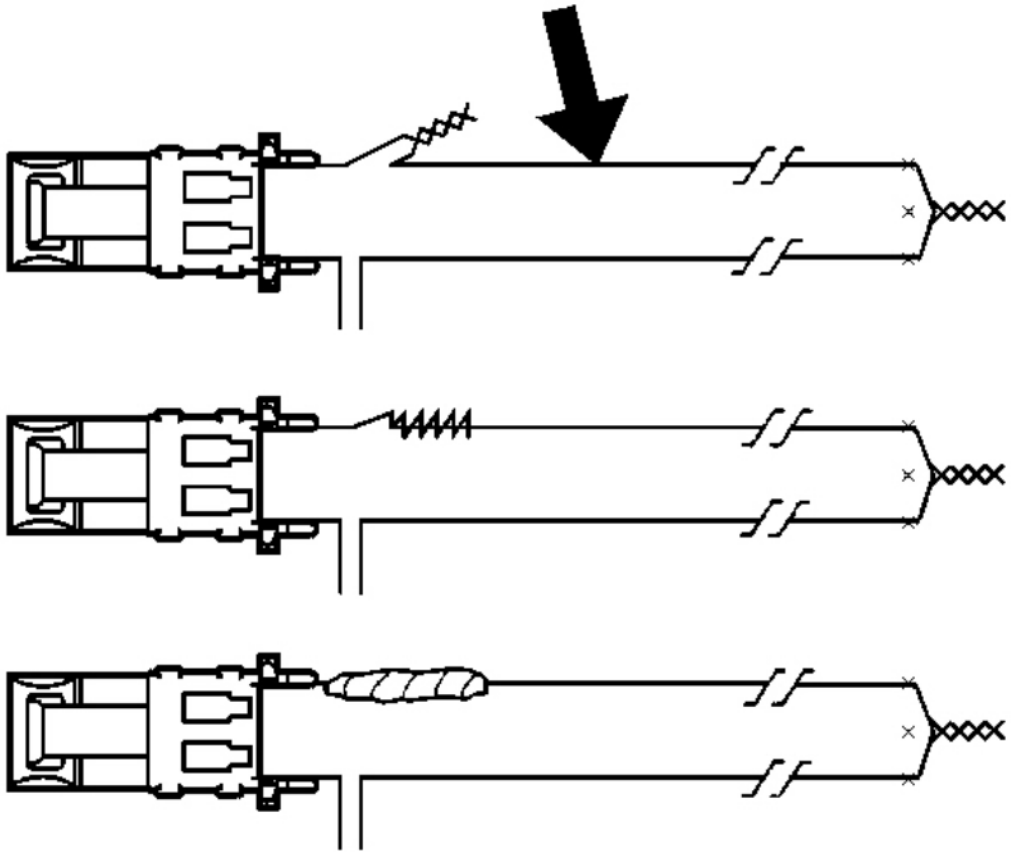


Fig. 129: Identifying I/P Module Twisted Connection
Courtesy of GENERAL MOTORS CORP.

13. Bend flat the twisted connection.
14. Secure and insulate the connection using electrical tape.

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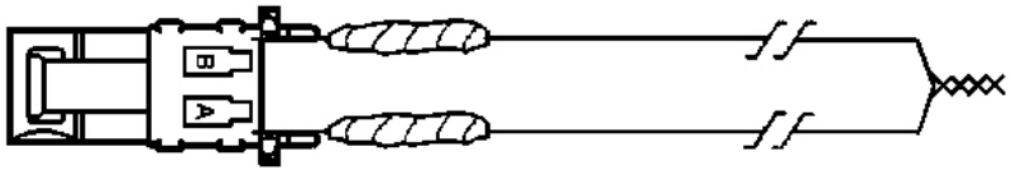


Fig. 130: View Of Dual Insulated Connector Wires
Courtesy of GENERAL MOTORS CORP.

15. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.

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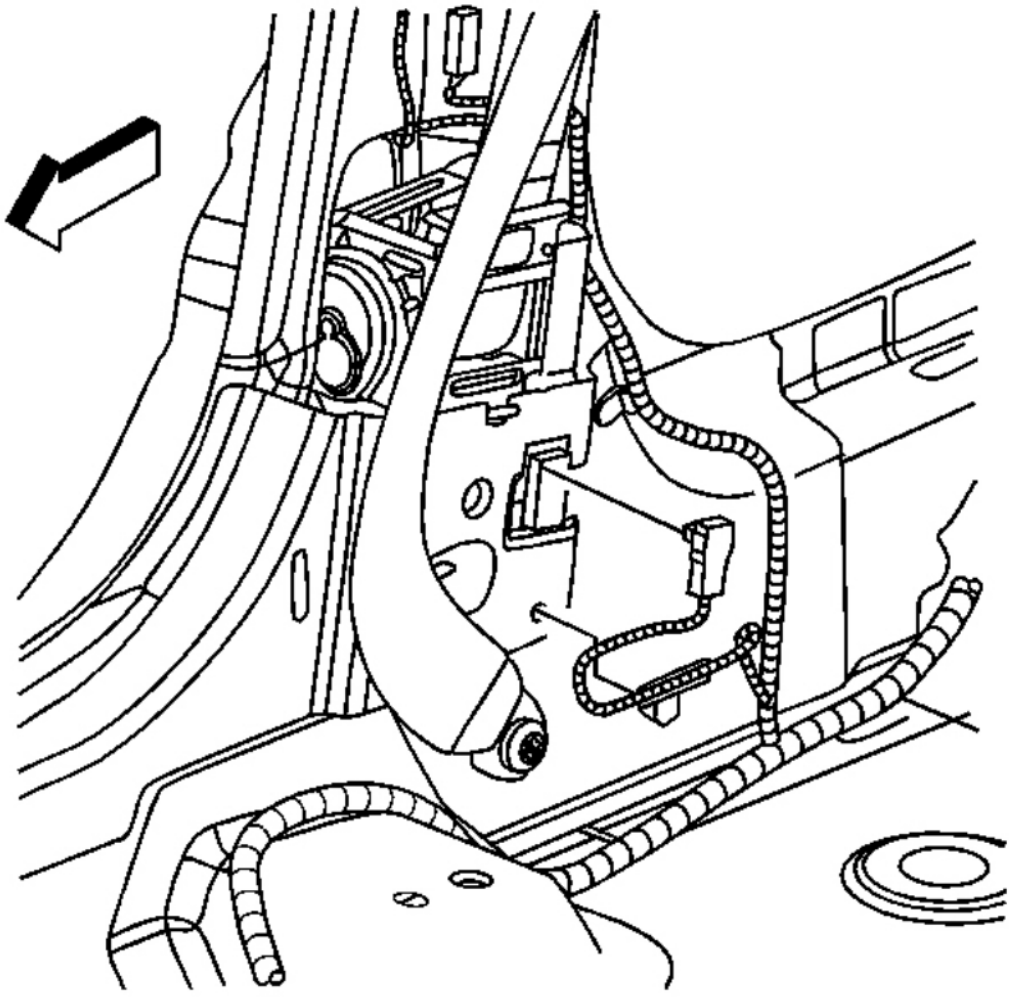


