

2007 Hummer H3

2007 RESTRAINTS Supplemental Inflatable Restraints - H3

2007 RESTRAINTS

Supplemental Inflatable Restraints - H3

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Inflatable Restraint Front End Sensor	9 N.m	80 lb in
Inflatable Restraint Instrument Panel Module	9 N.m	80 lb in
Inflatable Restraint Passenger Presence System	8 N.m	71 lb in
Inflatable Restraint Roof Rail Module Bolts	8 N.m	71 lb in
Inflatable Restraint Roof Rail Module Screws	2 N.m	18 lb in
Inflatable Restraint Seat Position Sensor	9 N.m	80 lb in
Inflatable Restraint Sensing and Diagnostic Module	10 N.m	89 lb in
Inflatable Restraint Side Impact Sensor	9 N.m	80 lb in
Inflatable Restraint Vehicle Rollover Sensor	10 N.m	89 lb in
Seat Belt Retractor/Pretensioner	52 N.m	38 lb ft

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.

SIR SCHEMATICS

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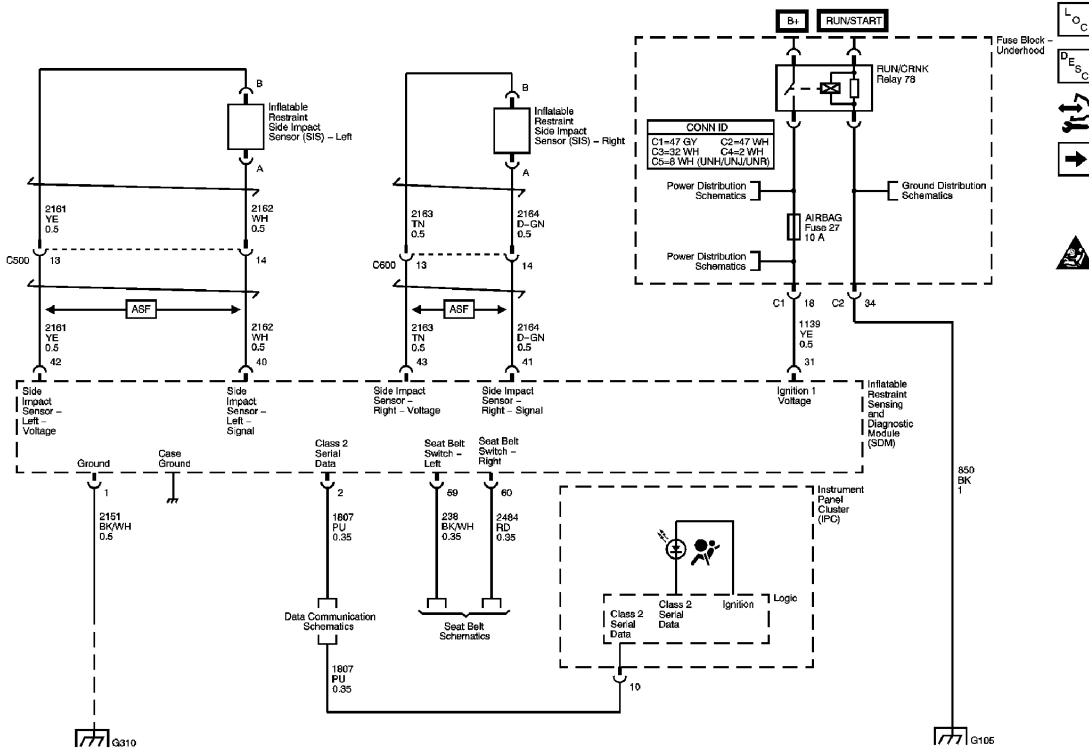


Fig. 1: Module Power, Ground, Serial Data, Indicators & Side Impact Sensors Schematic
 Courtesy of GENERAL MOTORS CORP.

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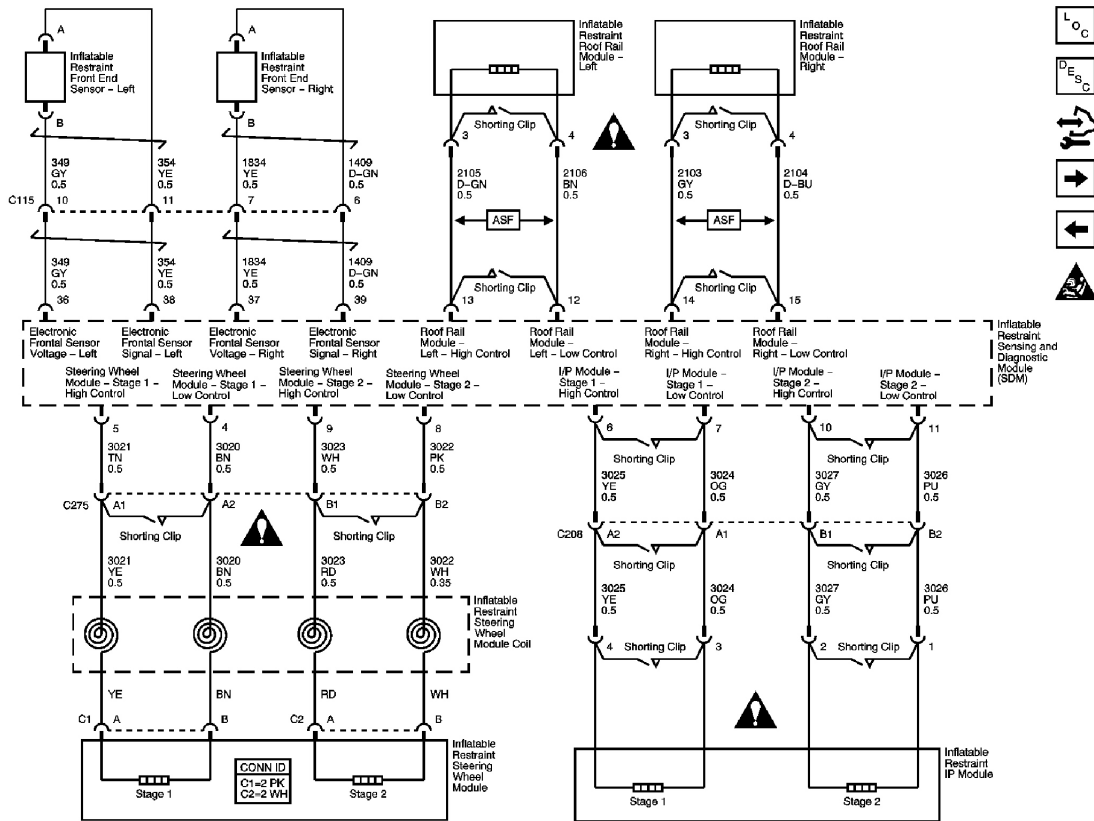


Fig. 2: Front End Sensors & Modules Schematic
 Courtesy of GENERAL MOTORS CORP.

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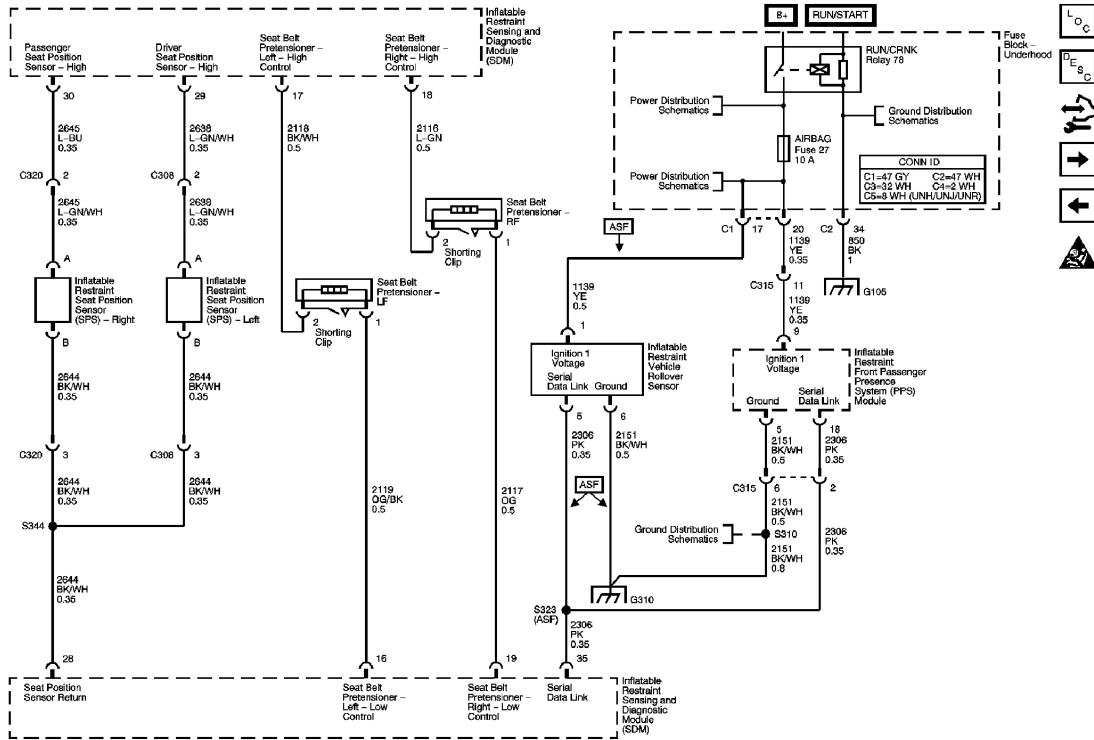


Fig. 3: Seat Position Sensors, Rollover Sensor, PPS Module & Seat Belt Pretensioners Schematic
Courtesy of GENERAL MOTORS CORP.

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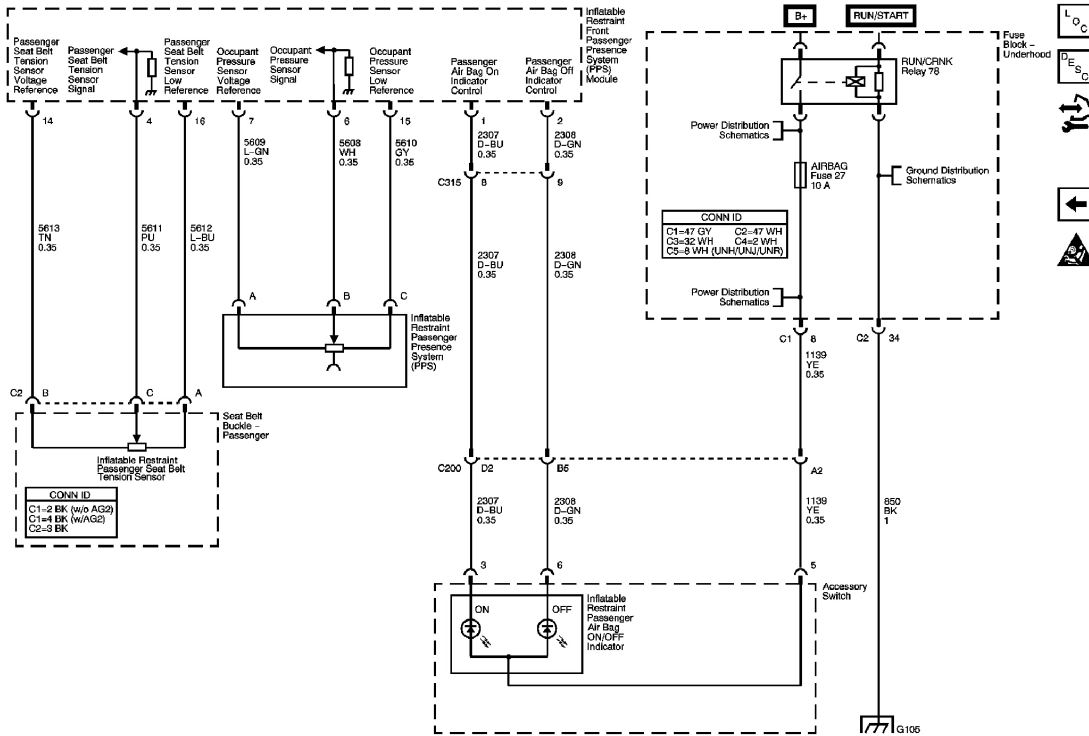


Fig. 4: PPS Sensors & Indicators Schematic
 Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

SIR COMPONENT VIEWS

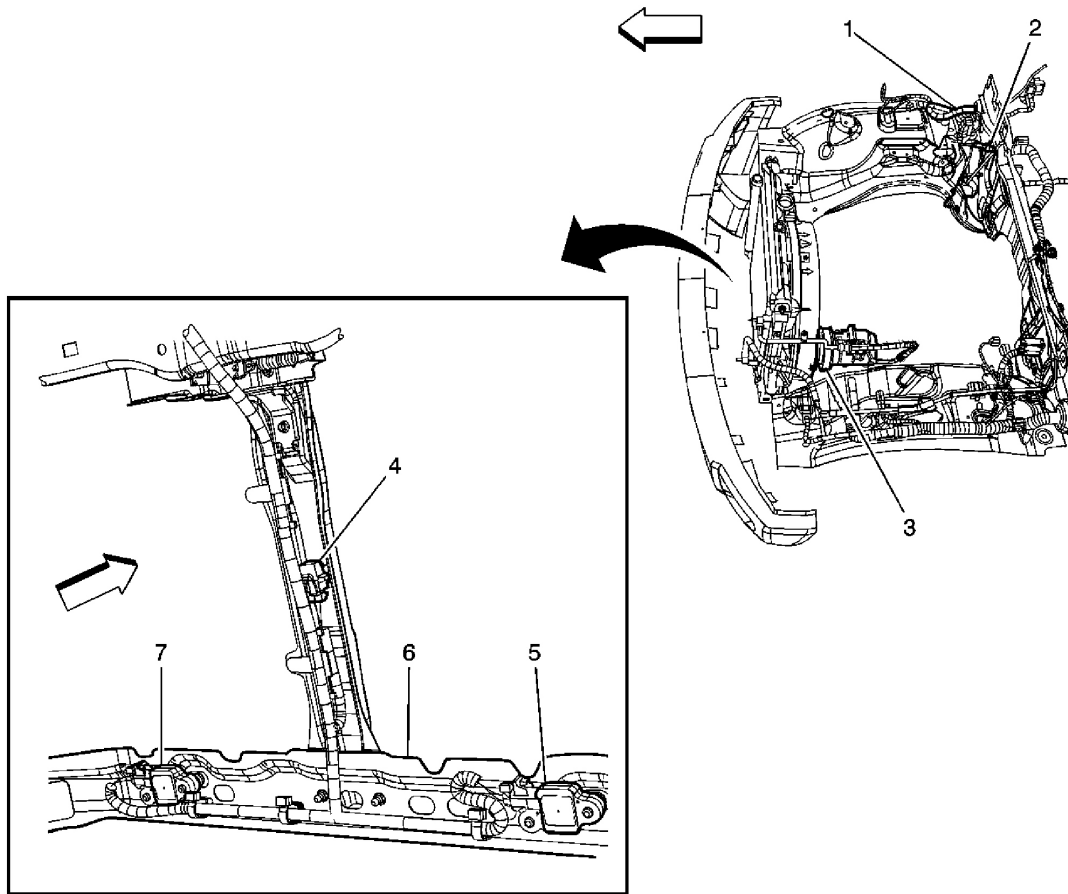


Fig. 5: Identifying Engine Compartment Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 5

Callout	Component Name
1	Body Harness
2	A/C Refrigerant Pressure Sensor
3	A/C Compressor Clutch
4	Ambient Air Temperature Sensor
5	Inflatable Restraint Front End Sensor - Right
6	Lower Radiator Support
7	Inflatable Restraint Front End Sensor - Left

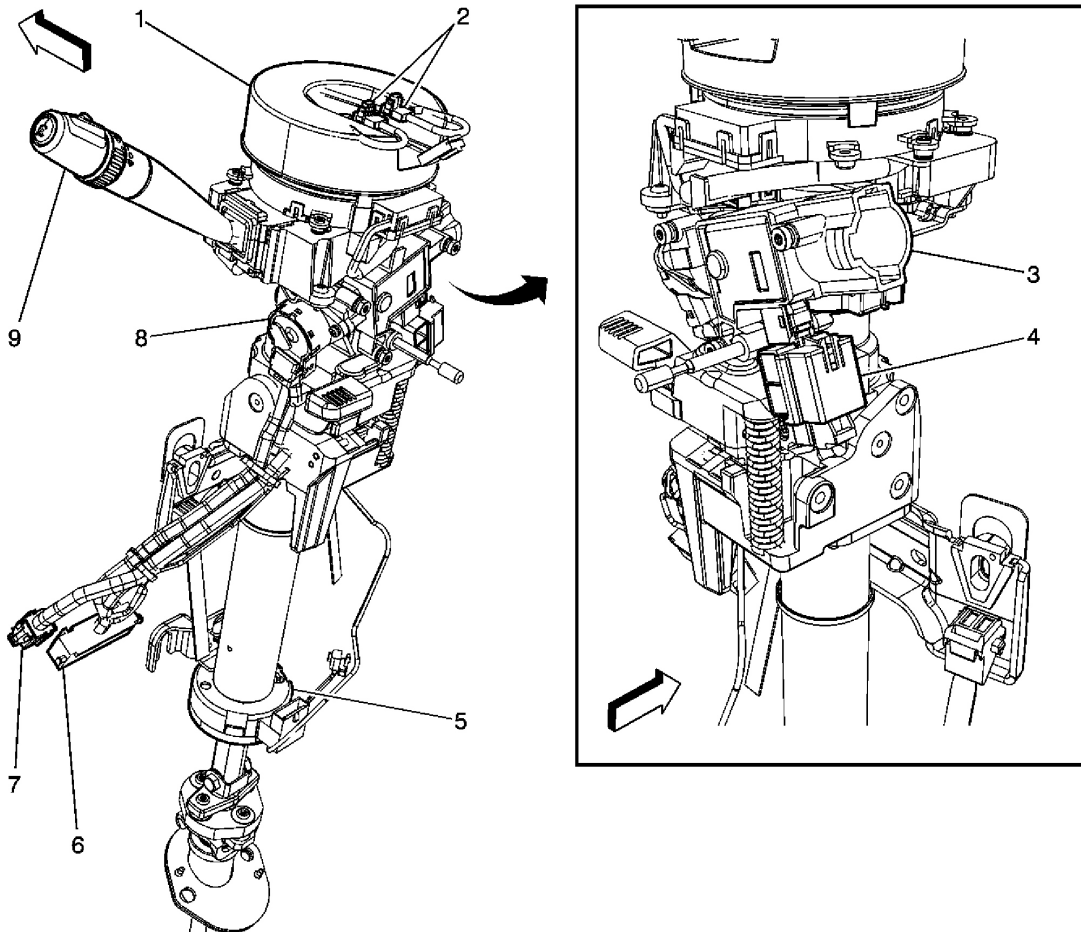


Fig. 6: Identifying Steering Column Harness Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 6

Callout	Component Name
1	Inflation Restraint Steering Wheel Module Coil
2	Inflation Restraint Steering Wheel Module Connectors
3	Ignition Switch
4	Ignition Lock Cylinder Control Actuator (M30)
5	Steering Wheel Position Sensor (JL4)
6	C201 Steering Column Harness to I/P Harness
7	C275 Steering Column Harness to I/P Harness
8	Ignition Switch
9	Turn Signal/Multifunction Switch

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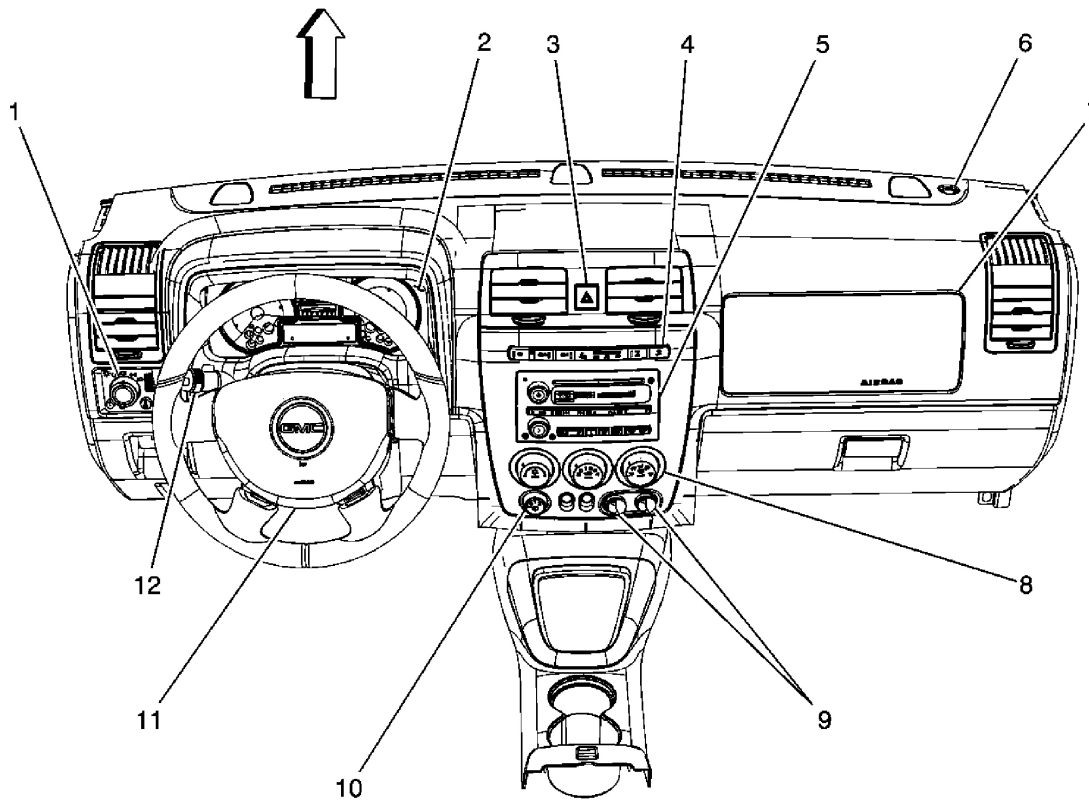


Fig. 7: Identifying I/P Harness Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 7

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

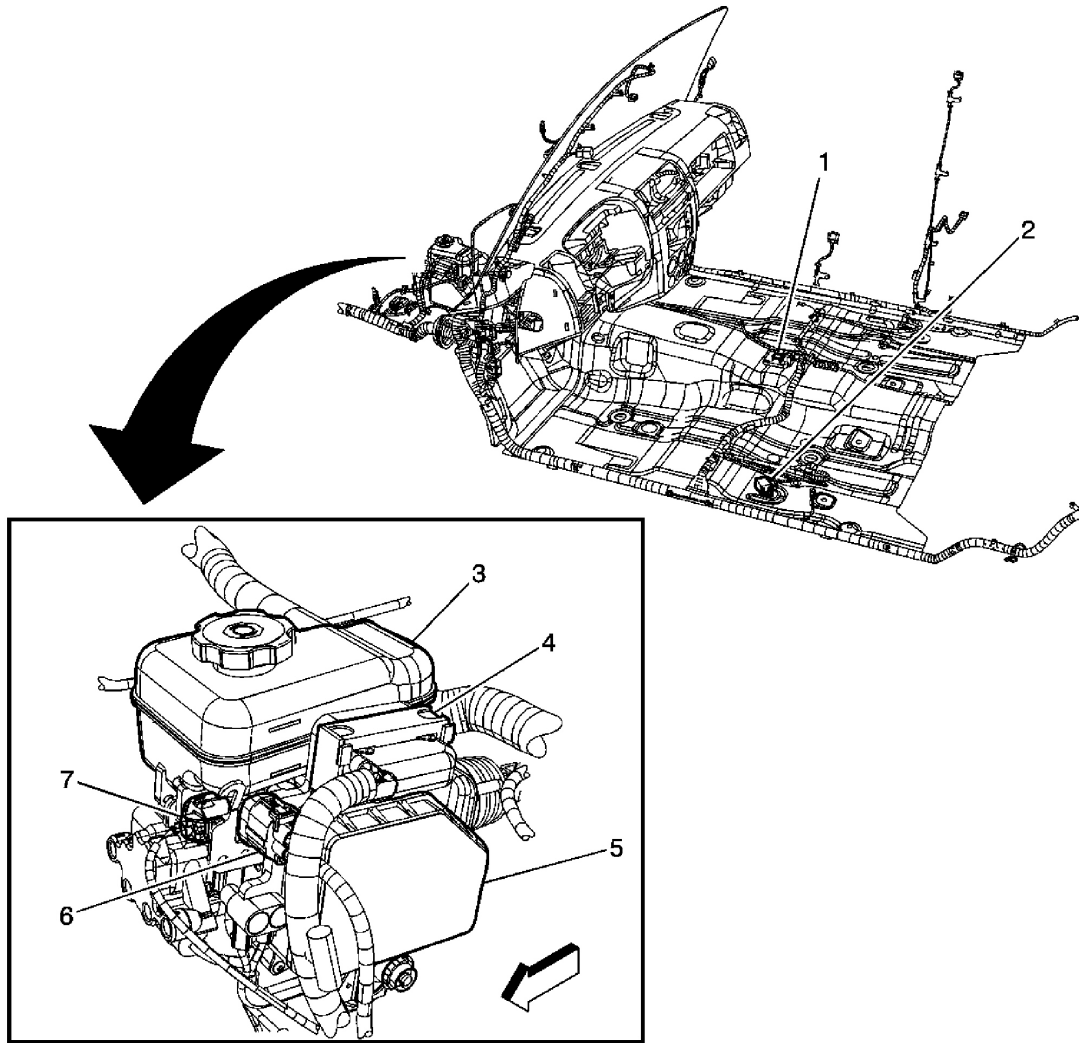


Fig. 8: Locating Brake Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 8

Callout	Component Name
1	Inflation Restraint Vehicle Rollover Sensor (ASF)
2	Yaw Rate/Lateral and Longitudinal Accelerometer Sensor (JL4)
3	Brake Fluid Reservoir
4	Electronic Brake Control Module (EBCM) C2
5	Electronic Brake Control Module (EBCM)
6	Electronic Brake Control Module (EBCM) C1
7	Brake Fluid Level Switch

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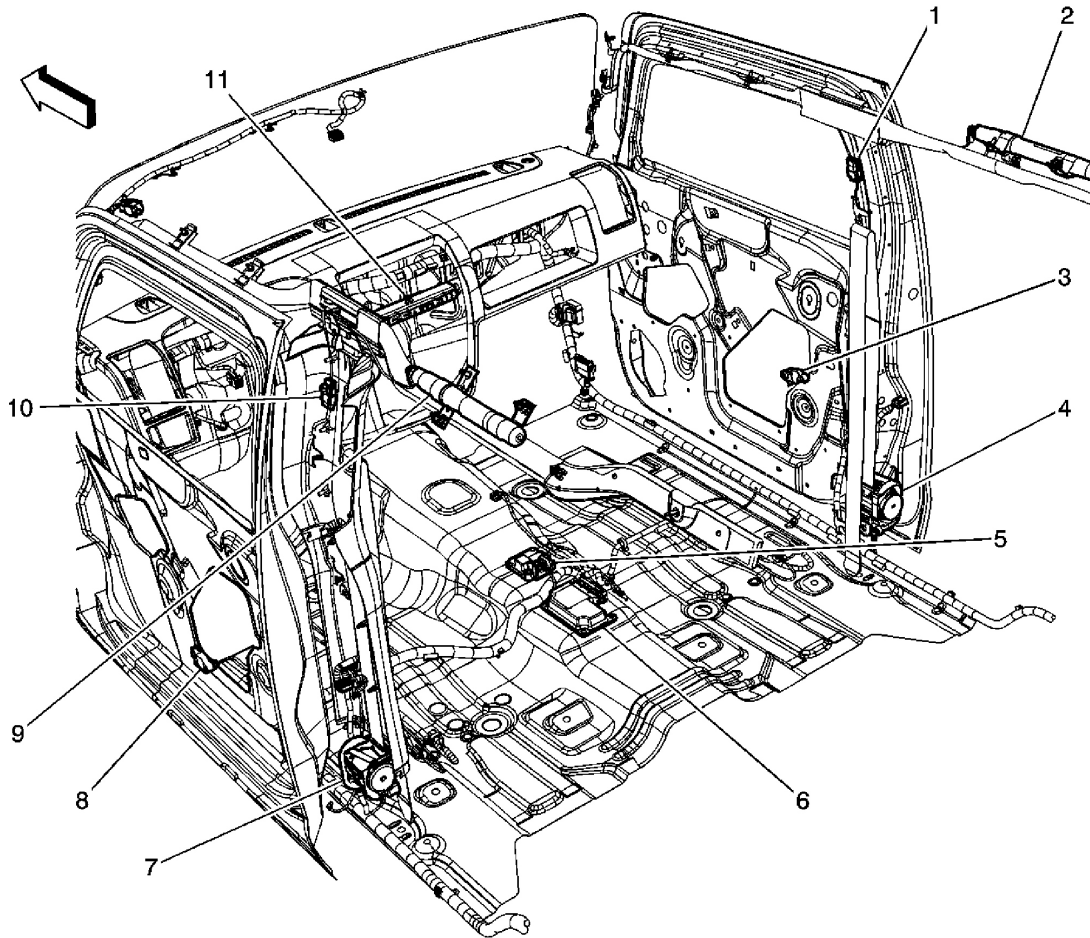


Fig. 9: Identifying SIR Components
Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 9

Callout	Component Name
1	Inflatable Restraint Roof Rail Module - Right Connector (ASF)
2	Inflatable Restraint Roof Rail Module - Right (ASF)
3	Inflatable Restraint Side Impact Sensor (SIS) - Right (ASF)
4	Seat Belt Pretensioner - RF
5	Inflatable Restraint Vehicle Rollover Sensor (ASF)
6	Inflatable Restraint Sensing and Diagnostic Module (SDM)
7	Seat Belt Pretensioner - LF
8	Inflatable Restraint Side Impact Sensor (SIS) - Left (ASF)
9	Inflatable Restraint Roof Rail Module - Left (ASF)

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10	Inflatable Restraint Roof Rail Module - Left Connector (ASF)
11	Inflatable Restraint Front Passenger Presence System (PPS) Indicator

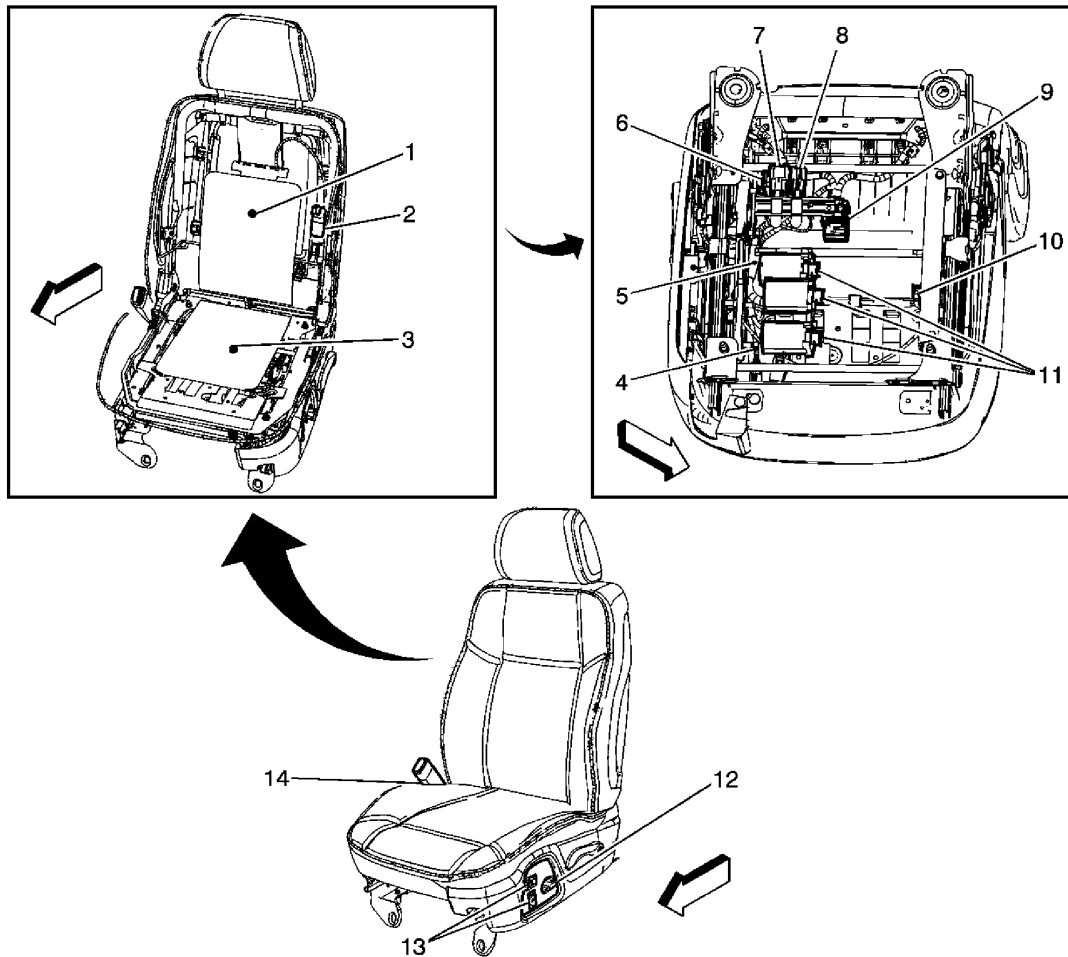


Fig. 10: Identifying Driver Seat Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 10

Callout	Component Name
1	Heater Element Seat Back - Driver (KA1)
2	Lumbar Pump Motor - Driver (AG1)
3	Heater Element Seat Cushion - Driver (KA1)
4	S306 (AG1)
5	S312 (AG1)
6	Seat Circuit Breaker (AG1)

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7	C307 (AG1)
8	C308
9	Heated Seat Module - Driver (KA1)
10	Inflatable Restraint Seat Position Sensor (SPS) - Left
11	Seat Motors - Driver (AG1)
12	Seat Adjuster Switch - Driver (AG1)
13	Lumbar Adjuster/Heater Switch - Driver (AG1)
14	Seat Belt Buckle - Driver

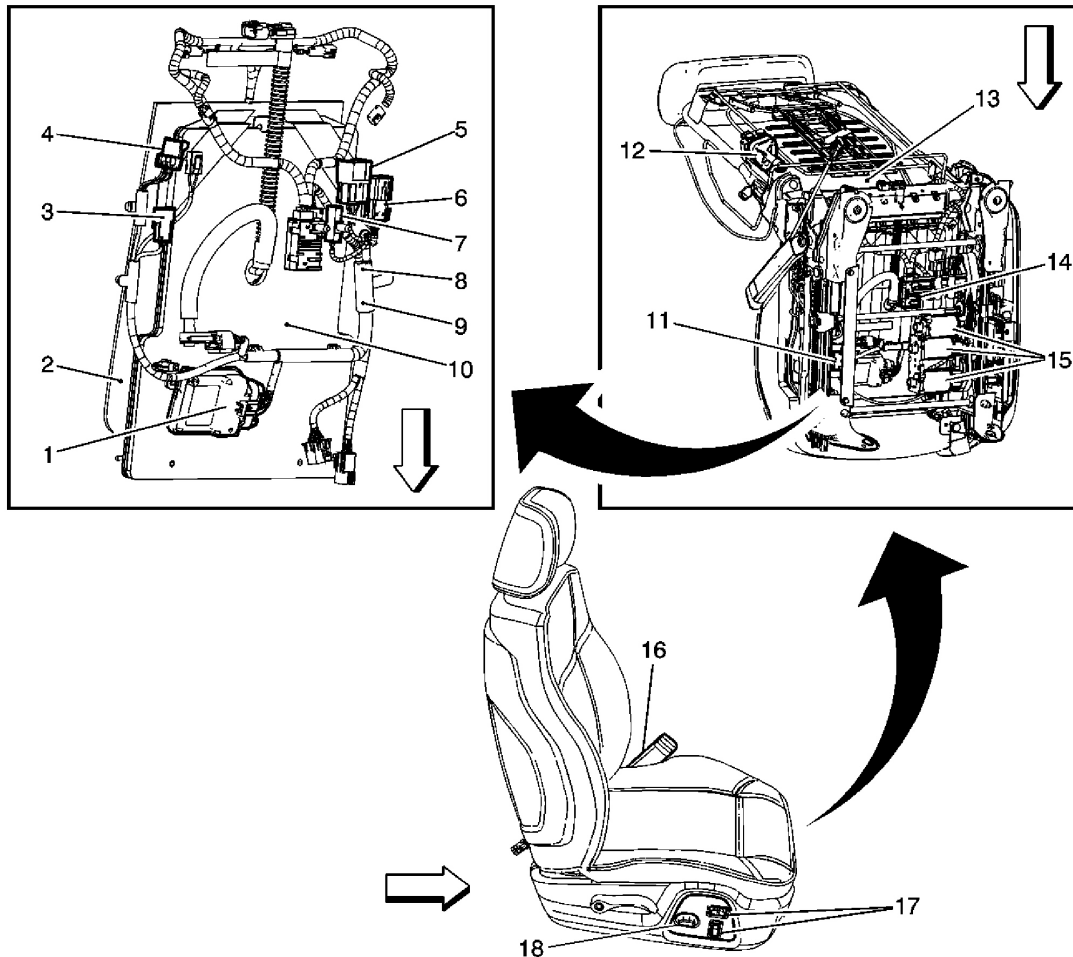


Fig. 11: Identifying Passenger Seat Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 11

Callout	Component Name
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1	Inflatable Restraint Passenger Presence System (PPS) Module
2	Heater Element Seat Cushion - Passenger (KA1)
3	Seat Belt Buckle - Passenger C1
4	Seat Belt Buckle - Passenger C2
5	C320
6	C315
7	C318 (AG2)
8	S341 (AG2)
9	S316 (AG2)
10	Inflatable Restraint Passenger Presence System (PPS)
11	Inflatable Restraint Seat Position Sensor (SPS) - Right
12	Lumbar Pump Motor - Passenger (AG2)
13	Heater Element Seat Back - Passenger (KA1)
14	Heated Seat Module - Passenger (KA1)
15	Seat Motors - Passenger (AG2)
16	Seat Belt Buckle - Passenger
17	Lumbar Adjuster/Heater Switch - Passenger (AG2)
18	Seat Adjuster Switch - Passenger (AG2)

SIR IDENTIFICATION VIEWS

The SIR Identification Views shown below illustrate the approximate location of all SIR components available for the vehicle. Refer to **SIR Disabling and Enabling**.

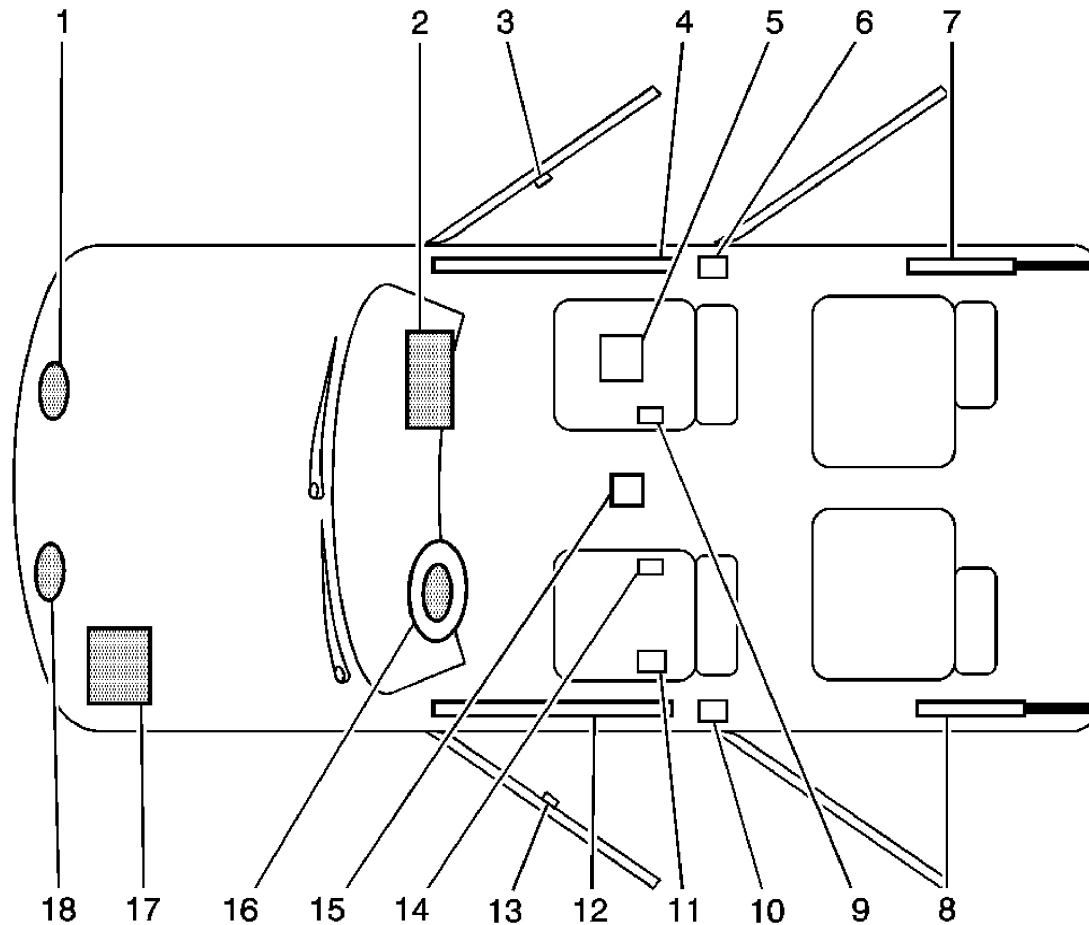


Fig. 12: Identifying Approximate Location Of SIR Components
 Courtesy of GENERAL MOTORS CORP.