Fig. 131: View Of Seat Belt Pretensioner Connector & Wiring Harness Routing
Courtesy of GENERAL MOTORS CORP.

16. Connect the deployment harness to the seat belt pretensioner connector.

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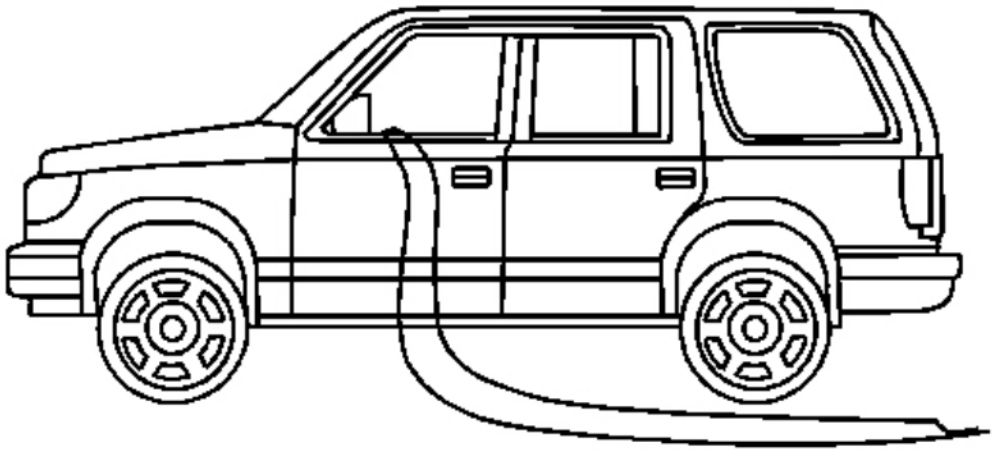


Fig. 132: Routing Wires To Apply Power For Controlled Bag Deployment (Left)
Courtesy of GENERAL MOTORS CORP.

17. Route the deployment harness out of the driver side of the vehicle.

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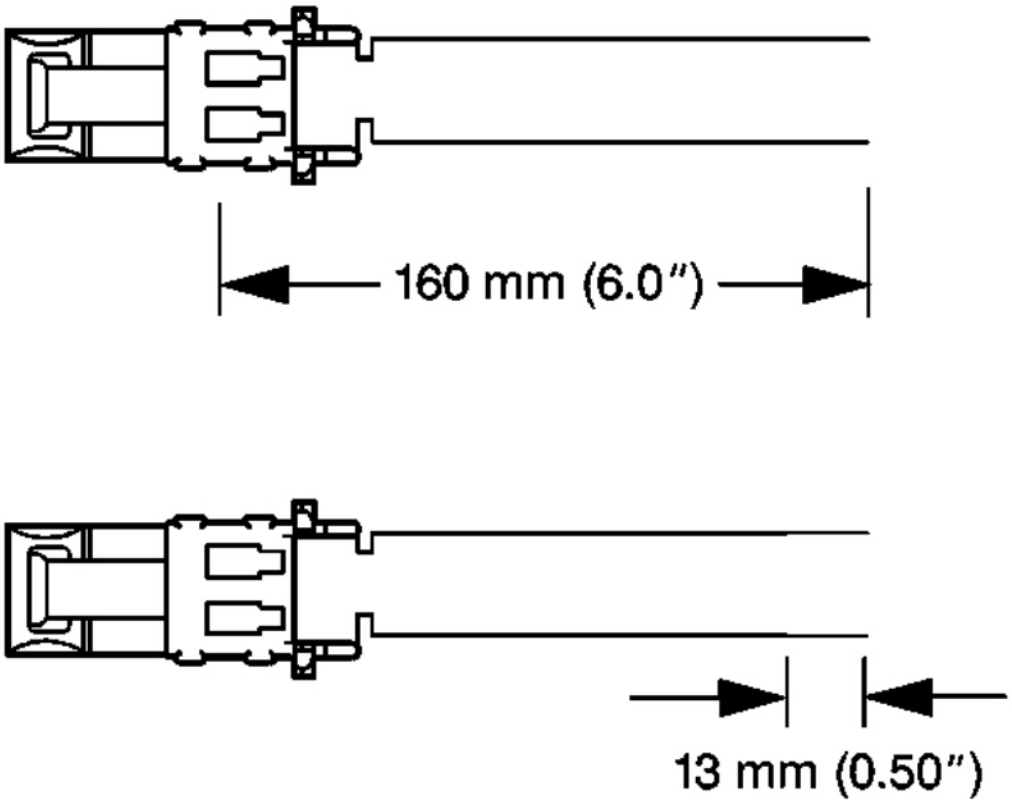


Fig. 133: Stripping Connector Wire Lead
Courtesy of GENERAL MOTORS CORP.