Callouts For Fig. 12

Callout	Component Name
1	Inflatable Restraint Front End Sensor - Right-Located on the front of the vehicle in the engine compartment
2	Inflatable Restraint I/P Module-Located at the top right under the instrument panel
3	Inflatable Restraint Side Impact Sensor (SIS) - Right-Located under right front door trim near the lower rear of door frame
4	Inflatable Restraint Roof Rail Module - Right-Located in the headliner along roof rail
5	Passenger Presence System-Located under passenger seat
6	Seat Belt Retractor Pretensioner - Right-Located on the floor next to the

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	right front seat
7	Rear Liftgate Start-A Gas Shock-Located at rear of vehicle
8	Rear Liftgate Start-A Gas Shock-Located at rear of vehicle
9	Inflatable Restraint Seat Position Switch - Right-Located on the side of the right front seat
10	Seat Belt Retractor Pretensioner - Left-Located on the floor next to the left front seat
11	Inflatable Restraint Vehicle Rollover Sensor-Located under driver seat
12	Inflatable Restraint Side Roof Rail Module - Left-Located in the headliner along the roof rail
13	Inflatable Restraint Side Impact Sensor (SIS) - Left-Located under left front door trim near the lower rear of door frame
14	Inflatable Restraint Seat Position Switch - Left-Located on the side of the left front seat
15	Inflatable Restraint Sensing and Diagnostic Module (SDM)-Located under center floor console
16	Inflatable Restraint Steering Wheel Module-Located on the steering wheel
17	Battery and Underhood Fuse Block - SIR Fuse-Located in engine compartment on left side
18	Inflatable Restraint Front End Sensor - Left-Located on the front of the vehicle in the engine compartment

SIR CONNECTOR END VIEWS

Inflatable Restraint Front End Sensor - Left

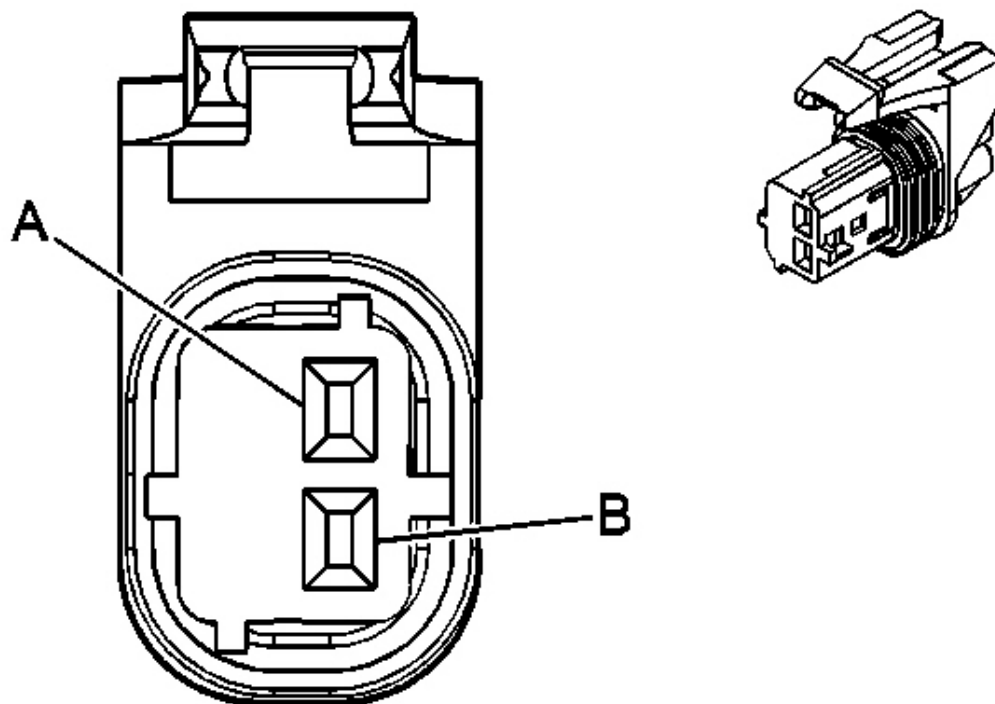


Fig. 13: Inflatable Restraint Front End Sensor - Left Connector End Views
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Front End Sensor - Left Connector Parts Information

Connector Part Information

- OEM: 15356723
- Service: 15306439
- Description: 2-Way F GT 150 Series Sealed (YE)

Terminal Part Information

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

Inflatable Restraint Front End Sensor - Left Connector Terminal Identification

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Pin	Wire Color	Circuit No.	Function
A	YE	354	Electronic Frontal Sensor Signal - Left
B	GY	349	Electronic Frontal Sensor Voltage - Left

Inflatable Restraint Front End Sensor - Right

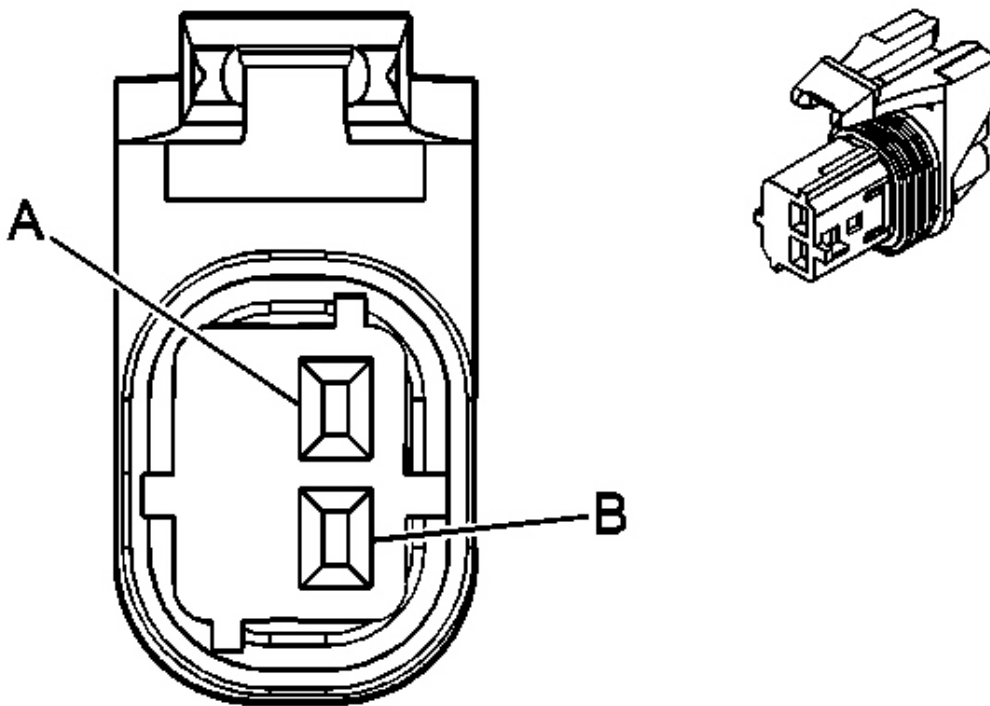


Fig. 14: Inflatable Restraint Front End Sensor - Right Connector End Views
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Front End Sensor - Right Connector Parts Information

Connector Part Information

- OEM: 15356723
- Service: 15306439
- Description: 2-Way F GT 150 Series Sealed (YE)

Terminal Part Information

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

Inflatable Restraint Front End Sensor - Right Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	D-GN	1409	Electronic Frontal Sensor Signal - Right
B	YE	1834	Electronic Frontal Sensor Voltage - Right

Inflatable Restraint I/P Module

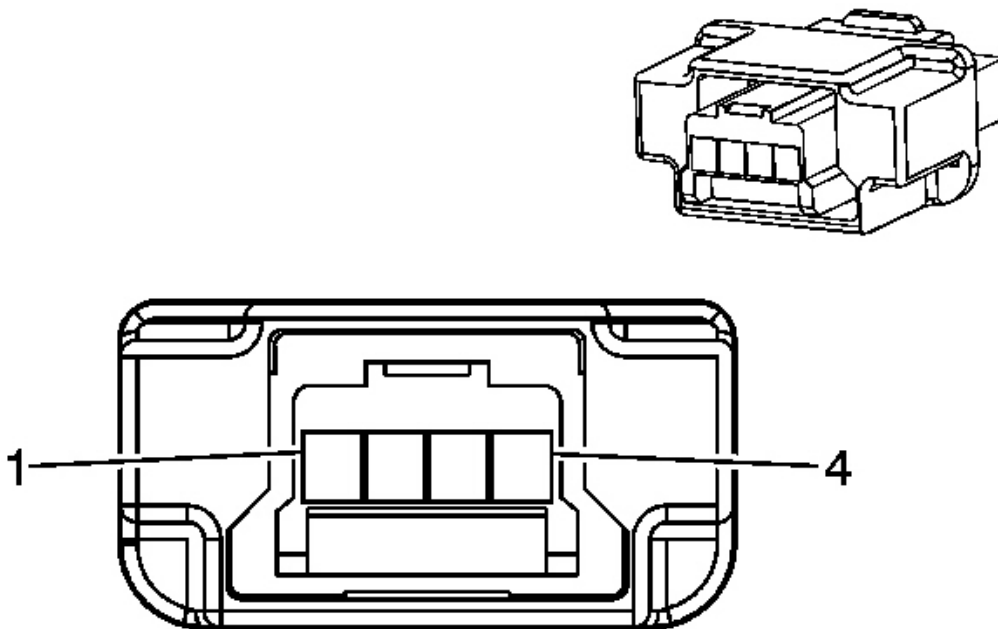


Fig. 15: Inflatable Restraint I/P Module Connector End Views
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Inflatable Restraint I/P Module Connector Parts Information

Connector Part Information

- OEM: MX10-4SC
- Service: Not Serviced
- Description: 4-Way F MX (YE)

Terminal Part Information

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

Inflatable Restraint I/P Module Connector Terminal Identification

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

Inflatable Restraint Passenger Presence System (PPS) Module

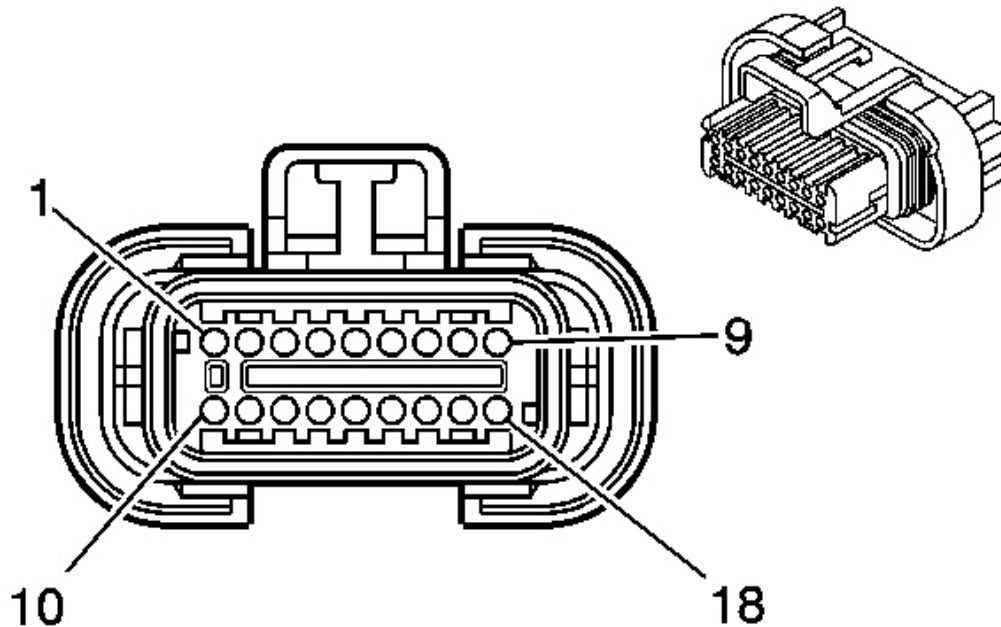


Fig. 16: Inflatable Restraint Front Passenger Presence System (PPS) Module Connector End View

Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Passenger Presence System (PPS) Module Connector Parts Information

Connector Part Information

- OEM: 15431682
- Service: Not Serviced
- Description: 18-Way F Micro-Pack 100W Series Sealed (BK)

Terminal Part Information

- Terminal/Tray: Service with Terminated Lead
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 12122523/J-35616-6

Inflatable Restraint Passenger Presence System (PPS) Module Connector Terminal

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Identification

Pin	Wire Color	Circuit No.	Function
1	D-BU	2307	Passenger Air Bag On Indicator Control
2	D-GN	2308	Passenger Air Bag Off Indicator Control
3	-	-	Not Used
4	PU	5611	Passenger Seat Belt Tension Sensor Signal
5	BK/WH	2151	Ground
6	WH	5608	Occupant Pressure Sensor Signal
7	L-GN	5609	Occupant Pressure Sensor Voltage Reference
8	-	-	Not Used
9	YE	1139	Ignition 1 Voltage
10-13	-	-	Not Used
14	TN	5613	Passenger Seat Belt Tension Sensor Voltage Reference
15	GY	5610	Occupant Pressure Sensor Low Reference
16	L-BU	5612	Passenger Seat Belt Tension Sensor Low Reference
17	-	-	Not Used
18	PK	2306	Serial Data Link

Inflatable Restraint Passenger Presence System (PPS) Sensor

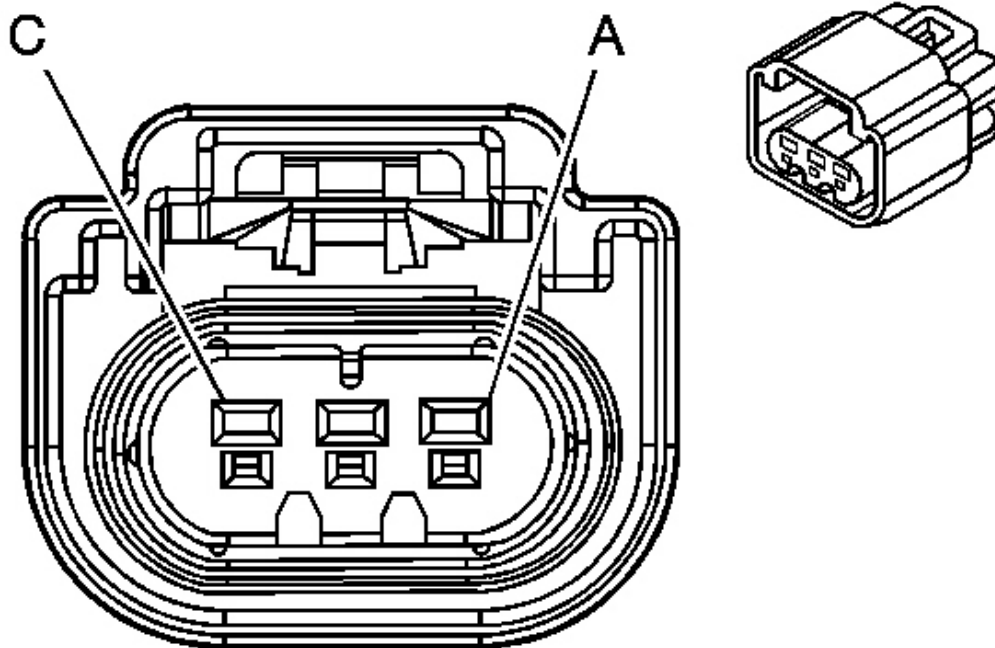


Fig. 17: Inflatable Restraint Front Passenger Presence System (PPS) Sensor Connector End View

Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Passenger Presence System (PPS) Sensor Connector Parts Information

Connector Part Information

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

Terminal Part Information

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

Inflatable Restraint Passenger Presence System (PPS) Sensor Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	L-GN	5609	Occupant Pressure Sensor Voltage Reference
B	WH	5608	Occupant Pressure Sensor Signal
C	GY	5610	Occupant Pressure Sensor Low Reference

Inflatable Restraint Roof Rail Module - Left (ASF)

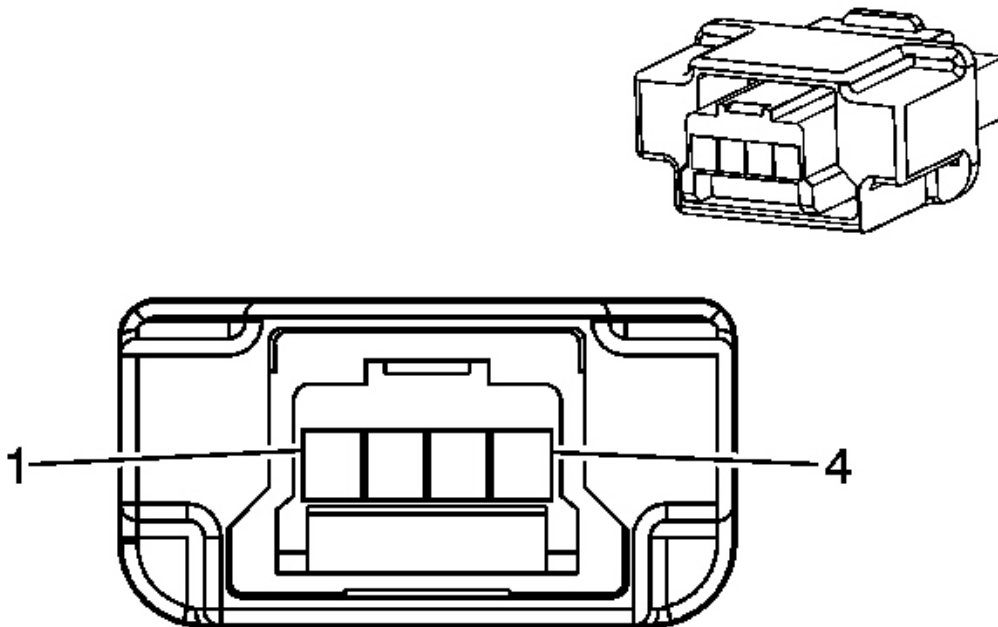


Fig. 18: Inflatable Restraint Roof Rail Module - Left (ASF) Connector End Views
 Courtesy of GENERAL MOTORS CORP.

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

Connector Part Information

- OEM: MX10-4SC

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- Service: Not Serviced
- Description: 4-Way F MX (YE)

Terminal Part Information

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

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

Pin	Wire Color	Circuit No.	Function
1-2	-	-	Not Used
3	D-GN	2105	Roof Rail Module - Left - High Control
4	BN	2106	Roof Rail Module - Left - Low Control

Inflatable Restraint Roof Rail Module - Right (ASF)

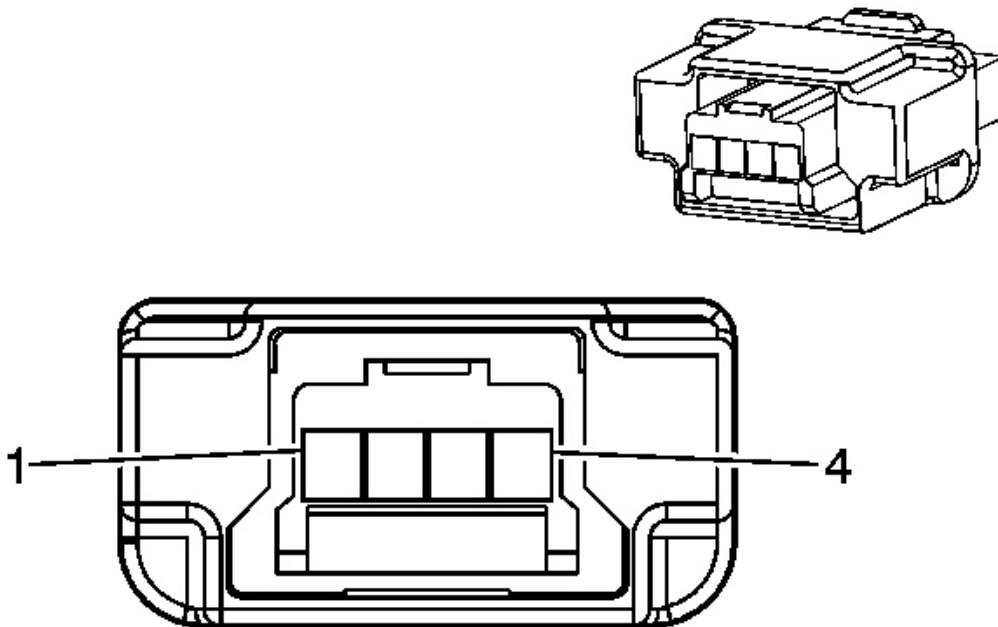


Fig. 19: Inflatable Restraint Roof Rail Module - Right (ASF) Connector End Views

Courtesy of GENERAL MOTORS CORP.

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

Connector Part Information

- OEM: MX10-4SC
- Service: Not Serviced
- Description: 4-Way F MX (YE)

Terminal Part Information

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

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

Pin	Wire Color	Circuit No.	Function
1-2	-	-	Not Used
3	GY	2103	Roof Rail Module - Right - High Control
4	D-BU	2104	Roof Rail Module - Right - Low Control

Inflatable Restraint Seat Position Sensor - Left

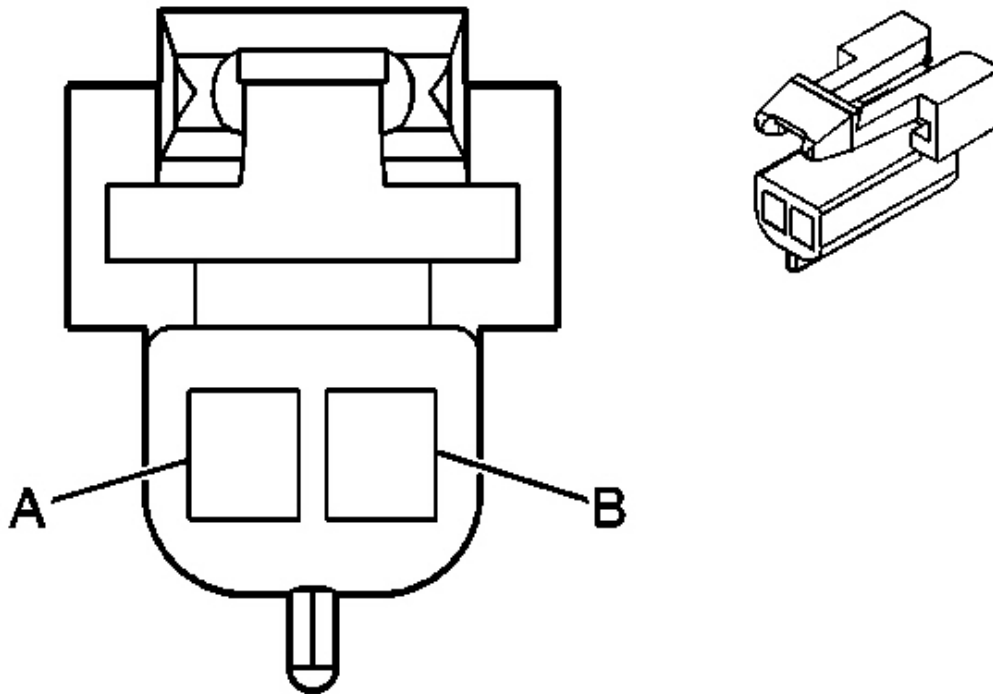


Fig. 20: Inflation Restraint Seat Position Sensor - Left Connector End Views
Courtesy of GENERAL MOTORS CORP.

Inflation Restraint Seat Position Sensor - Left Connector Parts Information

Connector Part Information

- OEM: 12052832
- Service: 12101825
- Description: 2-Way F Metri-Pack 150 Series (BK)

Terminal Part Information

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

Inflation Restraint Seat Position Sensor - Left Connector Terminal Identification

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Pin	Wire Color	Circuit No.	Function
A	L-GN/WH	2638	Driver Seat Position Sensor - High
B	BK/WH	2644	Seat Position Sensor Return

Inflatable Restraint Seat Position Sensor - Right

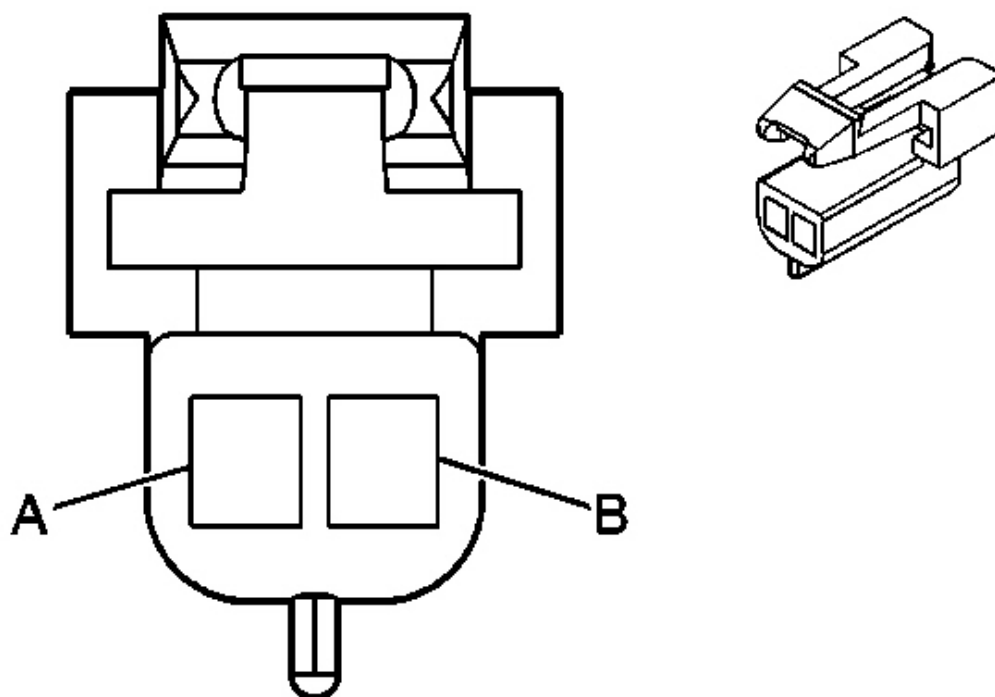


Fig. 21: Inflatable Restraint Seat Position Sensor - Right Connector End Views
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Seat Position Sensor - Right Connector Parts Information

Connector Part Information

- OEM: 12052832
- Service: 12101825
- Description: 2-Way F Metri-Pack 150 Series (BK)

Terminal Part Information

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

Inflatable Restraint Seat Position Sensor - Right Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
A	L-GN/WH	2645	Passenger Seat Position Sensor - High
B	BK/WH	2644	Seat Position Sensor Return

Inflatable Restraint Sensing and Diagnostic Module (SDM)

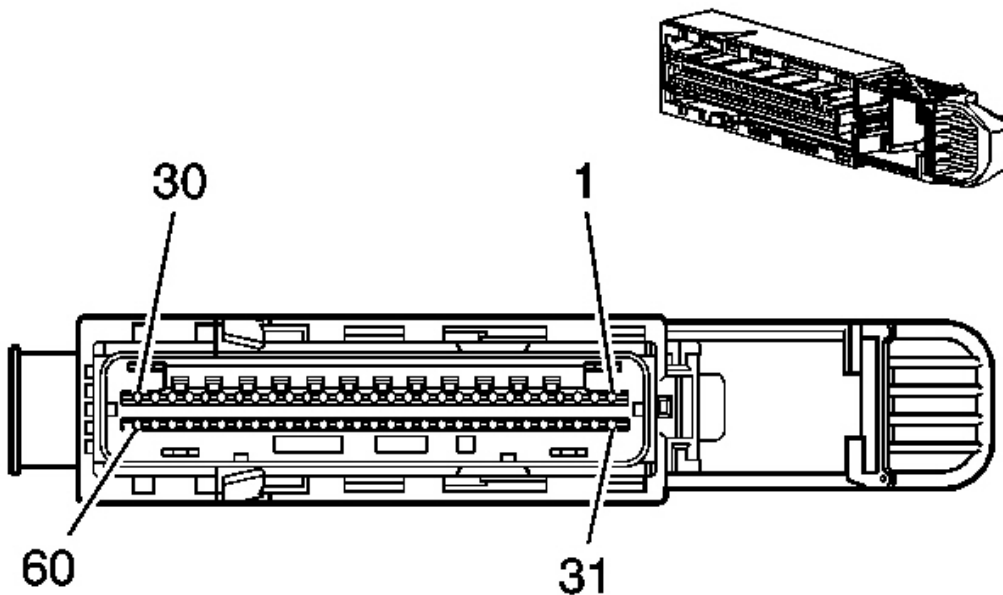


Fig. 22: Inflatable Restraint Sensing and Diagnostic Module (SDM) Connector End View
Courtesy of GENERAL MOTORS CORP.

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

Connector Part Information

- OEM: 4-638595-4 (ASF)/4-638595-3 (w/o ASF)
- Service: 19152717

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- Description: 60-Way F (YE)

Terminal Part Information

- Pins: 1-19, 28-31, 35-43, 59, 60
- Terminal: Service with Terminated Lead
- Core/Insulation Crimp: N/A
- Release Tool/Test Probe: 15315247/J-35616-64A (L-BU)

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

Pin	Wire Color	Circuit No.	Function
1	BK/WH	2151	Ground
2	PU	1807	Class 2 Serial Data
3	-	-	Not Available
4	BN	3020	Steering Wheel Module - Stage 1 - Low Control
5	TN	3021	Steering Wheel Module - Stage 1 - High Control
6	YE	3025	I/P Module - Stage 1 - High Control
7	OG	3024	I/P Module - Stage 1 - Low Control
8	PK	3022	Steering Wheel Module - Stage 2 - Low Control
9	WH	3023	Steering Wheel Module - Stage 2 - High Control
10	GY	3027	I/P Module - Stage 2 - High Control
11	PU	3026	I/P Module - Stage 2 - Low Control
12	BN	2106	Roof Rail Module - Left - Low Control (ASF)
	-	-	Not Available
13	D-GN	2105	Roof Rail Module - Left - High Control (ASF)
	-	-	Not Available
14	GY	2103	Roof Rail Module - Right - High Control (ASF)
	-	-	Not Available
	D-BU	2104	Roof Rail Module - Right - Low

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15			Control (ASF)
	-	-	Not Available
16	OG/BK	2119	Seat Belt Pretensioner - Left - Low Control
17	BK/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	BK/WH	2644	Seat Position Sensor Return
29	L-GN/WH	2638	Driver Seat Position Sensor - High
30	L-BU	2645	Passenger Seat Position Sensor - High
31	YE	1139	Ignition 1 Voltage
32-34	-	-	Not Available
35	PK	2306	Serial Data Link
36	GY	349	Electronic Frontal Sensor Voltage - Left
37	YE	1834	Electronic Frontal Sensor Voltage - Right
38	YE	354	Electronic Frontal Sensor Signal - Left
39	D-GN	1409	Electronic Frontal Sensor Signal - Right
40	WH	2162	Side Impact Sensor - Left - Signal (ASF)
	-	-	Not Available
41	D-GN	2164	Side Impact Sensor - Right - Signal (ASF)
	-	-	Not Available
42	YE	2161	Side Impact Sensor - Left - Voltage (ASF)
	-	-	Not Available
43	TN	2163	Side Impact Sensor - Right - Voltage (ASF)
	-	-	Not Available

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44-58	-	-	Not Available
59	BK/WH	238	Seat Belt Switch - Left
60	RD	2484	Seat Belt Switch - Right

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

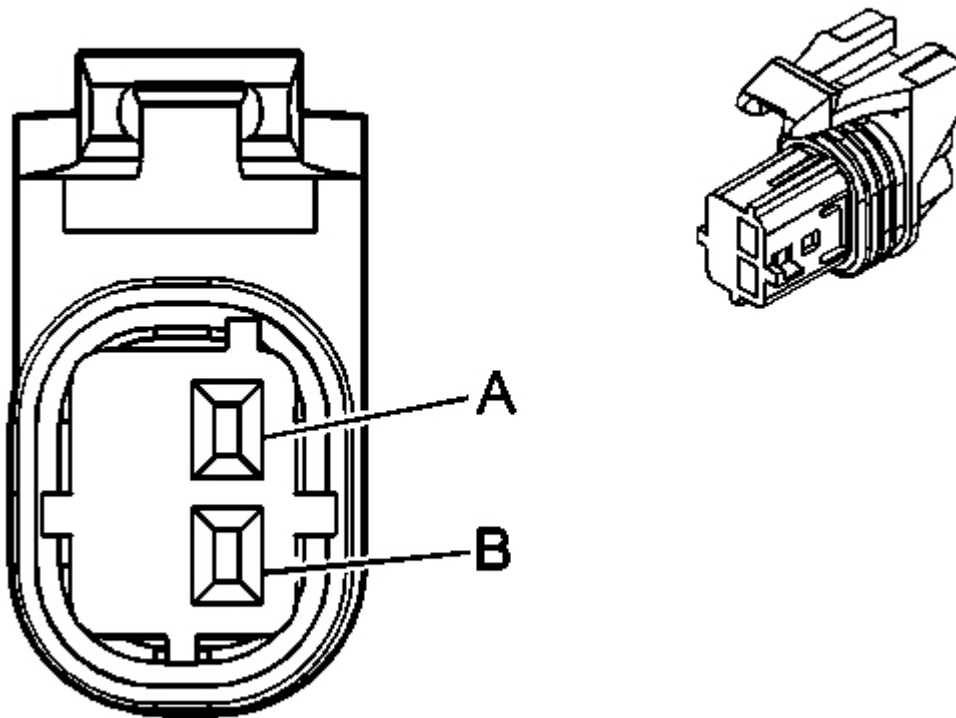


Fig. 23: Inflatable Restraint Side Impact Sensor (SIS) Connector End View - Left (ASF)
Courtesy of GENERAL MOTORS CORP.

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

Connector Part Information

- OEM: 15356726
- Service: 15306362
- Description: 2-Way F GT 150 Series Sealed (YE)

Terminal Part Information

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

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

Pin	Wire Color	Circuit No.	Function
A	WH	2162	Side Impact Sensor - Left - Signal
B	YE	2161	Side Impact Sensor - Left - Voltage

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

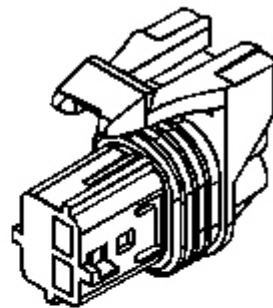
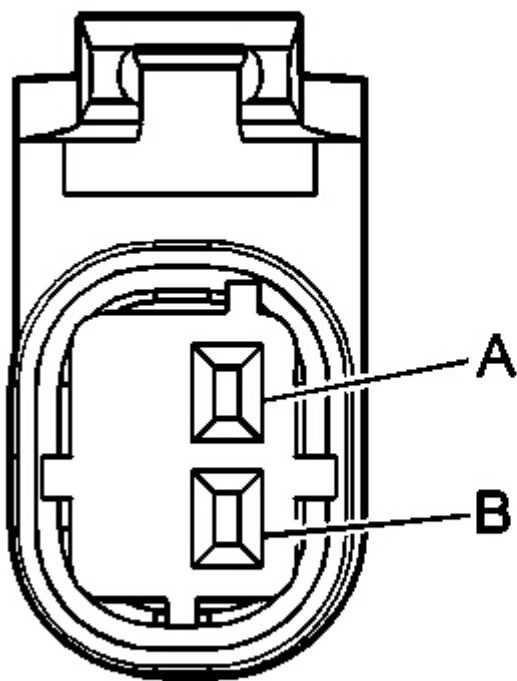


Fig. 24: Inflatable Restraint Side Impact Sensor (SIS) Connector End View - Right (ASF)

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Courtesy of **GENERAL MOTORS CORP.**

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

Connector Part Information

- OEM: 15356726
- Service: 15306362
- Description: 2-Way F GT 150 Series Sealed (YE)

Terminal Part Information

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

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

Pin	Wire Color	Circuit No.	Function
A	D-GN	2164	Side Impact Sensor - Right - Signal
B	TN	2163	Side Impact Sensor - Right - Voltage

Inflatable Restraint Steering Wheel Module C1

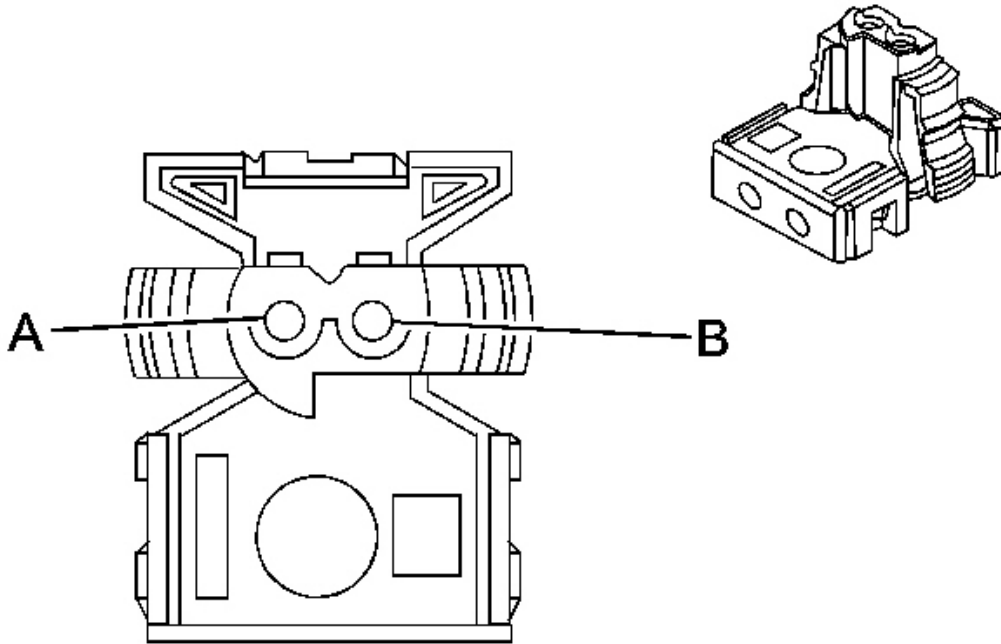


Fig. 25: Inflatable Restraint Steering Wheel Module C1 Connector End View
 Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Steering Wheel Module C1 Connector Parts Information

Connector Part Information

- OEM: 54560208
- Service: See Catalog
- Description: 2-Way F ABX-3 Cord B (TN)

Terminal Part Information

- Terminal/Tray: Service with Pigtail
- 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

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A	YE	3021	Steering Wheel Module - Stage 1 - High Control
B	BN	3020	Steering Wheel Module - Stage 1 - Low Control

Inflatable Restraint Steering Wheel Module C2

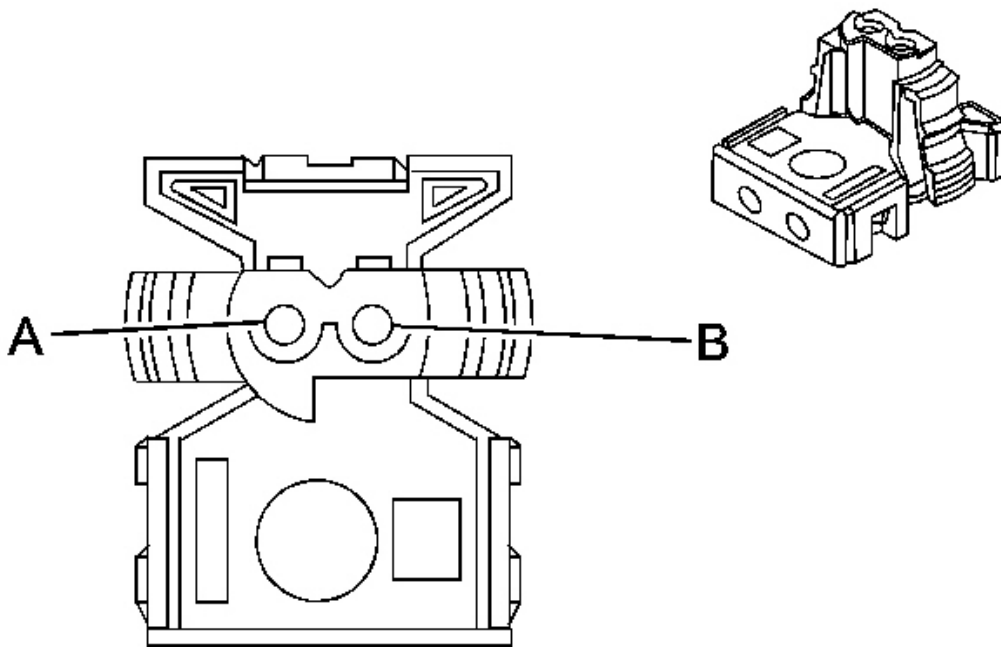


Fig. 26: Inflatable Restraint Steering Wheel Module C2 Connector End View
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Steering Wheel Module C2 Connector Parts Information

Connector Part Information

- OEM: 54550271
- Service: See Catalog
- Description: 2-Way F ABX-3 Cord G (PK)

Terminal Part Information

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- Terminal/Tray: Service with Pigtail
- 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
B	RD	3022	Steering Wheel Module - Stage 2 - Low Control

Inflatable Restraint Vehicle Rollover Sensor (ASF) Connector End Views

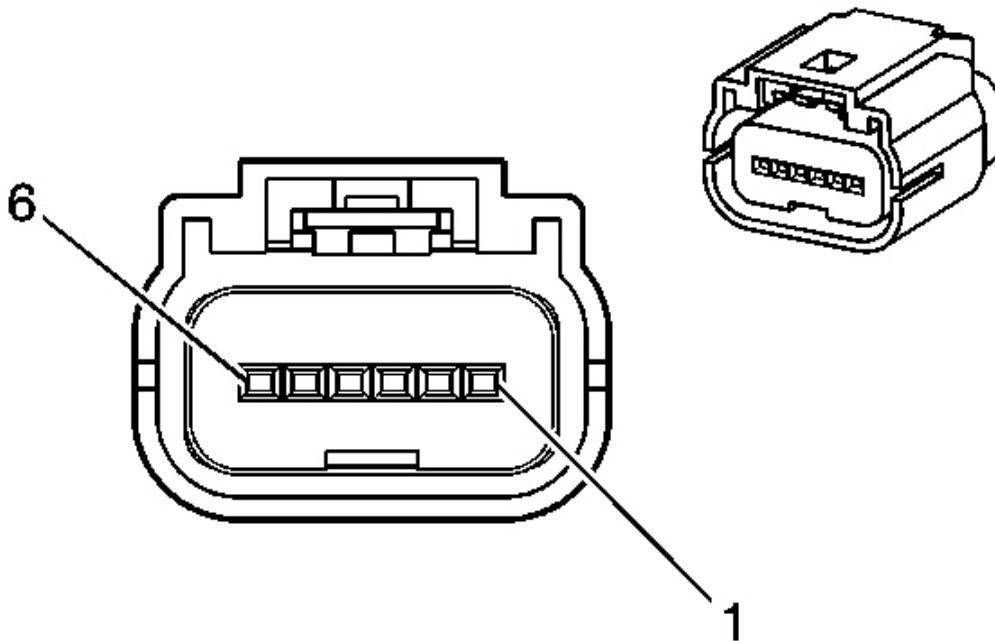


Fig. 27: Inflatable Restraint Vehicle Rollover Sensor (ASF) Connector End Views
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Vehicle Rollover Sensor (ASF) Connector Parts Information

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Connector Part Information

- OEM: 6189-1024
- Service: Not Serviced
- Description: 6-Way F 064 Series Sealed (YE)

Terminal Part Information

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

Inflatable Restraint Vehicle Rollover Sensor (ASF) Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	YE	1139	Ignition 1 Voltage
2-4	-	-	Not Used
5	PK	2306	Serial Data Link
6	BK/WH	2151	Ground

Seat Belt Pretensioner - Left Front

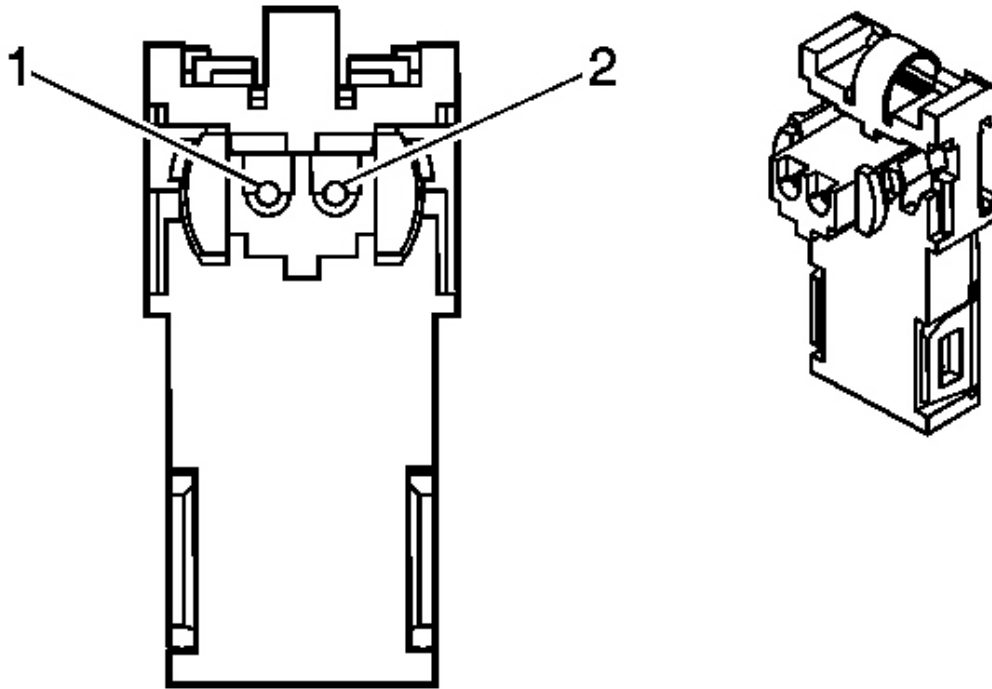


Fig. 28: Seat Belt Pretensioner - Left Front Connector End View
Courtesy of GENERAL MOTORS CORP.

Seat Belt Pretensioner - Left Front Connector Parts Information

Connector Part Information

- OEM: 1376030-1
- Service: 88988308
- Description: 2-Way F Squib (YE)

Terminal Part Information

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

Seat Belt Pretensioner - Left Front Connector Terminal Identification

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

Seat Belt Pretensioner - Right Front

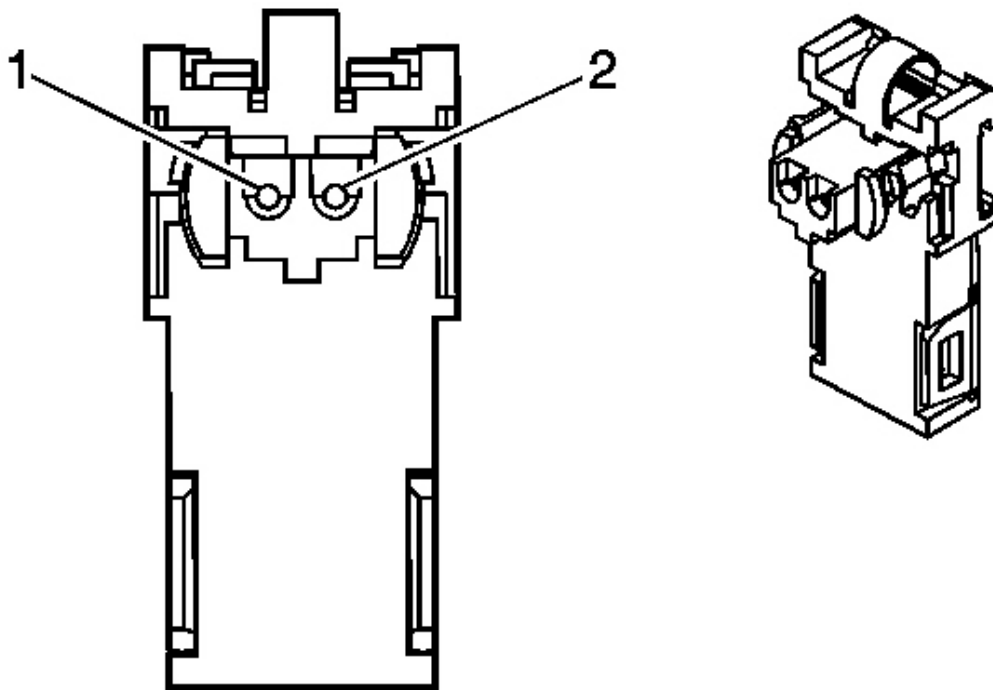


Fig. 29: Seat Belt Pretensioner - Right Front Connector End View
Courtesy of GENERAL MOTORS CORP.

Seat Belt Pretensioner - Right Front Connector Parts Information

Connector Part Information

- OEM: 1376030-1
- Service: 88988308

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- Description: 2-Way F Squib (YE)

Terminal Part Information

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

Seat Belt Pretensioner - Right Front Connector Terminal Identification

Pin	Wire Color	Circuit No.	Function
1	OG	2117	Seat Belt Pretensioner - Right - Low Control
2	L-GN	2116	Seat Belt Pretensioner - Right - High Control

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC CODE INDEX

DIAGNOSTIC CODE INDEX

DTC	Description
<u>DTC B0012, B0013, B0014, B0016, B0017 or B0018</u>	Passenger Frontal Deployment Loop
<u>DTC B0022, B0024, B0026, B0042, B0043 or B0044</u>	Left Front/Driver Frontal Deployment Loop
<u>DTC B0051</u>	Deployment Commanded
<u>DTC B0053</u>	Deployment Commanded with Loop DTCs Present
<u>DTC B0057, B0058 or B0059</u>	Right Front/Passenger Pretensioner Deployment Loop
<u>DTC B0061, B0062 or B0068</u>	Left Front/Driver Roof Rail/Head Curtain Bag Deployment Loop
<u>DTC B0064, B0065 or B0066</u>	Left Front/Driver Pretensioner Deployment Loop
<u>DTC B0069, B0070 or B0071</u>	Right Front/Passenger Roof Rail/Head Curtain Bag Deployment Loop
<u>DTC B0077, B0078,</u>	Impact Sensor (SIS)

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<u>B0079, B0080, B0081 or B0082</u>	
<u>DTC B0083 or B0084</u>	Seat Position Sensor Circuit
<u>DTC B0092</u>	Passenger Presence System Performance
<u>DTC B0098</u>	Passenger Presence System Configuration Error
<u>DTC B0100, B0101, B0102, B0103, B0104 or B0105</u>	Front End Sensor
<u>DTC B1001</u>	SDM Option Configuration Error
<u>DTC B1530</u>	Discard Passenger Presence System 1
<u>DTC B3855, B3856 or B3857</u>	Rollover Sensor
<u>DTC U1241</u>	<p>will set when the Tech 2 is used to flash DTCs from the PPS or after the PPS has been rezeroed. DTC U1241 does not indicate a system malfunction and will not cause any warning indicators to illuminate. When DTC U1241 sets, cycle the ignition and use the scan tool to clear the code, no further diagnosis is necessary.</p> <p>For more detailed information concerning the PPS, refer to <u>SIR System Description and Operation</u>. For more detailed information concerning PPS flash code and rezeroing procedures, refer to <u>Passenger Presence System Flash Code Procedures</u> and <u>Passenger Presence System Programming and Setup</u>.</p>

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
- 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.