18. Disconnect the seat belt pretensioner connector. Refer to **Seat Belt Retractor Pretensioner Replacement - Front**.
19. Cut the seat belt pretensioner connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
20. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.

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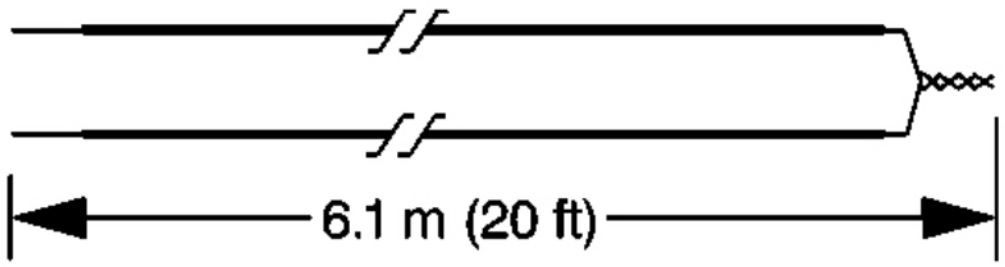


Fig. 134: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

21. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gage) or thicker multi-strand wire. These wires will be used for the seat belt pretensioner deployment harness.
22. Strip 13 mm (0.5 in) of insulation from both ends of the wires cut in the previous step.
23. Twist together one end from each of the wires in order to short the wires. The deployment wires are to remain shorted, and not connected to a power source until you are ready to deploy the seat belt pretensioner.

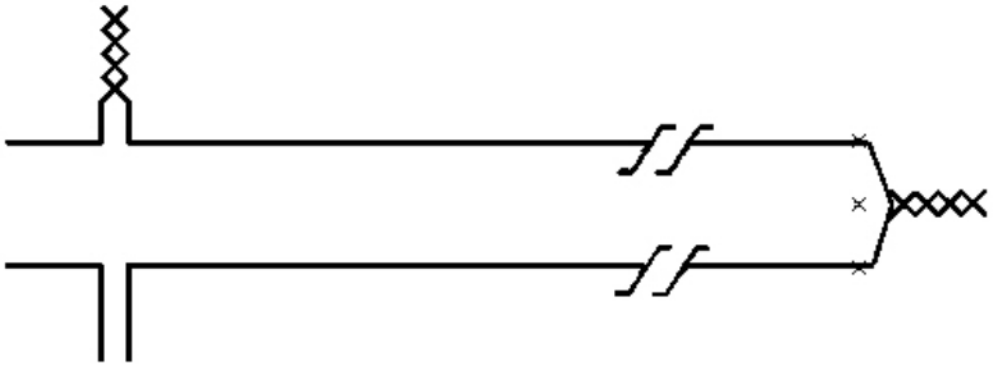


Fig. 135: Twisting Together Connector Wire Lead To Deployment Wire
Courtesy of GENERAL MOTORS CORP.

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24. Twist together one connector wire lead to one deployment wire.
25. Inspect that the previous connection is secure.

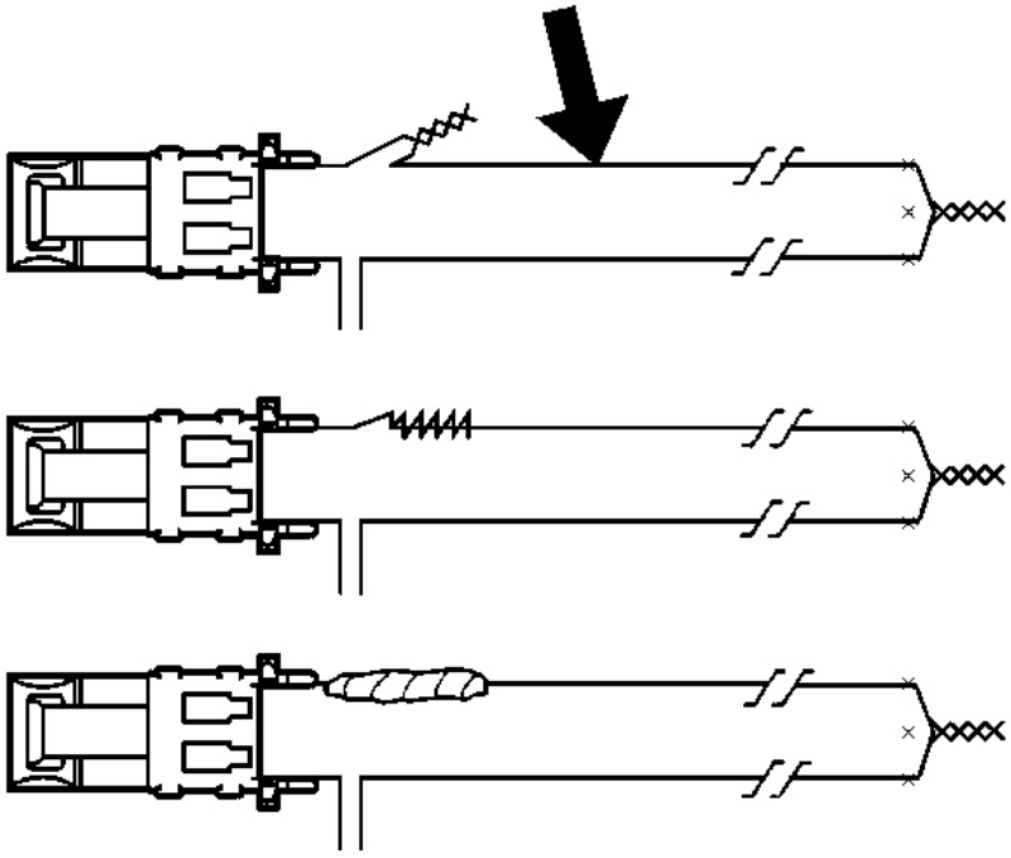


Fig. 136: Identifying I/P Module Twisted Connection
Courtesy of GENERAL MOTORS CORP.

26. Bend flat the twisted connection.
27. Secure and insulate the connection using electrical tape.

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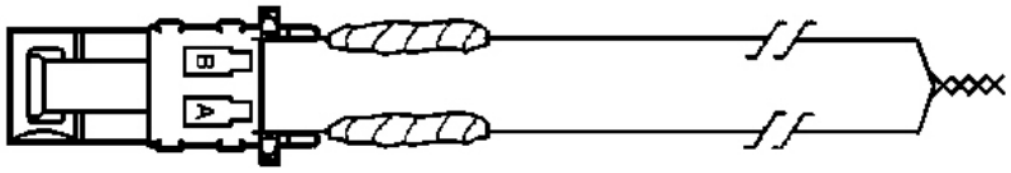


Fig. 137: View Of Dual Insulated Connector Wires
Courtesy of GENERAL MOTORS CORP.

28. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.

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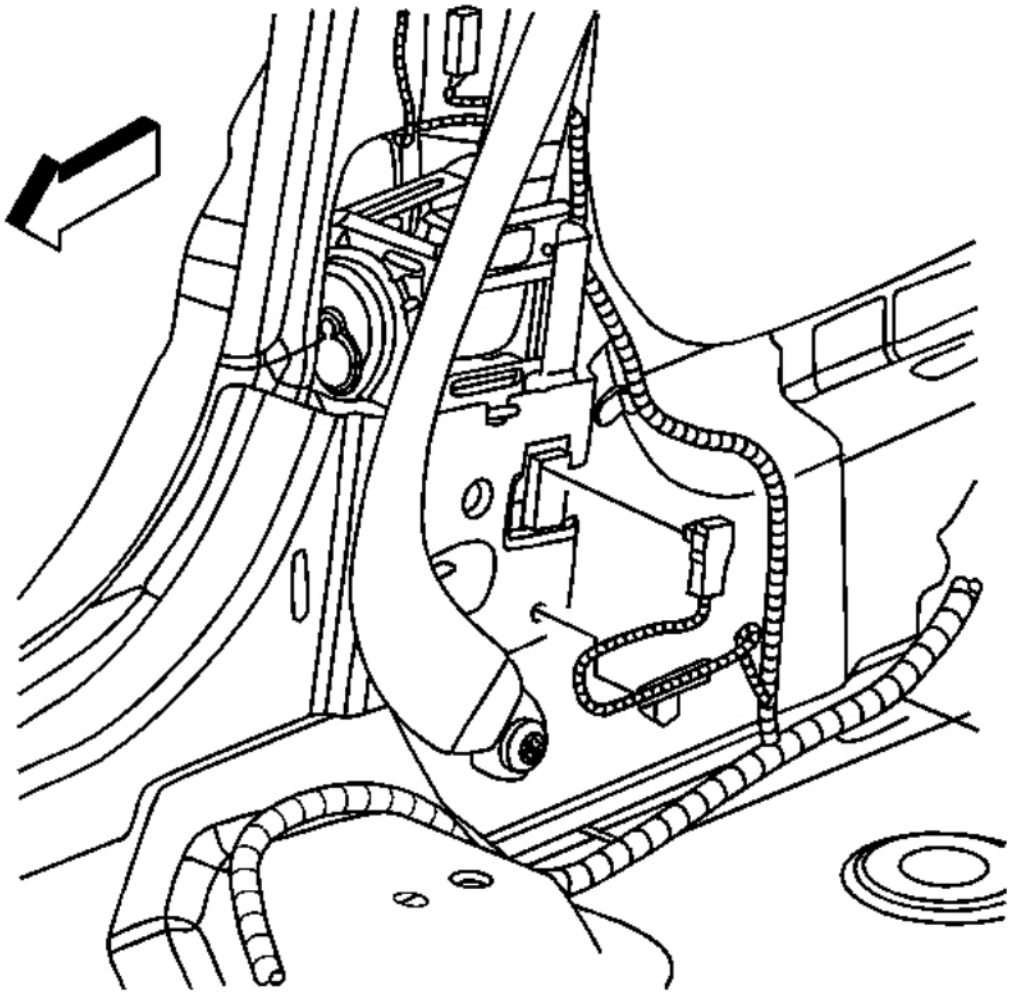


Fig. 138: View Of Seat Belt Pretensioner Connector & Wiring Harness Routing
Courtesy of GENERAL MOTORS CORP.