PASSENGER PRESENCE SYSTEM FLASH CODE PROCEDURES

Introduction

When the ignition is turned ON, 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 passenger presence system (PPS). The PPS will respond by performing diagnostic tests to check for proper circuit continuity and for shorts to ground and voltage within the PPS. If the PPS detects a malfunction, the PPS will set a DTC, communicate with the SDM that a malfunction has occurred and request the SDM to disable the instrument panel (I/P) module deployment loop. The SDM will respond by disabling the I/P module deployment loop, setting either DTC B0092 or B0098 and commanding the AIR BAG indicator ON. The SDM sets either DTC B0092 or B0098 to notify the driver of a PPS malfunction. The DTCs that the PPS set are non-class 2 and have to be flashed through the PASSENGER AIR BAG ON/OFF indicators located on the instrument panel. The procedures below are designed to assist in the flashing of these codes. Before you start, read these procedures carefully and completely. For further information regarding the PPS refer to **SIR System Description and Operation**.

Passenger Presence System (PPS) Flash Code Procedure

IMPORTANT: When flashing PPS codes, the instrument panel cluster (IPC) and dash lights will begin dimming on and off. This is normal operation during the flashing procedure and does not indicate additional system faults.

IMPORTANT: If after 30 seconds of a successful request to flash codes and no additional flashes are observed, then the PPS does not have any stored codes.

1. Empty the front outboard passenger seat.
2. Install a scan tool.
3. Turn ON the ignition, with the engine OFF.
4. With a scan tool, request the passenger presence system (PPS) to flash DTCs.
5. When the PPS receives a valid request to flash DTCs, the PPS will perform the following:
 1. Illuminate both PASSENGER AIR BAG ON and OFF indicators located on the instrument panel for 1 second.
 2. Turn OFF both PASSENGER AIR BAG ON and OFF indicators for 1 second.
 3. Flash the first number of the DTC using the OFF indicator. Count the number of times the OFF indicator flashes to obtain the first number of the DTC.
 4. Flash the second number of the DTC using the ON indicator. Count the number of times the ON indicator flashes to obtain the second number of the DTC.

5. When the flashing procedure is initiated, the PPS will flash all current and history DTCs that are stored. After all DTCs have been flashed, to determine if the DTCs are current or history, the PPS will reflash the DTCs that are stored as current only. Any DTC that is not reflashed is stored as a history DTC.
6. If the flashing 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 flashing attempt has been achieved.
7. Refer to the **Diagnostic Trouble Code (DTC) List - Vehicle** , to diagnose the DTCs you have obtained.

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 to supplement the diagnostic procedures. Begin all of the diagnostic procedures with the Diagnostic System Check - Vehicle. Refer to the **Diagnostic System Check - Vehicle** . Use the SIR Scan Tool Data List after determining the following:

- There is no published 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 first 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/Driver Seat Belt BUCKLED			
8-Digit GM Part Number	Module Information 2	8-Digit Number	XXXXXXXX
Calibration ID	Module Information 1	4-Digit Number	Varies

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Component Serial Number	Module Information 2	4-Digit Number	XXXX
Driver Side Belt Status	Inputs	Buckled/Unbuckled	Buckled
Driver Side Impact Sensor ID	Module Information 1	2-Digit Number	43
Electronic Front End Sensor 1 ID	Module Information 1	2-Digit Number	51
Electronic Front End Sensor 2 ID	Module Information 1	2-Digit Number	51
Ignition Voltage	Data	Volts	12 Volts
Julian Date of Build	Module Information 1	3-Digit Number	Varies
Passenger Side Belt Status	Inputs	Buckled/Unbuckled	Unbuckled
Passenger Side Impact Sensor ID	Module Information 1	2-Digit Number	43
ROM ID	Module Information 1	4-Digit Number	Varies
Year Module Built	Module Information 1	4-Digit Number	Varies

SCAN TOOL DATA DEFINITIONS

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.

8-Digit GM Part Number

The scan tool displays an 8-digit part number. This number is the GM part number that is stored within the SDM memory.

Calibration ID

The scan tool displays a 4-digit number. This calibration ID is the check sum of the SDM read only memory contents.

Component Serial Number

The scan tool displays the SDM serial number.

Driver Side Belt Status

The scan tool displays Buckled or Unbuckled. The signal from the driver seat belt switch indicates whether the driver seat is buckled or unbuckled.

Driver Side Impact Sensor ID

The scan tool displays a 2-digit ID number. The ID signal is sent to the SDM from the Driver SIS.

Electronic Front End Sensor 1 ID

The scan tool displays a 2-digit ID number. The ID signal is sent to the SDM from the left hand front end sensor.

Electronic Front End Sensor 2 ID

The scan tool displays a 2-digit ID number. The ID signal is sent to the SDM from the right hand front end sensor.

Ignition Voltage

The scan tool displays 0-20 volts. The Ignition represents the system voltage measured by the SDM at its ignition feed.

Julian Date of Build

The scan tool displays a 3 digit number. Which represents the day of the year the module was built.

Passenger Side Belt Status

The scan tool displays Buckled or Unbuckled. The signal from the passenger seat belt switch indicates whether the passenger seat is buckled or unbuckled.

Passenger Side Impact Sensor ID

The scan tool displays a 2-digit ID number. The ID signal is sent to the SDM from the Passenger SIS.

ROM ID

The scan tool displays a 4-digit number. This number is the read-only memory (ROM) ID.

Year Module Built

The scan tool displays what year the module was built.

DTC 023

Diagnostic Instructions

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

DTC Descriptor

DTC 023

Seat Belt Tension Sensor Circuit Out of Range

Circuit/System Description

The inflatable restraint 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 023 if a fault is detected.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

- The PPS detects the voltage at the passenger seat belt tension 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 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 sensor low reference is 25 mA or greater for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM disables the instrument panel (I/P) module deployment loop.
- The SDM commands the AIR BAG indicator ON via class 2 serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- The scan tool CLEAR DTC command has been issued.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The following can cause an intermittent condition:

- A short between the passenger seat belt tension sensor signal, 5-volt reference and low reference circuits
- An open or high resistance between the passenger seat belt tension sensor signal, 5-volt reference and low reference circuits
- Inspect the passenger seat belt tension sensor signal, 5-volt reference and low reference circuits carefully for cutting and/or chafing.

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

1. Ignition OFF. Inspect the PPS and seat belt tension sensor connectors for corrosion or damage.
 - If the seat belt tension sensor terminals are damaged, replace the seat belt tension sensor.
 - If any of the above conditions are found, make the appropriate repair.
2. Test the seat belt tension sensor signal and voltage circuits for a short to voltage, short to ground or an open/high resistance.
 - If any of the above conditions are found, make the appropriate repair.
3. Ignition ON. Test the seat belt tension sensor 5-volt reference circuit for voltage.
 - If the sensor reference voltage is not 5 volts, replace the PPS.
4. Test the seat belt tension sensor signal circuit for voltage.
 - If the signal circuit voltage is not 0.05-4.5 volts, replace the seat belt tension sensor.
5. Ignition ON. Reconnect all components and with the scan tool clear DTC.
 - Recheck for DTC 023. Refer to **Passenger Presence System Flash Code Procedures**. If DTC 023 does not set as current, perform the repair verification.
6. If DTC 023 does set as a current DTC, replace and rezero the PPS.
 - After replacement and rezeroing of the PPS are completed, perform the repair verification.

Repair Procedures

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

- **Front Seat Belt Buckle Replacement**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for PPS replacement, setup and programming

DTC 024

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.

- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor**DTC 024****PPS Ignition 1 Voltage Performance****Circuit/System Description**

The inflatable restraint passenger presence system (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 retractor sensor, wiring harness and PASSENGER AIR BAG ON/OFF indicators. 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 occupant's 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 indicators located on the instrument panel. The PPS monitors itself for faults and will set flash DTCs if a fault is detected. The PPS will also notify the SDM of a fault. The SDM will respond by setting either DTC B0092 or B0098 and requesting the instrument panel cluster (IPC) to turn the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

The PPS detects ignition 1 voltage is less than 8 volts for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM disables the instrument panel (I/P) module deployment loop.
- The SDM commands the AIR BAG indicator ON via class 2 serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- The scan tool CLEAR DTC command has been issued.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The following can cause an intermittent condition:

- A short in the ignition 1 voltage circuit between the PPS module and the body relay block
- An open or high resistance in the ignition 1 voltage circuit between the PPS module and the body relay block

The PPS will set DTC 024 when the ignition voltage has fallen below 8 volts. The PPS will set DTC 024 as a history code only. This is a normal condition for DTC 024 and it should be diagnosed as a current DTC.

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

1. Ignition OFF. Inspect the PPS and main seat harness connectors for corrosion or damage.
 - If any of the above conditions are found, make the appropriate repair.
2. Test the PPS ground circuit for an open/high resistance.
 - If any of the above conditions are found, make the appropriate repair.
3. Test the PPS ignition 1 voltage circuit for a short to ground or an open/high resistance.

- If any of the above conditions are found, make the appropriate repair.
- 4. Reconnect all components, clear codes and recheck for DTC 024. Refer to **Passenger Presence System Flash Code Procedures**. If DTC 024 resets, replace and rezero the PPS.
 - After replacement and rezeroing of the PPS are completed, perform the repair verification.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for PPS replacement, setup and programming

DTC 063**Diagnostic Instructions**

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

DTC Descriptor**DTC 063**

PPS Out of Calibration

Circuit/System Description

The Inflatable Restraint Passenger Presence System (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 retractor sensor, wiring harness and PASSENGER AIR BAG ON/OFF indicators. 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 occupant's 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 occupant's 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 indicators located on the instrument panel. The PPS monitors itself for faults and will set flash DTCs if a fault is detected. The PPS will also notify the SDM of a fault. The SDM will respond by setting DTC B0092 and requesting the instrument panel cluster (IPC) to turn the AIR BAG indicator ON. The PPS will set DTC 063 as an indication that the PPS is out of calibration. The PPS is not capable of being calibrated at the service level, the PPS must be replaced.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

The PPS detects ignition 1 voltage is less than 8 volts for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM disables the instrument panel (I/P) module deployment loop.
- The SDM commands the AIR BAG indicator ON via class 2 serial data.

Conditions for Clearing the DTC

DTC 063 is an indication that the PPS is out of calibration. You cannot recalibrate the PPS. Replace the PPS after following the instructions in the diagnostic table below.

Diagnostic Aids

- Refer to **Passenger Presence System Flash Code Procedures** for displaying flash codes.
- The presence of current or history DTC while attempting to rezero the PPS will cause the PPS module to set DTC 063. Verify that all SIR and PPS DTC have been cleared before rezeroing the PPS.

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

Ignition OFF. Clear codes and rezero the PPS system.

- If DTC 063 resets, replace and rezero the PPS. Refer to **Repair Procedures**.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for PPS replacement, setup and programming

DTC 064

Diagnostic Instructions

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

DTC Descriptor

DTC 064

PPS Communication/ID Performance

Circuit/System Description

The Inflatable Restraint Passenger Presence System (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 retractor sensor, wiring harness and PASSENGER AIR BAG ON/OFF indicators. 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 occupant's 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 occupant's 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 indicators located on the instrument panel. The PPS monitors itself for faults and will set flash DTC if a fault is detected. The PPS will also notify the SDM of a fault. The SDM will respond by setting either DTC B0092 or B0098 and requesting the instrument panel cluster (IPC) to turn the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

- The PPS has lost communications with the SDM.
- The PPS verification ID does not match the ID that is stored in the SDM.

Action Taken When the DTC Sets

- The SDM disables the instrument panel (I/P) module deployment loop.
- The SDM commands the AIR BAG indicator ON via class 2 serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- The scan tool CLEAR DTC command has been issued.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

IMPORTANT: DTC B0098 is an indication that the SDM has received an incorrect PPS verification ID. The SDM will continue to request the verification ID from the PPS for 5 seconds. If the SDM does not receive the correct verification ID from the PPS within 5 seconds, the SDM will set DTC B0098 as current, illuminate the AIR BAG indicator and disable the I/P module deployment loop. If either the SDM or PPS were replaced make sure the correct part numbers were used for the vehicle application.

DTC B0092 or B0098 will set if the PPS has a current malfunction and has set DTC 064. The SDM will set DTC B0092 or B0098 as current and command the AIR BAG indicator ON. This is done to notify the driver of any PPS malfunctions. When DTC B0092 or B0098 are present it is important to check the PPS for any current DTCs. Refer to **Passenger Presence System Flash Code Procedures**.

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

1. Ignition ON. With the scan tool check for DTC 064 as a current DTC. Refer to **Passenger Presence System Flash Code Procedures**.
 - If DTC 064 is NOT a current DTC, rezero the PPS system.
2. Ignition ON. If DTC 064 is a current DTC, check for DTC B0098 as a current DTC.
 - If DTC B0098 is a current DTC, refer to **DTC B0098**.
3. Ignition OFF. Inspect the PPS module, SDM and main seat harness connectors for corrosion or damage.
 - If any of the above conditions are found, make the appropriate repair.
4. Reconnect all components and test the PPS class 2 serial data circuit for a short to voltage.
 - If any of the above conditions are found, make the appropriate repair. Reconnect all components and rezero the PPS.
5. Replace the PPS.
 - After replacement and rezeroing of the PPS are completed, verify that DTC 064 does not reset. Perform the repair verification.

6. If DTC 064 resets, replace the SDM.

- After replacement and setup of the SDM is completed, rezero the PPS. Perform the repair verification.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for PPS and SDM replacement, setup and programming

DTC 065

Diagnostic Instructions

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

DTC Descriptor

DTC 065

PPS Sensor Circuit Out of Range

Circuit/System Description

The Inflatable Restraint Passenger Presence System (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 retractor sensor, wiring harness and PASSENGER AIR BAG ON/OFF indicators. 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 occupant's 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 occupant's 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 indicators located on the instrument panel. The PPS

monitors itself for faults and will set flash DTC if a fault is detected. The PPS will also notify the SDM of a fault. The SDM will respond by setting DTC B0092 and requesting the instrument panel cluster (IPC) to turn the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

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

Action Taken When the DTC Sets

- The SDM disables the instrument panel (I/P) module deployment loop.
- The SDM commands the AIR BAG indicator ON via class 2 serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- The scan tool CLEAR DTC command has been issued.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

Refer to **Passenger Presence System Flash Code Procedures** for displaying flash codes.

The following can cause an intermittent condition:

- A short between the PPS sensor signal, 5-volt reference and low reference circuits.
- An open or high resistance between the PPS sensor signal, 5-volt reference and low reference circuits.
- Inspect the PPS sensor signal, 5-volt reference and low reference circuits carefully for cutting and/or chafing.

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

1. Ignition OFF. Inspect the PPS module and PPS pressure sensor harness connectors for corrosion or damage.
 - If any of the above conditions are found, make the appropriate repair.
2. Reconnect all components and test the PPS sensor circuits for a short to voltage, short to ground or open/high resistance.
 - If any of the above conditions are found, make the appropriate repair.
3. Reconnect all components and check for DTC 065 as current.
 - If DTC 065 is not current, rezero the PPS.
4. Replace and rezero the PPS. After replacement and rezeroing of the PPS are completed, perform the repair verification.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for PPS replacement, setup and programming

DTC B0012, B0013, B0014, B0016, B0017 OR B0018

Diagnostic Instructions

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

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- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B0012

Passenger Frontal Deployment Loop (Stage 2) Resistance Low

DTC B0013

Passenger Frontal Deployment Loop (Stage 2) Open

DTC B0014

Passenger Frontal Deployment Loop (Stage 2) Voltage Out of Range

DTC B0016

Passenger Frontal Deployment Loop (Stage 1) Resistance Low

DTC B0017

Passenger Frontal Deployment Loop (Stage 1) Open

DTC B0018

Passenger Frontal Deployment Loop (Stage 1) Voltage Out of Range

Diagnostic Fault Information

DTC B0012, B0013, B0014, B0016, B0017 or B0018

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
I/P Module Stage 1 High Circuit	B0018	B0018	B0017	B0018	B0016
I/P Module Stage 1 Low Circuit	B0018	B0018	B0017	B0018	B0016
I/P Module Stage 2 High Circuit	B0014	B0014	B0013	B0014	B0012
I/P Module Stage 2 Low					

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Circuit	B0014	B0014	B0013	B0014	B0012
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Circuit/System Description

The passenger deployment loop consists of a dual stage inflatable restraint instrument panel (I/P) module. The I/P module high circuits and the I/P module low circuits exist for both stages 1 and 2. There are 2 shorting bars used within the I/P module connector. These shorting bars short together the I/P module stage 1 high circuits and low circuits and the I/P module stage 2 high circuits and low circuits when the connector is disconnected. This prevents unwanted deployment of the inflator module during servicing. During a frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop. This flow of current will deploy the 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. If a malfunction is detected, a diagnostic trouble code (DTC) will be stored in memory.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0012 stage 2 or B0016 stage 1

The I/P module deployment loop resistance is less than 1.3 ohms for 500 milliseconds.

B0013 stage 2 or B0017 stage 1

- The I/P module stage 1 or stage 2 high circuit is less than 2.4 volts and the I/P module stage 1 or stage 2 deployment loop is more than 6 ohms for 500 milliseconds.
- The I/P module stage 1 or stage 2 deployment loop resistance is more than 4.8 ohms for 500 milliseconds.

B0014 stage 2 or B0018 stage 1

- The I/P module stage 1 or stage 2 high and/or low circuits is short to ground or short to voltage for 500 milliseconds.
- The I/P module stage 1 or stage 2 high circuit is less than 2.4 volts and I/P module stage 1 or stage 2 deployment loop resistance is less than 6 ohms for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.

- The SIR system is disabled and no deployments are allowed.

Conditions for Clearing the DTC

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

Diagnostic Aids

If there is more than one DTC set diagnose the open DTC first. The following are possible causes of the malfunction:

- A short between the I/P module stage 1 or stage 2, high and low circuits
- An open or a high resistance in the I/P module stage 1 or stage 2, high or low circuits
- A short to ground or a short to voltage in the I/P module stage 1 or stage 2, high or low circuits
- A malfunctioning I/P module connector
- A malfunctioning SDM connector
- A malfunctioning I/P module
- A malfunctioning SDM

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** Driver/Passenger Load tool. See **Special Tools**.
- EL 38715-125 Load Tool Adapter

Circuit/System Testing

1. With the ignition OFF, disconnect I/P module in-line connector.
2. Inspect the component and wiring harness sides of the in-line connector for the I/P module for damage or corrosion.
 - If the in-line connector for the I/P module is damaged, the I/P module must be replaced.
 - If the I/P module wiring harness side connector is damaged, replace the harness side of the connector.
3. Use EL 38715-125 adapter to connect the **J 38715-A** SIR Driver/Passenger Load Tool to the harness side of the I/P module in-line wiring harness connector. See **Special Tools**. Use the BASE of COLUMN and PASSENGER INFLATOR connectors located on the load tool.
4. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0012, B0013, B0014, B0016, B0017 or B0018 are set in history.
 - If DTC B0012, B0013, B0014, B0016, B0017 or B0018 is history replace the I/P module.
5. With the ignition OFF, disconnect and remove the **J 38715-A** and adapter. See **Special Tools**.
6. Remove the inflatable restraint sensing and diagnostic module (SDM) connector. Inspect the SDM connector for damage or corrosion that may cause a malfunction in the I/P module stage 1 or stage 2 high and/or low circuits.
 - If damage or corrosion is found make the appropriate repair.
7. 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.
 - If circuits test good then replace the SDM.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Inflatable Restraint Instrument Panel Module Replacement**
- **Control Module References** for SDM replacement, setup and programming

DTC B0022, B0024, B0026, B0042, B0043 OR B0044**Circuit Description**

The driver deployment loop consists of the following components:

- A dual-stage inflatable restraint steering wheel module
- The inflatable restraint steering wheel module coil
- The steering wheel module high circuits for both stages 1 and 2
- The steering wheel module low circuits for both stages 1 and 2

There are 2 shorting bars used within the steering wheel module coil connector. These shorting bars short together both stages of the steering wheel module high circuit and the steering wheel module low circuit when the connector is disconnected. This helps prevent unwanted deployment of the inflator module during servicing. During a frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop. This flow of current will 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. If a malfunction is detected, a DTC will be stored in memory.

DTC Descriptors

This diagnostic procedure supports the following DTCs:

- DTC B0022 Left Front/Driver Frontal Deployment Loop (single stage or stage 1) Resistance Low
- DTC B0024 Left Front/Driver Frontal Deployment Loop (single stage or stage 1) Voltage Out of Range
- DTC B0026 Left Front/Driver Frontal Deployment Loop (single stage or stage 1) Open
- DTC B0042 Left Front/Driver Frontal Deployment Loop (stage 2) Resistance Low
- DTC B0043 Left Front/Driver Frontal Deployment Loop (stage 2) Voltage Out of Range
- DTC B0044 Left Front/Driver Frontal Deployment Loop (stage 2) Open

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

- DTC B0022 (stage 1) or B0042 (stage 2) will set when the steering wheel module

deployment loop resistance is less than 1.3 ohms for 500 milliseconds.

- DTC B0024 (stage 1) or B0043 (stage 2) will set when one of the following conditions occur:
 - The steering wheel module high circuits and/or low circuits is short-to-ground or short-to-voltage for 500 milliseconds.
 - The steering wheel module high circuit is less than 2.4 volts and steering wheel module deployment loop resistance is less than 6 ohms for 500 milliseconds.
- DTC B0026 (stage 1) or B0044 (stage 2) will set when one of the following conditions occurs:
 - The steering wheel module high circuit is less than 2.4 volts and the steering wheel module deployment loop is more than 6 ohms for 500 milliseconds.
 - The steering wheel module deployment loop resistance is more than 4.8 ohms for 500 milliseconds.

Action Taken When the DTC Sets

The SDM commands the AIR BAG indicator ON via Class 2 serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC is not currently present and the scan tool Clear DTCs function is used.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The following conditions are possible causes of the malfunction:

- A short between the steering wheel module stage 1 or stage 2, high and low circuits.
- An open or a high resistance in the steering wheel module stage 1 or stage 2, high or low circuits.
- A short-to-ground or a short-to-voltage in the steering wheel module stage 1 or stage 2, high circuits or low circuits.
- A malfunctioning steering wheel module coil connector
- A malfunctioning SDM connector
- A malfunctioning steering wheel module
- A malfunctioning steering wheel module coil
- A malfunctioning SDM

Thoroughly inspect the wiring and the connectors. An incomplete inspection of the wiring and the connectors may result in a misdiagnosis, causing a part replacement with the reappearance of the malfunction. If an intermittent malfunction exists, refer to **Testing for Intermittent Conditions and Poor Connections** .

Test Description

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

5: Tests if the malfunction is caused by the steering wheel module or by the steering wheel module coil.

7: Determines which DTCs are present. If DTC B0022 or B0042 is present, test the steering wheel module for a short between high and low circuits in stage 1 or stage 2. If DTC B0024 or B0043 is present, test the steering wheel module high and low circuits for an open and for high resistance in stage 1 or stage 2. If DTC B0026 or B0044 is present, test the steering wheel module high and low circuits for an open and for high resistance in stage 1 or stage 2.

DTC B0022, B0024, B0026, B0042, B0043 or B0044

Step	Action	Yes	No
Schematic Reference: <u>SIR Schematics</u>			
Connector End View Reference: <u>SIR Connector End Views</u>			
1	Did you perform a Diagnostic System Check - Vehicle?	Go to Step 2	Go to <u>Diagnostic System Check - Vehicle</u>
2	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the steering wheel module coil in-line connector. Refer to <u>Inflatable Restraint Steering Wheel Module Coil Replacement</u>. 3. Inspect the component and harness sides of the in-line connector for the steering wheel module coil for damage or corrosion that may cause the malfunction. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> . <p>Does connector exhibit any signs of damage</p>		

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	or corrosion?	Go to Step 3	Go to Step 4
3	<ol style="list-style-type: none"> 1. If the in-line connector for the steering wheel module coil is damaged, the steering wheel module coil must be replaced. Refer to <u>Inflatable Restraint Steering Wheel Module Coil Replacement</u>. 2. If the wiring harness side of steering wheel module coil in-line connector is damaged, replace the harness side of the connector. Refer to <u>Connector Repairs</u> . 		
	Did you complete the repair?	Go to Step 11	-
4	<p>IMPORTANT: When installing J 38715-A SIR Driver/Passenger Load Tool for testing the dual stage steering wheel module, the correct 4-way load tool adapter connector must be used. See <u>Special Tools</u>. Failure to use the correct 4-way load tool connector will set additional codes when testing.</p> <ol style="list-style-type: none"> 1. Use J 38715-80 Adapter to connect the J 38715-A to the harness side of the steering wheel module coil connector. See <u>Special Tools</u>. Use BASE OF COLUMN and PASSENGER INFLATOR connectors. 2. Turn ON the ignition, with the engine OFF. 3. Use the scan tool to request SIR DTCs displayed. 		
	Does the scan tool indicate that DTC B0022, B0024, B0026, B0042, B0043 or B0044 are current?	Go to Step 6	Go to Step 5
	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 		

5	<ol style="list-style-type: none"> 2. Disconnect and remove both the J 38715-A and adapter. See <u>Special Tools</u>. 3. Connect the steering wheel module coil in-line connector. 4. Remove the steering wheel module. Refer to <u>Inflatable Restraint Steering Wheel Module Replacement</u>. 5. Use the J 38715-120 adapter to connect the J 38715-A to the upper steering wheel module coil connector on top of the steering column. See <u>Special Tools</u>. Use STEERING COLUMN and PASSENGER INFLATOR connectors. 6. Turn ON the ignition, with the engine OFF. 7. Use the scan tool to request SIR DTCs displayed. <p>Does the scan tool indicate that DTC B0022, B0024, B0026, B0042, B0043 or B0044 are current?</p>	Go to Step 9	Go to Step 8
6	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect and remove both the J 38715-A and adapter. See <u>Special Tools</u>. 3. Disconnect the inflatable restraint sensing and diagnostic module (SDM) connector. Refer to <u>Inflatable Restraint Sensing and Diagnostic Module Replacement</u>. 4. Inspect the SDM connector for damage or corrosion that may cause a malfunction in the steering wheel module stage 1 or stage 2 high and/or 		

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	low circuits. Refer to <u>Testing for Intermittent Conditions and Poor Connections</u> and <u>Connector Repairs</u> .		
	Did you find and correct the condition?	Go to Step 11	Go to Step 7
7	<ol style="list-style-type: none"> 1. If DTC B0022 or B0042 is present, test the steering wheel module for a short between the high and low circuits in stage 1 or stage 2. 2. If DTC B0024 or B0043 is present, test the steering wheel module high and low circuits for a short to ground and for a short to voltage in stage 1 or stage 2. 3. If DTC B0026 or B0044 is present, test the steering wheel module high and low circuits for an open and for high resistance in stage 1 or stage 2. 4. If any of the above conditions exist, refer to <u>Circuit Testing</u> and <u>Wiring Repairs</u> . 		
	Did you find and correct the condition?	Go to Step 11	Go to Step 10
8	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Replace the steering wheel module. Refer to <u>Inflatable Restraint Steering Wheel Module Replacement</u>. 		
	Did you complete the replacement?	Go to Step 11	-
9	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Replace the steering wheel module coil. Refer to <u>Inflatable Restraint Steering Wheel Module Coil Replacement</u>. 		
	Did you complete the replacement?	Go to Step 11	-

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10	1. Turn OFF the ignition. 2. Replace the sensing and diagnostic module (SDM). Refer to <u>Control Module References</u> for replacement, setup and programming.		
	Did you complete the replacement?	Go to Step 11	-
11	1. Connect all SIR components. 2. Turn ON the ignition, with the engine OFF. 3. Use the scan tool in order to clear the DTCs. 4. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.		
	Does the DTC reset?	Go to Step 2	System OK

DTC B0051

Diagnostic Instructions

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

DTC Descriptor

DTC B0051

Deployment Commanded

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) contains a sensing device that converts changes in vehicle velocity to an electrical signal. The SDM compares this 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 air bags and causing DTC B0051 to set.

Conditions for Running the DTC

The SDM must be powered up.

Conditions for Setting the DTC

Ignition voltage must be present and the SDM must have commanded an air bag deployment with no faults present.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SDM records crash data.

Conditions for Clearing the DTC

DTC B0051 is a latched code. You cannot clear a latched code. Replace the SDM after following the instructions in the circuit/system testing.

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

1. If there are signs of an air bag deployment inspect the vehicle for signs of impact or collision. Replace all components as required after an accident.
2. Replace the inflatable restraint SDM.

Repair Procedures

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

- **Control Module References** for SDM replacement, setup and programming
- **SIR/SRS Wiring Repairs**

DTC B0053**Diagnostic Instructions**

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

DTC Descriptor**DTC B0053**

Deployment Commanded with Loop DTCs Present

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) contains a sensing device that converts changes in vehicle velocity to an electrical signal. The SDM compares this 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 air bags. DTC B0053 will set instead of DTC B0051 when a deployment occurs while an inflator circuit fault is present that may result in a non-deployment situation in one or more of the inflator modules.

Conditions for Running the DTC

The SDM must be powered up.

Conditions for Setting the DTC

Ignition voltage must be present and the SDM must have commanded an air bag deployment with faults present.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.

- The SDM records crash data.

Conditions for Clearing the DTC

DTC B0053 is a latched code. You cannot clear a latched code. Replace the SDM after following the instructions in the circuit/system testing.

Diagnostic Aids

When DTC B0053 is accompanied by additional DTCs (other than DTC B0051), repair the malfunction causing the other DTCs before replacing the SDM.

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

- If there are signs of an air bag deployment inspect the vehicle for signs of impact or collision. Replace all components as required after an accident.
- Replace the SDM.

Repair Procedures

Perform the Diagnostic Repair Verification after completing the diagnostic procedure.

- Control Module References for SDM replacement, setup and programming
- SIR/SRS Wiring Repairs

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Diagnostic Instructions

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

DTC Descriptors

DTC B0057

Right Front/Passenger Pretensioner Deployment Loop Resistance Low

DTC B0058

Right Front/Passenger Pretensioner Deployment Loop Open

DTC B0059

Right Front/Passenger Pretensioner Deployment Loop Voltage Out of Range

Diagnostic Fault Information

DTC B0057, B0058 or B0059

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Seat Belt Pretensioner - RF High Circuit	B0059	B0059	B0058	B0059	B0057
Seat Belt Pretensioner - RF Low Circuit	B0059	B0059	B0058	B0059	B0057

Circuit/System Description

The passenger seat belt pretensioner deployment loop consists of a seat belt pretensioner - RF and the seat belt pretensioner - RF high and low circuits. A shorting bar used within the seat belt pretensioner connector shorts together both the seat belt pretensioner high and low circuits when the connector is disconnected. This will help to prevent unwanted deployment of the pretensioner during servicing. 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 seat belt pretensioner. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage. If a malfunction is detected, a diagnostic trouble code (DTC) will be stored in memory.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC**B0057**

DTC B0057 will set when the seat belt pretensioner-RF deployment loop resistance is less than 1.3 ohms for 500 milliseconds.

B0058

DTC B0058 will set when one of the following conditions occurs:

- Seat belt pretensioner - RF high circuit is less than 2.4 volts and the seat belt pretensioner - RF deployment loop is more than 6 ohms for 500 milliseconds.
- Seat belt pretensioner - RF deployment loop resistance is more than 4.8 ohms for 500 milliseconds.

B0059

DTC B0059 when one of the following conditions occur:

- Seat belt pretensioner - RF high or low circuits is short to ground or short to voltage for 500 milliseconds.
- Seat belt pretensioner - RF high circuit is less than 2.4 volts and seat belt pretensioner - RF deployment loop resistance is less than 6 ohms for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SIR system is disabled and no deployments are allowed.

Conditions for Clearing the DTC

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

Diagnostic Aids

If there is more than one DTC set diagnose the open DTC first. The following are possible causes

of the malfunction:

- A short between the seat belt pretensioner - RF high and low circuits
- An open or a high resistance in the seat belt pretensioner - RF high or low circuits
- A short to ground or a short to voltage in the seat belt pretensioner - RF high or low circuits
- The seat belt pretensioner - RF connector
- The SDM connector
- A malfunctioning seat belt pretensioner
- A malfunctioning SDM

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 38715-50 Load Tool Adapter

Circuit/System Testing

1. With the ignition OFF, disconnect seat belt pretensioner connector.
2. Inspect the component and wiring harness sides of connector for the seat belt pretensioner for damage or corrosion.
 - If the connector for the seat belt pretensioner is damaged, the seat belt pretensioner must be replaced.
 - If the seat belt pretensioner wiring harness side connector is damaged, replace the

connector.

3. Use J 38715-50 adapter to connect the **J 38715-A** SIR Driver/Passenger Load Tool to the harness side of the seat belt pretensioner wiring harness connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.
4. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0057, B0058 or B0059 are set in history.
 - If DTC B0057, B0058 or B0059 is history replace the seat belt pretensioner.
5. With the ignition OFF, disconnect and remove the **J 38715-A** and adapter. See **Special Tools**.
6. Remove the SDM connector. Inspect the SDM connector for damage or corrosion that may cause a malfunction in the seat belt pretensioner high and/or low circuits.
 - If damage or corrosion is found make the appropriate repair.
7. Test the high and low circuits between the SDM and seat belt pretensioner for a short to voltage, short to ground or open/low resistance.
 - If circuits test good then replace the SDM.

Repair Procedures

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

- **Seat Belt Retractor Pretensioner Replacement - Front**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B0061, B0062 OR B0068

Diagnostic Instructions

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

DTC Descriptors

DTC B0061

Left Front/Driver Roof Rail/Head Curtain Bag Deployment Loop Resistance Low

DTC B0062

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Left Front/Driver Roof Rail/Head Curtain Bag Deployment Loop Open

DTC B0068

Left Front/Driver Roof Rail/Head Curtain Bag Deployment Loop Voltage Out of Range

Diagnostic Fault Information

DTC B0061, B0062 or B0068

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Roof Rail Module - Left High Circuit	B0068	B0068	B0062	B0068	B0061
Roof Rail Module - Left Low Circuit	B0068	B0068	B0062	B0068	B0061

Circuit/System Description

The driver roof rail deployment loop consists of an inflatable restraint roof rail module - left and the roof rail module high and low circuits. A shorting bar used within the roof rail module connector shorts together both the roof rail module high and low circuits when the connector is disconnected. This will help to prevent unwanted deployment of the inflator module during servicing. 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. If a malfunction is detected, a diagnostic trouble code (DTC) will be stored in memory.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0061

DTC B0061 will set when the roof rail module-left deployment loop resistance is less than 1.3 ohms for 500 milliseconds.

B0062

DTC B0062 will set when one of the following conditions occurs:

- Roof rail module-left high circuit is less than 2.4 volts and the roof rail module-left deployment loop is more than 6 ohms for 500 milliseconds.
- Roof rail module-left deployment loop resistance is more than 4.8 ohms for 500 milliseconds.

B0068

DTC B0068 when one of the following conditions occur:

- Roof rail module-left high or low circuits are short to ground or short to voltage for 500 milliseconds.
- Roof rail module-left high circuit is less than 2.4 volts and roof rail module-left deployment loop resistance is less than 6 ohms for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SIR system is disabled and no deployments are allowed.

Conditions for Clearing the DTC

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

Diagnostic Aids

If there is more than one DTC set diagnose the open DTC first. The following are possible causes of the malfunction:

- A short between the roof rail module-left high and low circuits
- An open or a high resistance in the roof rail module-left high or low circuits
- A short to ground or a short to voltage in the roof rail module-left high or low circuits
- The roof rail module-left connector
- The SDM connector
- A malfunctioning roof rail module
- A malfunctioning SDM

Reference Information

Schematic Reference

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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 38715-50 Load Tool Adapter

Circuit/System Testing

1. With the ignition OFF, disconnect roof rail module-left connector.
2. Inspect the component and wiring harness sides of connector for the roof rail module-left for damage or corrosion.
 - If the connector for the roof rail module - left is damaged, the roof rail module - left must be replaced.
 - If the roof rail module - left wiring harness side connector is damaged, replace the connector.
3. Use EL 38715-125 adapter to connect the **J 38715-A** SIR Driver/Passenger Load Tool to the harness side of the roof rail module-left wiring harness connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.
4. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0061, B0062 or B0068 are set in history.
 - If DTC B0061, B0062 or B0068 is history replace the roof rail module - left.
5. With the ignition OFF, disconnect and remove the **J 38715-A** and adapter. See **Special Tools**.
6. Remove the SDM connector. Inspect the SDM connector for damage or corrosion that may cause a malfunction in the roof rail module-left high and/or low circuits.

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- If damage or corrosion is found make the appropriate repair.
- 7. 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.
 - If circuits test good then replace the SDM.

Repair Procedures

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

- **Roof Side Rail Inflatable Restraint Module Replacement - Front**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B0064, B0065 OR B0066

Diagnostic Instructions

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

DTC Descriptors

DTC B0064

Left Front/Driver Pretensioner Deployment Loop Resistance Low

DTC B0065

Left Front/Driver Pretensioner Deployment Loop Open

DTC B0066

Left Front/Driver Pretensioner Deployment Loop Voltage Out of Range

Diagnostic Fault Information

DTC B0064, B0065 or B0066

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance

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Seat Belt Pretensioner - LF High Circuit	B0066	B0066	B0065	B0066	B0064
Seat Belt Pretensioner - LF Low Circuit	B0066	B0066	B0065	B0066	B0064

Circuit/System Description

The driver seat belt pretensioner deployment loop consists of a seat belt pretensioner - LF and the seat belt pretensioner - LF high and low circuits. A shorting bar used within the seat belt pretensioner connector shorts together both the seat belt pretensioner high and low circuits when the connector is disconnected. This will help to prevent unwanted deployment of the pretensioner during servicing. 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 seat belt pretensioner. The SDM performs continuous diagnostic tests on the deployment loops to check for proper circuit continuity and for shorts to ground or voltage. If a malfunction is detected, a diagnostic trouble code (DTC) will be stored in memory.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

B0064

DTC B0064 will set when the seat belt pretensioner - LF deployment loop resistance is less than 1.3 ohms for 500 milliseconds.

B0065

DTC B0065 will set when one of the following conditions occurs:

- Seat belt pretensioner - LF high circuit is less than 2.4 volts and the seat belt pretensioner - LF deployment loop is more than 6 ohms for 500 milliseconds.
- Seat belt pretensioner - -LF deployment loop resistance is more than 4.8 ohms for 500 milliseconds.

B0066

DTC B0066 when one of the following conditions occur:

- Seat belt pretensioner - LF high or low circuits is short to ground or short to voltage for 500

milliseconds.

- Seat belt pretensioner - LF high circuit is less than 2.4 volts and seat belt pretensioner - LF deployment loop resistance is less than 6 ohms for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SIR system is disabled and no deployments are allowed.

Conditions for Clearing the DTC

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

Diagnostic Aids

If there is more than one DTC set diagnose the open DTC first. The following are possible causes of the malfunction:

- A short between the seat belt pretensioner - LF high and low circuits
- An open or a high resistance in the seat belt pretensioner - LF high or low circuits
- A short to ground or a short to voltage in the seat belt pretensioner - LF high or low circuits
- The seat belt pretensioner - LF connector
- The SDM connector
- A malfunctioning seat belt pretensioner
- A malfunctioning SDM

Reference Information

Schematic Reference

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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 38715-50** Load Tool Adapter

Circuit/System Testing

1. With the ignition OFF, disconnect seat belt pretensioner connector.
2. Inspect the component and wiring harness sides of connector for the seat belt pretensioner for damage or corrosion.
 - If the connector for the seat belt pretensioner is damaged, the seat belt pretensioner must be replaced.
 - If the seat belt pretensioner wiring harness side connector is damaged, replace the connector.
3. Use J 38715-50 adapter to connect the J 38715-A SIR Driver/Passenger Load Tool to the harness side of the seat belt pretensioner wiring harness connector. Use the PASSENGER INFLATOR connector located on the load tool.
4. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0064, B0065 or B0066 are set in history.
 - If DTC B0064, B0065 or B0066 is history replace the seat belt pretensioner.
5. With the ignition OFF, disconnect and remove the J 38715-A and adapter.
6. Remove the inflatable restraint sensing and diagnostic module (SDM) connector. Inspect the SDM connector for damage or corrosion that may cause a malfunction in the seat belt pretensioner high and/or low circuits.
 - If damage or corrosion is found make the appropriate repair.
7. Test the high and low circuits between the SDM and seat belt pretensioner for a short to voltage, short to ground or open/low resistance.
 - If circuits test good then replace the SDM.

Repair Procedures

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

- **Seat Belt Retractor Pretensioner Replacement - Front**

- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B0069, B0070 OR B0071

Diagnostic Instructions

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

DTC Descriptors

DTC B0069

Right Front/Passenger Roof Rail/Head Curtain Bag Deployment Loop Resistance Low

DTC B0070

Right Front/Passenger Roof Rail/Head Curtain Bag Deployment Loop Open

DTC B0071

Right Front/Passenger Roof Rail/Head Curtain Bag Deployment Loop Voltage Out of Range

Diagnostic Fault Information

DTC B0069, B0070 or B0071

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Roof Rail Module - Right High Circuit	B0071	B0071	B0070	B0071	B0069
Roof Rail Module - Right Low Circuit	B0071	B0071	B0070	B0071	B0069

Circuit/System Description

The driver roof rail deployment loop consists of an inflatable restraint roof rail module - right and the roof rail module high and low circuits. A shorting bar used within the roof rail module connector shorts together both the roof rail module high and low circuits when the connector is

disconnected. This will help to prevent unwanted deployment of the inflator module during servicing. 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. If a malfunction is detected, a diagnostic trouble code (DTC) will be stored in memory.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC**B0069**

DTC B0069 will set when the roof rail module-right deployment loop resistance is less than 1.3 ohms for 500 milliseconds.

B0070

DTC B0070 will set when one of the following conditions occurs:

- Roof rail module - right high circuit is less than 2.4 volts and the roof rail module-right deployment loop is more than 6 ohms for 500 milliseconds.
- Roof rail module - right deployment loop resistance is more than 4.8 ohms for 500 milliseconds.

B0071

DTC B0071 when one of the following conditions occur:

- Roof rail module - right high or low circuits are short to ground or short to voltage for 500 milliseconds.
- Roof rail module - right high circuit is less than 2.4 volts and roof rail module - right deployment loop resistance is less than 6 ohms for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SIR system is disabled and no deployments are allowed.

Conditions for Clearing the DTC

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

Diagnostic Aids

If there is more than one DTC set diagnose the open DTC first. The following are possible causes of the malfunction:

- A short between the roof rail module - right high and low circuits
- An open or a high resistance in the roof rail module - right high or low circuits
- A short to ground or a short to voltage in the roof rail module - right high or low circuits
- The roof rail module- right connector
- The SDM connector
- A malfunctioning roof rail module
- A malfunctioning SDM

Reference Information

Schematic Reference

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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**.
- **EL 38715-125** Load Tool Adapter

Circuit/System Testing

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1. With the ignition OFF, disconnect roof rail module-right connector.
2. Inspect the component and wiring harness sides of connector for the roof rail module-right for damage or corrosion.
 - If the connector for the roof rail module-right is damaged, the roof rail module-right must be replaced.
 - If the roof rail module-right wiring harness side connector is damaged, replace the connector.
3. Use EL 38715-125 adapter to connect the **J 38715-A** SIR Driver/Passenger Load Tool to the harness side of the roof rail module-right wiring harness connector. See **Special Tools**. Use the PASSENGER INFLATOR connector located on the load tool.
4. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0069, B0070 or B0071 are set in history.
 - If DTC B0069, B0070 or B0071 is history replace the roof rail module-right.
5. With the ignition OFF, disconnect and remove the **J 38715-A** and adapter. See **Special Tools**.
6. Remove the inflatable restraint sensing and diagnostic module (SDM) connector. Inspect the SDM connector for damage or corrosion that may cause a malfunction in the roof rail module-right high and/or low circuits.
 - If damage or corrosion is found make the appropriate repair.
7. 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 circuits test good then replace the SDM.

Repair Procedures

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

- **Roof Side Rail Inflatable Restraint Module Replacement - Front**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B0077, B0078, B0079, B0080, B0081 OR B0082

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.