29. Connect the deployment harness to the seat belt pretensioner connector.

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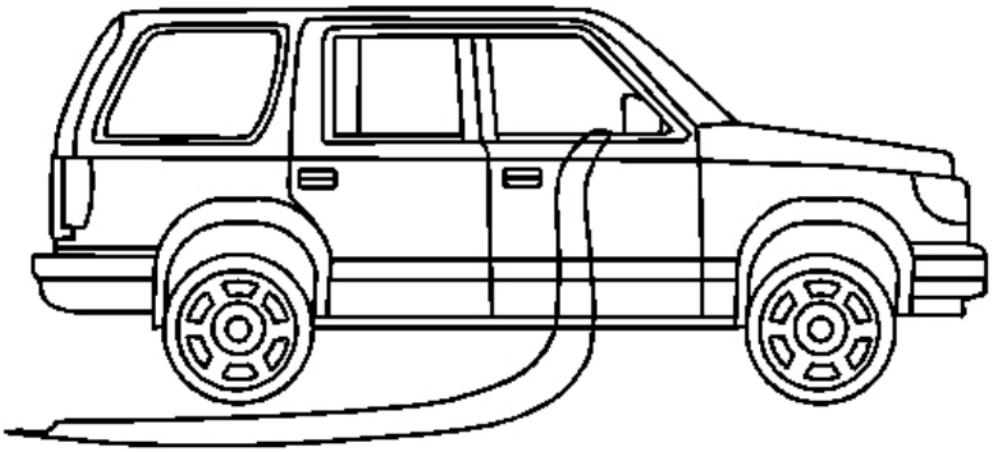


Fig. 139: Routing Wires To Apply Power For Controlled Bag Deployment (Right)
Courtesy of GENERAL MOTORS CORP.

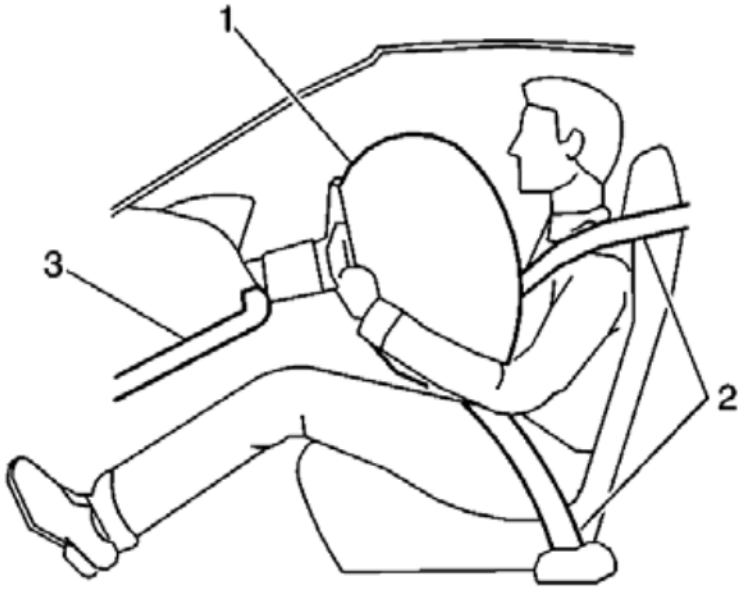
30. Route the deployment harness out of the passenger's side of the vehicle.
31. Completely cover the windshield and the front door openings with a drop cloth.
32. Deploy each deployment loop one at a time.
33. Stretch out all of the deployment harness wires on the left and right side of the vehicle to their full length.
34. Place a power source, 12 volt minimum/2 amp minimum, such as a vehicle battery, near the shorted end of the harnesses.
35. Separate one set of wires and touch the wire ends to the power source in order to deploy the seat belt pretensioners.
36. Disconnect the deployment harness from the power source and twist the wire ends together.
37. Continue the same process with the remaining deployment harnesses that are available.
38. Remove the drop cloth from the vehicle.
39. Disconnect all harnesses from the vehicle.
40. Discard the harnesses.
41. Scrap the vehicle in the same manner as a non-SIR equipped vehicle.
42. If one or more of the seat belt pretensioners did not deploy, perform the following steps to remove the undeployed seat belt pretensioner from the vehicle, refer to **Seat Belt Retractor Pretensioner Replacement - Front**.
43. Call the Technical Assistance Group for further assistance.

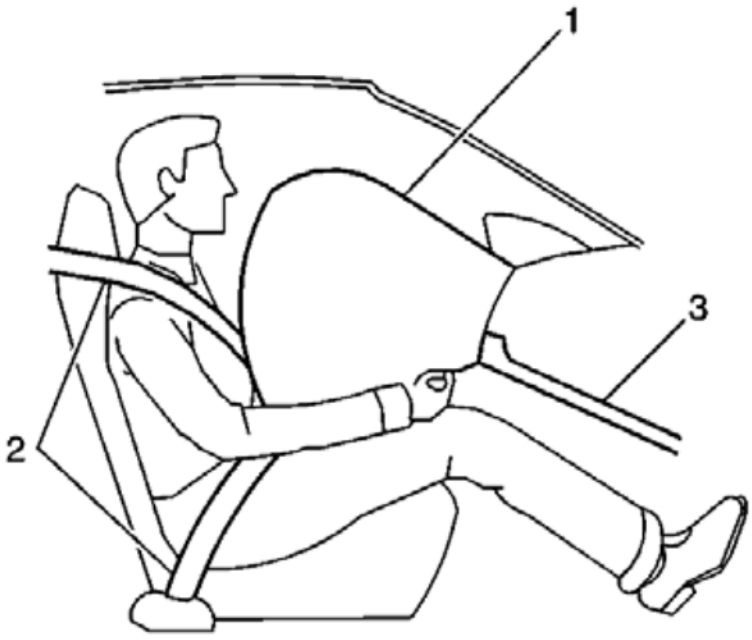
DESCRIPTION AND OPERATION

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SIR SYSTEM DESCRIPTION AND OPERATION

SIR System Overview





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Fig. 140: Illustrating Deployed Inflatable Restraint
Courtesy of GENERAL MOTORS CORP.