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- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC B0077

Left Front/Driver Side Impact Sensor (SIS) Performance

DTC B0078

Right Front/Passenger Side Impact Sensor (SIS) Performance

DTC B0079

Incorrect Left Front/Driver Side Impact Sensor (SIS) Installed

DTC B0080

Discard Left Front/Driver Side Impact Sensor (SIS)

DTC B0081

Incorrect Right Front/Passenger Side Impact Sensor (SIS) Installed

DTC B0082

Discard Right Front/Passenger Side Impact Sensor (SIS)

Diagnostic Fault Information

DTC B0077, B0078, B0079, B0080, B0081 or B0082

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Side Impact Sensor Signal Circuit Left/Right	B0077, B0078	B0077, B0078	B0077, B0078	B0077, B0078	B0077, B0078

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

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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. If the fault is still 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

B0077 and B0078

- A valid ID message is not received within 5 seconds of the SIS being powered up.
- Status message is not received.
- The SDM has failed twice to reset the SIS.

B0079 and B0081

- The SDM has received an ID message from the SIS that does not match the ID stored in the SDM memory.
- When two SIS resets are attempted without the correct identification being detected by the SDM.

B0080 and B0082

Will set when the SDM has received a NOK (Not OK) message from the SIS.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SDM attempts to reset the SIS.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- You issue a scan tool CLEAR DTC command.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The following can cause an intermittent condition:

- A short between the SIS signal and voltage circuits
- High or low resistance in the SIS signal and voltage circuits
- Inspect the SIS signal and voltage circuits carefully for cutting and/or chafing.
- Verify that the correct SIS is installed in the vehicle.

Reference Information

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

Circuit/System Testing

1. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0079, B0080, B0081 or B0082 are current.
 - If DTC B0079, B0080, B0081 or B0082 are current, replace the malfunctioning SIS.
 - For DTCs B0079 and B0080 replace the left SIS.
 - For DTCs B0081 and B0082 replace the right SIS.
2. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0077 or B0078 are current.
 - Inspect and test wiring system components.
 - For DTC B0077 replace the left SIS.
 - For DTC B0078 replace the right SIS.
3. Verify DTC B0077, B0078, B0079, B0080, B0081 or B0082 are not current.
4. If DTC B0077, B0078, B0079, B0080, B0081 or B0082 reset as current, remove the SDM connector. Inspect the SDM connector for damage or corrosion that may cause a

malfunction in the SIS circuits.

- If damage or corrosion is found make the appropriate repair.
- Replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Side Impact Sensor Replacement**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B0083 OR B0084

Diagnostic Instructions

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

DTC Descriptors

DTC B0083

Right Front/Passenger Seat Position Sensor Circuit

DTC B0084

Left Front/Driver Seat Position Sensor Circuit

Diagnostic Fault Information

DTC B0083 or B0084

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Seat Position Sensor - Left Circuit	B0084	B0084	B0084	B0084	B0084
Seat Position Sensor - Right Circuit	B0083	B0083	B0083	B0083	B0083

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 near the seat track of both 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 B0083 or B0084 and defaults to disabling stage 2 frontal deployment. This will only default on the side of the vehicle the sensor has a fault. Its important to understand that the SPS is secondary to the passenger presence system (PPS) and the manual instrument panel (I/P) module disable switch. If either one of these devices are in the disable mode the passenger air bag will not deploy regardless of the SPS status.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

DTC B0083 and B0084 will set when one of the following conditions occur:

- The SDM detects the SPS circuit amperage is 4 mA or less for 500 milliseconds.
- The SDM detects the SPS circuit amperage is between 8-11 mA for 500 milliseconds.
- The SDM detects the SPS circuit amperage is 18 mA or greater for 500 milliseconds.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SDM defaults the SPS to seat forward threshold.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- You issue a scan tool CLEAR DTCs command.

- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The following can cause an intermittent condition:

- A short between the SPS signal and low reference circuits
- High or low resistance in the SPS signal and low reference circuits
- Inspect the SPS signal and return circuits carefully for cutting and/or chafing.

Reference Information

Schematic Reference

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

Circuit/System Testing

1. With the ignition OFF, disconnect the SPS connector.
 - If DTC B0083 is present, disconnect the right SPS located on the RF outboard seat track.
 - If DTC B0084 is present, disconnect the left SPS located on the LF outboard seat track.
2. Test and inspect the component signal and ground circuits for damage or corrosion.
3. Replace the defective SPS.
 - If DTC B0083 is present, replace the right SPS located on the RF outboard seat track.
 - If DTC B0084 is present, replace the left SPS located on the LF outboard seat track.
4. With the ignition ON, use a scan tool to observe the SIR DTC display. Verify DTC B0083 and/or B0084 is cleared.

5. If DTC does not clear remove the inflatable restraint SDM connector. Inspect the SDM connector for damage or corrosion that may cause a malfunction in the SPS high and/or low circuits.
 - If damage or corrosion is found make the appropriate repair.
6. Test the high and low circuits between the SDM and SPS for a short to voltage, short to ground or open/low resistance.
 - If circuits test good then replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Seat Position Sensor Replacement**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B0092**Diagnostic Instructions**

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

DTC Descriptor**DTC B0092**

Passenger Presence System Performance

Circuit/System Description

When the ignition is turned ON, 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 passenger presence system (PPS). The PPS will respond by commanding both the PASSENGER AIR BAG ON/OFF indicators ON for 5 seconds. The SDM will 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. The SDM will also set DTC B0092 to notify the driver that the PPS has a current malfunction present. When the SDM detects that the PPS has

set any one of the following DTCs 023, 024, 063, 064 or 065, the SDM will disable the instrument panel (I/P) module deployment loop, set DTC B0092 and command the AIR BAG indicator ON.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

- The PPS has a current fault.
- The SDM has not received the correct verification ID from the PPS.

Action Taken When the DTC Sets

- The SDM disables the I/P module deployment loop.
- The SDM commands the AIR BAG indicator ON via class 2 serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- The scan tool CLEAR DTC command has been issued.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

IMPORTANT: DTC B0092 will also set, if the PPS has a current malfunction and has set any one of the following DTCs 023, 024, 064 or 065. The SDM will set DTC B0092 as current and command the AIR BAG indicator ON. This is done to notify the driver of any PPS malfunctions. When DTC B0092 is present, it is important to check the PPS for any current DTC. Refer to Passenger Presence System Flash Code Procedures. Any current PPS DTC must be diagnosed before performing this diagnostic procedure.

DTC B0092 is an indication that the SDM has received an incorrect PPS verification ID or has lost communication with the PPS. The SDM will continue to request the verification ID from the PPS for 5 seconds. If the SDM does not receive the correct verification ID from the PPS within 5 seconds, the SDM will set the DTC as current, illuminate the AIR BAG indicator and disable the I/P module deployment loop.

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: If the PPS has any current or history DTC stored, you must address the PPS DTC before continuing with this diagnostic procedure.

1. With the scan tool, check for PPS DTC. Refer to **Passenger Presence System Flash Code Procedures**.
 - Diagnose all PPS DTC. Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**.
2. Inspect the PPS and passenger seat inline connector for corrosion or damage.
 - If any of the above conditions are found, make the appropriate repair.
3. Test the voltage circuits for the PPS for a short to ground or open/high resistance.
 - If any of the above conditions are found, make the appropriate repair.
4. Reconnect all components, with ignition ON use the scan tool to clear DTC. Recheck for DTC. When all PPS faults have been repaired, rezero the PPS.
5. Verify that DTC B0092 does not set as a current DTC. If DTC B0092 does set as a current DTC, replace and rezero the PPS.
 - After replacement and the rezeroing of the PPS are completed, perform the repair verification.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for PPS replacement, setup and programming

DTC B0098**Diagnostic Instructions**

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

DTC Descriptor**DTC B0098**

Passenger Presence System Configuration Error

Circuit/System Description

When the ignition is turned ON, 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 passenger presence system (PPS). The PPS will respond by commanding both the PASSENGER AIR BAG ON/OFF indicators ON for 5 seconds. The SDM will 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, the SDM will set DTC B0098 and command the AIR BAG indicator ON. The PPS will set DTC 064 and request the SDM to disable the instrument panel (I/P) module deployment loop.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

- The PPS has a current fault.
- The PPS fault counter in the SDM has reached 127 counts.

Action Taken When the DTC Sets

- The SDM disables the I/P module deployment loop.

- The SDM commands the AIR BAG indicator ON via class 2 serial data.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- The scan tool CLEAR DTC command has been issued.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

IMPORTANT: DTC B0098 will also set if the PPS has a current malfunction and has set DTC 064. The SDM will set DTC B0098 as current and command the AIR BAG indicator ON. This is done to notify the driver of any PPS malfunctions. When DTC B0098 is present it is important to check the PPS for any current DTCs. Refer to Passenger Presence System Flash Code Procedures. If the PPS has any current DTCs, address these before performing this DTC chart.

DTC B0098 is an indication that the SDM has received an incorrect PPS verification ID. The SDM will continue to request the verification ID from the PPS for 5 seconds. If the SDM does not receive the correct verification ID from the PPS within 5 seconds, the SDM will set DTC B0098 as current, illuminate the AIR BAG indicator and disable the I/P module deployment loop. If either the SDM or PPS were replaced, make sure 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

1. Verify that the vehicle has the correct PPS and SDM installed.
 - If an incorrect PPS or SDM has been installed, replace the incorrect component and perform the programming procedure for that component.
2. If the correct components are installed and DTC B0098 is set as a current DTC, replace the PPS.
 - Replace the PPS and rezero the system.
3. If after replacement of the PPS, DTC B0098 is set as current, replace the SDM.
 - Replace the SDM and perform the SDM Setup procedure.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for PPS and SDM replacement, setup and programming

DTC B0100, B0101, B0102, B0103, B0104 OR B0105

Diagnostic Instructions

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

DTC Descriptors

DTC B0100

Electronic Front End Sensor 1 Performance

DTC B0101

Discard Electronic Front End Sensor 1

DTC B0102

2007 Hummer H3

2007 RESTRAINTS Supplemental Inflatable Restraints - H3

Incorrect Electronic Front End Sensor 1 Installed

DTC B0103

Electronic Front End Sensor 2 Performance

DTC B0104

Discard Electronic Front End Sensor 2

DTC B0105

Incorrect Electronic Front End Sensor 2 Installed

Diagnostic Fault Information

DTC B0100, B0101, B0102, B0103, B0104 or B0105

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Front Impact Sensor Signal Circuit Left/Right	B0100, B0103	B0100, B0103	B0100, B0103	B0100, B0103	B0100, B0103
Front End Sensor Low Reference Circuit Left/Right	-	B0100, B0103	B0100, B0103	-	B0100, B0103

Circuit/System Description

The inflatable restraint electronic frontal sensor (EFS) utilizes a unidirectional 2-wire circuit. The EFS modulates current on the interface to send ID, state of health (SOH) and deployment commands to the inflatable restraint sensing and diagnostic module (SDM). The SDM serves as a power source and a ground for the EFS. When the ignition is turned ON and input power from the SDM is first detected, the EFS will respond 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 EFS continually communicates status messages to the SDM, which determines if a fault is present in the EFS circuit. When a fault is detected, the SDM resets the EFS twice by removing and reapplying power. If the fault is still 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

B0100 and B0103

- A valid ID message is not received within 5 seconds of the EFS being powered up.
- Status message is not received.
- The SDM has failed twice to reset the EFS.

B0102 and B0105

- The SDM has received an ID message from the EFS that does not match the ID stored in the SDM memory.
- When 2 EFS resets are attempted without the correct identification being detected by the SDM.

B0101 and B0104

Will set when the SDM has received a NOK (Not OK) message from the EFS.

Action Taken When the DTC Sets

- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SDM attempts to reset the EFS.

Conditions for Clearing the DTC

- The condition responsible for setting the DTC no longer exists.
- Use the scan tool CLEAR DTC command.
- A history DTC will clear once 255 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The following can cause an intermittent condition:

- A short between the EFS signal and voltage circuits
- High or low resistance in the EFS signal and voltage circuits
- Inspect the EFS signal and voltage circuits carefully for cutting and/or chafing.
- Verify the correct EFS is installed in the vehicle.

Reference Information

Schematic Reference

SIR Schematics

Connector End View Reference

SIR Connector End Views

Description and Operation

SIR System Description and Operation

Electrical Information Reference

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

Circuit/System Testing

1. Verify that DTC B0101, B0102, B0104 or B0105 are not set.
 - If DTC B0101 or B0102 is set replace the left EFS. If the DTC resets, replace the SDM.
 - If DTC B0104 or B0105 is set replace the right EFS. If the DTC resets, replace the SDM.
2. Ignition OFF, disconnect the harness connector at the applicable front end sensor and the harness connector at the SDM.
 - If DTC B0100 is set disconnect the left EFS
 - If DTC B0103 is set disconnect the right EFS
3. Test for less than 1 volt between the signal circuit terminal 1 and ground.
 - If greater than the specified range, test the signal circuit for a short to voltage.
4. Test for infinite resistance between the signal circuit terminal 1 and ground.
 - If greater than the specified range, test the signal circuit short to ground.
5. Test for less than 1 ohm of resistance between the low reference circuit terminal 2 and the SDM connector terminal listed below:
 - If DTC B0100 is set, SDM terminal 26
 - If DTC B0103 is set, SDM terminal 27
 - If greater than the specified range, test the low reference circuit for an open/high resistance.
6. Connect the SDM and EFS connectors.
7. Verify that DTC B0100 or B0103 are not set.

- If DTC B0100 is set replace the left EFS. If the DTC resets, replace the SDM.
- If DTC B0103 is set replace the right EFS. If the DTC resets, replace the SDM.

Repair Procedures

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

- **Inflatable Restraint Front End Sensor Replacement**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B1001

Diagnostic Instructions

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

DTC Descriptor

DTC B1001

SDM Option Configuration Error

Circuit/System Description

When the ignition is first turned ON, the inflatable restraint sensing and diagnostic module (SDM) compares the restraints ID stored in the SDM to the restraints ID stored in the body control module (BCM). The restraints ID being compared contains the last four digits of the SDM part number. The SDM then compares the vehicle identification number (VIN) stored in the SDM to the VIN stored in the BCM.

Conditions for Running the DTC

Ignition voltage is between 9-16 volts.

Conditions for Setting the DTC

The restraints ID stored in the SDM does not match the restraints ID stored in the BCM or the VIN information stored in the SDM does not match the VIN information stored in the BCM.

Action Taken When the DTC Sets

- The SDM commands ON the AIR BAG warning lamp via class 2 serial data.
- The SDM disables all AIR BAG deployments.

Conditions for Clearing the DTC

- You issue a scan tool CLEAR DTCs command.
- The restraints ID that is stored in the SDM matches the restraints ID that is stored in the BCM.

Diagnostic Aids

DTC B1001 is an indication that the restraint IDs stored in both the BCM and SDM do not match or that the VINs stored in both the BCM and SDM do not match. If the BCM was replaced, the replacement module will have to be reprogrammed for proper operation.

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 SIR DTCs. Verify that DTC B1001 is set as current.
 - If DTC B1001 is history, clear codes and recheck.
2. Using the scan tool check the BCM that is programmed with the VIN. Verify that the BCM is programmed with the correct VIN number with the vehicle VIN plate.
 - If the BCM has the wrong VIN number, refer to BCM in Repair Instructions for programming.
3. Using the scan tool perform the Setup SDM Part Number into BCM procedure.
4. Ignition ON use the scan tool to clear the DTCs. Verify that DTC B1001 is cleared.
 - If DTC B1001 was current replace the SDM.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM and BCM replacement, setup and programming

DTC B1530

Diagnostic Instructions

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

DTC Descriptor

DTC B1530

Discard Passenger Presence System 1

Circuit/System Description

When the ignition is turned ON, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the Passenger Presence System (PPS). When the SDM has completed the power-up mode, the SDM will establish communication with the PPS. The SDM will increase a fault counter with each ignition cycle that a fault exists with the PPS. The SDM will lock out the PPS after a predetermined ignition cycle count maximum has been reached.

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

- The PPS has a current fault.
- The PPS fault counter in the SDM has reached 127 counts.

Action Taken When the DTC Sets

- The SDM disables the instrument panel (I/P) module deployment loop.
- The SDM commands the AIR BAG indicator ON via class 2 serial data.
- The SDM will lock out the malfunctioning PPS.

Conditions for Clearing the DTC

- The PPS has been replaced.
- The SDM has been replaced.

Diagnostic Aids

IMPORTANT: DTC B0092 or DTC B0098 will set if the PPS has a malfunction and has set any one of the following DTCs 023, 024, 063, 064 or 065. When DTC B0092 or DTC B0098 is present, it is important to check the PPS for any current DTC. Refer to Passenger Presence System Flash Code Procedures. If the PPS has any current DTC, address those DTC before performing this diagnostic procedure.

Any repair performed on the original PPS will not clear DTC B1530.

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: If the SDM has DTC B0092 or DTC B0098 stored as current, you must address those DTCs before continuing with this diagnostic procedure.

1. With a scan tool, check for DTC B0092 or DTC B0098 is a current DTC.
 - Diagnose DTC B0092 or DTC B0098 if set as a current DTC.

2. If the PPS has been replaced then DTC B1530 will automatically be cleared. If the PPS was repaired and DTC B1530 is set as current, the SDM will have to be replaced.

- Replace the SDM.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

DTC B3855, B3856 OR B3857

Diagnostic Instructions

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

DTC Descriptors

DTC B3855

Rollover Sensor Performance

DTC B3856

Discard Rollover Sensor

DTC B3857

Incorrect Rollover Sensor Installed

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 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

B3855

- A valid ID message is not received within 5 seconds of the ROS being powered up.
- A status message is not received.

B3856

- The SDM has received a NOK message from the ROS.
- A ROS internal fault exists for a 127 ignition cycles.

B3857

Will set when the SDM has received an ID message from the ROS that does not match the ID stored in the SDM memory.

Action Taken When the DTC Sets

The SDM commands ON the AIR BAG warning lamp via class 2 serial data.

Conditions for Clearing the DTC

- The DTC will clear when 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 250 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The following are conditions that may cause the malfunction:

- A short to ground or voltage in the ROS circuit
- High or low resistance in the ROS circuit
- Improper ROS installed on vehicle

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

1. If DTC B3856 or B3857 is current, replace the ROS.
2. Test the signal and voltage circuits between the SDM and ROS 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.
3. Reconnect all SIR components. Ignition ON, use the scan tool to clear the DTCs then recheck for DTCs. Verify DTC B3855 does not set.
 - If DTC B3855 was current, replace the ROS. After replacement, refer to **Repair Procedures**.

Repair Procedures

- **Inflatable Restraint Vehicle Rollover Sensor Replacement**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM replacement, setup and programming

Repair Verification

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

- If DTC B3855 was current replace the SDM.

DTC U1241

Diagnostic Instructions

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

DTC Descriptor

DTC U1241 Lost Communication With Scan Tool

Circuit Description

The passenger presence system (PPS) monitors itself for faults and will set/flash DTCs if a fault is detected. The PPS communicates with the inflatable restraint sensing and diagnostic module (SDM) via non class 2 communications. When the SDM receives input from the PPS that a PPS fault has occurred, the SDM will request the instrument panel cluster (IPC) to turn ON the AIR BAG indicator located on the IPC. To determine what DTCs have been set by the PPS, the Tech 2 is used to command the SDM to request the PPS to flash the DTCs using the PASSENGER AIR BAG ON/OFF indicators located on the instrument panel. The Tech 2 sends a string of commands to the SDM that allows the SDM to communicate with the PPS module and initiate the flashing of the DTCs. When the Tech 2 has completed sending the commands, the PPS will begin flashing any current or history DTCs that the system has stored. When the SDM no longer receives commands from the Tech 2, the SDM mistakes this as a communication fault and sets DTC U1241. DTC U1241 will set when the Tech 2 is used to flash DTCs from the PPS or after the PPS has been rezeroed. DTC U1241 does not indicate a system malfunction and will not cause any warning indicators to illuminate. When DTC U1241 sets, cycle the ignition and use the scan tool to clear the code, no further diagnosis is necessary. For more detailed information concerning the PPS, refer to **SIR System Description and Operation**. For more detailed information concerning PPS flash code and rezeroing procedures, refer to **Passenger Presence System Flash Code Procedures** and **Passenger Presence System Programming and Setup** .

Conditions for Running the DTC

Ignition 1 voltage is within the normal operating voltage range.

Conditions for Setting the DTC

DTC U1241 will set when the Tech 2 is used to flash DTCs from the PPS or after the PPS has been rezeroed.

Conditions for Clearing the DTC

A scan tool CLEAR DTC command is issued.

Diagnostic Aids

DTC U1241 does not indicate a system malfunction and will not cause any warning indicators to illuminate. When DTC U1241 sets, cycle the ignition and use the scan tool to clear the code, no further diagnosis is necessary.

Reference Information**Electrical Information Reference**

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

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.

AIR BAG INDICATOR CIRCUIT MALFUNCTION

Diagnostic Instructions

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

Circuit Description

When the ignition is turned ON, the instrument panel cluster (IPC) flashes the AIR BAG indicator seven times. The inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SIR system. If no SIR system malfunctions exists, the SDM will request the IPC to turn the AIR BAG indicator OFF after it has flashed 7 times. The AIR BAG indicator is controlled by the SDM via class 2 serial data.

Diagnostic Aids

- If ignition 1 voltage for the SDM is outside of the normal operating voltage range (9-16 volts), the AIR BAG indicator will come ON solid with no DTC set.
- The loss of serial data communication between the SDM and the IPC will cause the AIR BAG indicator to come ON solid. Refer to **DTC U1001-U1254** .

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

1. With the ignition ON, with a scan tool, request the ignition voltage parameter in the SIR data list. If the parameter does not read 9-16 volts, test the ignition 1 voltage for a short to voltage, open/high resistance or a short to ground.
 - If a condition exists, make the appropriate repair.
2. With the ignition OFF, test the SDM ground circuit for an open or high resistance.
 - If a condition exists, make the appropriate repair
3. Remove the inflatable restraint SDM connector. Inspect the SDM connector for damage or corrosion that may cause a malfunction.
 - If damage or corrosion is found make the appropriate repair.
4. Replace the SDM.
5. If replacement of the SDM does not repair the vehicle, replace the IPC.

Repair Procedures

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

- **SIR/SRS Wiring Repairs**
- **Control Module References** for SDM and IPC replacement, setup and programming

PASSENGER PRESENCE SYSTEM INDICATOR CIRCUIT MALFUNCTION

Diagnostic Instructions

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

Circuit Description

The PASSENGER AIR BAG ON/OFF indicators located on the instrument panel are 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 PPS module is supplied with ignition 1 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 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 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 PPS malfunction.

Diagnostic Aids

Use this procedure to diagnosis one or both PPS indicators inoperative.

The following can cause an intermittent condition:

- A short in the passenger air bag OFF indicator control circuit
- A short in the passenger air bag ON indicator control circuit
- An open or high resistance in the passenger air bag OFF indicator control circuit
- An open or high resistance in the passenger air bag ON indicator control circuit

Reference Information

SIR Schematics

SIR Schematics

Connector End View Reference

- **SIR Connector End Views**
- **Antilock Brake System Connector End Views**

Electrical Information Reference

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

Circuit/System Testing

1. With the ignition OFF, Disconnect the inside accessory switch connector. Inspect the

connector for damage or corrosion that may cause a malfunction

- If a condition exists, make the appropriate repair.
- 2. Ignition ON, test the ignition 1 voltage circuit for 9-16 volts. If ignition 1 voltage is not present, test for an open/high resistance or a short to ground.
 - If a condition exists, make the appropriate repair.
- 3. With the ignition OFF, Connect a test lamp between the ignition 1 voltage circuit and the passenger air bag OFF indicator control circuit at the accessory switch connector terminals. Ignition ON, test lamp should illuminate.
 - If the test lamp illuminates, replace the accessory switch.
- 4. Test the passenger air bag OFF indicator control circuits for a short to ground, open/high resistance.
 - If a condition exists, make the appropriate repair
- 5. Replace the PPS.

Repair Procedures

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

- **Accessory Switch Replacement**
- **SIR/SRS Wiring Repairs**
- **Control Module References** for 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 <u>Repairs and Inspections Required After a Collision</u> .

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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 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

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
- 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

Removal Procedure

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.

CAUTION: Refer to SIR Caution .

1. Disable the SIR system. Refer to SIR Disabling and Enabling.
2. Remove the engine shield. Refer to Engine Shield Replacement .
3. Loosen the fasteners (1) retaining the front discriminating sensors to the radiator support.

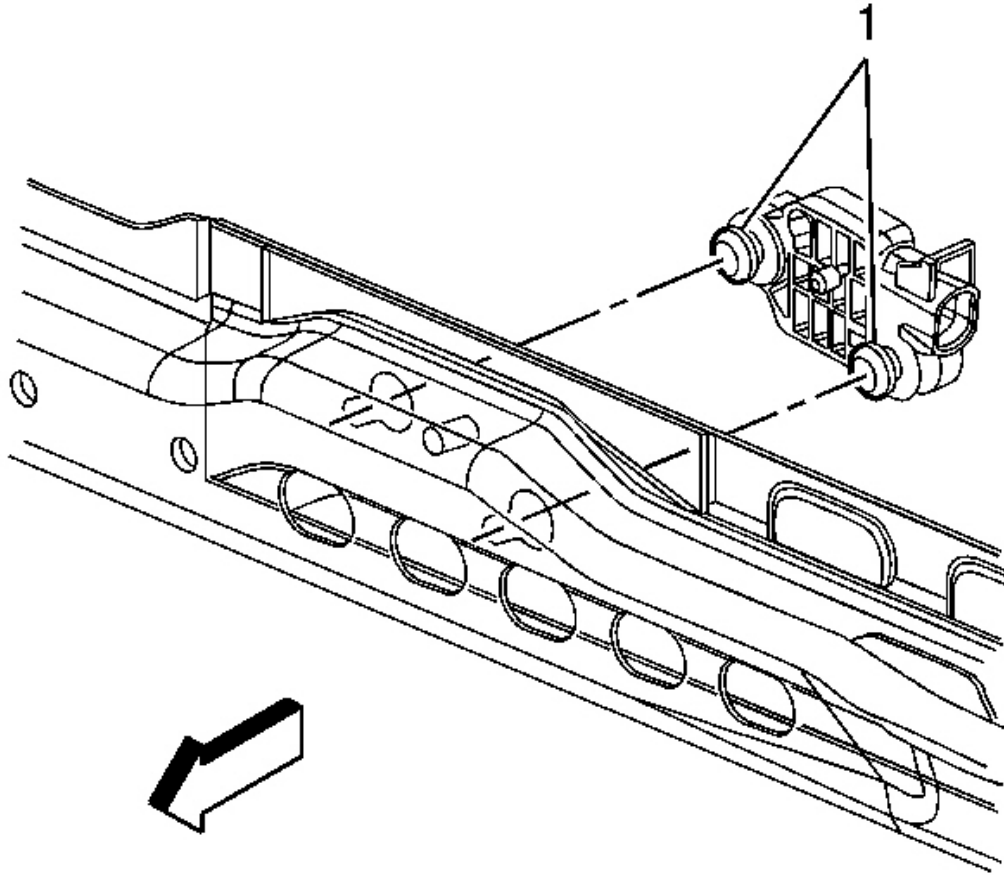


Fig. 30: View Of Discriminating Sensor
Courtesy of GENERAL MOTORS CORP.

4. Remove the sensor assembly from the radiator support.

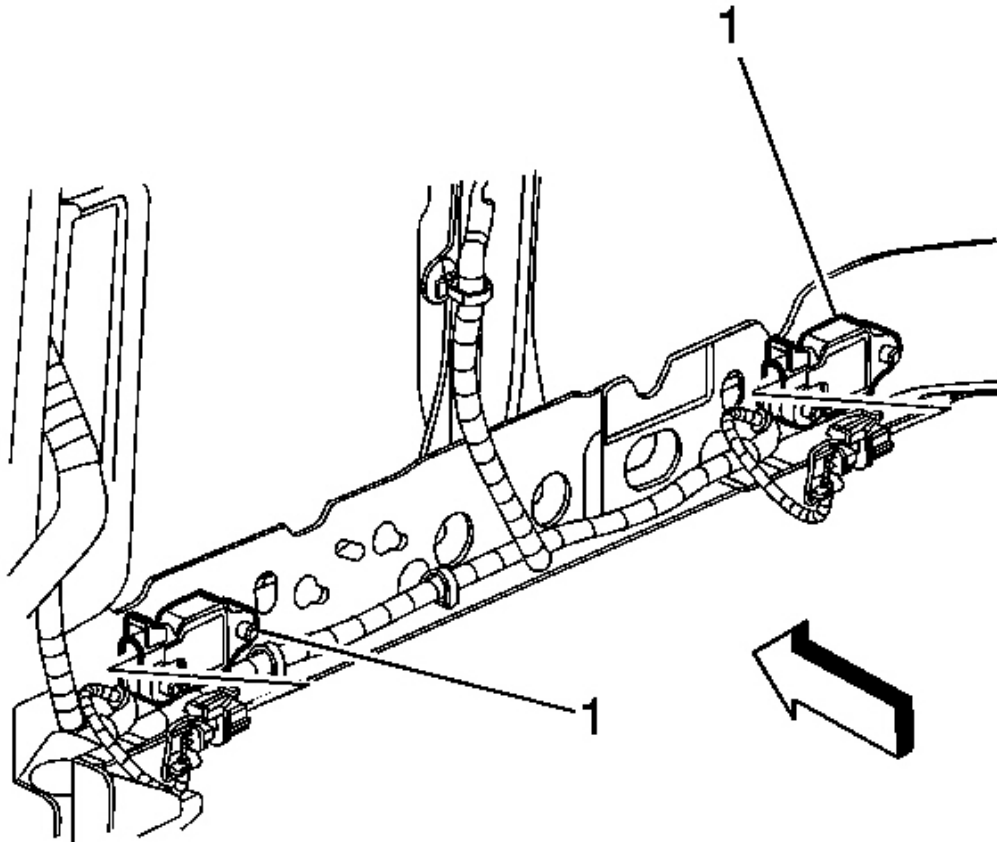


Fig. 31: View Of Inflatable Restraint Front End Sensor
Courtesy of GENERAL MOTORS CORP.

5. Position the sensor assembly, to gain access to the electrical connector.
6. Remove the connector-position assurance (CPA) from the sensor electrical connector.
7. Disconnect the sensor electrical connector.
8. Remove the sensor (1) from the vehicle.

Installation Procedure

1. Remove any dirt, grease or other impurities from the mounting surfaces.

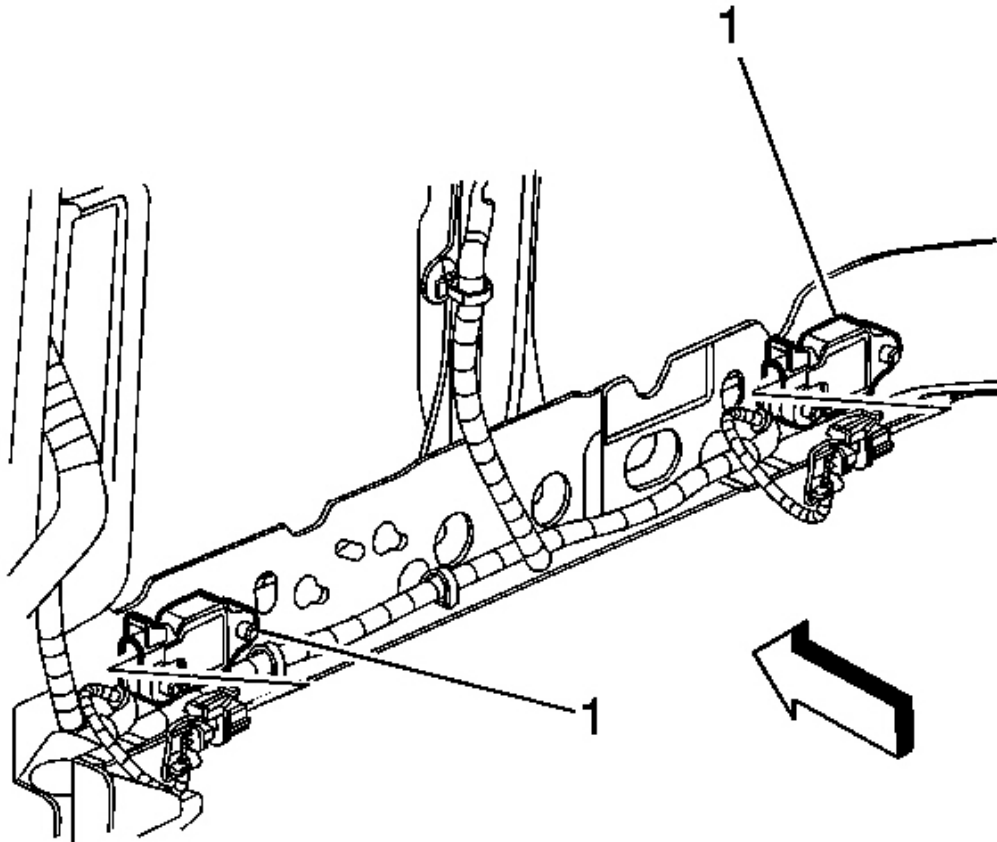


Fig. 32: View Of Inflatable Restraint Front End Sensor
Courtesy of GENERAL MOTORS CORP.

2. Position the sensor (1) near the radiator support.
3. Connect the sensor electrical connector.
4. Install the CPA to the sensor electrical connector.

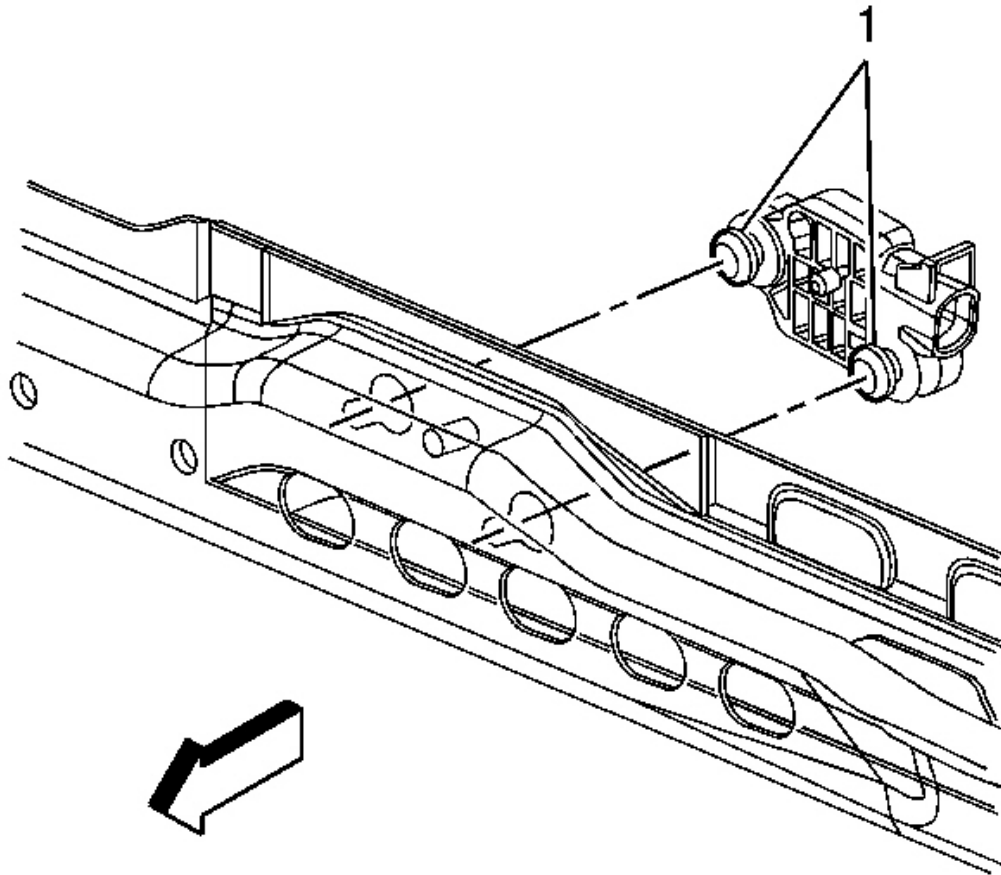


Fig. 33: View Of Discriminating Sensor
Courtesy of GENERAL MOTORS CORP.

5. Install the sensor assembly to the radiator support.

NOTE: Refer to Fastener Notice .

6. Install the 2 fasteners (1) retaining the discriminating sensor assembly to the radiator support.

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

7. Install the engine shield. Refer to Grille Replacement .

8. Enable the SIR system. Refer to **SIR Disabling and Enabling**.

INFLATABLE RESTRAINT SIDE IMPACT SENSOR REPLACEMENT

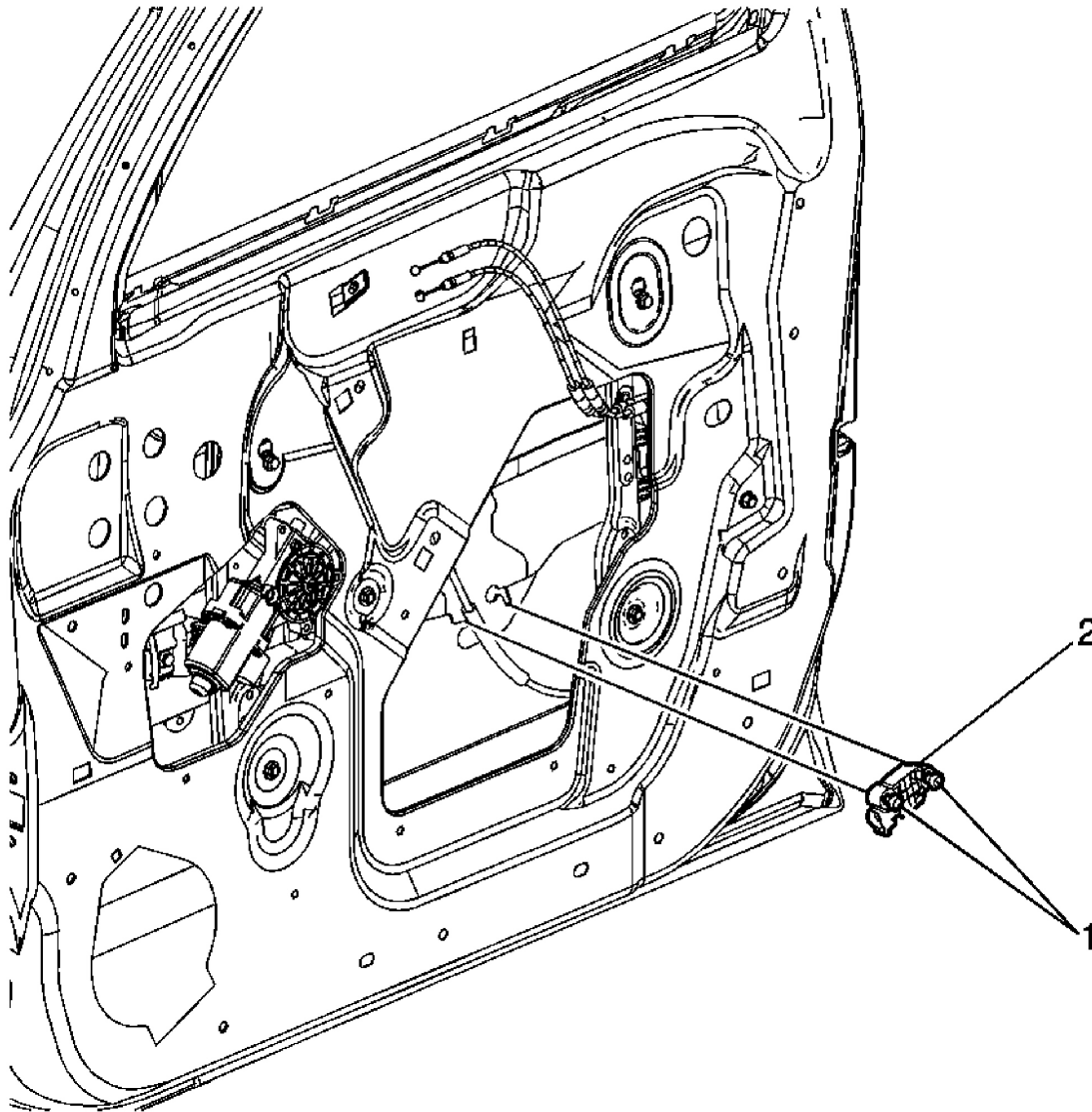


Fig. 34: Inflatable Restraint Side Impact Sensor Replacement
 Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Side Impact Sensor Replacement

Callout	Component Name
<p>CAUTION: When performing service on or near the SIR components or the SIR wiring, the SIR system must be</p>	

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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.

NOTE:

Refer to Fastener Notice .

Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

Preliminary Procedure

1. Disable the SIR. Refer to SIR Disabling and Enabling.
2. Remove the door trim panel. Refer to Front Side Door Trim Panel Replacement .

1	Bolt, Inflatable Restraint Side Impact Sensor Assembly (Qty: 2) Tip: Loosen the bolts and slide the sensor out of the key hole slots. Tighten: 9 N.m (80 lb in)
2	Sensor Assembly, Inflatable Restraint Side Impact

INFLATABLE RESTRAINT VEHICLE ROLLOVER SENSOR REPLACEMENT

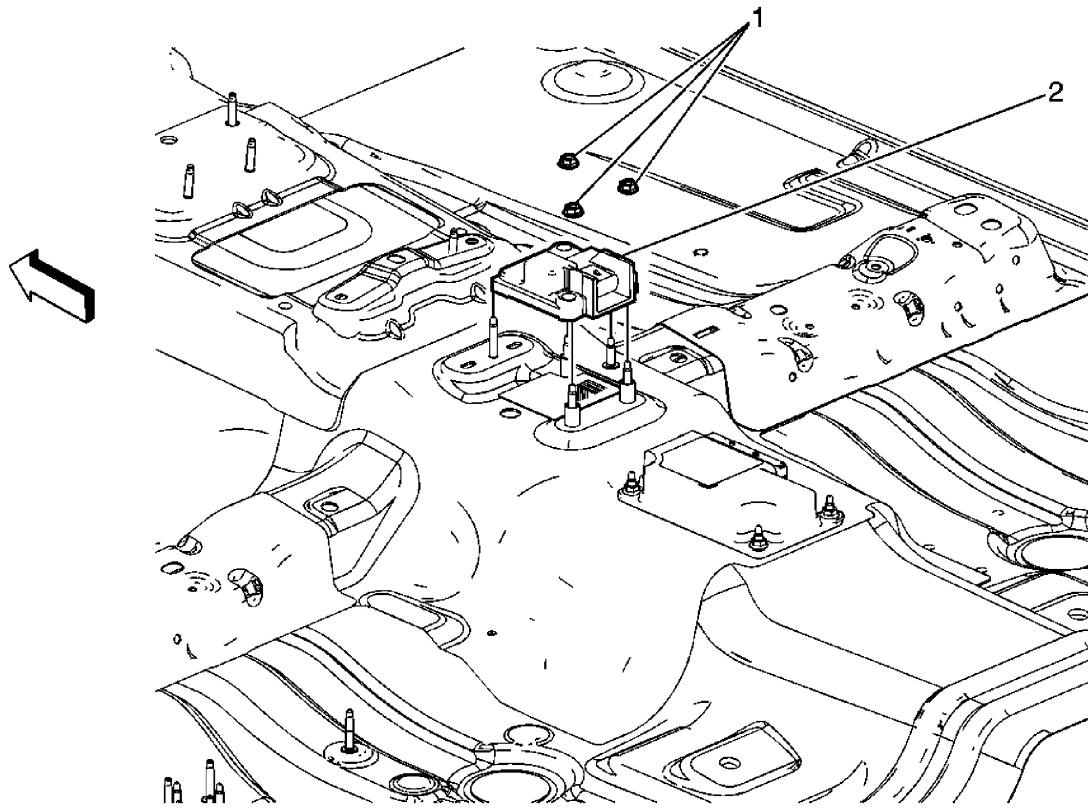


Fig. 35: Inflation Restraint Vehicle Rollover Sensor Replacement
 Courtesy of GENERAL MOTORS CORP.

Inflation Restraint Vehicle Rollover Sensor Replacement

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.

NOTE:

Refer to Fastener Notice .

Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

Preliminary Procedure

1. Disable the SIR. Refer to SIR Disabling and Enabling.
2. Remove the center console. Refer to Console Replacement (Left Hand Drive) or

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Console Replacement (Right Hand Drive) .

1	Nut, Inflatable Restraint Vehicle Rollover Sensor (Qty: 4) Tighten: 10 N.m (89 lb in)
2	Sensor Assembly, Inflatable Restraint Vehicle Rollover

INFLATABLE RESTRAINT SENSING AND DIAGNOSTIC MODULE REPLACEMENT

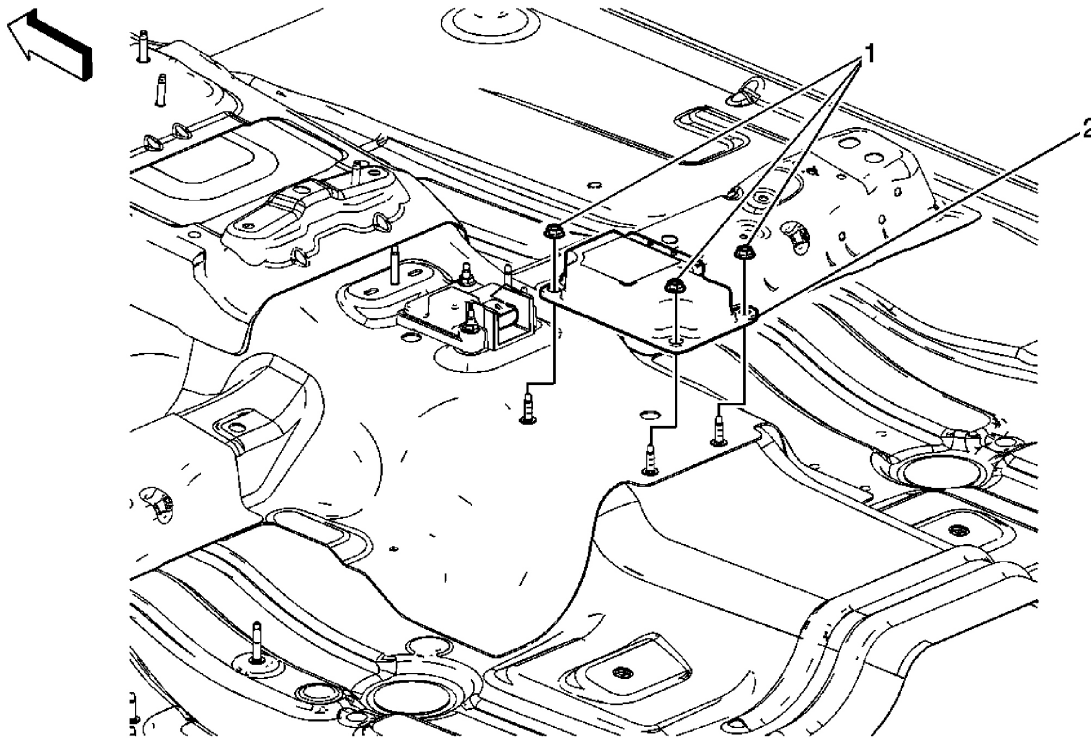


Fig. 36: Inflatable Restraint Sensing and Diagnostic Module Replacement
Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Sensing and Diagnostic Module Replacement

Callout	Component Name
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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 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.

NOTE:

Refer to Fastener Notice .

Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

Preliminary Procedure

1. Disable the SIR. Refer to SIR Disabling and Enabling.
2. Remove the center console. Refer to Console Replacement (Left Hand Drive) or Console Replacement (Right Hand Drive) .
3. Program the inflatable restraint sensing and diagnostic module after replacing. Refer to Control Module References .

1	Nut, Inflatable Restraint Sensing and Diagnostic Module (Qty: 4) Tighten: 10 N.m (89 lb in)
2	Module, Inflatable Restraint Sensing and Diagnostic

INFLATABLE RESTRAINT STEERING WHEEL MODULE REPLACEMENT

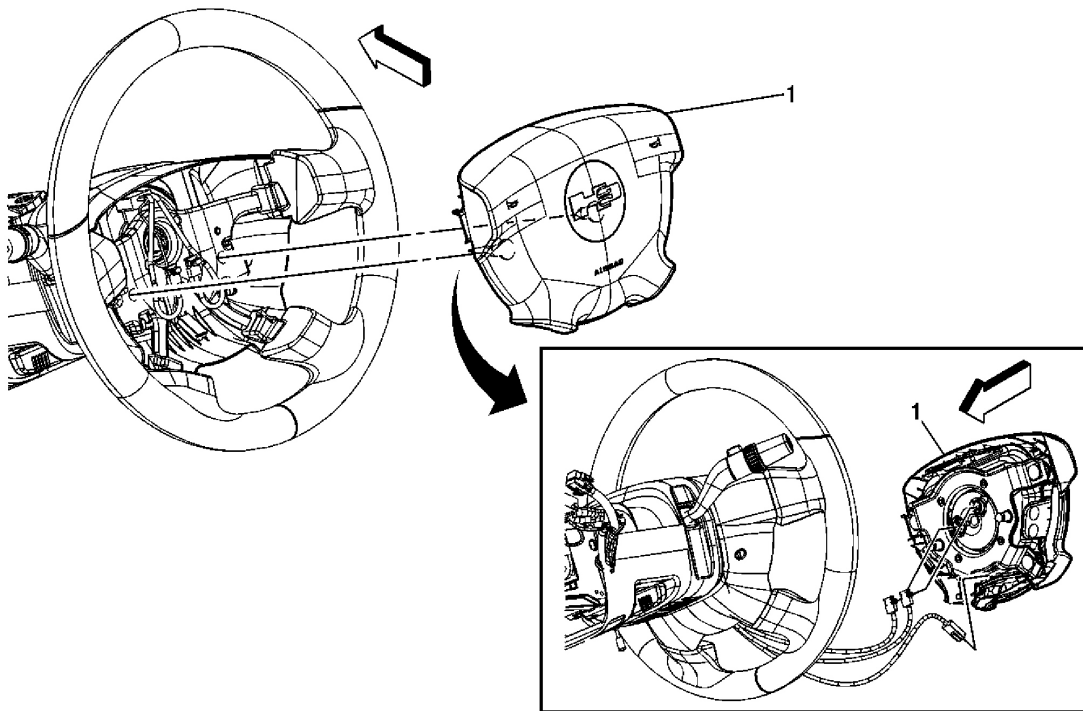


Fig. 37: Replacing Inflation Restraint Steering Wheel Module
 Courtesy of GENERAL MOTORS CORP.

Inflation Restraint Steering Wheel Module Replacement

Callout	Component Name
CAUTION: Refer to <u>SIR Inflator Module Handling and Storage Caution</u> .	
CAUTION: Refer to <u>SIR Caution</u> .	
Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .	
Preliminary Procedures	
<ol style="list-style-type: none"> 1. Disable the supplemental inflatable restraint (SIR) system. Refer to <u>SIR Disabling and Enabling</u>. 2. On back side of the steering wheel shroud 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. 	

Module, Steering Wheel Inflatable Restraint

Tip:

1

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

Removal Procedure

IMPORTANT: The inflatable restraint steering wheel module coil and the multifunction turn signal switch are serviced as an assembly.

CAUTION: Refer to **SIR Caution** .

1. Disable the supplemental inflatable restraint (SIR) system. Refer to **SIR Disabling and Enabling**.
2. Remove the steering wheel. Refer to **Steering Wheel Replacement** .
3. Remove the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .

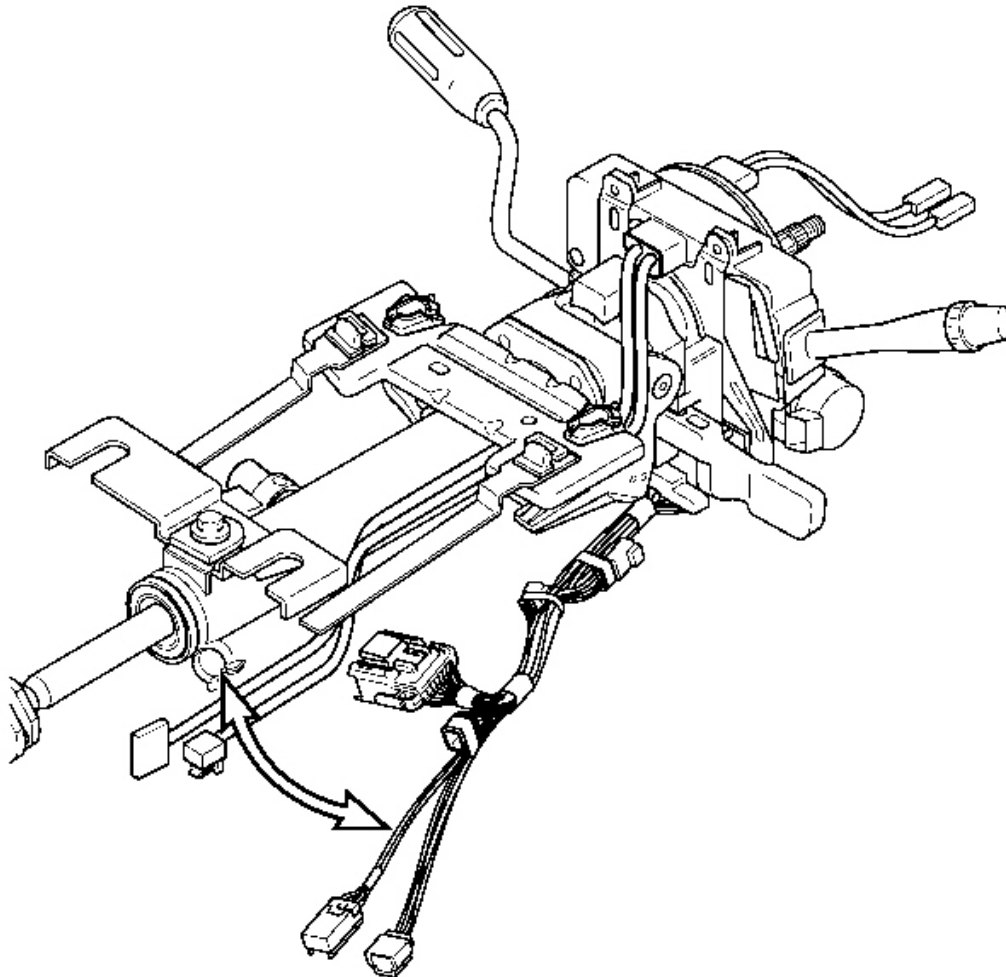


Fig. 38: View Of Wire Harness Straps & Assembly
Courtesy of GENERAL MOTORS CORP.

4. Remove the wire harness straps from the wire harness assembly.
5. Disconnect any electrical connectors as needed.

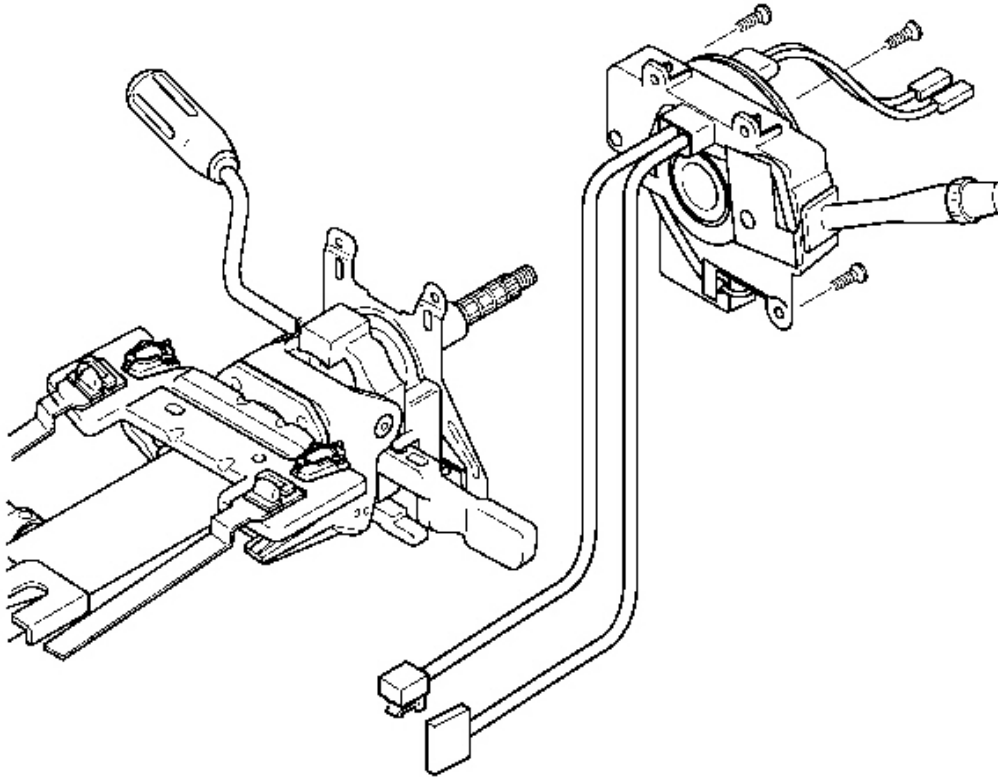


Fig. 39: View Of Multifunction Switch/SIR Coil Assembly
Courtesy of GENERAL MOTORS CORP.

6. Remove the inflatable restraint steering wheel module coil bolts.
7. Slide the inflatable restraint steering wheel module coil off of the steering column. Discard the inflatable restraint steering wheel module coil, if replacing.

Installation Procedure

IMPORTANT: A new inflatable restraint steering wheel module coil will come precentered with a centering tab attached. Do NOT remove the centering tab until installation is complete. Failure to follow procedure will cause a misalignment and re-centering of the inflatable restraint steering wheel module coil will be required.

If reusing the existing inflatable restraint steering wheel module coil, you must center the inflatable restraint steering wheel module coil. Refer to Inflatable Restraint Steering Wheel Module Coil Centering.

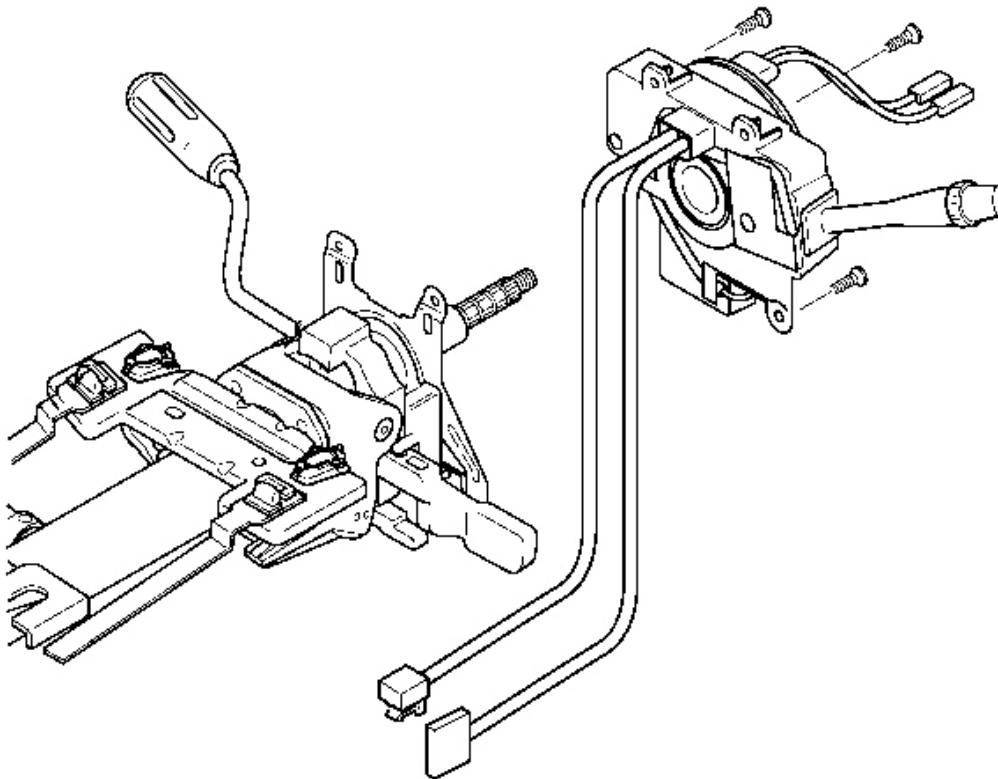


Fig. 40: View Of Multifunction Switch/SIR Coil Assembly
Courtesy of GENERAL MOTORS CORP.

1. Slide the inflatable restraint steering wheel module coil onto the steering column.

NOTE: Refer to Fastener Notice .

2. Install the inflatable restraint steering wheel module coil bolts.

Tighten: Tighten the bolts to 4.5 N.m (40 lb in).

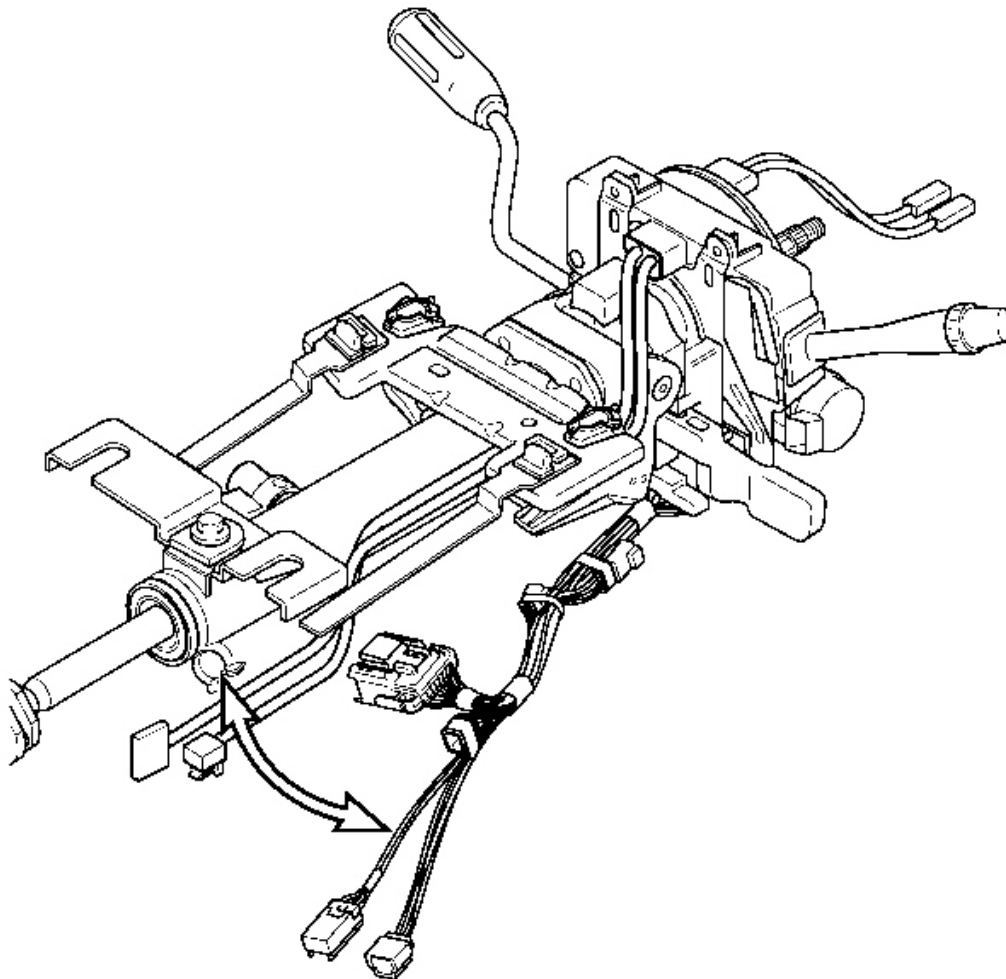


Fig. 41: View Of Wire Harness Straps & Assembly
Courtesy of GENERAL MOTORS CORP.

3. Route the wiring harness assembly down the steering column.
4. Connect any electrical connectors as needed.
5. Install the wire harness straps to the wire harness assembly.
6. Remove the centering tab from the inflatable restraint steering wheel module coil, if equipped.
7. Install the steering column trim covers. Refer to **Steering Column Trim Covers Replacement** .

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

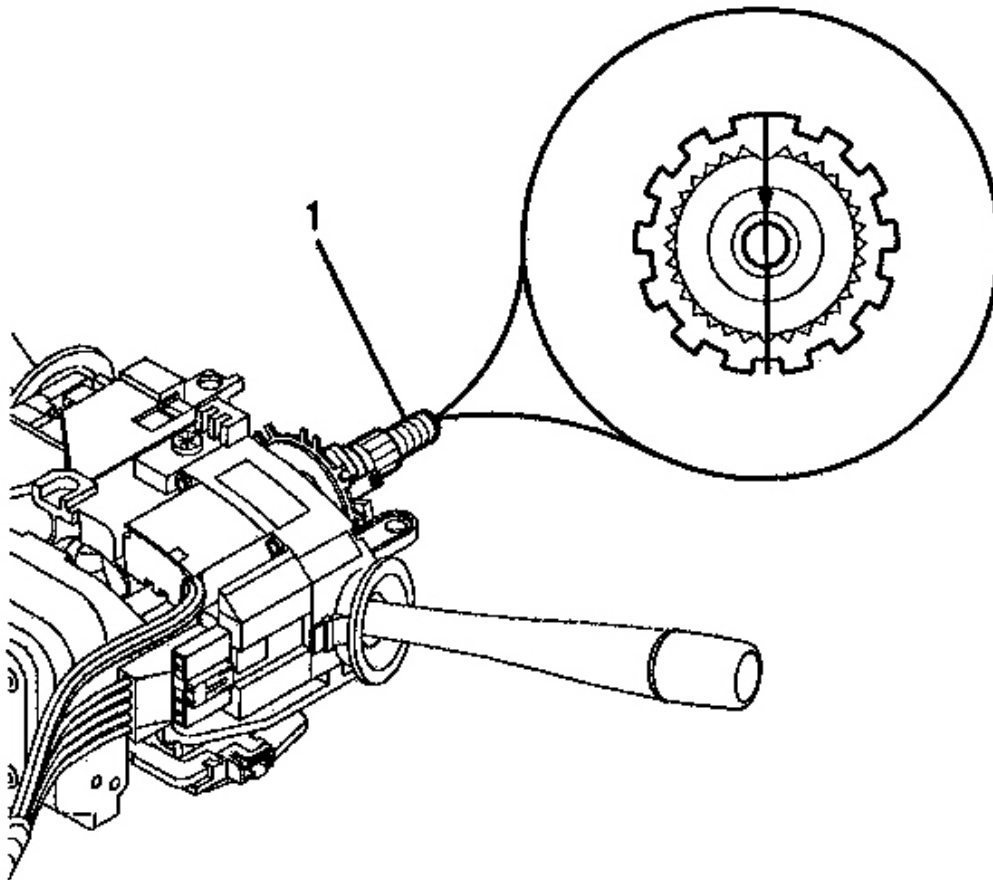


Fig. 42: View Of Block Tooth Of Steering Shaft Assembly In 12 O'clock Position
Courtesy of GENERAL MOTORS CORP.

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: The SIR coil and multifunction, turn signal switch are serviced as an assembly.

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

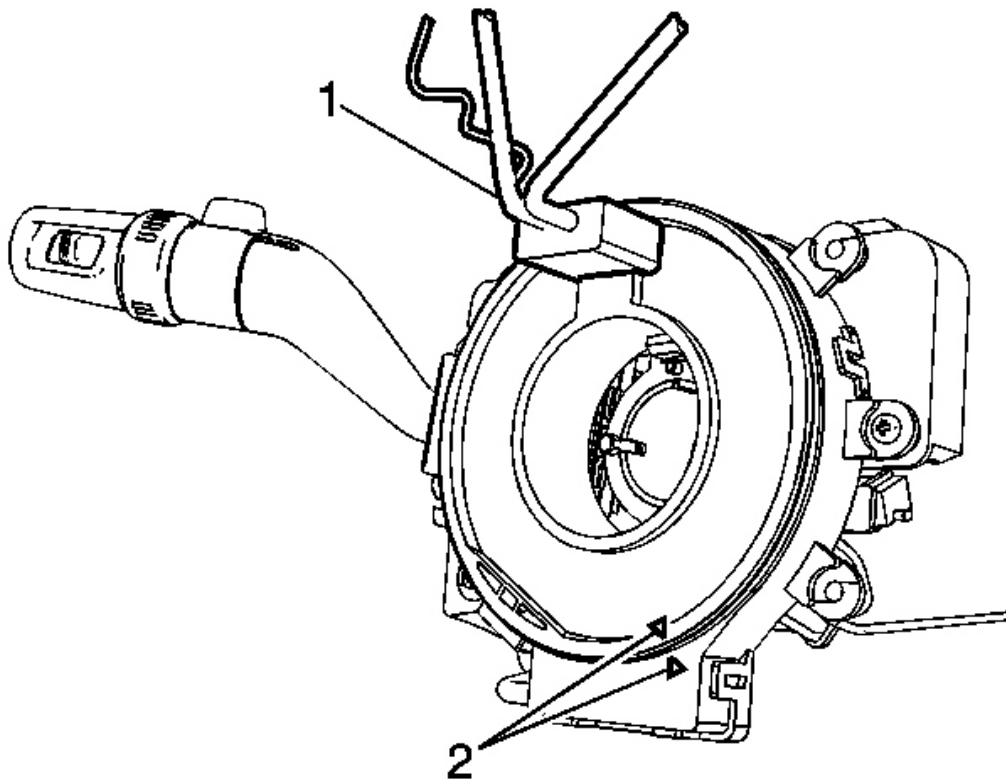


Fig. 43: Rotating SIR Coil
Courtesy of GENERAL MOTORS CORP.

2. To center the coil perform the following:

- Rotate the inner portion of the SIR coil clockwise till it stops.
- Rotate the inner portion of the SIR coil counterclockwise 3 1/2 turns till the indicator marks line up (2).
- At this time the steering wheel harness (1) should be at the 12 o'clock position.
- This indicates that the SIR coil is now centered and can be installed to the steering column.

INFLATABLE RESTRAINT INSTRUMENT PANEL MODULE REPLACEMENT

Removal Procedure

CAUTION: Refer to SIR Caution .

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

1. Disable the SIR System. Refer to SIR Disabling and Enabling.
2. Remove the instrument panel (I/P) center trim panel. Refer to Instrument Panel Center Trim Panel Replacement (Left Hand Drive) or Instrument Panel Center Trim Panel Replacement (Right Hand Drive) .
3. Remove the radio. Refer to Radio Replacement .
4. Remove the right access cover from the I/P end cap.
5. Remove the right air outlet. Refer to Instrument Panel Outer Air Outlet Replacement - Right Side .
6. Remove the I/P compartment door. Refer to Instrument Panel Compartment Door Replacement .
7. Remove the digital radio receiver, if equipped. Refer to Digital Radio Receiver Replacement .

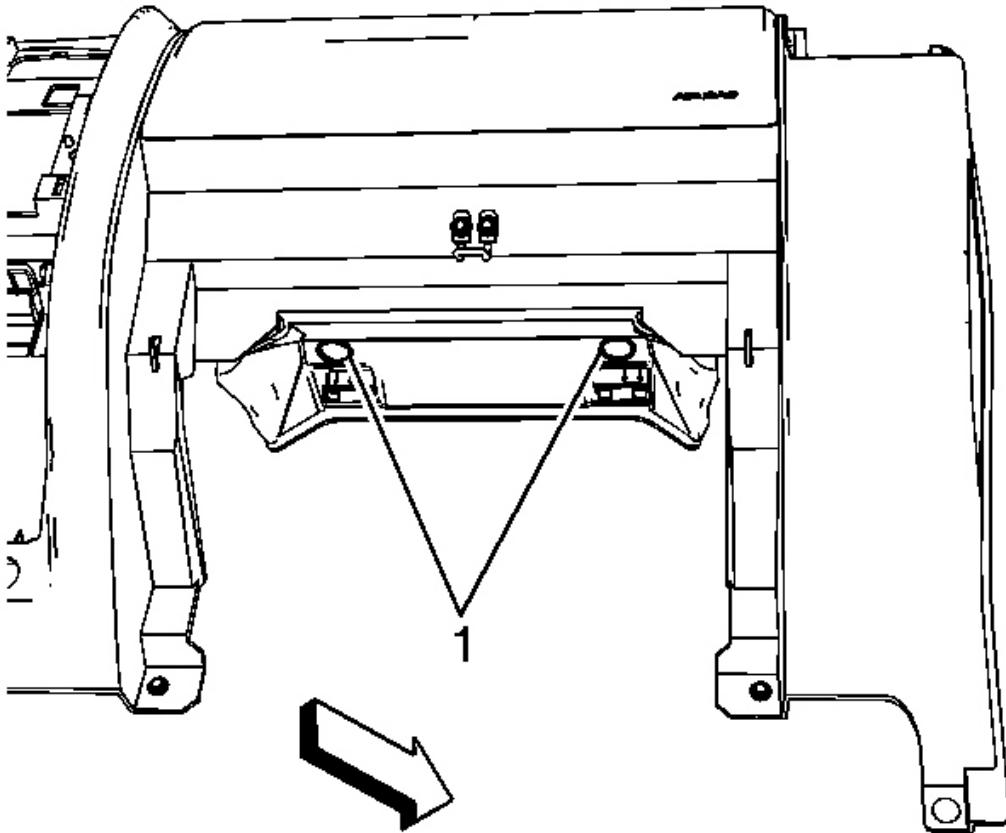


Fig. 44: View Of I/P Compartment Door Opening Service Holes
Courtesy of GENERAL MOTORS CORP.

8. Access the 2 fasteners located above the service holes (1) inside the I/P compartment door opening.

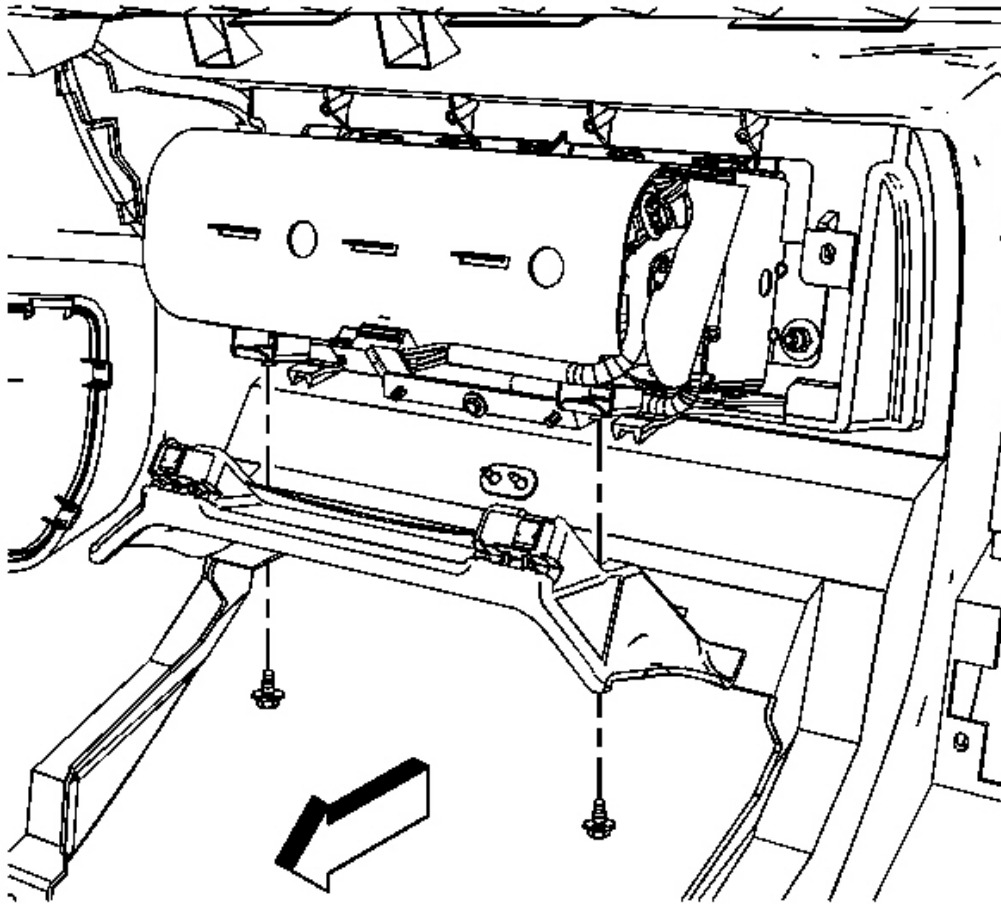


Fig. 45: View Of PSIR Inflator Module Fasteners
Courtesy of GENERAL MOTORS CORP.

9. Remove the fasteners from the passenger supplemental inflatable restraint (PSIR) inflator module.

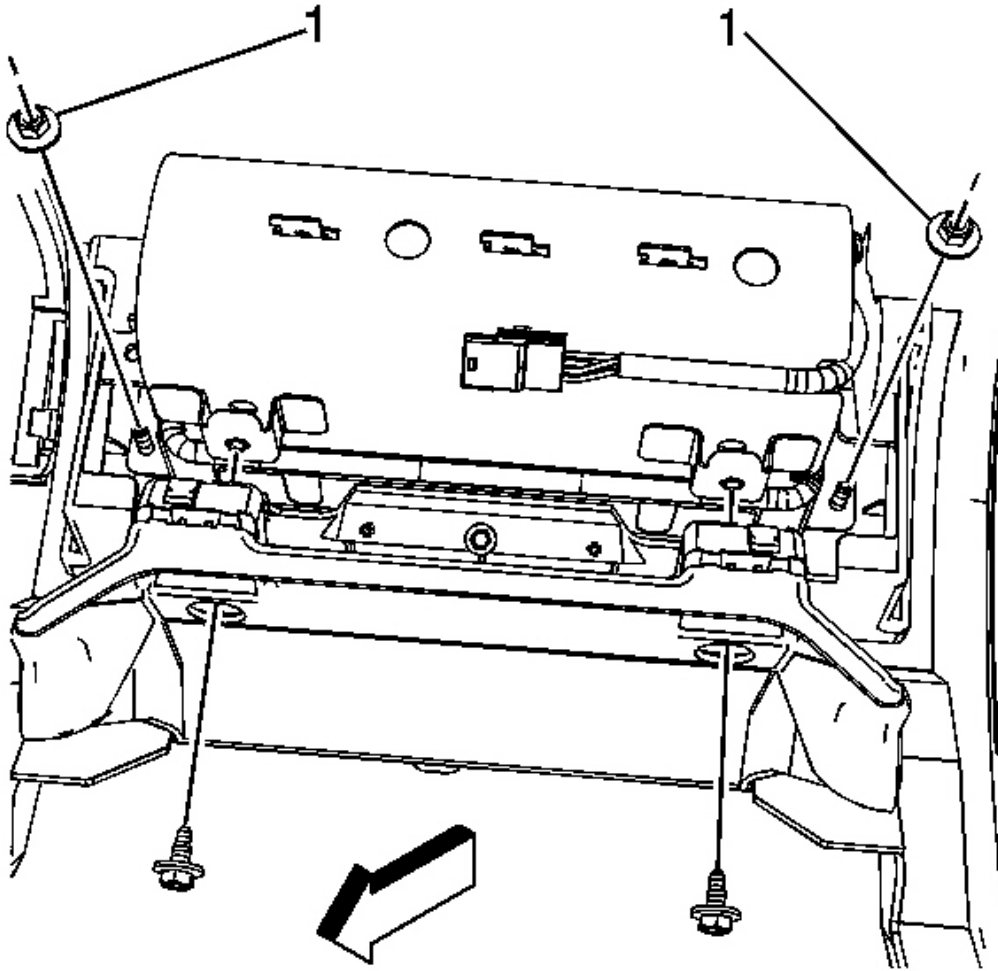


Fig. 46: View Of PSIR Module Retaining Nuts
Courtesy of GENERAL MOTORS CORP.

10. Remove the 2 side retaining nuts (1) from the PSIR module.

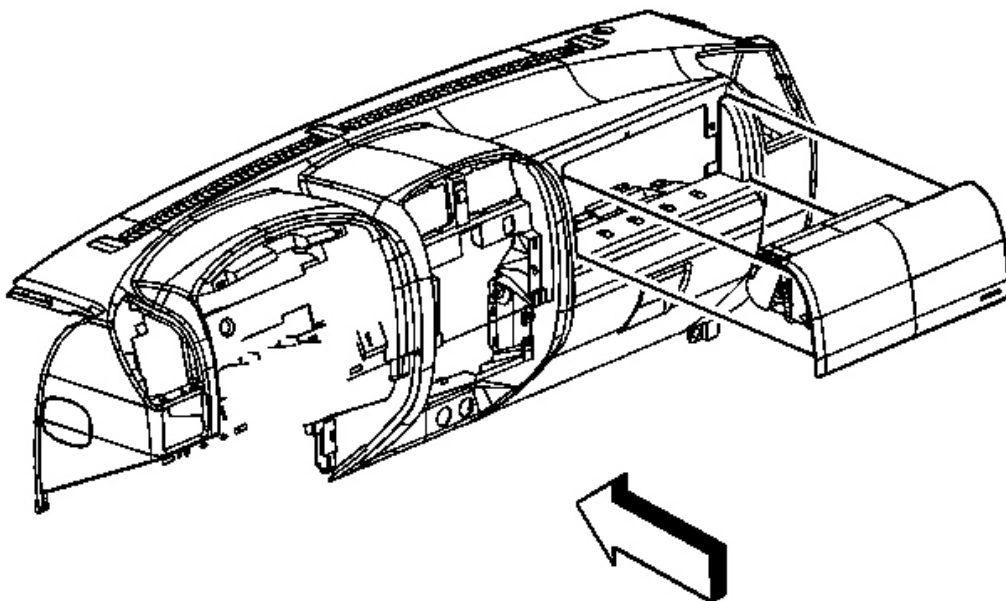


Fig. 47: View Of PSIR Module
Courtesy of GENERAL MOTORS CORP.

11. Partially remove the PSIR inflator module from the I/P.
12. Disconnect the connector position assurance (CPA).
13. Disconnect the electrical connector from the PSIR module.
14. Remove the PSIR inflator module from the vehicle.
15. Fully deploy the module before disposal. If the module is being replaced under warranty, fully deploy and dispose of the module after the required retention period. Refer to **Inflator Module Handling and Scrapping**.

IMPORTANT: If the PSIR module has deployed while attached to the I/P, the PSIR bracket MUST be replaced.

16. If replacing the PSIR bracket, remove the I/P assembly. Refer to **Instrument Panel Assembly Replacement (Left Hand Drive)** or **Instrument Panel Assembly Replacement (Right Hand Drive)** .

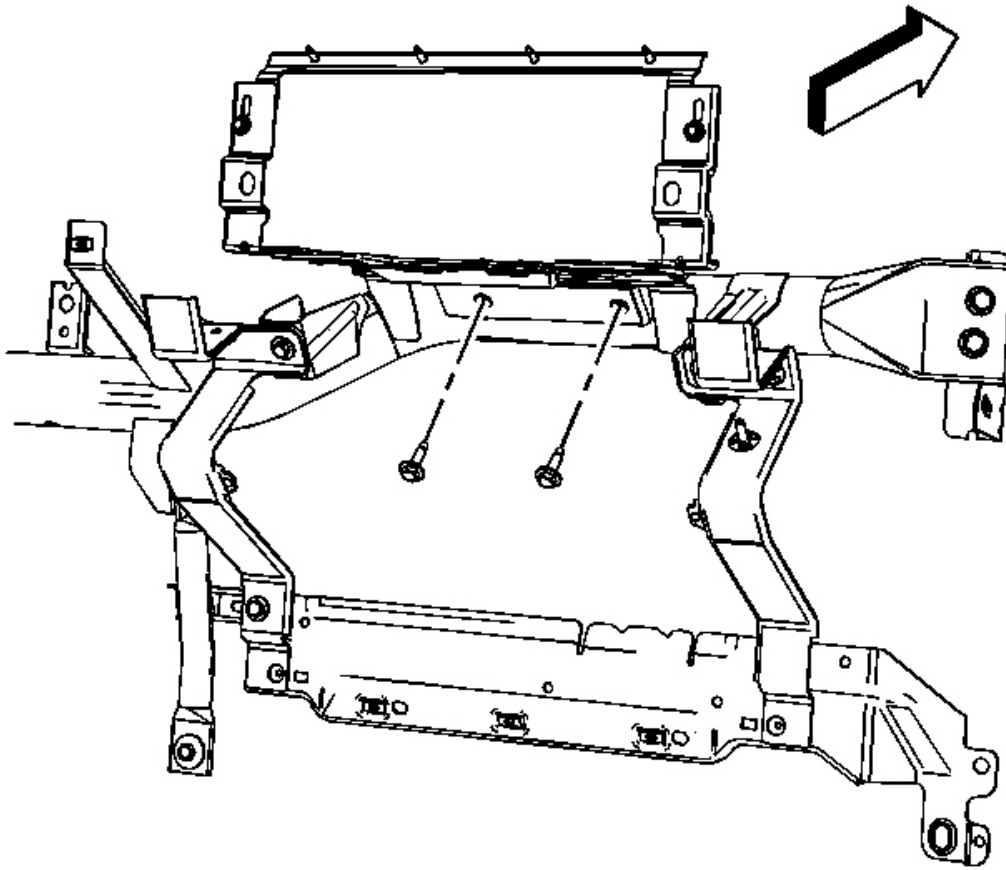


Fig. 48: View Of PSIR Bracket To I/P Structure Fasteners
Courtesy of GENERAL MOTORS CORP.

17. Remove the 2 fasteners retaining the PSIR bracket to the I/P structure.

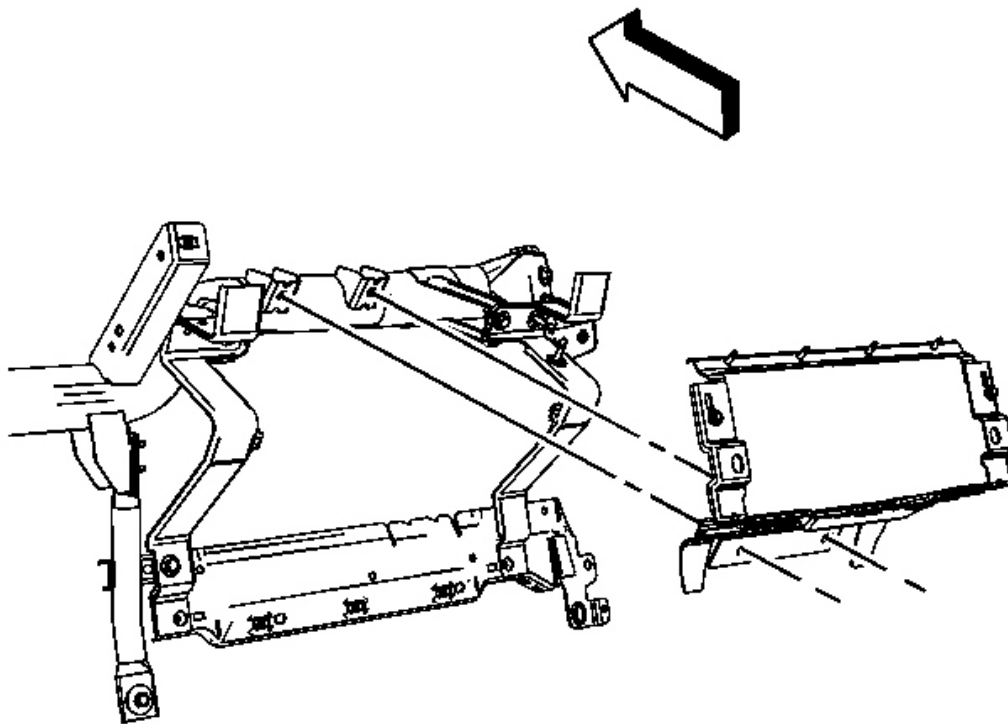


Fig. 49: View Of PSIR Bracket
Courtesy of GENERAL MOTORS CORP.

18. Remove the PSIR bracket from the vehicle.

Installation Procedure

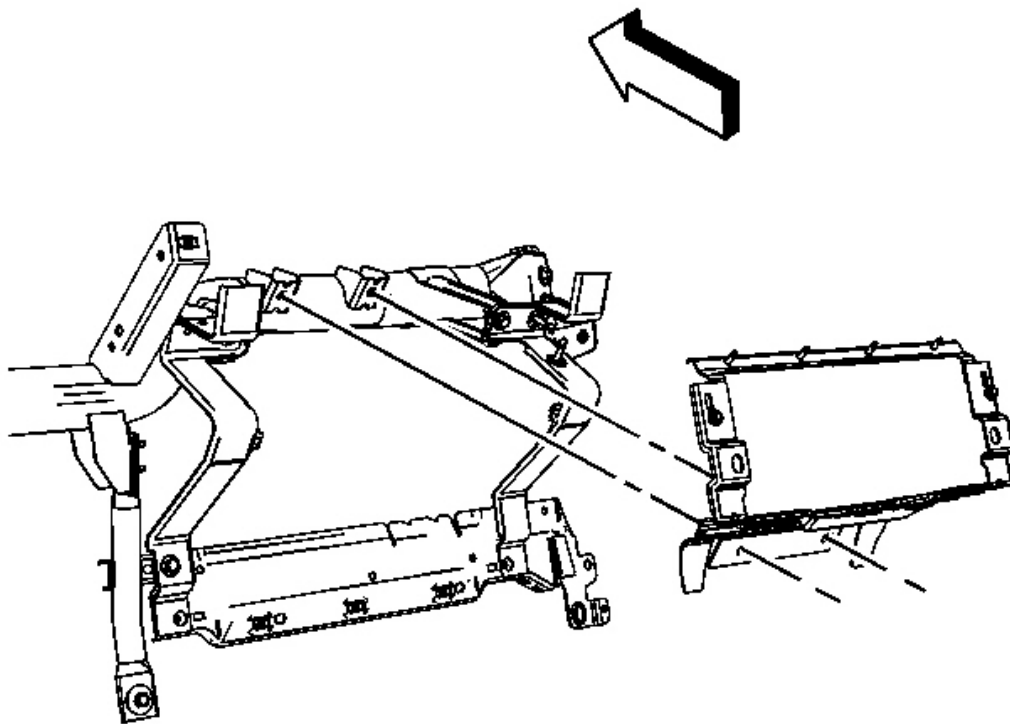


Fig. 50: View Of PSIR Bracket
Courtesy of GENERAL MOTORS CORP.