The Supplemental Inflatable Restraint (SIR) System supplements the protection offered by the occupants Seat Belt System (2). The SIR system may contain several inflator modules located throughout the vehicle, i.e. steering wheel module (1) and instrument panel (I/P) module (1). In addition to inflator modules, the vehicle contains an inflatable restraint Passenger Presence System (PPS) that measures the weight of an occupant sitting in the front passenger seat. The PPS uses the weight of the occupant to determine if the I/P inflator module will be enabled or disabled. Each inflator module has a deployment loop that is controlled by the sensing and diagnostic module (SDM) mounted inside the vehicle. The SDM determines the severity of a collision with the assistance of various sensor inputs. When the SDM detects a collision of sufficient force it will process the information provided by the sensors to further support air bag deployment. The SDM performs continuous diagnostic monitoring of the SIR system electrical components. Upon detection of a circuit malfunction, the SDM will set a DTC and inform the driver by requesting the instrument panel cluster (IPC) to turn the AIR BAG indicator ON. The steering column (1) and knee bolsters (3) are designed to absorb energy and compress during frontal collisions in order to limit leg movement and decrease the chance of injury to the driver and passenger.

Frontal SIR System Description

The frontal Supplemental Inflatable Restraint (SIR) System consists of the following components:

- AIR BAG indicator located on the instrument panel cluster (IPC)
- Driver and passenger knee bolsters
- Inflatable restraint front end sensors (left/right)
- Inflatable restraint PASSENGER AIR BAG ON/OFF indicator
- Inflatable restraint Passenger Presence System (PPS)
- Inflatable restraint passenger seat belt tension sensor
- Inflatable restraint seat position sensor (SPS) (left)
- Inflatable restraint sensing and diagnostic module (SDM)
- Inflatable restraint steering wheel module
- Inflatable restraint steering wheel module coil
- Inflatable restraint wiring harnesses
- Seat belt pretensioners (left/right)
- Steering wheel and column

A frontal collision of sufficient force will deploy the frontal air bags. The SDM contains a sensing device that converts vehicle velocity changes to an electrical signal. In the event of a frontal collision, the SDM receives a signal from the front end sensors which assists the SDM in determining the severity of some frontal collisions. The SDM contains a microprocessor that performs calculations using the measured accelerations. The SDM compares these calculations to a value stored in memory. When the generated calculations exceed the stored value, the SDM will cause current to flow through the frontal deployment loops deploying the frontal air bags. Once the air bags are inflated they quickly deflate through the air bag vent holes. After the air bags have deployed, the SDM sets a diagnostic trouble code (DTC) and requests the IPC to turn the AIR BAG indicator

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ON. The SDM, instrument panel (I/P) module, steering wheel module, steering wheel module coil and the connecting wires makeup the frontal deployment loops. The SDM continuously monitors the deployment loops for malfunctions and requests the IPC to turn the AIR BAG indicator ON if a fault is detected.

Side SIR System Description (Front)

The side Supplemental Inflatable Restraint (SIR) System (front) consists of the following components:

- AIR BAG indicator located in the instrument panel cluster (IPC)
- Inflatable restraint roof rail modules front/rear, (left/right)
- Inflatable restraint sensing and diagnostic module (SDM)
- Inflatable restraint side impact sensors (SIS) (left/right)
- Inflatable restraint vehicle rollover sensor
- Inflatable restraint wiring harnesses
- Seat belt pretensioners (left/right)

The roof rail modules (front/rear) are located in the headliner along the roof rails. The roof rail modules contain a housing, inflatable air bag, initiating device, and a canister of gas generating material. The initiator is part of the roof rail module deployment loop. When a side impact of sufficient force occurs the SIS detects the impact and sends a signal to the SDM. The SDM compares the signal received from the SIS to a value stored in memory. When the generated signal exceeds the stored value, the SDM will cause current to flow through the side deployment loop deploying the roof rail air bag. The SDM, roof rail modules (front) and the connecting wires makeup the side deployment loops. The SDM continuously monitors the deployment loops for malfunctions and turns the AIR BAG indicator ON if a fault is present. Each roof rail module is equipped with a shorting bar located on the connector of the module. The shorting bar shorts the roof rail module deployment loop circuitry to prevent unwanted deployment of the air bag when servicing the inflator module.

Inflatable Restraint Sensing and Diagnostic Module (SDM)

The sensing and diagnostic module (SDM) is a microprocessor and the control center for the Supplemental Inflatable Restraint (SIR) System. The SDM contains internal sensors along with several external sensors, if equipped, mounted at various locations on the vehicle. In the event of a collision, the SDM performs calculations using the signals received from the internal and external sensors. The SDM compares the results of the calculations to values stored in memory. When these calculations exceed the stored value, the SDM will cause current to flow through the appropriate deployment loops to deploy the air bags. The SDM records the SIR System status when a deployment occurs and requests the instrument panel cluster (IPC) to turn the AIR BAG indicator ON. The SDM performs continuous diagnostic monitoring of the SIR System electrical components and circuitry when the ignition is turned ON. If the SDM detects a malfunction, a DTC will be stored and the SDM will request the IPC to turn the AIR BAG indicator ON. In the event that battery voltage is lost during a collision, the SDM maintains a 23-volt loop reserve (23 VLR) for deployment of the air bags. It is important to note, when disabling the SIR System for servicing or rescue operations to allow the 23 VLR to dissipate, which could take up to 1 minute.

Inflatable Restraint Passenger Presence System (PPS)

IMPORTANT: The Passenger Presence System (PPS) is a calibrated unit. When replacing the

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assembly all parts in the service kit must remain together. Do not mix any of the old parts with the new parts. After repairing or replacing the PPS, the system must be rezeroed in order to function properly.

The PPS is used to monitor the weight of an occupant on the front outboard passenger seat and communicate the status to the sensing and diagnostic module (SDM) whether to enable or suppress the deployment of the instrument panel (I/P) module. The PPS consist of an electronic control module, silicone filled sensor pad, pressure sensor, seat belt tension sensor, wiring harness, and PASSENGER AIR BAG ON/OFF indicator. The silicone filled sensor pad is located under the passenger seat foam cushion and is connected by a hose clamped to the pressure sensor. The weight of the occupant sitting in the front passenger seat is measured as a pressure change within the bladder by the pressure sensor. The pressure sensor sends a voltage signal to the PPS module. If the pressure from the occupants weight is less than a specified value, the PPS module will send a suppress signal to the SDM to disable the I/P module. If the pressure from the occupants weight is higher than a specified value, the PPS module will send an enable signal to the SDM to enable the I/P module. The PPS module will notify the customer of the enable/disable status by turning on one of the PASSENGER AIR BAG ON/OFF indicator located on the overhead console. The PPS monitors itself for faults and will set diagnostic trouble codes (DTC) if a fault is detected. The PPS will also notify the SDM of a fault and the SDM will set DTC B0081 and request the instrument panel cluster (IPC) to turn ON the AIR BAG indicator located on the IPC.

Inflatable Restraint Seat Position Sensors (SPS)

The seat position sensor (SPS) is used to determine the proximity of a front driver position with respect to the frontal air bag. The SPS interfaces with the sensing and diagnostic module (SDM). The state of the SPS allows the SDM to disable stage 2 of the frontal air bag for a front seat that is forward of a forward/rearward point in seat track travel. The SPS is a Hall effect sensor that is mounted on the outboard seat track of the driver seat. The seat track includes a metal bracket that shunts the SPS magnetic circuit creating two states of seat position. The shunted state represents a rearward seat position. The non-shunted state represents a forward position. The SPS provides 2 current ranges, one range for the shunted state and a second range for a non-shunted state. These 2 states are inputs to the SDM. State 1 (shunted) being the rearward threshold and state 2 (non-shunted) being the forward threshold. When the SDM receives input from a SPS that state 1 threshold is reached (seat is rearward) the SDM will not disable stage 2 deployment, if required by the deployment sensors. When state 2 threshold is reached (seat is forward) the SDM will disable stage 2 deployment on the side the seat is forward. The SDM monitors the SPS circuit and if a fault is detected the SDM will set code B0079 and defaults to disabling stage 2 frontal deployment.

Inflatable Restraint Passenger Seat Belt Tension Sensor

The seat belt tension sensor is used to enhance the Passenger Presence System (PPS) when an infant car seat is properly restrained on the front outboard passenger seat. The seat belt tension sensor is a 3-wire potentiometer mounted on the lower seat belt anchor and provides an input to the PPS module. When an infant car seat is properly restrained on the front passenger seat, the seat belt is tightly secured through the infant car seat. The seat belt pulls on the tension sensor and changes the voltage signal to the PPS module. The PPS module uses the voltage signal to help determine if a tightly belted infant car seat is installed. The PPS uses the inputs from the seat belt tension sensor and the PPS pressure sensor to determine if the instrument panel (I/P) module should be suppressed or enabled. The PPS monitors the seat belt tension sensor circuits and sets DTC B0071 if a fault is detected.

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Inflatable Restraint Vehicle Rollover Sensor

The vehicle rollover sensor is used to supplement the side Supplemental Inflatable Restraint (SIR) System. The sensing and diagnostic module (SDM) uses the input from the vehicle rollover sensor to assist in determining the severity of a vehicle rollover or near rollover condition. If the SDM determines a deployment is warranted, the SDM will cause current to flow through the deployment loops deploying the inflatable restraint roof rail modules.

AIR BAG Indicator

The AIR BAG indicator, located on the instrument panel cluster (IPC) is used to notify the driver of Supplemental Inflatable Restraint (SIR) System malfunctions and to verify that the sensing and diagnostic module (SDM) is communicating with the IPC. When the ignition is turned ON, the SDM is supplied with battery voltage and requests the IPC to flash the AIR BAG indicator 7 times. While flashing the indicator, the SDM conducts test on all SIR system components and circuits. If no malfunctions are detected the SDM will communicate with the IPC through the serial data circuit and request the IPC to turn the AIR BAG indicator OFF. The SDM provides continuous monitoring of the air bag circuits by conducting a sequence of checks. If a malfunction is detected the SDM will store a diagnostic trouble code (DTC) and request the IPC to turn the AIR BAG indicator ON. The presence of a SIR system malfunction could result in non-deployment of the air bags. The AIR BAG indicator will remain ON until the malfunction has been repaired.

Inflatable Restraint PASSENGER AIR BAG ON/OFF Indicator

The PASSENGER AIR BAG ON/OFF indicator located on the overhead console is used to notify the driver when the Passenger Presence System (PPS) has enabled or disabled the instrument panel (I/P) inflator module. The PPS air bag indicators will also inform the driver of any PPS malfunctions. When the ignition is turned on, the SDM is supplied with battery voltage and commands both PASSENGER AIR BAG ON/OFF indicators ON for 5 seconds. The PPS module conducts tests on the PPS components and circuits while both ON/OFF indicators are ON. If no malfunctions are detected the PPS module will turn the PASSENGER AIR BAG indicator ON or OFF depending on the status of the PPS. If a malfunction is detected, the PPS module will store a diagnostic trouble code (DTC), default the PPS to the OFF state and communicate with the sensing and diagnostic module (SDM) that a DTC has been set. When the SDM detects that the PPS has set a DTC, the SDM will set either DTC B0056 or B0081 and request the instrument panel cluster (IPC) to turn the AIR BAG indicator located on the IPC ON. This is done to notify the driver of any PPS malfunctions. The presence of a Supplemental Inflatable Restraint (SIR) System malfunction could result in non-deployment of the air bags. The AIR BAG indicator will remain ON until the malfunction has been repaired.