1. If replacing the PSIR bracket, install the PSIR bracket to the I/P structure.

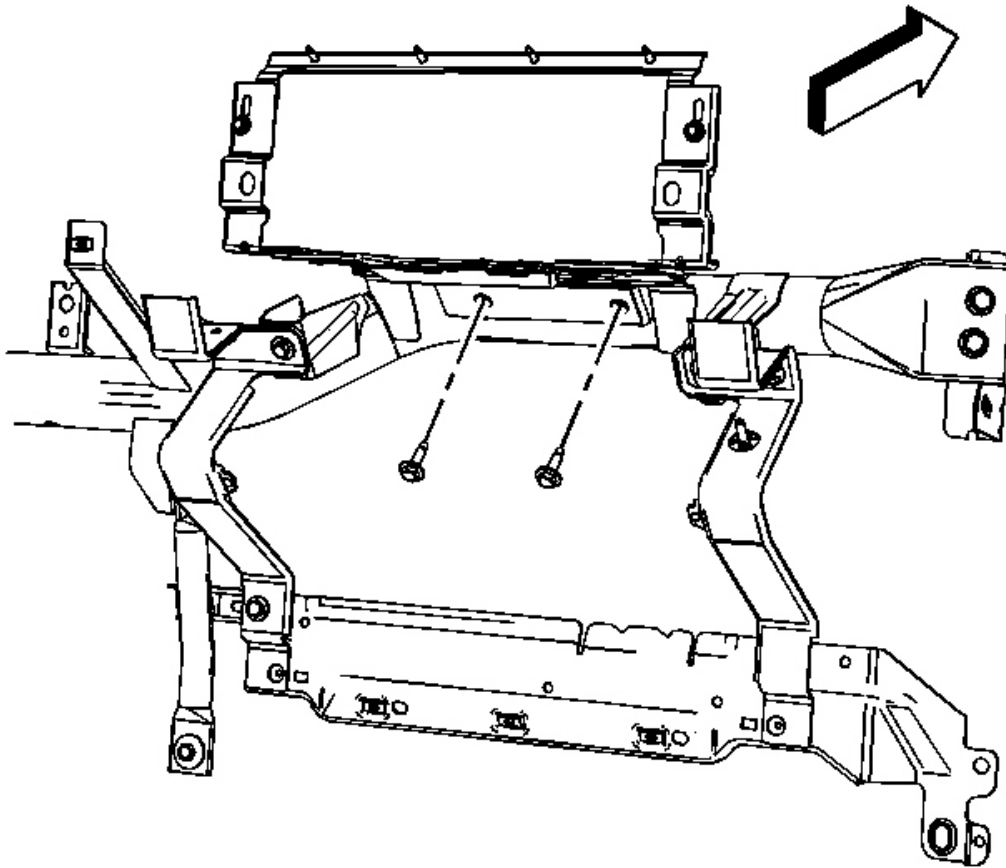


Fig. 51: View Of PSIR Bracket To I/P Structure Fasteners
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice .

2. Install the 2 fasteners retaining the PSIR bracket to the I/P structure.

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

3. Install the I/P assembly. Refer to Instrument Panel Assembly Replacement (Left Hand Drive) or Instrument Panel Assembly Replacement (Right Hand Drive) .

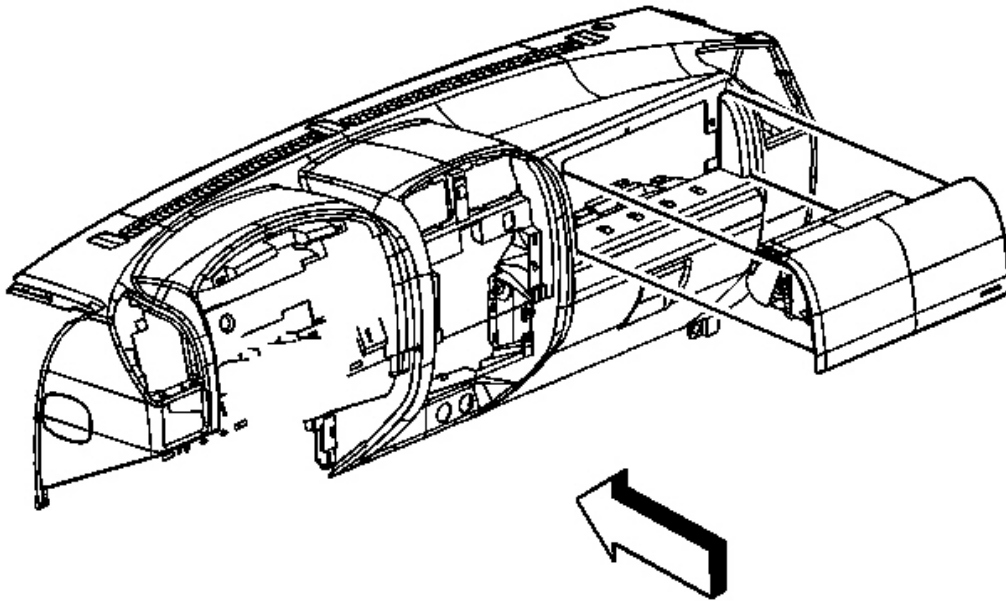


Fig. 52: View Of PSIR Module
Courtesy of GENERAL MOTORS CORP.

4. Position the PSIR inflator module to the front of the I/P and connect the electrical connector.
5. Connect the CPA.
6. Install the PSIR inflator module to the I/P.

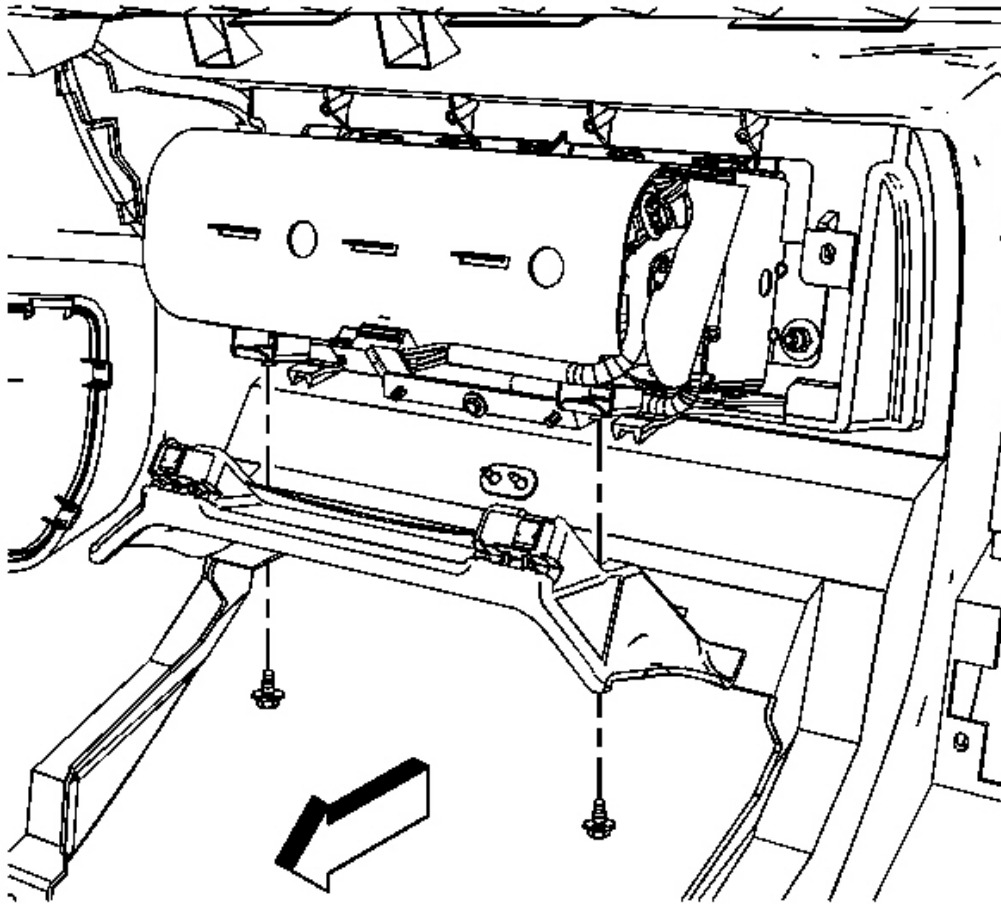


Fig. 53: View Of PSIR Inflator Module Fasteners
Courtesy of GENERAL MOTORS CORP.

7. Partially Install the 2 lower fasteners retaining the PSIR module to the I/P structure.

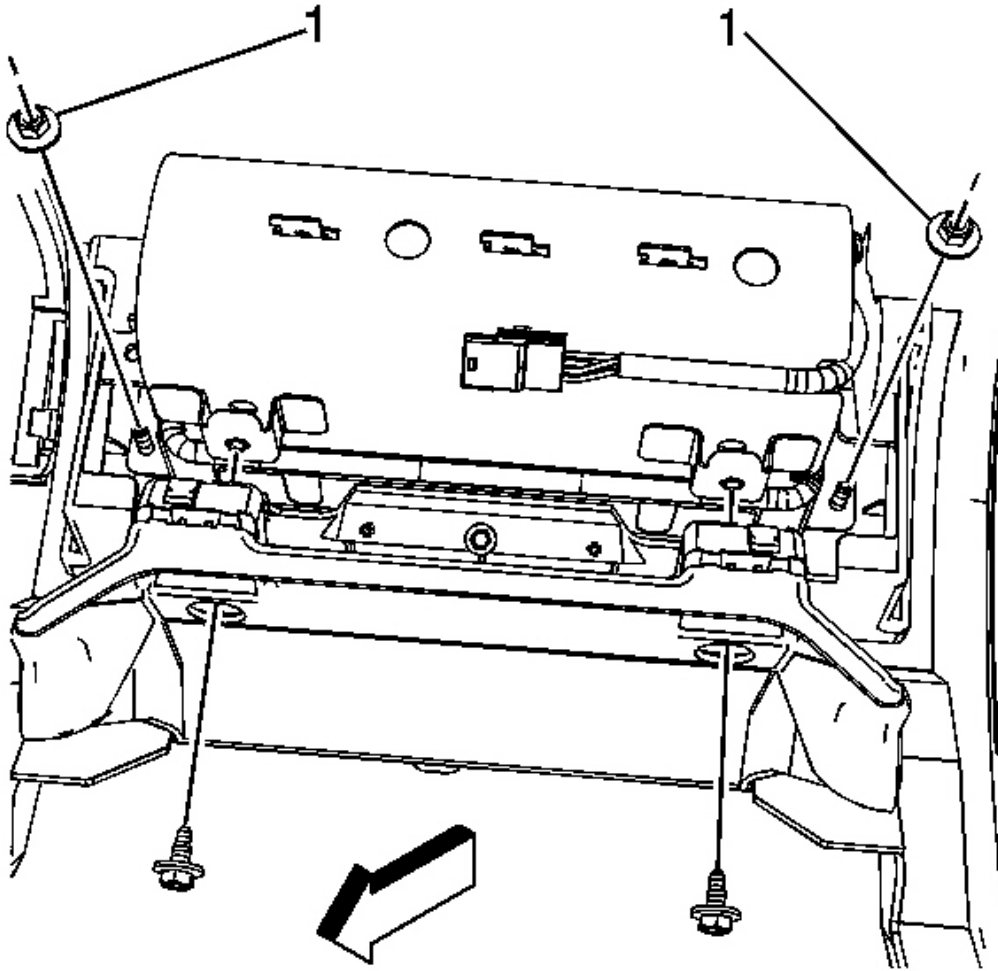


Fig. 54: View Of PSIR Module Retaining Nuts
Courtesy of GENERAL MOTORS CORP.

8. Install the 2 side retaining nuts (1) to the PSIR inflator module.

Tighten: Tighten the 4 PSIR fasteners until fully driven, seated and not stripped.

9. Install the digital radio receiver, if equipped. Refer to **Digital Radio Receiver Replacement** .
10. Install the radio. Refer to **Radio Replacement** .

11. Install the I/P center trim panel. Refer to **Instrument Panel Center Trim Panel Replacement (Left Hand Drive)** or **Instrument Panel Center Trim Panel Replacement (Right Hand Drive)** .
12. Install the right air outlet. Refer to **Instrument Panel Outer Air Outlet Replacement - Right Side** .
13. Install the right access cover to the I/P end cap.
14. Enable the SIR System. Refer to **SIR Disabling and Enabling**.
15. Install the I/P compartment door. Refer to **Instrument Panel Compartment Door Replacement** .

INFLATABLE RESTRAINT SEAT POSITION SENSOR REPLACEMENT

Removal Procedure

1. Remove the seat from the vehicle. Refer to **Front Seat Replacement - Bucket** .
2. Ensure that the seat is in the full rear position.

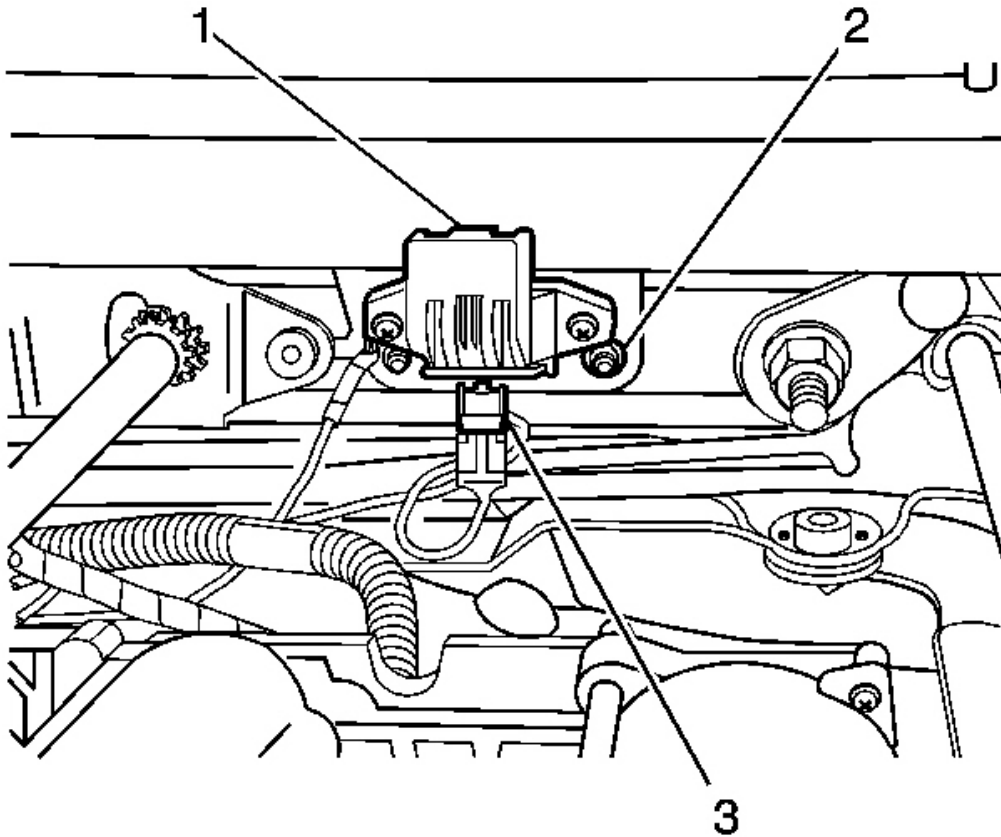


Fig. 55: View Of Seat Position Switch
Courtesy of GENERAL MOTORS CORP.

3. Locate the seat position sensor (1) under the seat on the inside of the inner seat rail.
4. Disconnect the electrical connector (3) from the seat position sensor (1).
5. Remove the 2 screws that retain the seat position sensor to the seat rail.
6. Remove the seat position sensor from the seat.

Installation Procedure

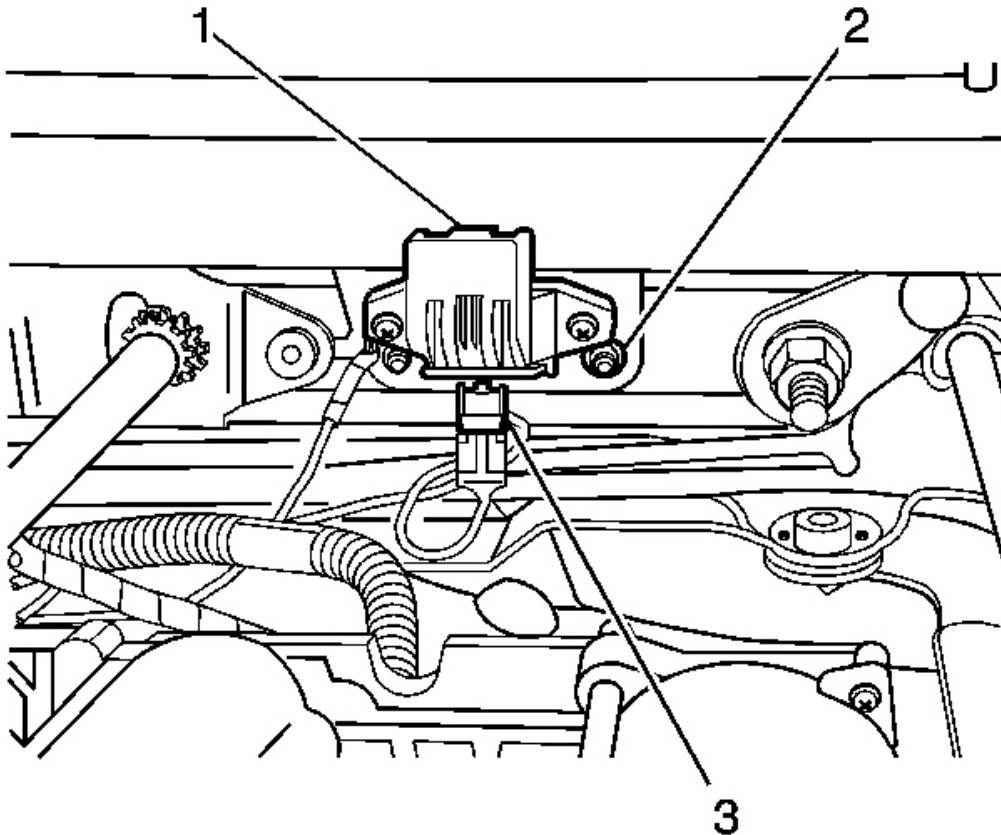


Fig. 56: View Of Seat Position Switch
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice .

1. Install the seat position sensor (1) to the seat rail with 2 screws.

Tighten: Tighten the seat position sensor screws to 9 N.m (79 lb in).

2. Connect the electrical connector (3) to the seat position sensor (1).
3. Install the seat in the vehicle. Refer to Front Seat Replacement - Bucket .

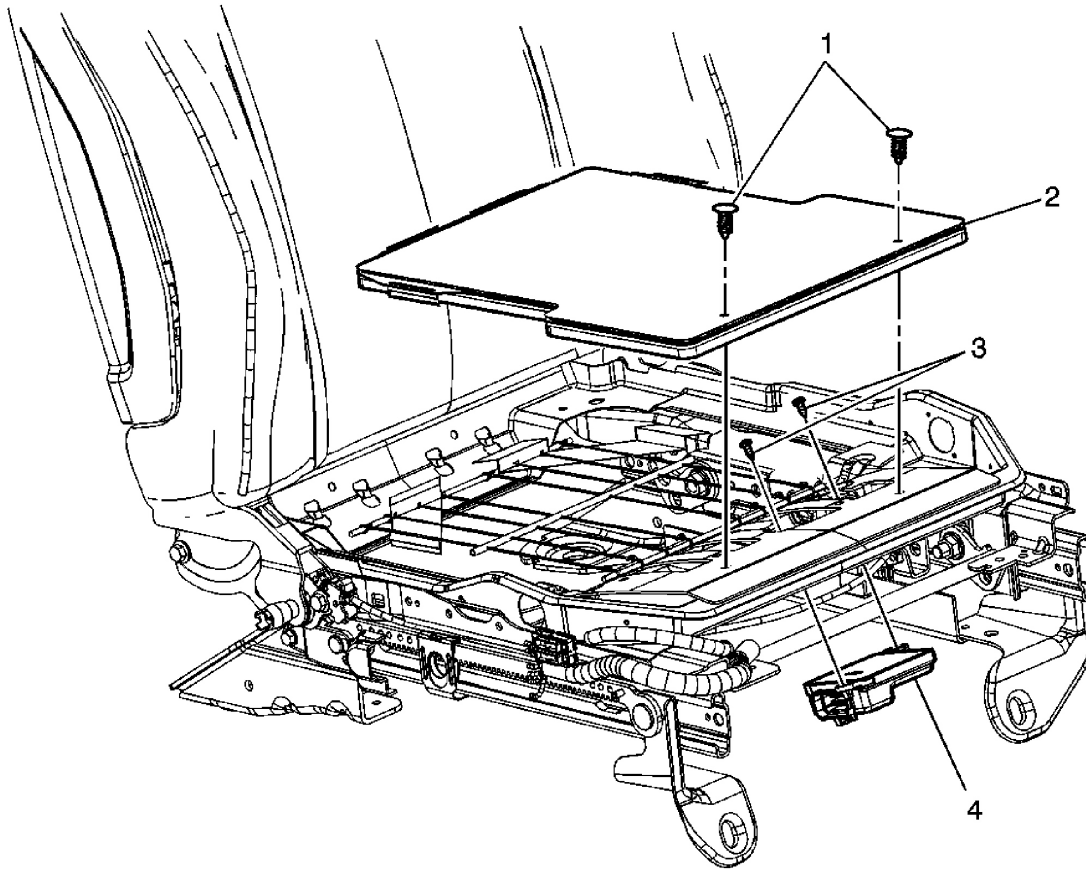


Fig. 57: Inflatable Restraint Passenger Presence System Replacement - Front
 Courtesy of GENERAL MOTORS CORP.

Inflatable Restraint Passenger Presence System Replacement - Front

Callout	Component Name
<p>CAUTION: Replace the passenger presence system as a complete assembly to prevent possible injury to the occupant. All the components in the service kit are assembled and calibrated as a unit. Using only some of the components in the service kit will cause the passenger presence system to operate improperly.</p> <p>NOTE: Refer to <u>Fastener Notice</u> .</p>	
<p>Fastener Tightening Specifications: Refer to <u>Fastener Tightening Specifications</u> .</p>	
<p>Preliminary Procedure</p>	

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1. Remove the front bucket seat. Refer to **Front Seat Replacement - Bucket** .
2. Remove the seat cushion trim cover and pad. Refer to **Seat Cushion Trim Cover and Pad Replacement** .
3. 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 Programming and Setup** .
4. Program the inflatable restraint passenger presence system after replacement. Refer to **Control Module References** .

1	Retainer, Inflatable Restraint Passenger Presence System (Qty: 2)
2	Sensor, Inflatable Restraint Passenger Presence System Tip: Disconnect the electrical connector.
3	Screw, Inflatable Restraint Passenger Presence System Module (Qty: 2) Tighten: 8 N.m (71 lb in)
4	Module, Inflatable Restraint Passenger Presence System Tip: Disconnect the electrical connector.

ROOF SIDE RAIL INFLATABLE RESTRAINT MODULE REPLACEMENT - FRONT

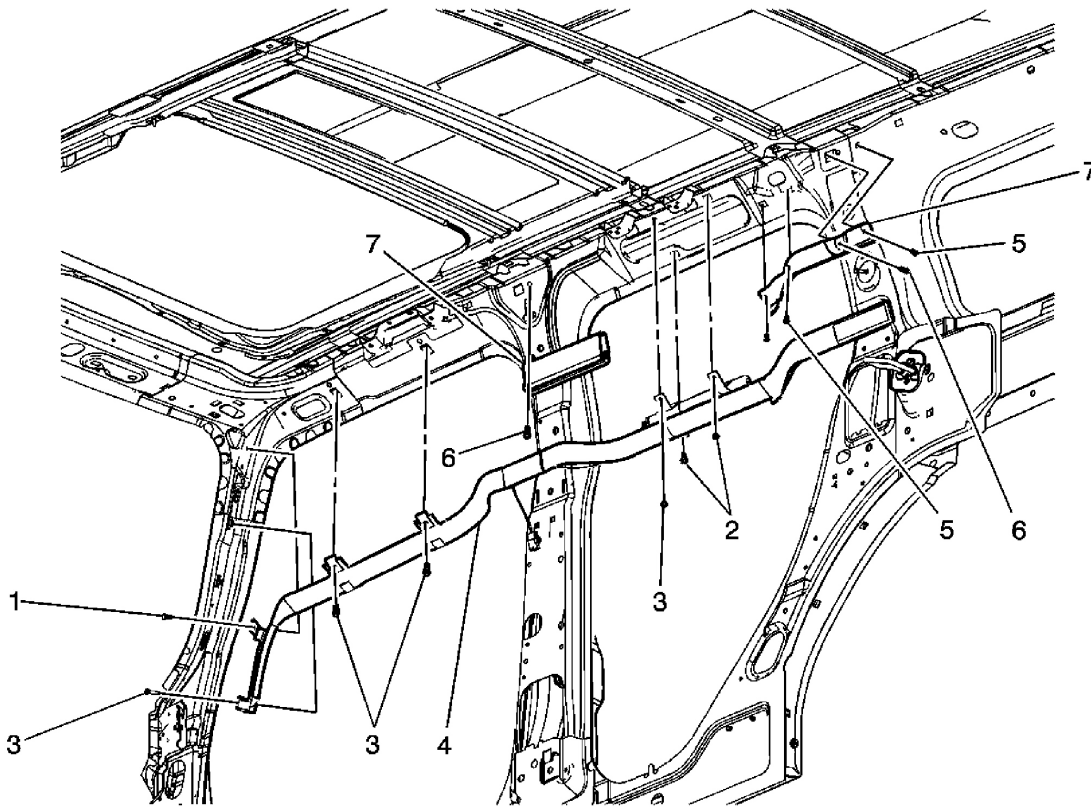


Fig. 58: Inflatable Restraint Roof Rail Module Replacement - Front
 Courtesy of GENERAL MOTORS CORP.

Roof Side Rail Inflatable Restraint Module Replacement - Front

Callout	Component Name
<p>CAUTION: Refer to <u>SIR Caution</u> .</p>	
<p>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.</p>	
<p>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.</p>	
<p>NOTE:</p>	

Refer to Fastener Notice .

Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

Preliminary Procedure

1. Disable the SIR. Refer to SIR Disabling and Enabling.
2. Remove the windshield garnish molding. Refer to Windshield Pillar Garnish Molding Replacement .
3. Remove the upper center pillar trim panel. Refer to Center Pillar Upper Trim Panel Replacement .
4. Remove the rear body side upper garnish molding. Refer to Body Side Rear Upper Garnish Molding Replacement .
5. Ensure the roof rail inflator has been fully deployed before disposal. Refer to Inflator Module Handling and Scrapping.

1	Retainer, Inflatable Restraint Roof Rail Module
2	Screw, Inflatable Restraint Roof Side Rail Module Assembly (Qty: 2) Tighten: 2 N.m (18 lb in)
3	Bolt, Inflatable Restraint Roof Side Rail Module Assembly (Qty: 4) Tighten: 8 N.m (71 lb in)
4	Module Assembly, Inflatable Restraint Roof Side Rail
5	Screw, Inflatable Restraint Roof Side Rail Module Assembly (Qty: 3) Tighten: 2 N.m (18 lb in)
6	Bolt, Inflatable Restraint Roof Side Rail Module Assembly (Qty: 2) Tighten: 8 N.m (71 lb in)
7	Bracket, Inflatable Restraint Roof Side Rail Module Assembly

SEAT BELT RETRACTOR PRETENSIONER REPLACEMENT - FRONT

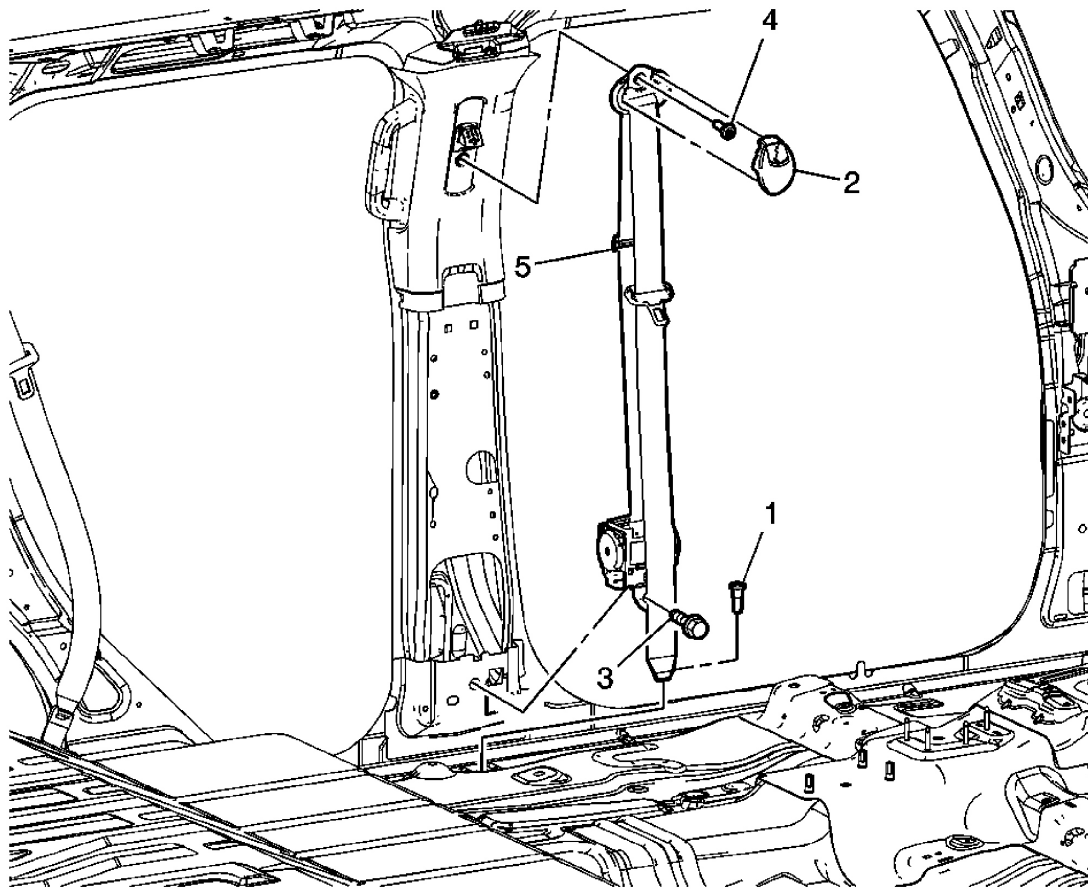


Fig. 59: Seat Belt Retractor Pretensioner Replacement - Front
 Courtesy of GENERAL MOTORS CORP.

Seat Belt Retractor Pretensioner Replacement - Front

Callout	Component Name
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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.

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

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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.

NOTE:

Refer to Fastener Notice .

Fastener Tightening Specifications: Refer to Fastener Tightening Specifications.

Preliminary Procedure

1. Disable the SIR. Refer to SIR Disabling and Enabling.
2. Remove the center pillar lower trim panel. Refer to Center Pillar Lower Trim Panel Replacement .
3. Fully deploy the pretensioner before disposal. Refer to Pretensioner Handling and Scrapping.

1	Bolt, Seat Belt Retractor Tighten: 52 N.m (38 lb ft)
2	Adjuster, Shoulder Belt Guide
3	Bolt, Seat Belt Retractor Tighten: 52 N.m (38 lb ft)
4	Bolt, Seat Belt Retractor Tighten: 52 N.m (38 lb ft)
5	Belt Assembly, Retractor Side

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** .
- 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

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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) (left/right), on the side of the impact
- Inflatable restraint side impact module (left/right), on the side of the impact
- Inflatable restraint SDM
- 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

Tools Required

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

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

Live and Undeployed Inflator Module

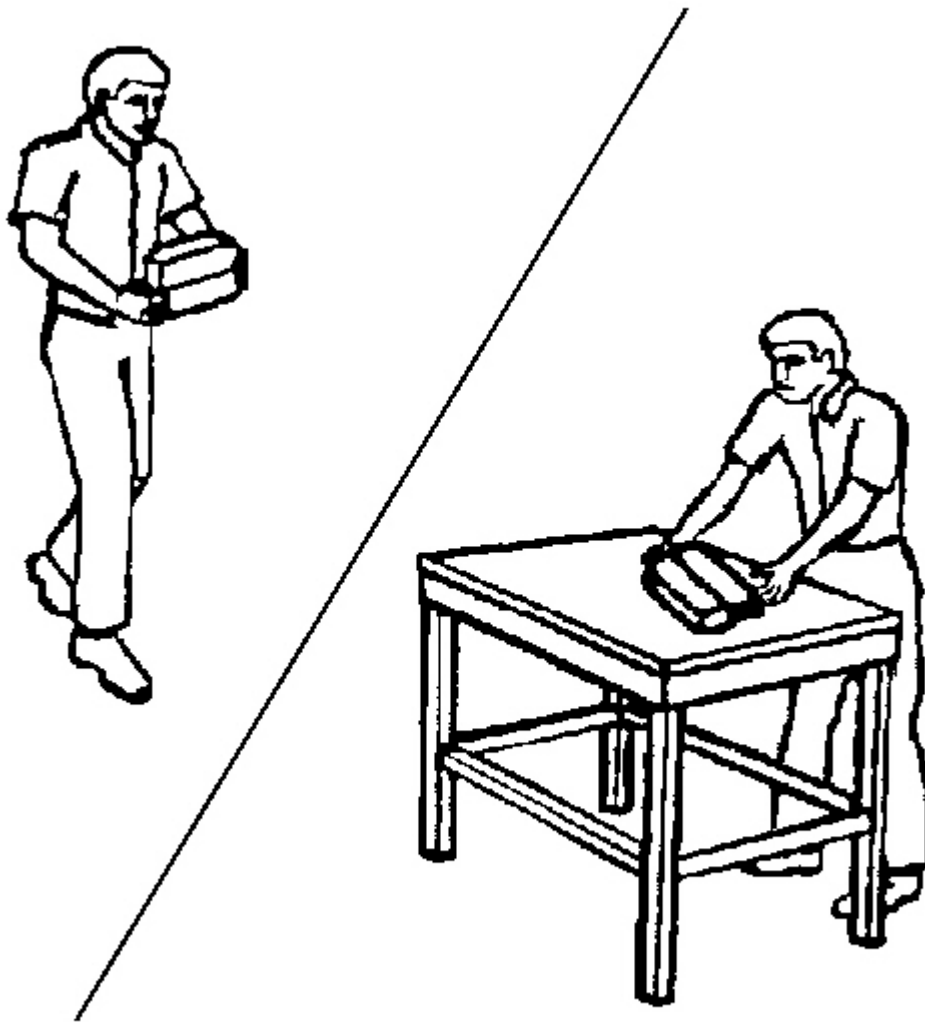


Fig. 60: View Of Proper Handling Of Undeployed Inflator Module
Courtesy of GENERAL MOTORS CORP.

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 two deployment stages. If stage 1 was used to deploy a dual stage inflator 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 vehicle's 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.

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 **Roof Side Rail Inflatable Restraint Module Replacement - Front**.

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

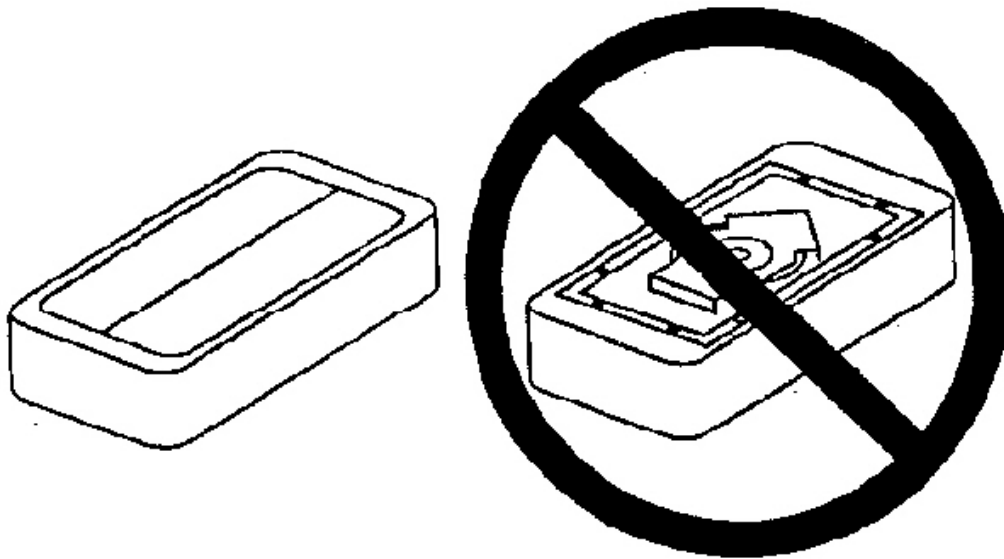


Fig. 61: Illustrating Proper Storage Of Inflator Module
Courtesy of GENERAL MOTORS CORP.

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

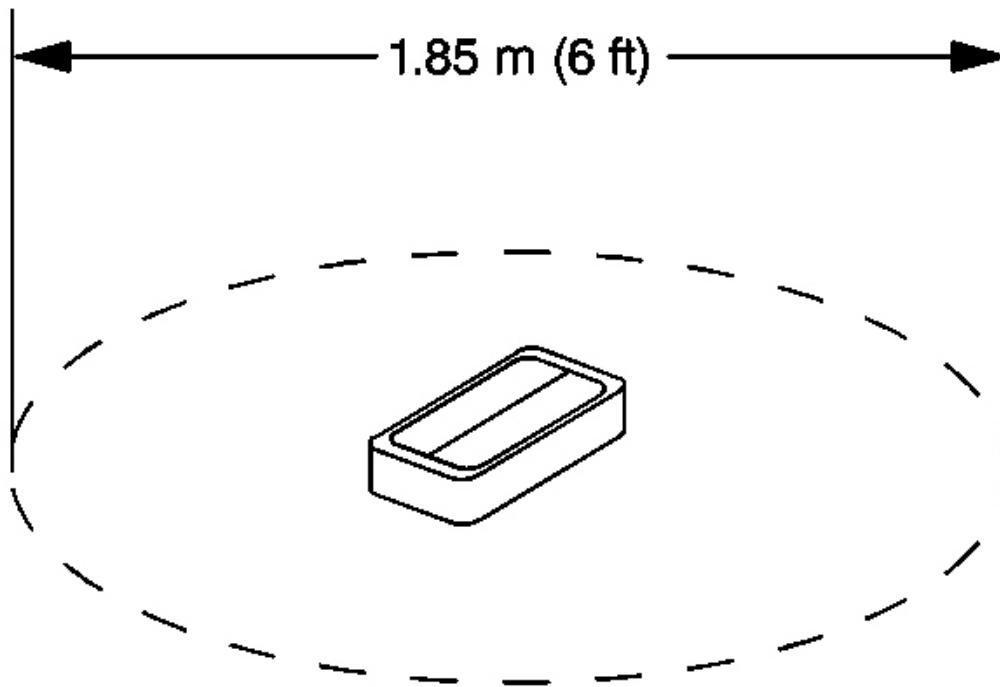


Fig. 62: Clearance For Deployment Of Inflator Module
Courtesy of GENERAL MOTORS CORP.

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.

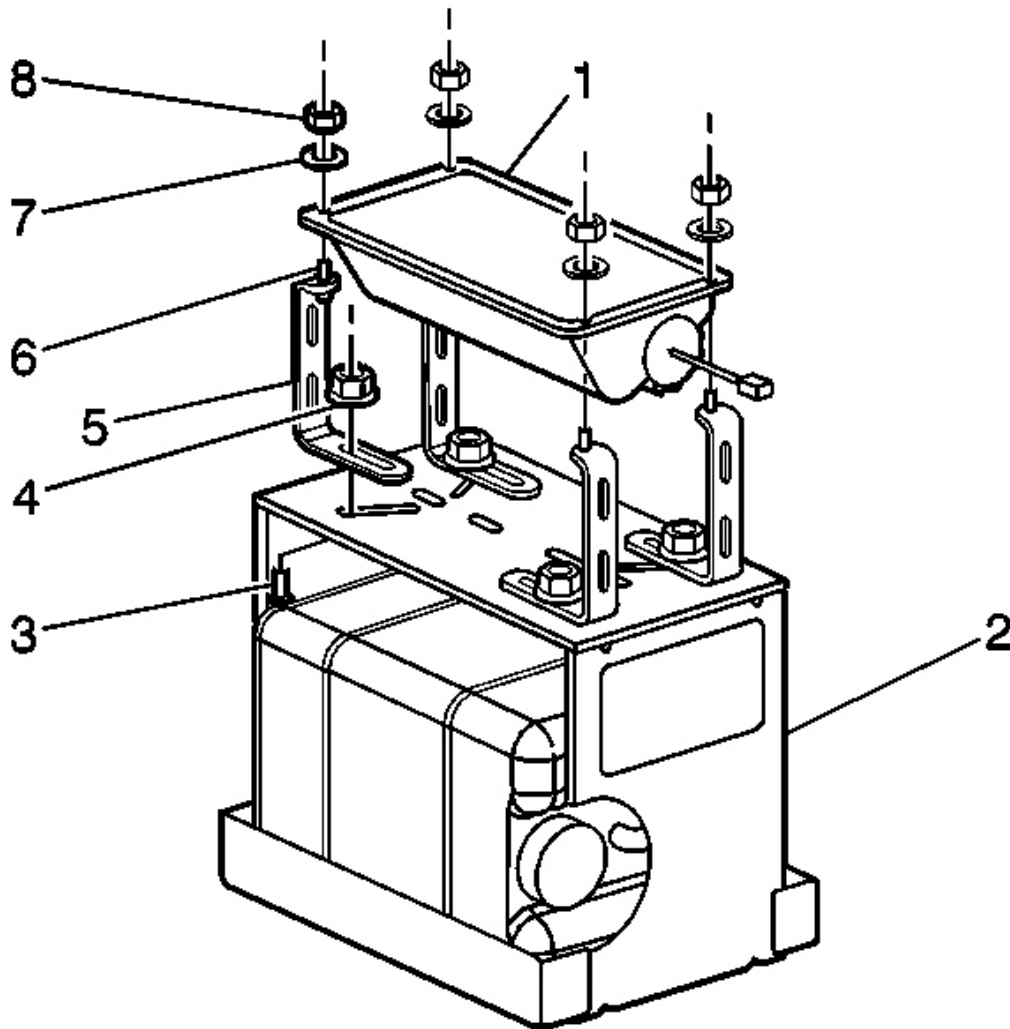


Fig. 63: Identifying I/P Module Components
Courtesy of GENERAL MOTORS CORP.

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).

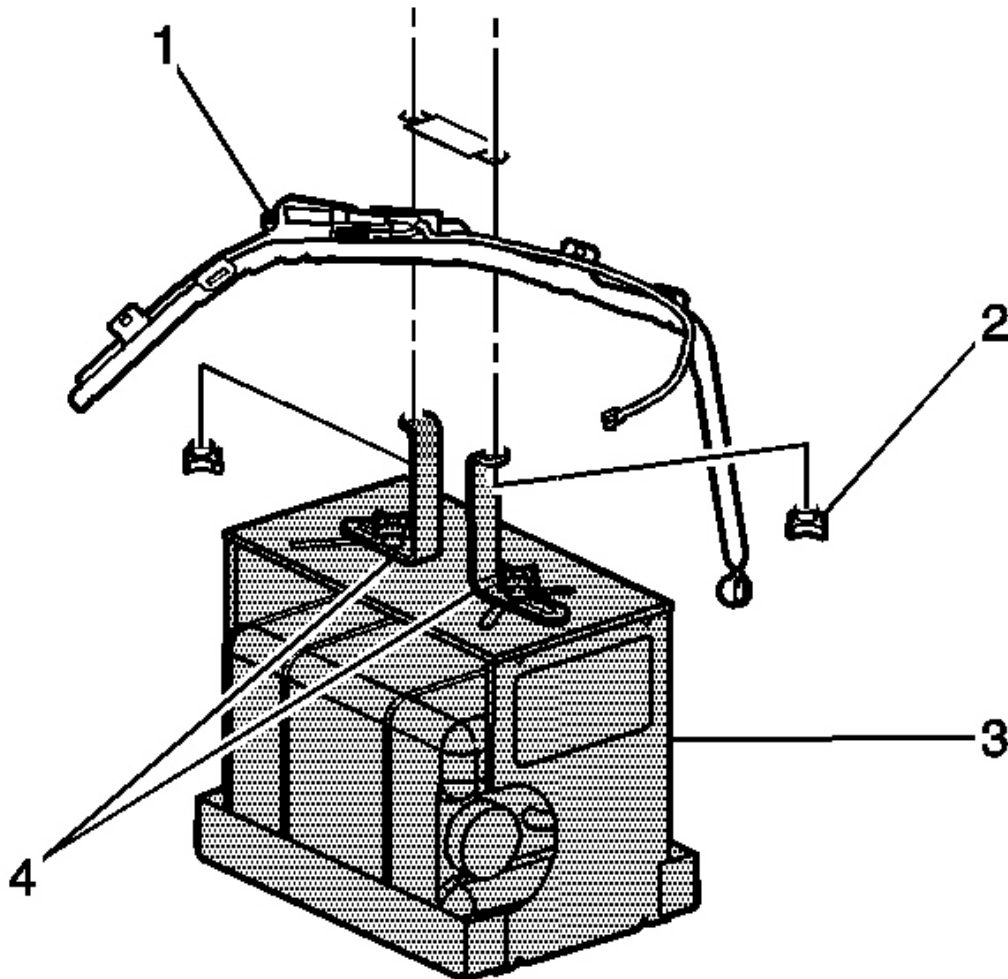


Fig. 64: Identifying Fasteners Holding Side Impact Module To Deployment Fixture
Courtesy of GENERAL MOTORS CORP.

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.