Dual Stage Inflator Modules

Dual stage inflator modules contain a housing, inflatable air bag, 2 initiating devices, canister of gas generating material and, in some cases, stored compressed gas. The 2 initiators are part of the inflator module deployment loop. The inflator modules have 2 stages of deployment, which varies the amount of restraint to the occupant according to the collision severity. For moderate frontal collisions the inflator modules deploy at less than full deployment which consists of stage 1 of the inflator module. For more severe frontal collisions a full deployment is initiated which consists of stage 1 and stage 2 of the inflator module. When the vehicle is involved in a collision of sufficient force, the sensing and diagnostic module (SDM) will cause current to flow through the deployment loops to the initiator. Current passing through the initiator ignites the material in the canister producing a rapid generation of gas and the release of compressed gas, if present. The gas produced

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from this reaction rapidly inflates the air bag. Once the air bag is inflated it quickly deflates through the air bag vent holes.

Each dual stage inflator module is equipped with a shorting bar located on the connectors of the module. The shorting bar shorts the inflator module deployment loop circuitry to prevent unwanted deployment of the air bag when it is disconnected.

Inflatable Restraint Steering Wheel Module Coil

The steering wheel module coil is attached to the steering column and is located under the steering wheel. The steering wheel module coil consists of 2 or more current-carrying coils. The coils allow the rotation of the steering wheel while maintaining continuous electrical contact between the driver deployment loop and the steering wheel module. Four coil wires are used for the steering wheel module deployment loop. Additional coil wires are used for accessories attached to the steering wheel depending on the vehicle model. The steering wheel module coil connector is located near the base of the steering column. The connector contains a shorting bar that shorts the steering wheel module coil deployment loop circuitry to prevent unwanted deployment of the air bag when it is disconnected.

Inflatable Restraint Front End Sensors

The front end sensors are equipped on vehicles to supplement the Supplemental Inflatable Restraint (SIR) System performance. The front end sensors are electronic and are not part of the deployment loops, but instead provide inputs to the sensing and diagnostic module (SDM). The front end sensors can assist in determining the severity of some frontal collisions. The SDM uses the input from the front end sensors to assist in determining the severity of a frontal collision further supporting air bag deployment. If the SDM determines a deployment is warranted, the SDM will cause current to flow through the deployment loops deploying the frontal air bags.

Inflatable Restraint Side Impact Sensor (SIS)

The side impact sensor (SIS) contains a sensing device which monitors vehicle acceleration and velocity changes to detect side collisions that are sever enough to warrant side SIR deployment. The SIS is not part of the deployment loop, but instead provides an input to the SDM. The SDM contains a microprocessor that performs calculations using the measured accelerations and compares these calculations to a value stored in memory.

Inflatable Restraint Wiring Harnesses

The wiring harnesses connect the sensing and diagnostic module (SDM), inflator modules, Passenger Presence System (PPS), front end sensors, seat position sensors (SPS), passenger seat belt tension retractor sensor, rollover sensor, side impact sensors and the serial data circuit together using connectors. SIR deployment loop connectors are yellow in color for easy identification. When repairing Supplemental Inflatable Restraint (SIR) System wiring harnesses, follow the proper testing and wiring repair procedures outlined in this manual.

Seat Belt Pretensioner

The seat belt pretensioner consist of a housing, a seat belt retractor, the seat belt webbing, an initiator, and a canister of gas generating materials. The initiator is part of the seat belt pretensioner deployment loop. When the vehicle is involved in a collision of sufficient force, the sensing and diagnostic module (SDM) causes

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current to flow through the seat belt deployment loops to the initiator. Current passing through the initiator ignites the material in the canister producing a rapid generation of gas. The gas produced from this reaction deploys the seat belt pretensioner and retracts the seat belt webbing, which removes all of the slack in the seat belts. Depending on the severity of the collision, the seat belt pretensioner may deploy without the frontal inflator modules deploying, or they will deploy immediately before the frontal inflator modules deploy. Each seat belt pretensioner is equipped with a shorting bar that is located in the connector of the seat belt pretensioner. The shorting bar shorts the seat belt pretensioner circuitry to prevent unwanted deployment of the seat belt pretensioner when the connector is disconnected.

Steering Wheel and Column

The steering wheel and column are designed to absorb energy when driver contact is made with the steering wheel or inflated air bag. In a frontal collision the driver may contact the steering wheel directly or load the steering wheel and column through the inflated air bag. When the driver applies load to the air bag or steering wheel the column will compress downward absorbing some of the impact, helping to reduce bodily injuries to the driver. The steering wheel and column must be inspected for damage after a collision.

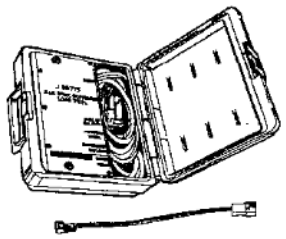
Driver and Passenger Knee Bolsters

The knee bolsters are designed to help restrain the lower torsos of front seat occupants by absorbing energy through the front seat occupants upper legs. In a frontal collision the front seat occupants legs may come in contact with the knee bolsters. The knee bolsters are designed to crush or deform absorbing some of the impact, which helps to reduce bodily injuries. The driver and passenger knee bolsters are located in the lower part of the instrument panel and must be inspected for damage after a collision.

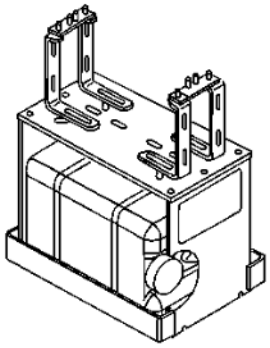
SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Special Tools

Illustration	Tool Number/ Description
	J 38715-A Driver and Passenger SIR Load Tool
	J 38826 SIR Deployment Harness

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	J 39401-B SIR Deployment Fixture
	J 42640 Steering Column Anti-rotation Pin

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