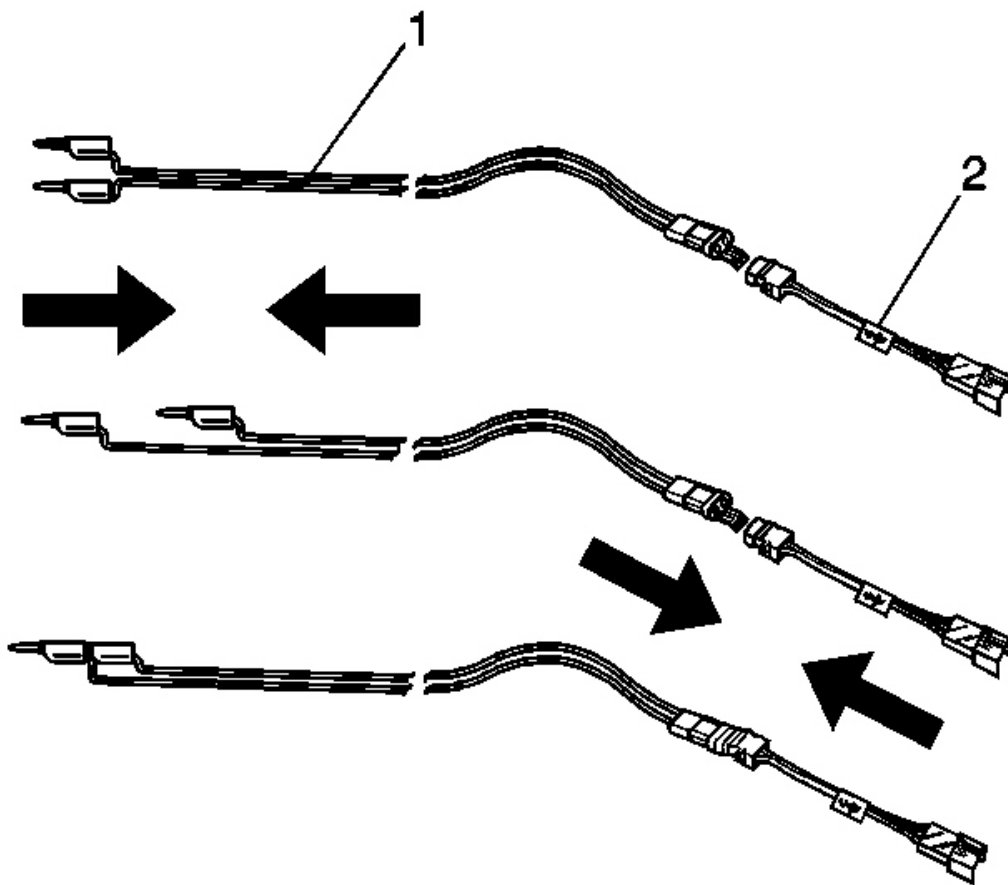


Fig. 65: Identifying SIR Deployment Harness & Adapter
Courtesy of GENERAL MOTORS CORP.

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).

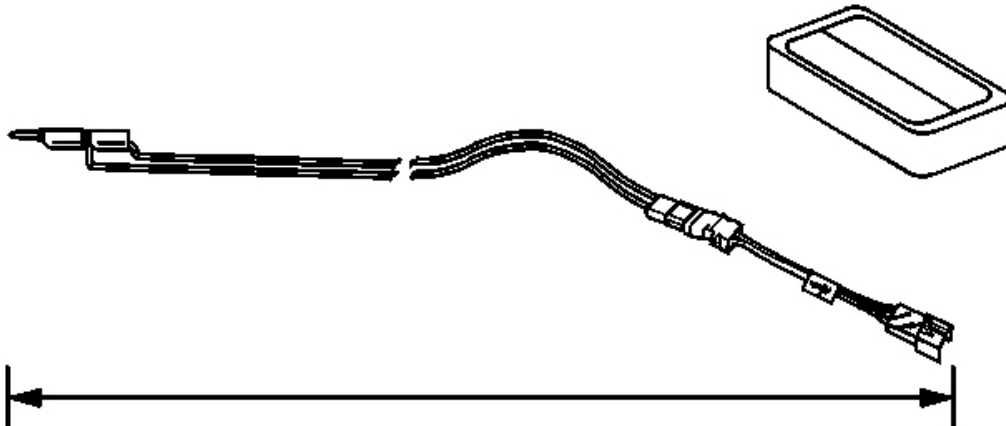


Fig. 66: Extending SIR Deployment Harness & Adapter
Courtesy of GENERAL MOTORS CORP.

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.

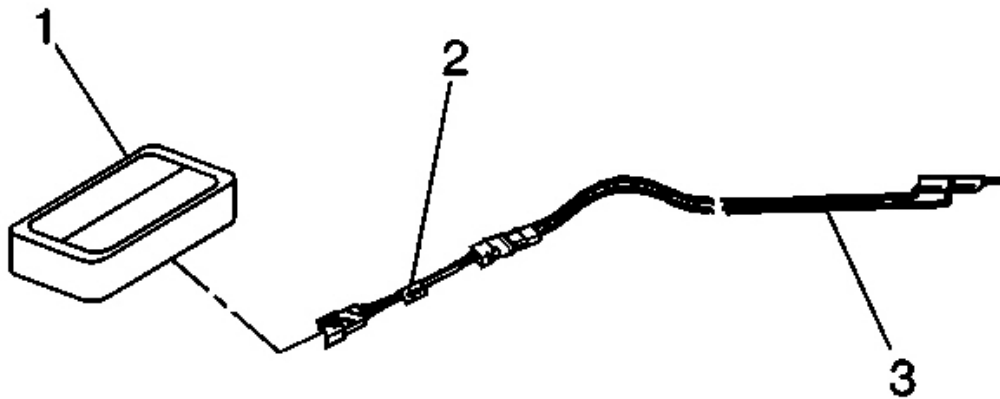


Fig. 67: Inflator Module & SIR Deployment Harness Adapter
Courtesy of GENERAL MOTORS CORP.

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.

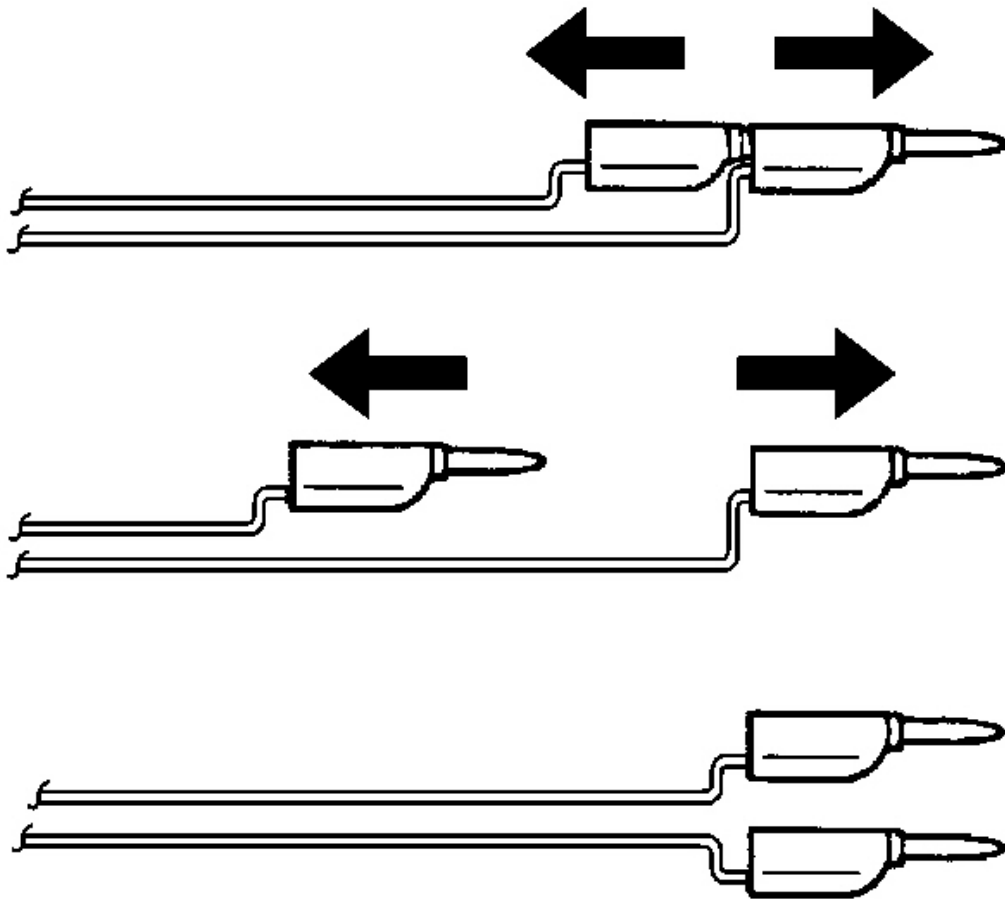


Fig. 68: Separating Banana Plugs
Courtesy of GENERAL MOTORS CORP.

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

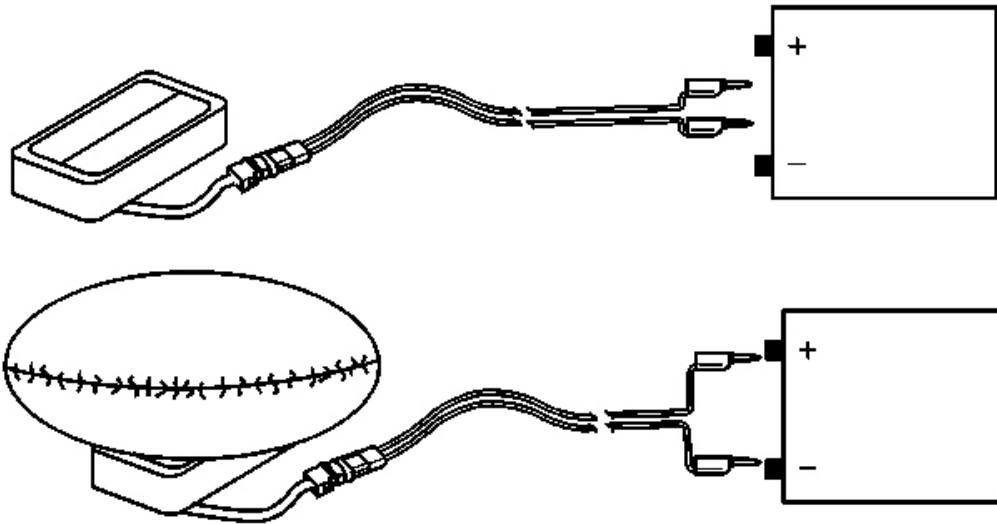


Fig. 69: Connecting SIR Deployment Harness Wires To Power Source
Courtesy of GENERAL MOTORS CORP.

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.

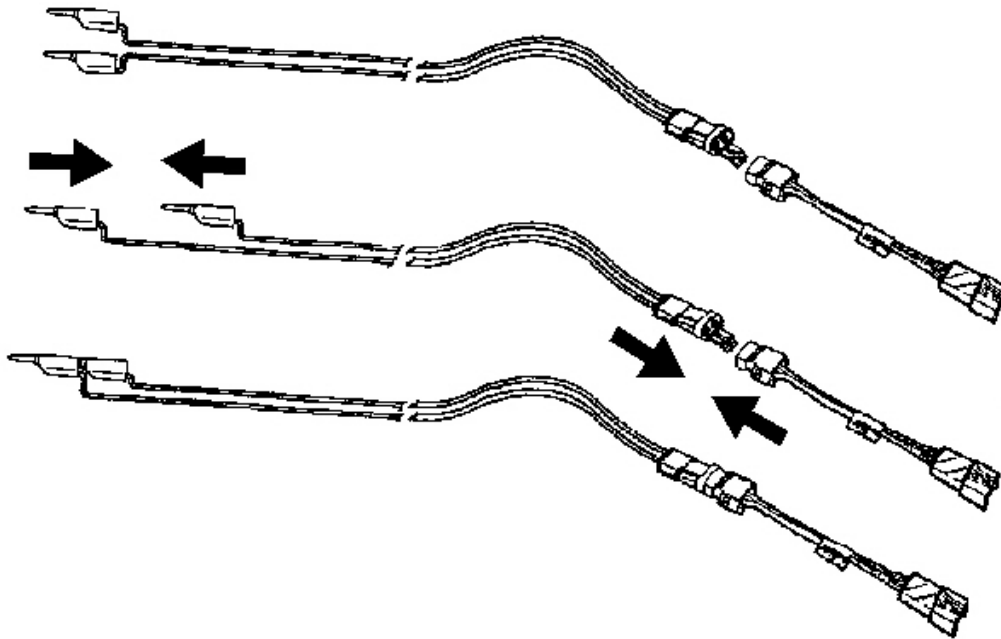


Fig. 70: View Of Deployment Harness Leads
Courtesy of GENERAL MOTORS CORP.

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.

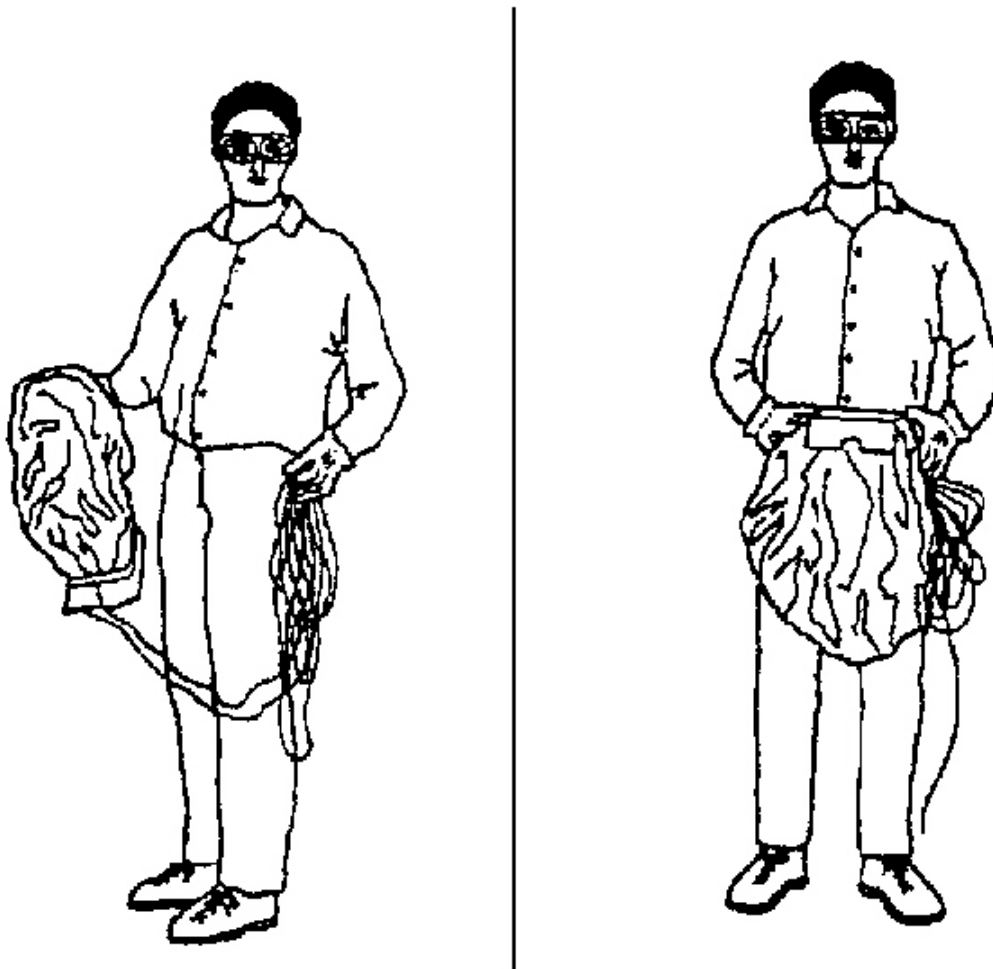


Fig. 71: Disposing Of Deployed Inflator Module
Courtesy of GENERAL MOTORS CORP.

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 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.

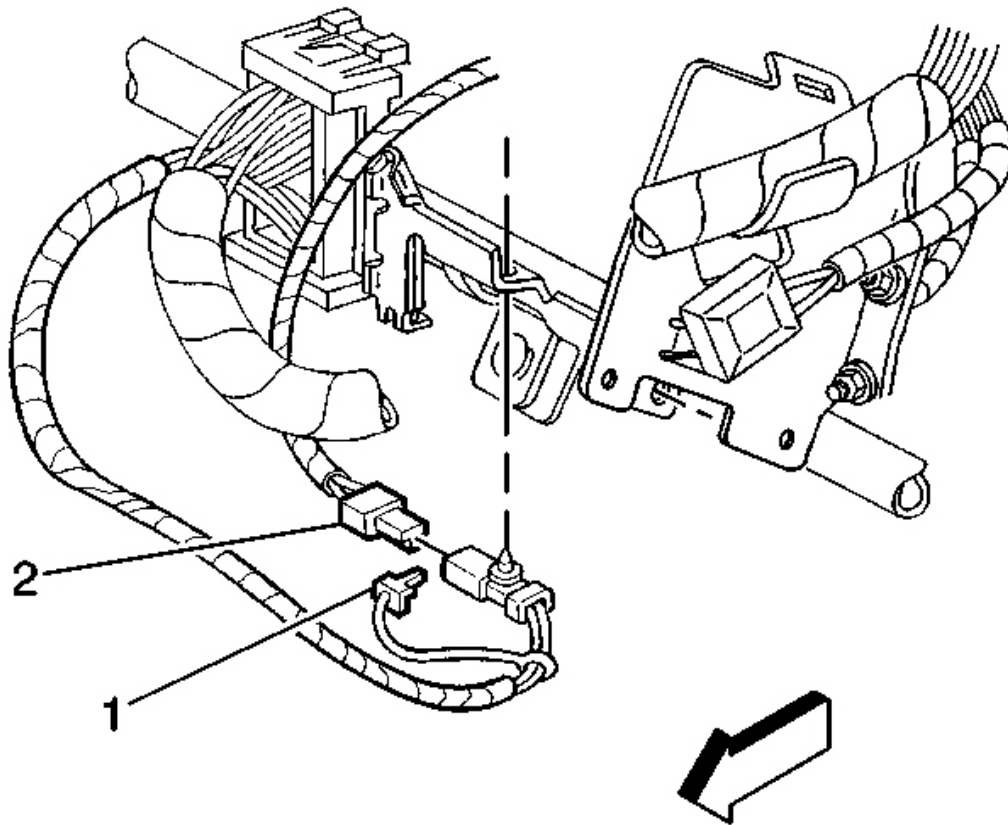


Fig. 72: Locating Inflatable Restraint Steering Wheel Module Connector
Courtesy of GENERAL MOTORS CORP.

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

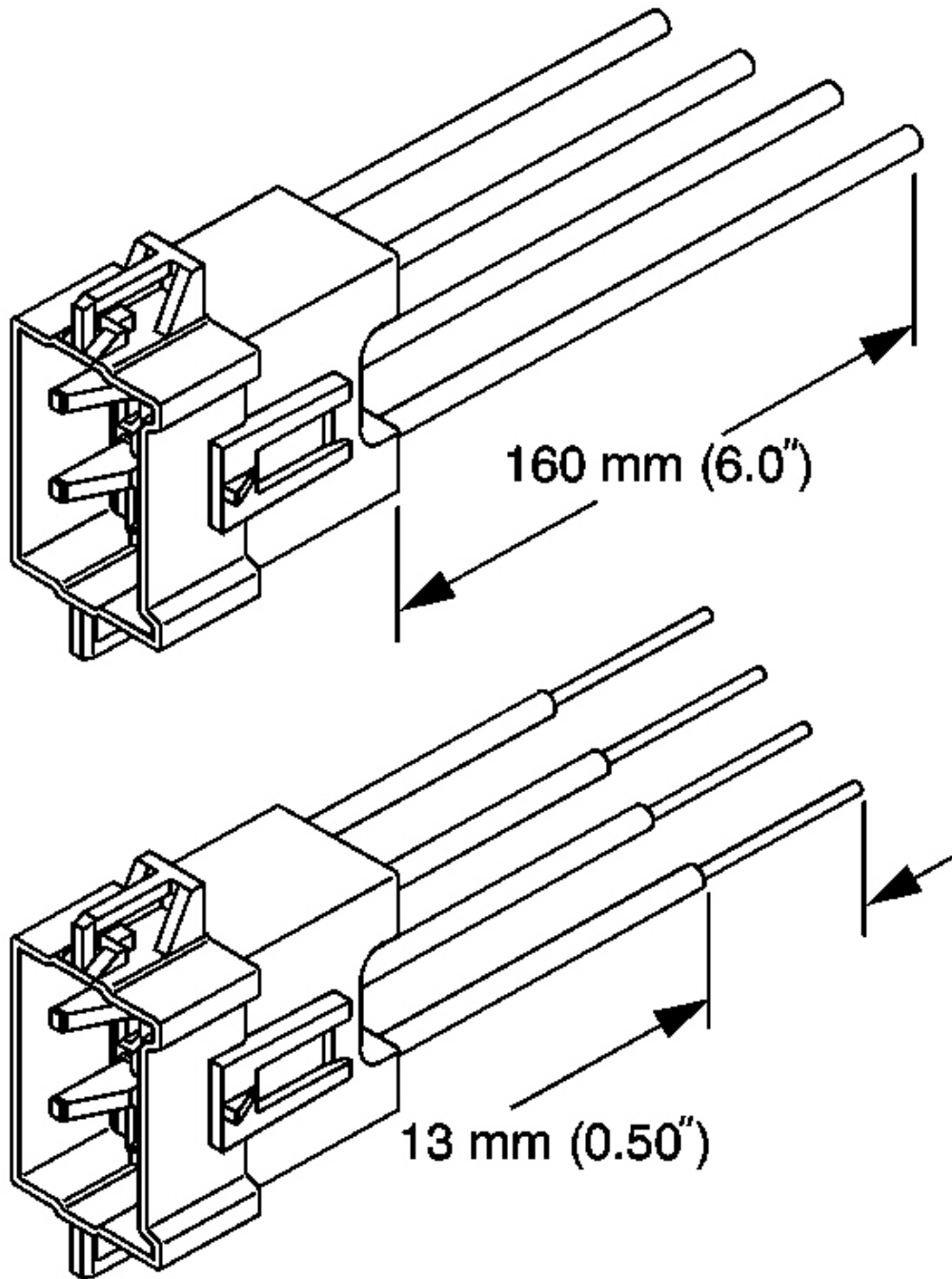


Fig. 73: Stripping SIR Wires
Courtesy of GENERAL MOTORS CORP.

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.

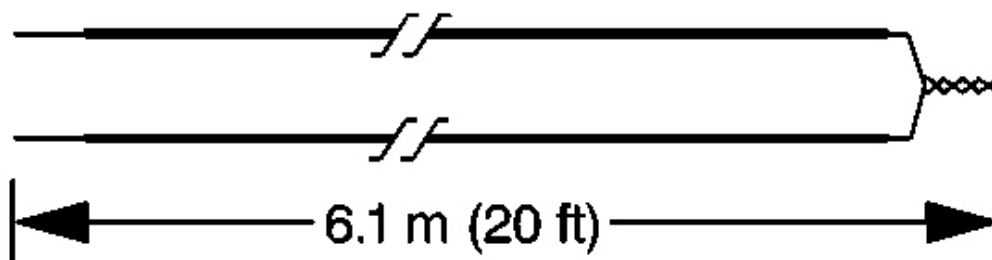


Fig. 74: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

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.

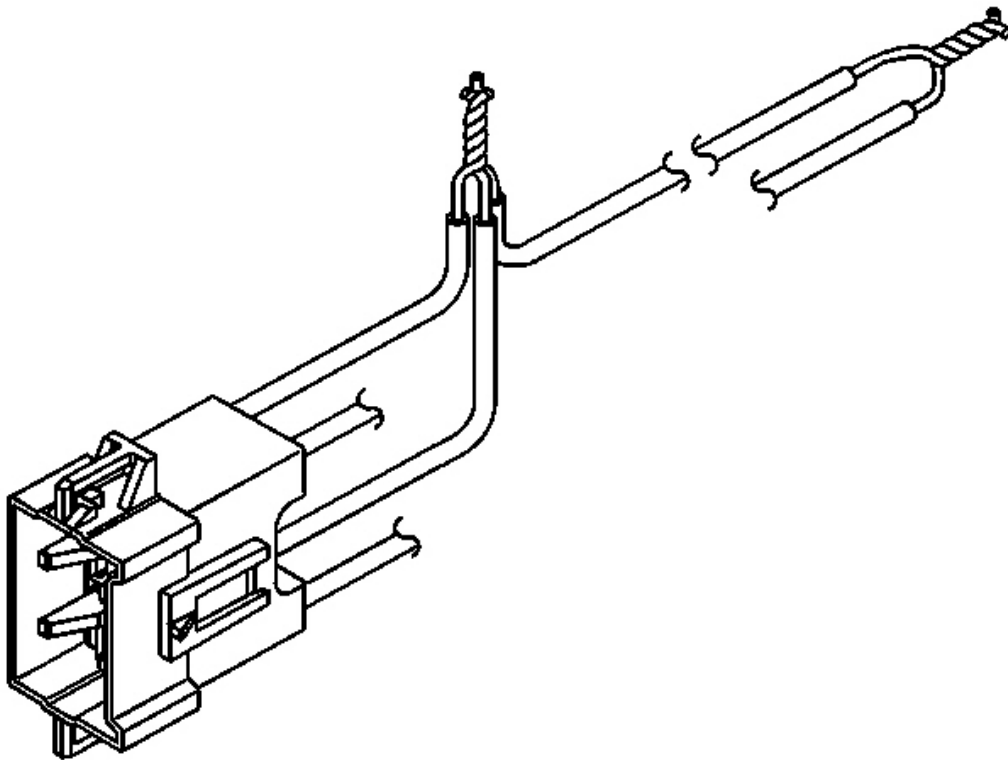


Fig. 75: Twisting Connector Wire Leads (High Circuits) To Deployment Harness Wire

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.

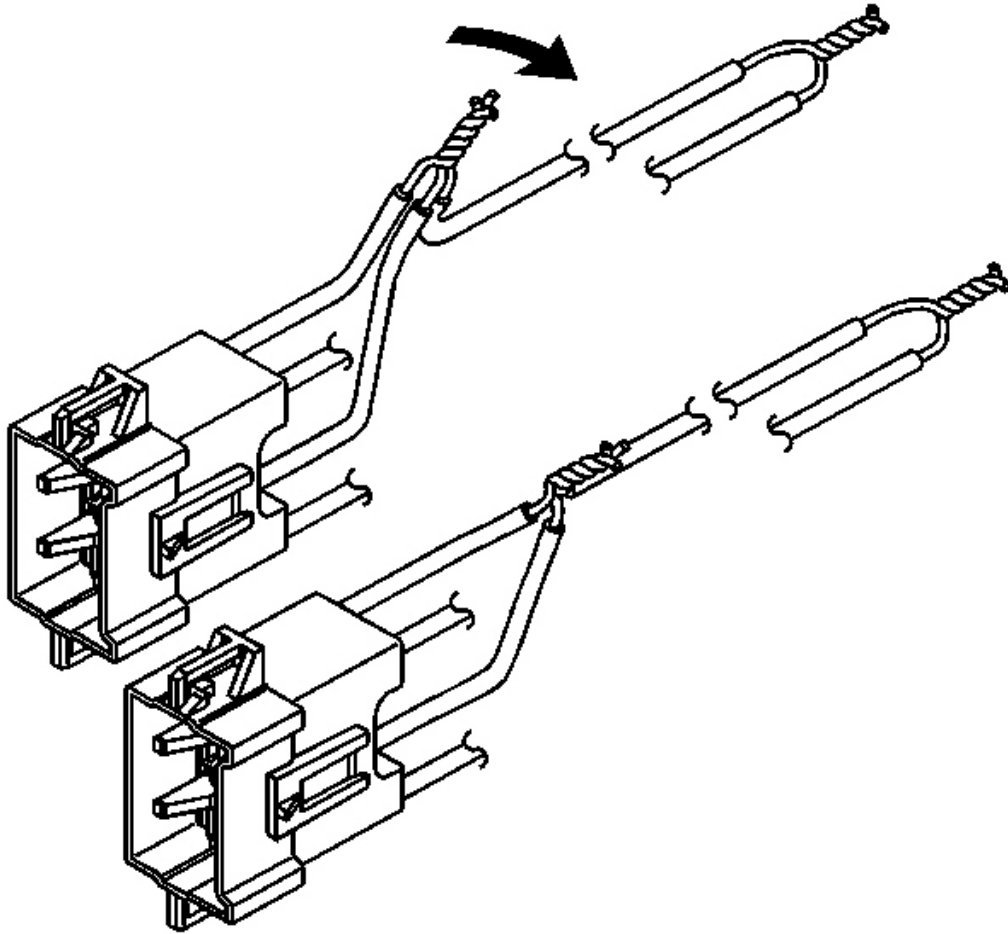


Fig. 76: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

14. Bend flat the twisted connection.

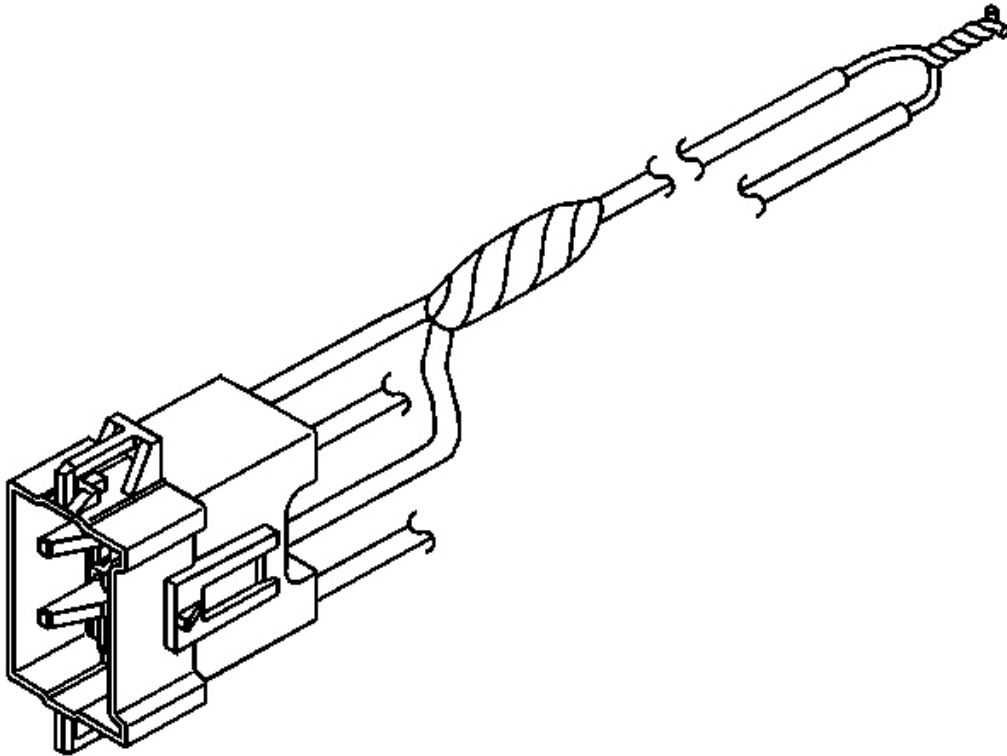


Fig. 77: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

15. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.

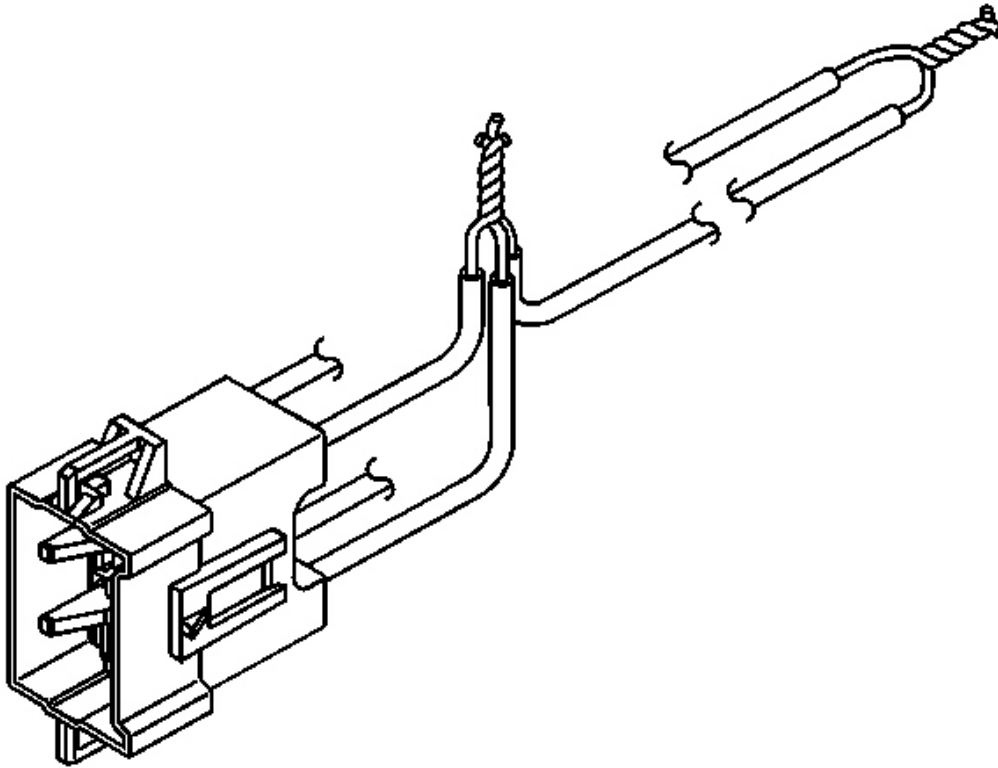


Fig. 78: Twisting Connector Wire Leads (Low Circuits) To Deployment Harness Wire

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.

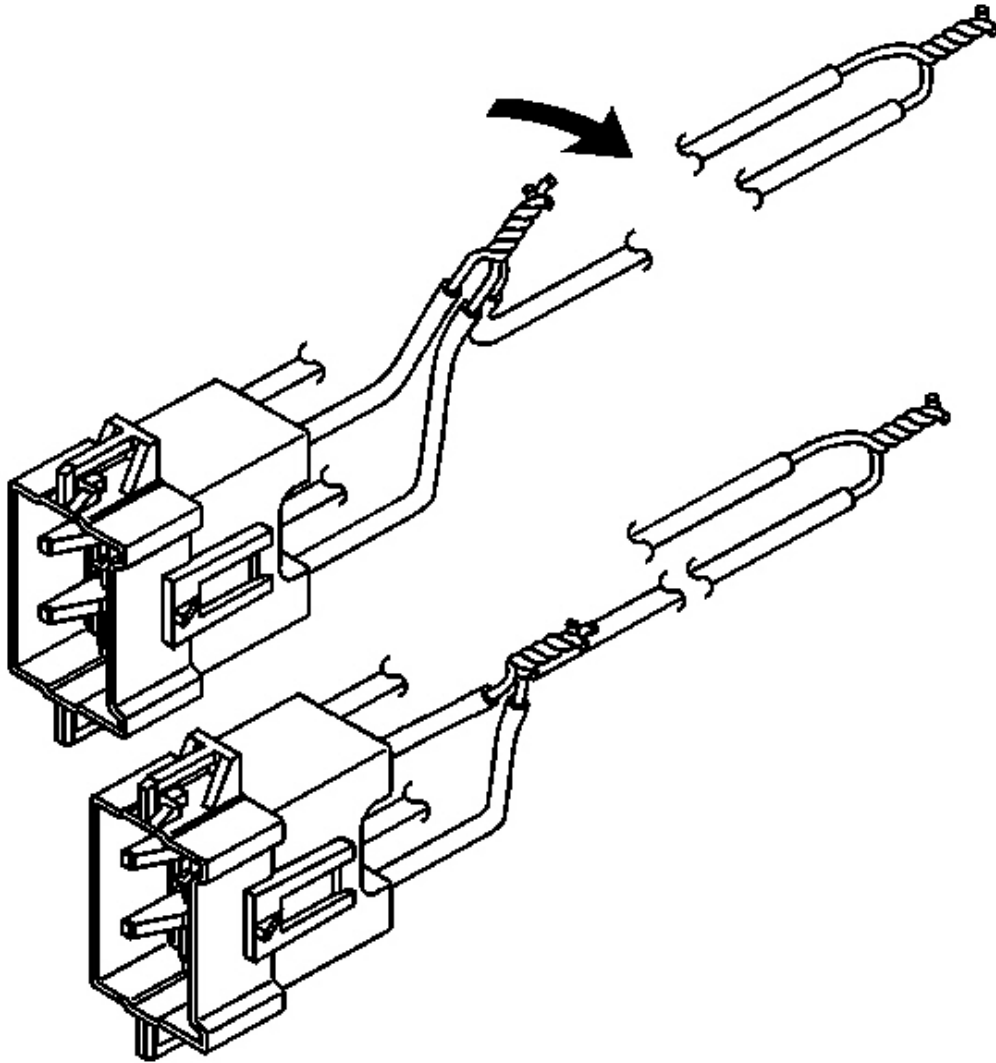


Fig. 79: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

18. Bend flat the twisted connection.

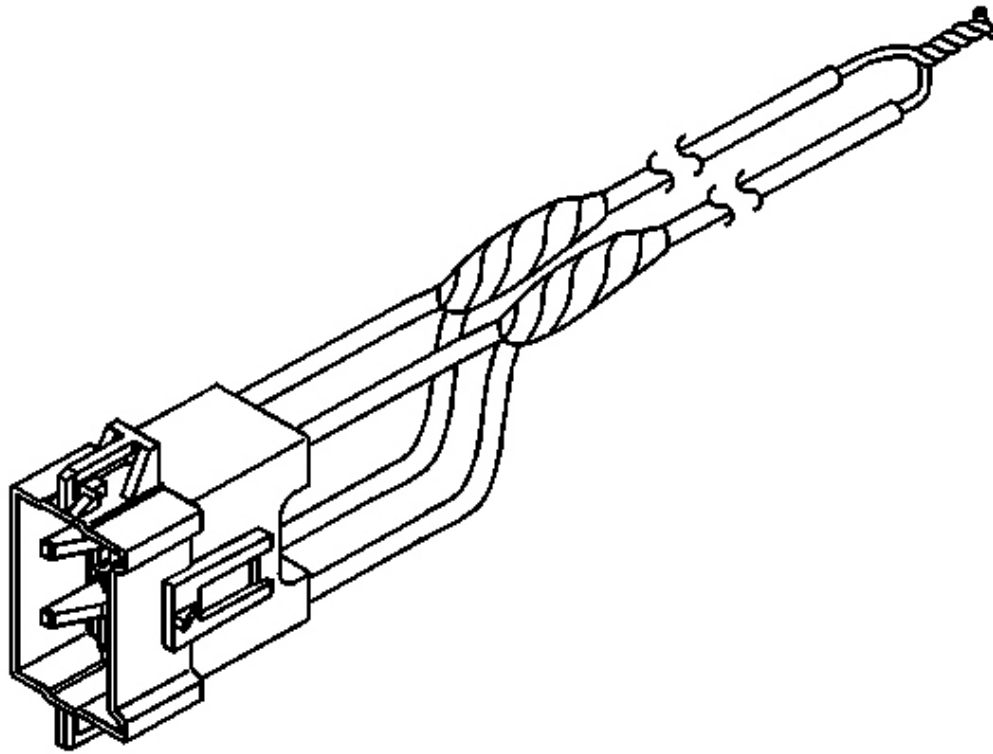


Fig. 80: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

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.

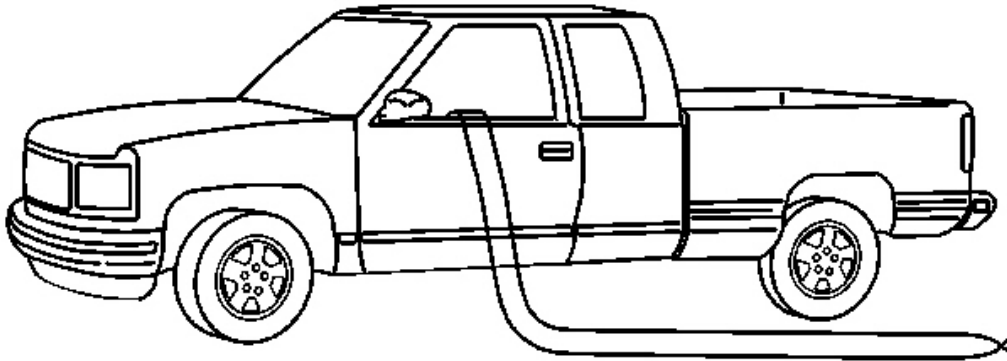


Fig. 81: Routing The Deployment Harness Out Of The Vehicle's Driver Side
Courtesy of GENERAL MOTORS CORP.

21. Route the deployment harness out of the driver side of the vehicle.

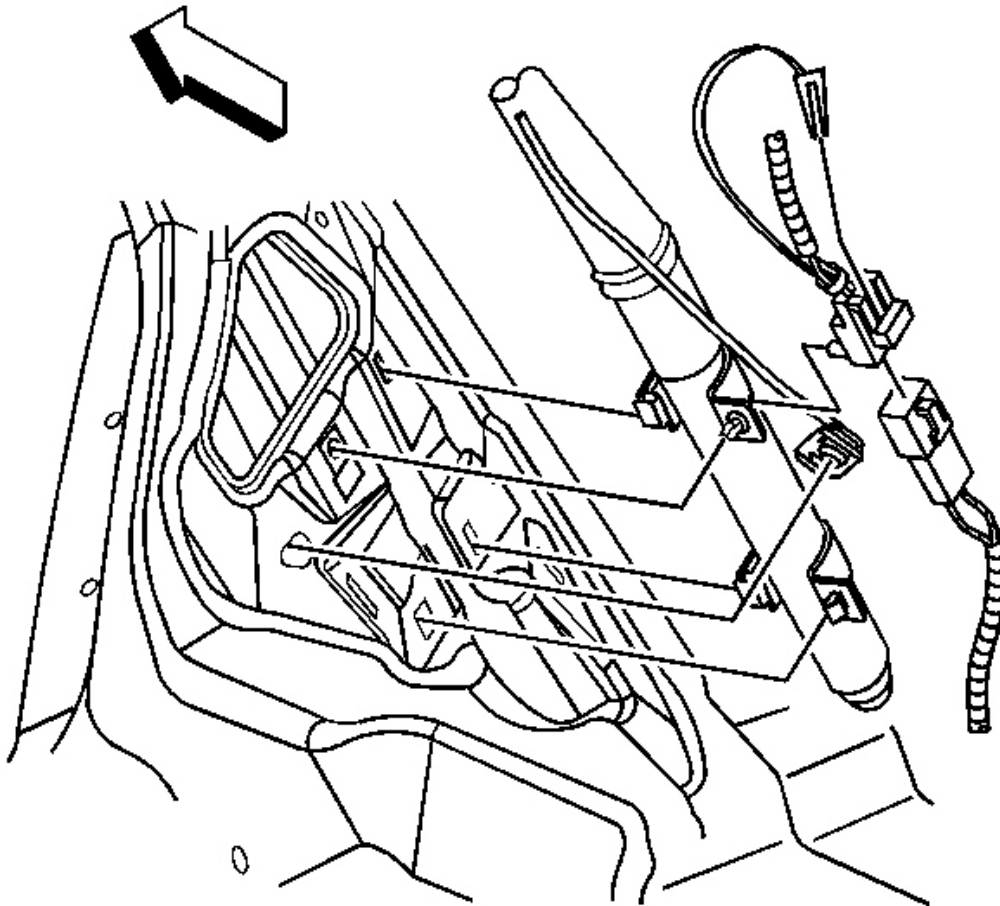


Fig. 82: Locating Roof Rail Module Connector
Courtesy of GENERAL MOTORS CORP.

22. Disconnect the yellow left roof rail harness connector from the vehicle harness connector.

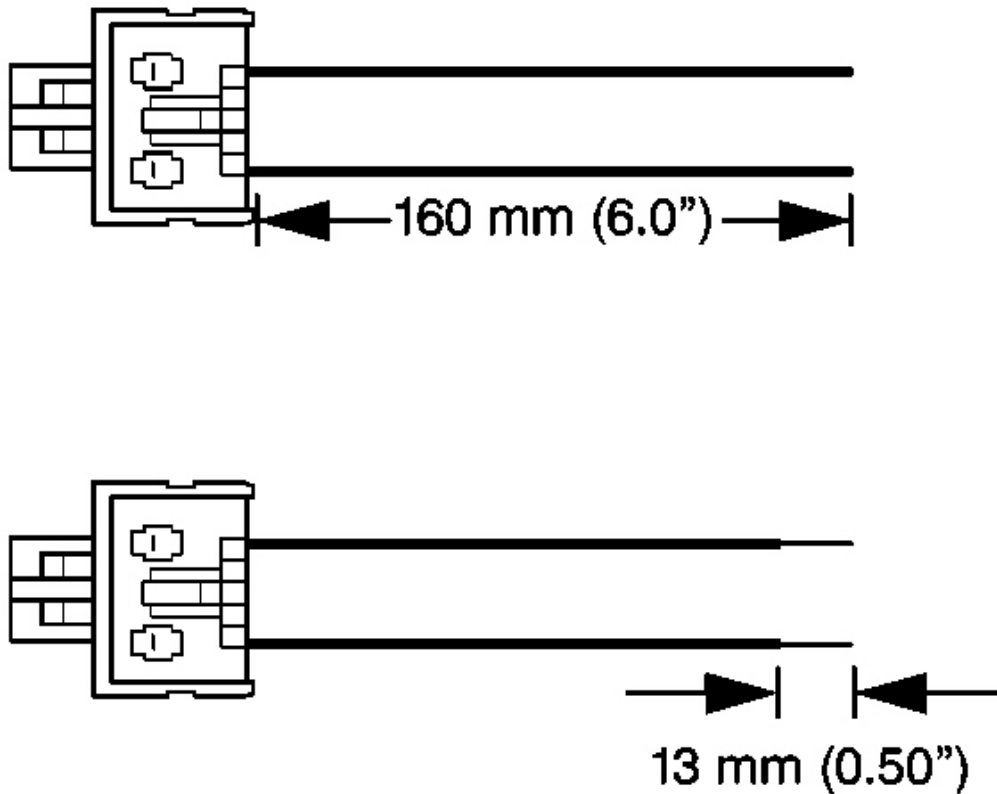


Fig. 83: Identifying Proper Stripping Of Connection Wire Leads
Courtesy of GENERAL MOTORS CORP.

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.

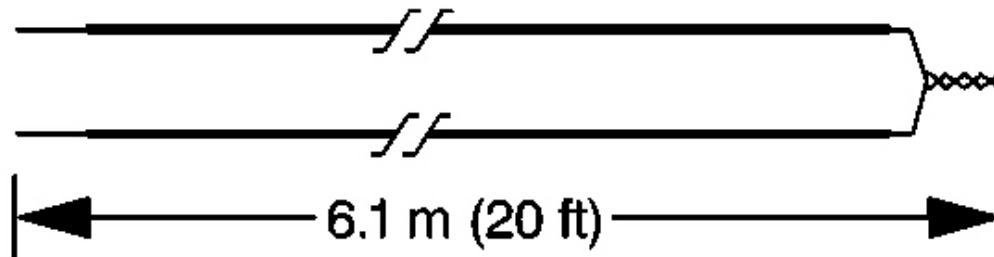


Fig. 84: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

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.

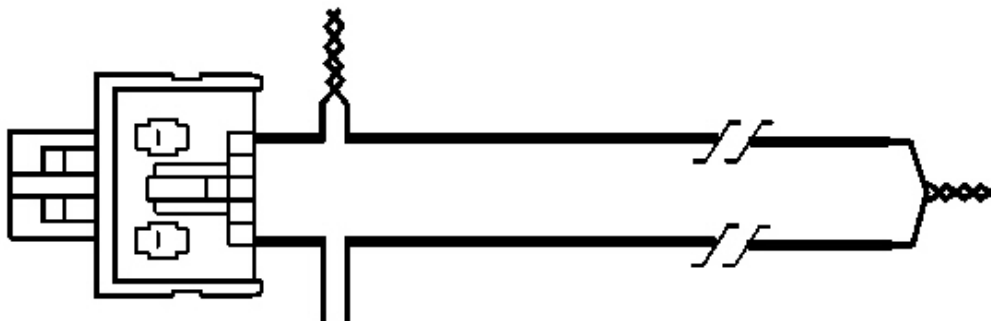


Fig. 85: View Of Proper Twisting Of Connector Wire Lead To Deployment Wire
Courtesy of GENERAL MOTORS CORP.

28. Twist together one connector wire lead to one deployment wire.

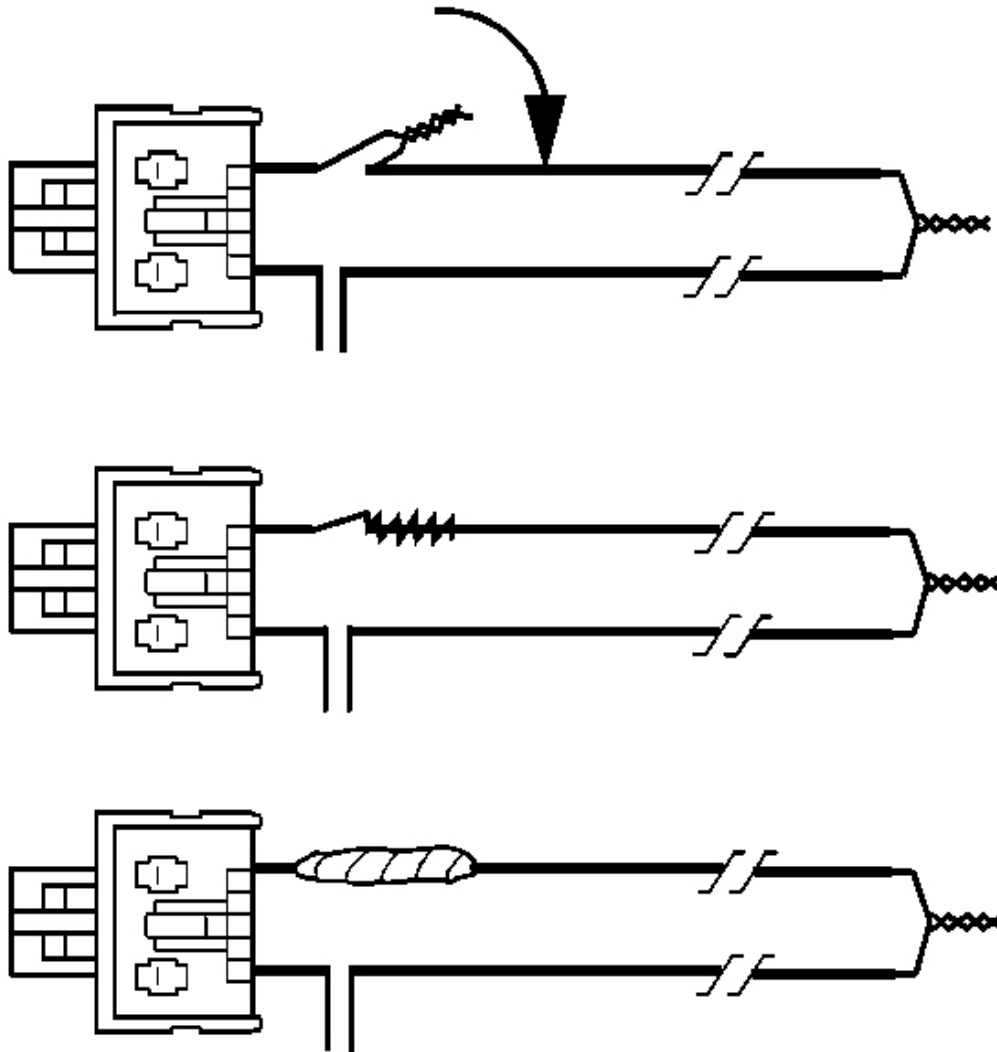


Fig. 86: Bending Twisted Connection Flat & Insulating With Tape
Courtesy of GENERAL MOTORS CORP.

29. Bend flat the twisted connection.
30. Secure and insulate the connection using electrical tape.

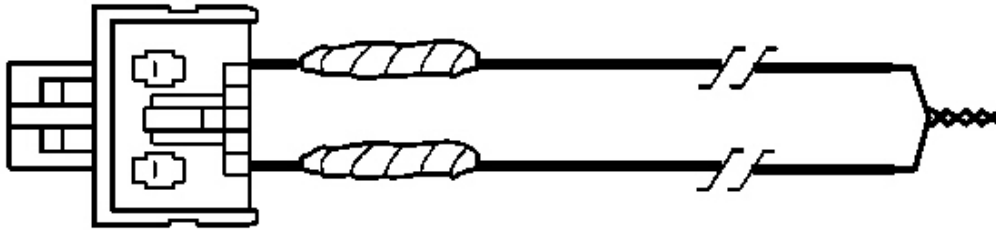


Fig. 87: Taping Remaining Connector Wire Lead To Remaining Deployment Wire
Courtesy of GENERAL MOTORS CORP.

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.

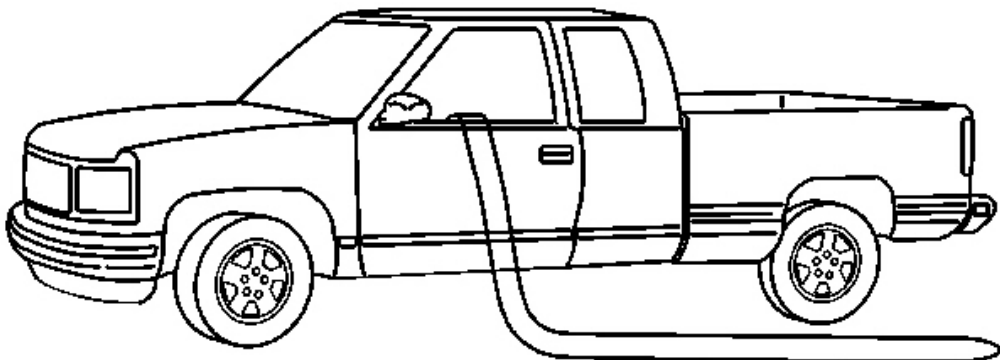


Fig. 88: Routing The Deployment Harness Out Of The Vehicle's Driver Side
Courtesy of GENERAL MOTORS CORP.

33. Route the deployment harness out of the driver side of the vehicle.

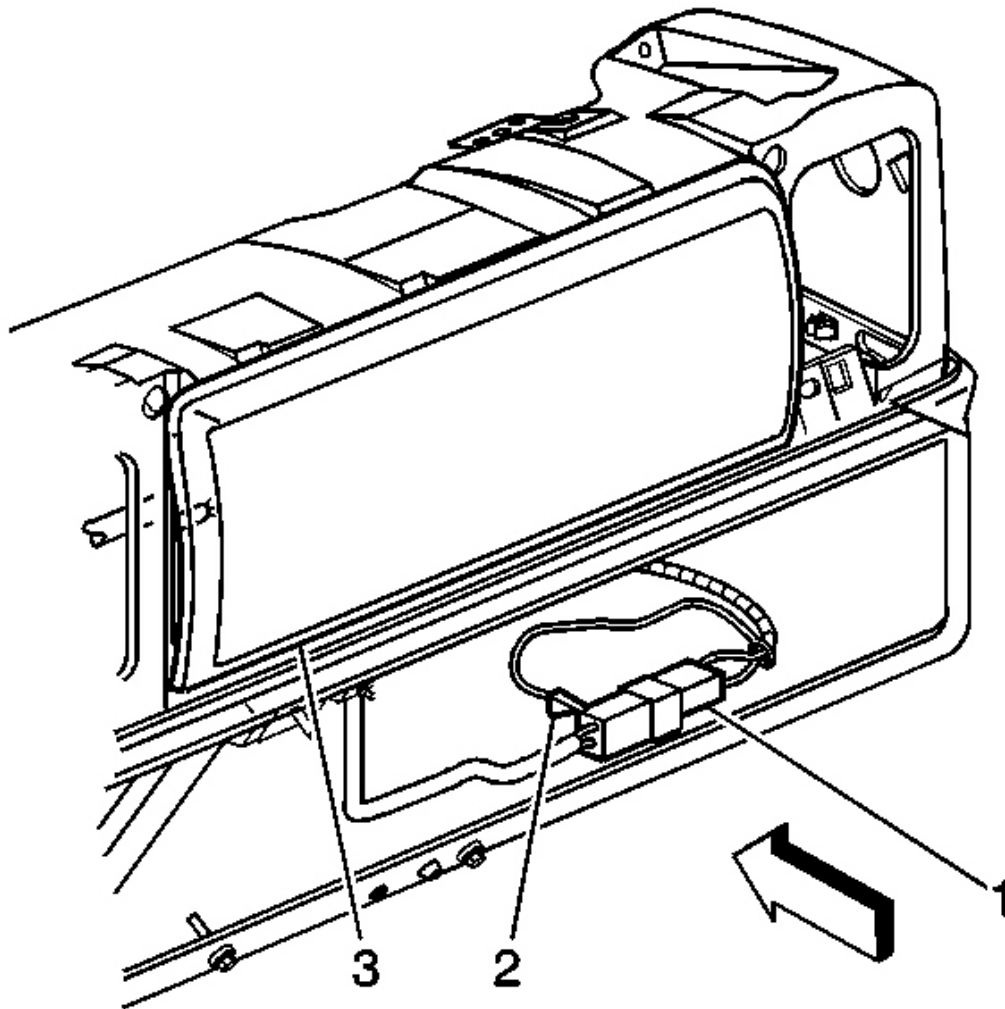


Fig. 89: View Of I/P Module Yellow Harness Connector & Vehicle Harness Connector

Courtesy of GENERAL MOTORS CORP.

34. Disconnect the I/P module yellow harness connector (1) from the vehicle harness connector (2).

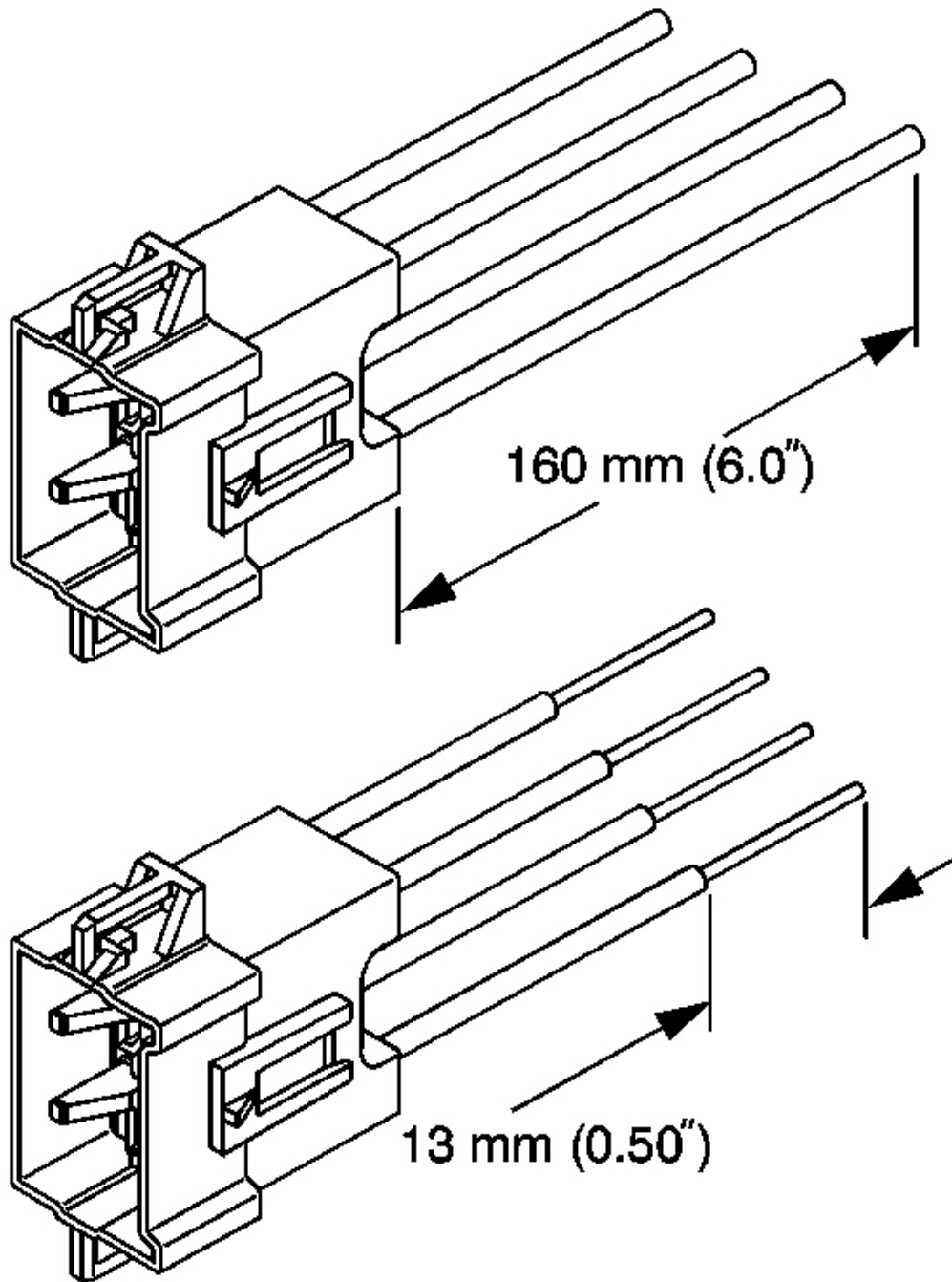


Fig. 90: Stripping SIR Wires
Courtesy of GENERAL MOTORS CORP.

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.

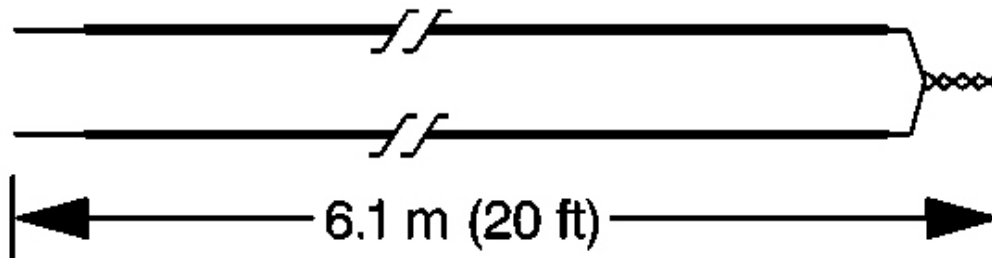


Fig. 91: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

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.

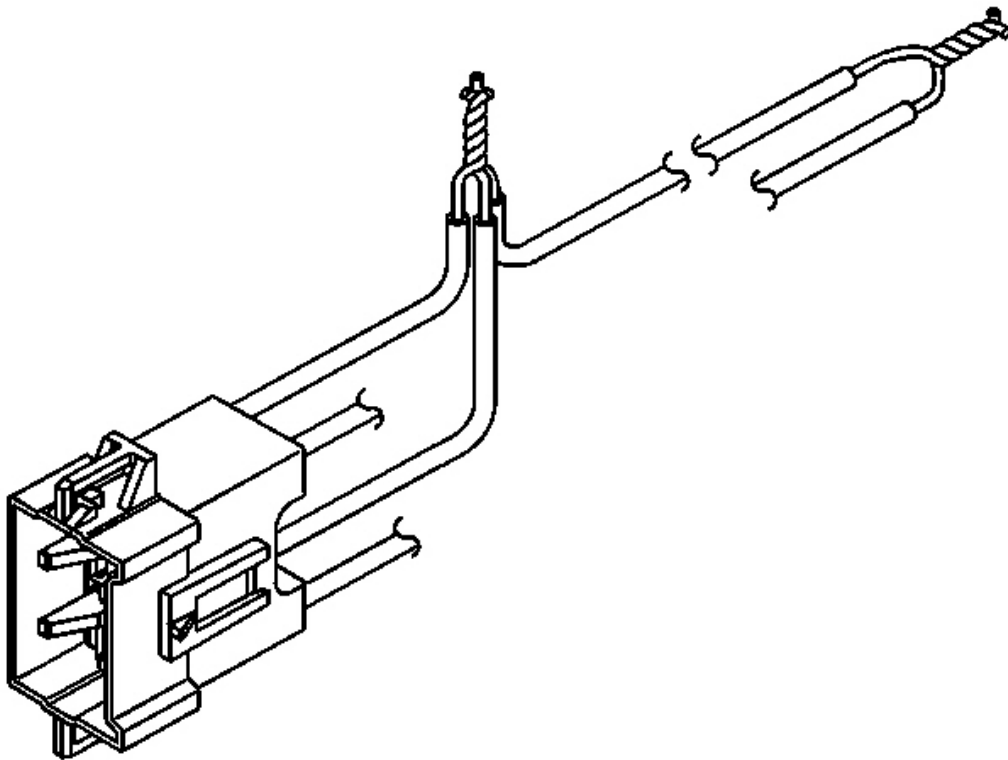


Fig. 92: Twisting Connector Wire Leads (High Circuits) To Deployment Harness Wire

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.

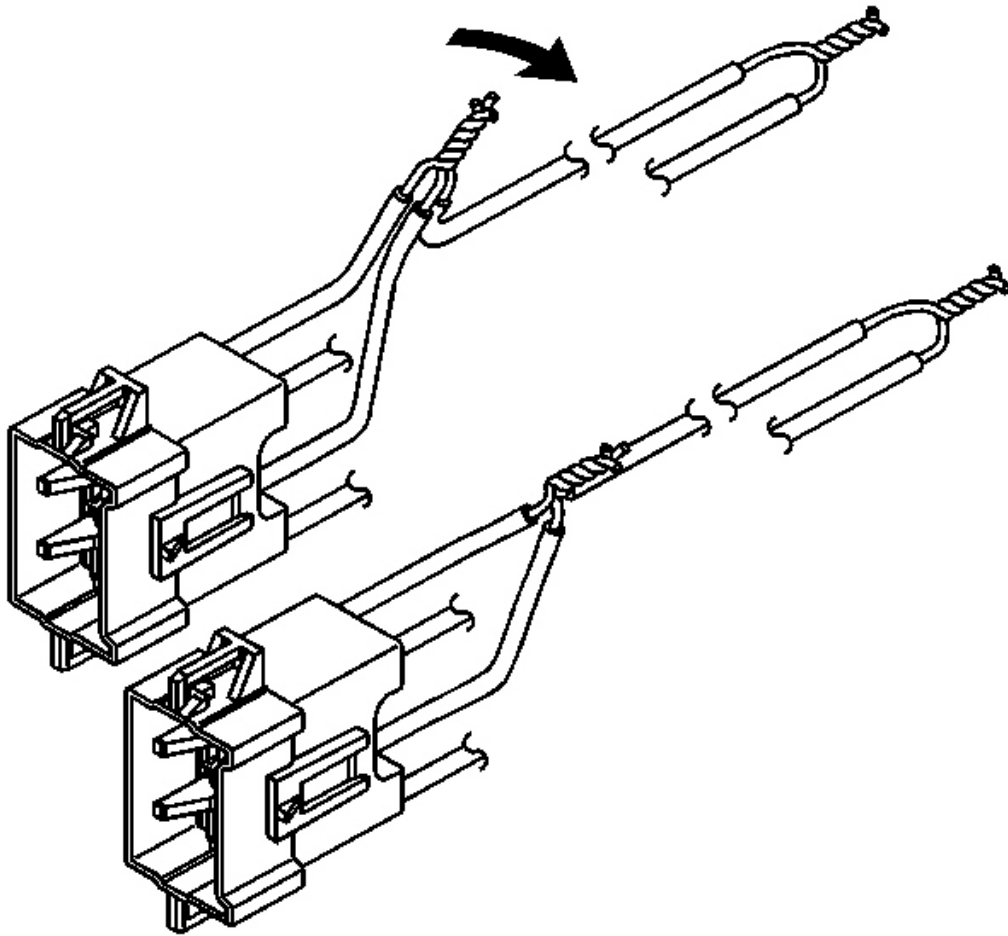


Fig. 93: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

42. Bend flat the twisted connection.

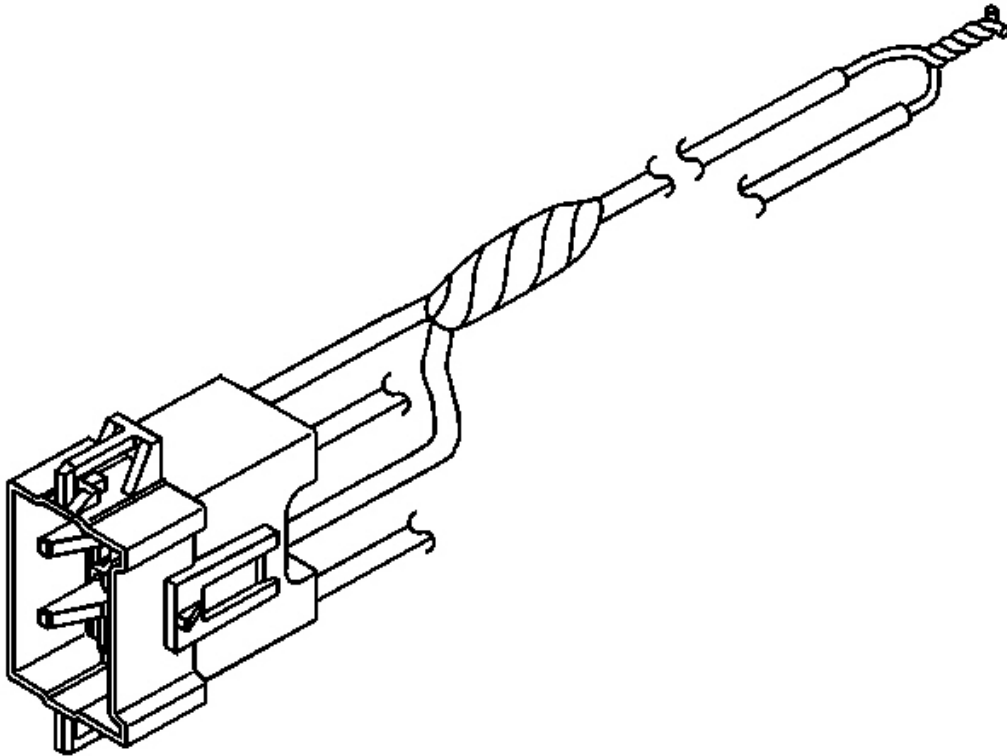


Fig. 94: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

43. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.

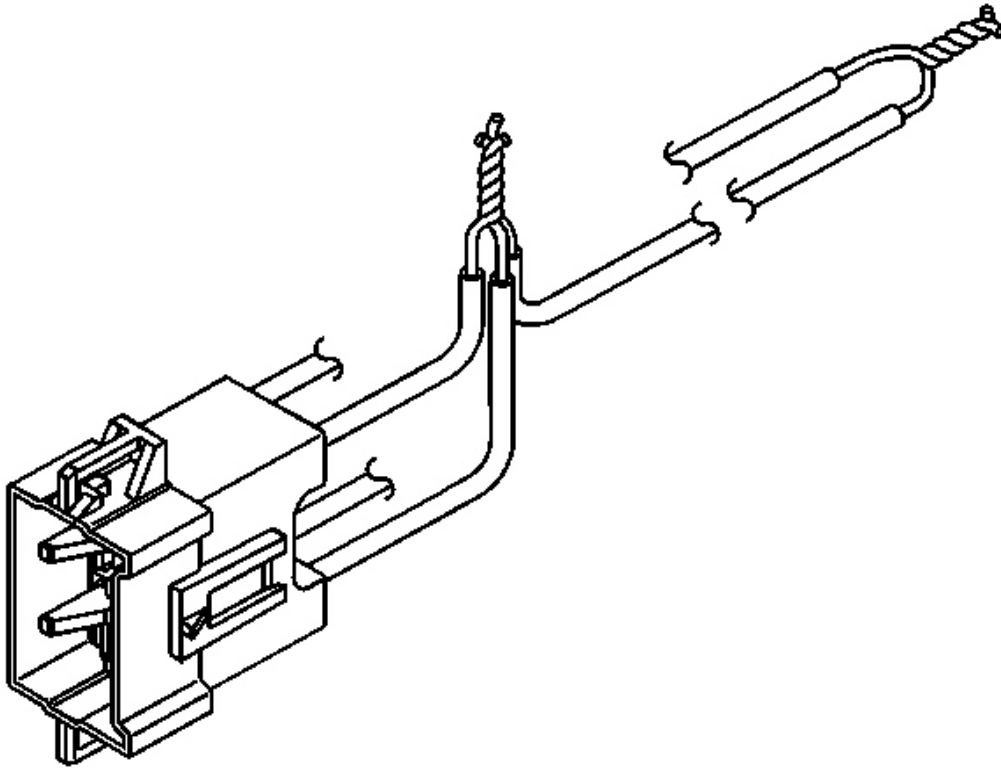


Fig. 95: Twisting Connector Wire Leads (Low Circuits) To Deployment Harness Wire

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.

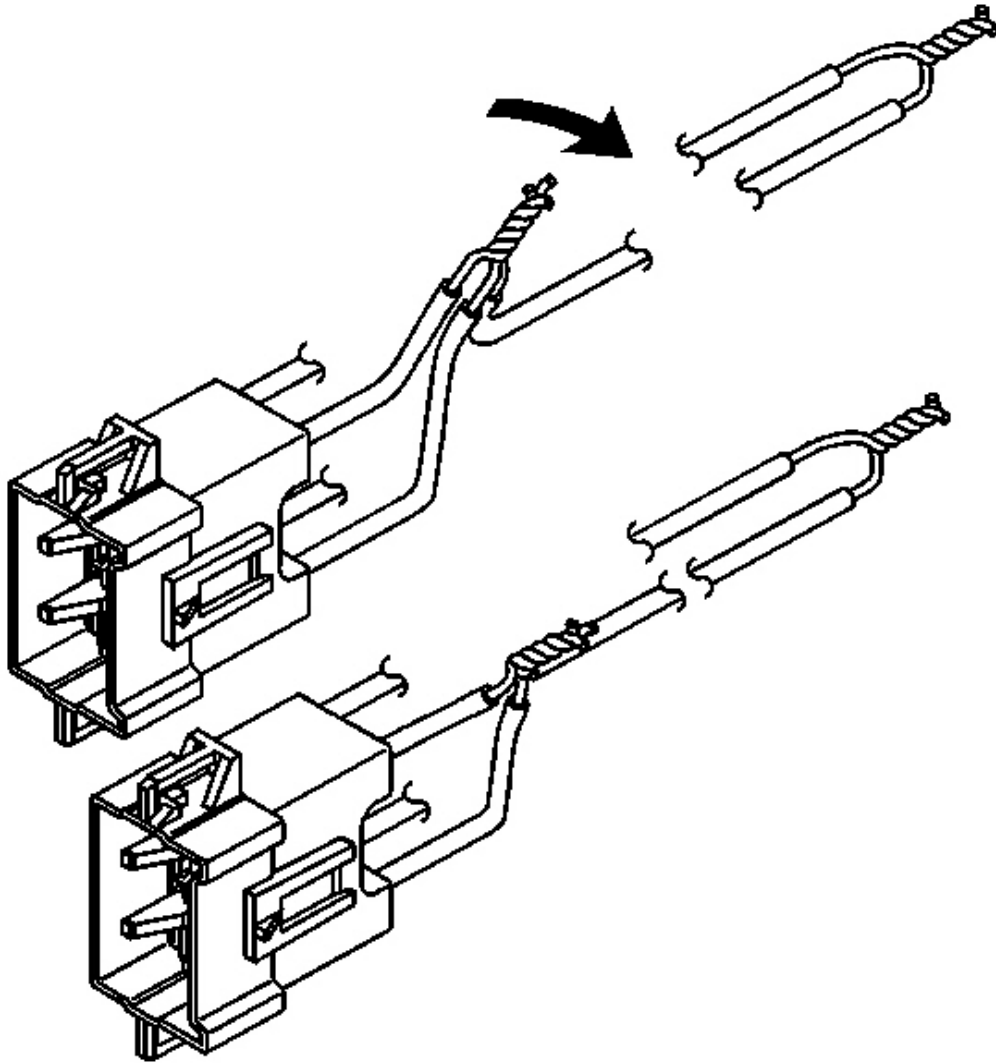


Fig. 96: Bending Twisted Connection Flat
Courtesy of GENERAL MOTORS CORP.

46. Bend flat the twisted connection.

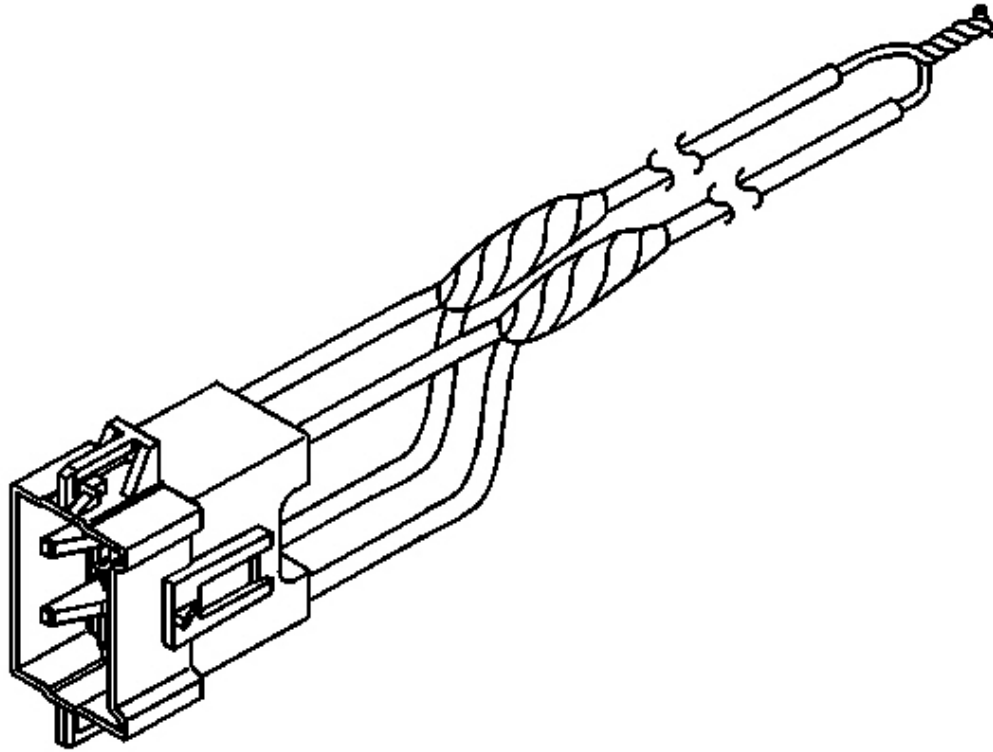


Fig. 97: Insulating Connection With Electrical Tape
Courtesy of GENERAL MOTORS CORP.

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.

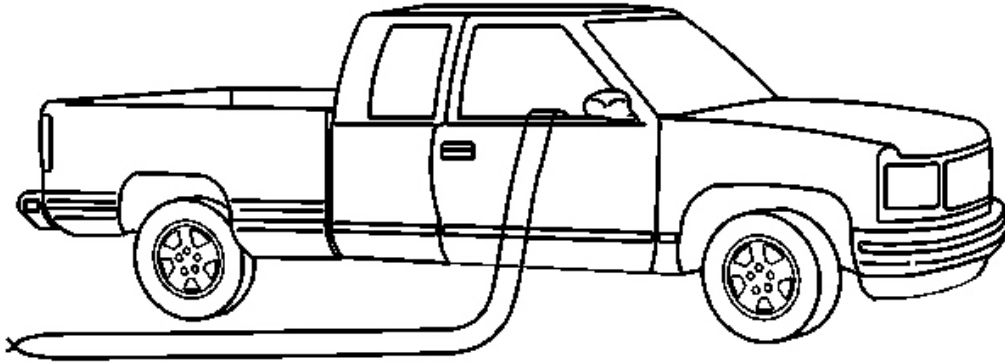


Fig. 98: Routing The Deployment Harness Out Of The Vehicle's Passenger Side
Courtesy of GENERAL MOTORS CORP.

49. Route the deployment harness out of the passenger side of the vehicle.

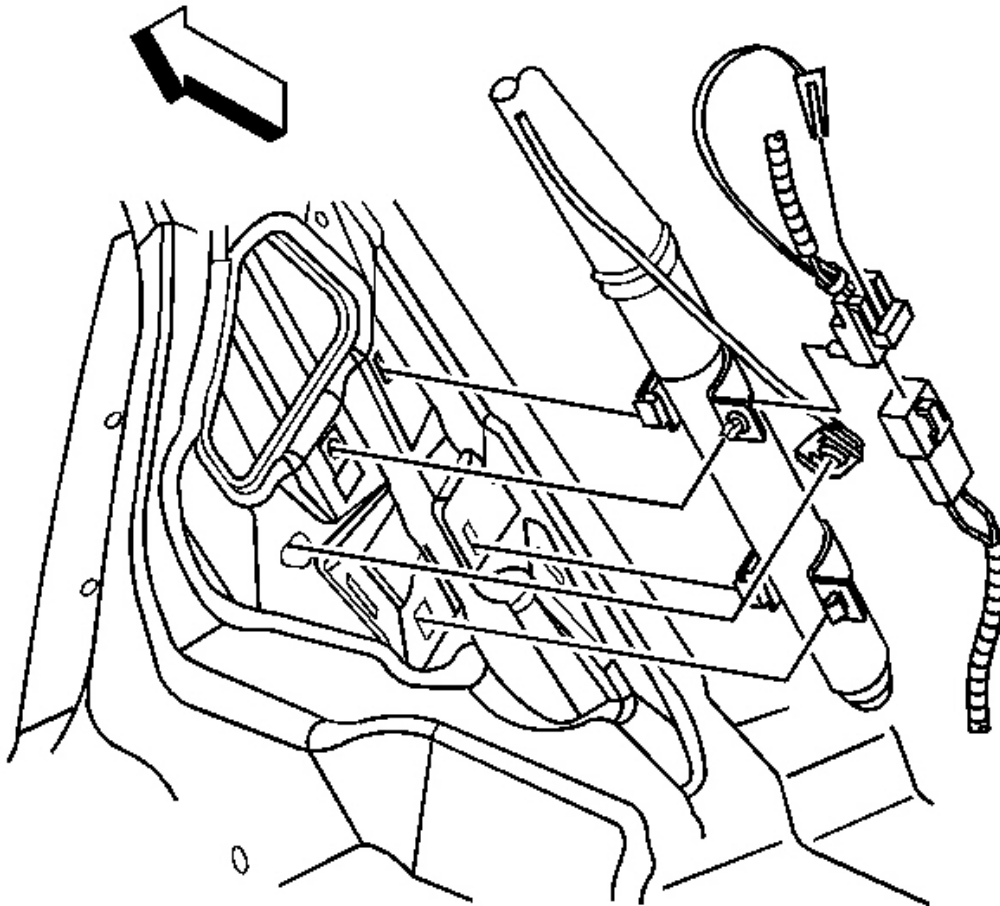


Fig. 99: Locating Roof Rail Module Connector
Courtesy of GENERAL MOTORS CORP.

50. Disconnect the yellow harness connector to the right roof rail air bag from the vehicle harness connector.

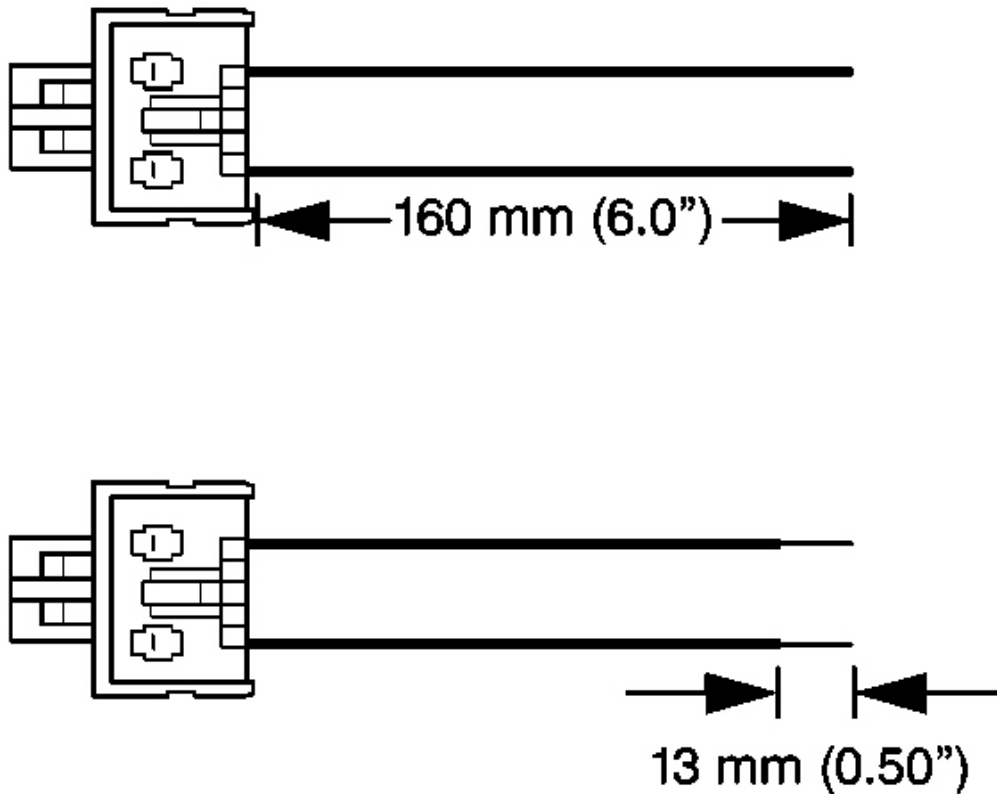


Fig. 100: Identifying Proper Stripping Of Connection Wire Leads
Courtesy of GENERAL MOTORS CORP.

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.

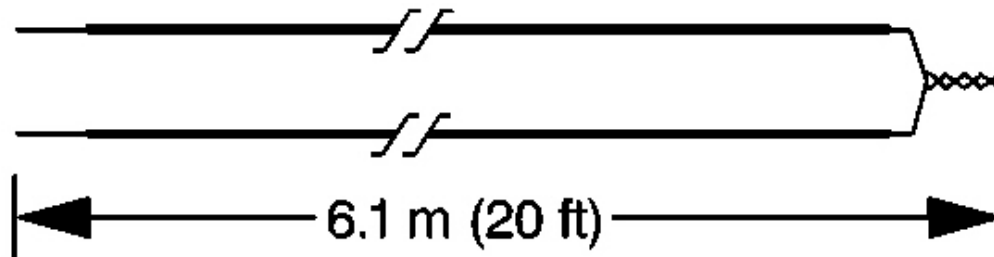


Fig. 101: Fabricating 20 Ft. Deployment Harness
 Courtesy of GENERAL MOTORS CORP.

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.

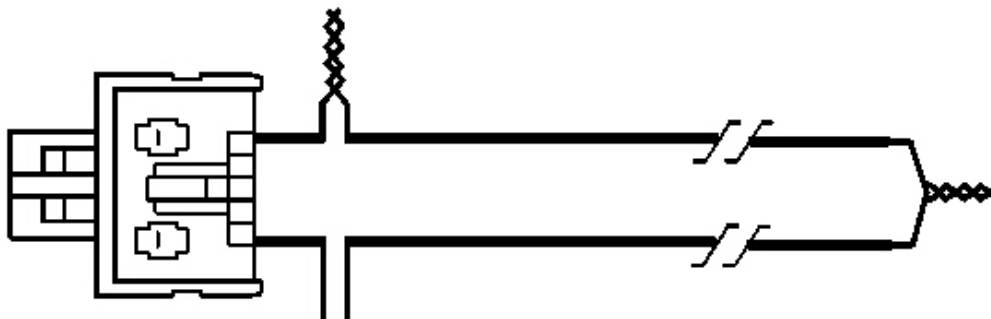


Fig. 102: View Of Proper Twisting Of Connector Wire Lead To Deployment Wire
 Courtesy of GENERAL MOTORS CORP.

56. Twist together one connector wire lead to one deployment wire.

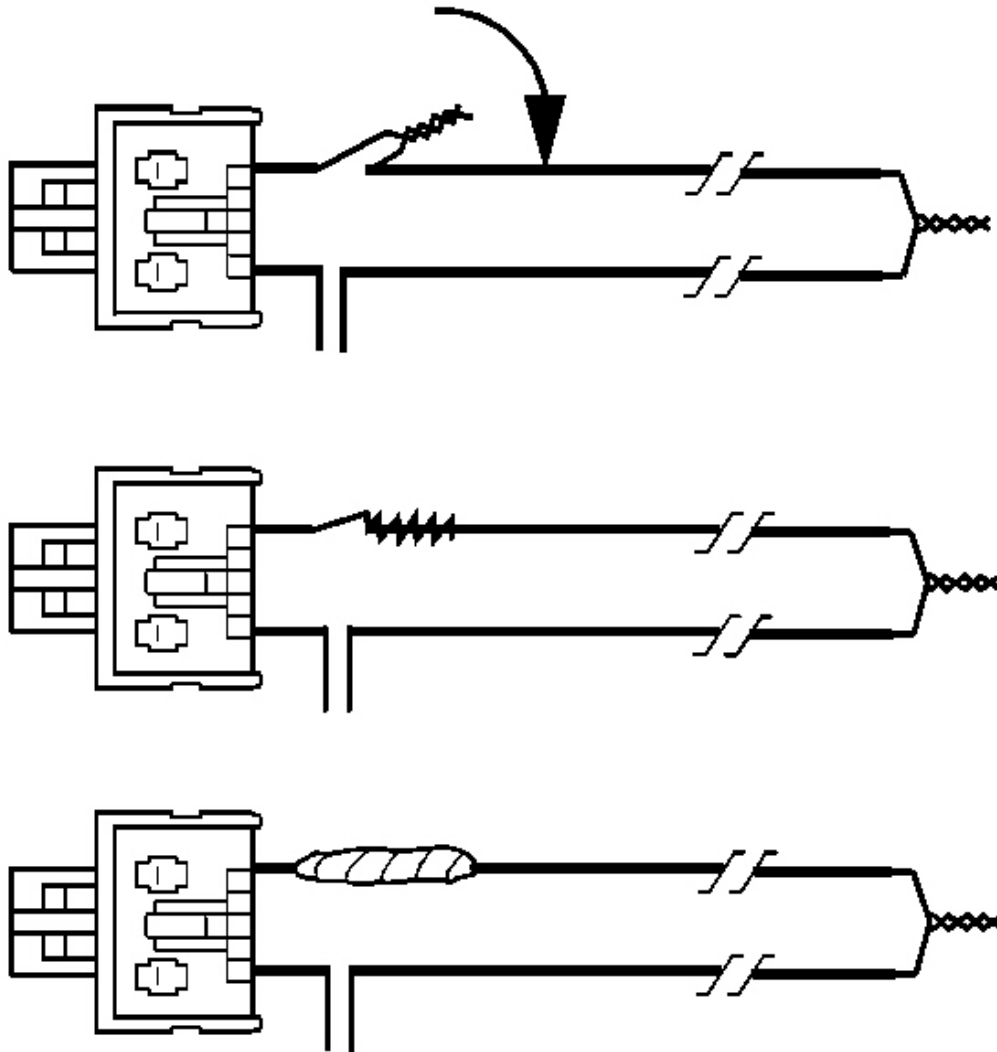


Fig. 103: Bending Twisted Connection Flat & Insulating With Tape
Courtesy of GENERAL MOTORS CORP.

- 57. Bend flat the twisted connection.
- 58. Secure and insulate the connection using electrical tape.

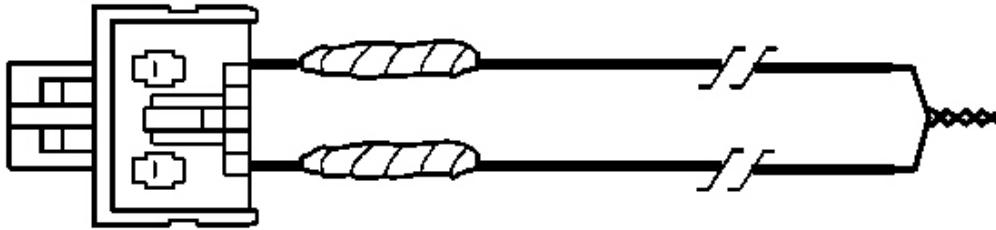


Fig. 104: Taping Remaining Connector Wire Lead To Remaining Deployment Wire
Courtesy of GENERAL MOTORS CORP.

59. Twist together, bend and tape the remaining connector wire lead to the remaining deployment wire.

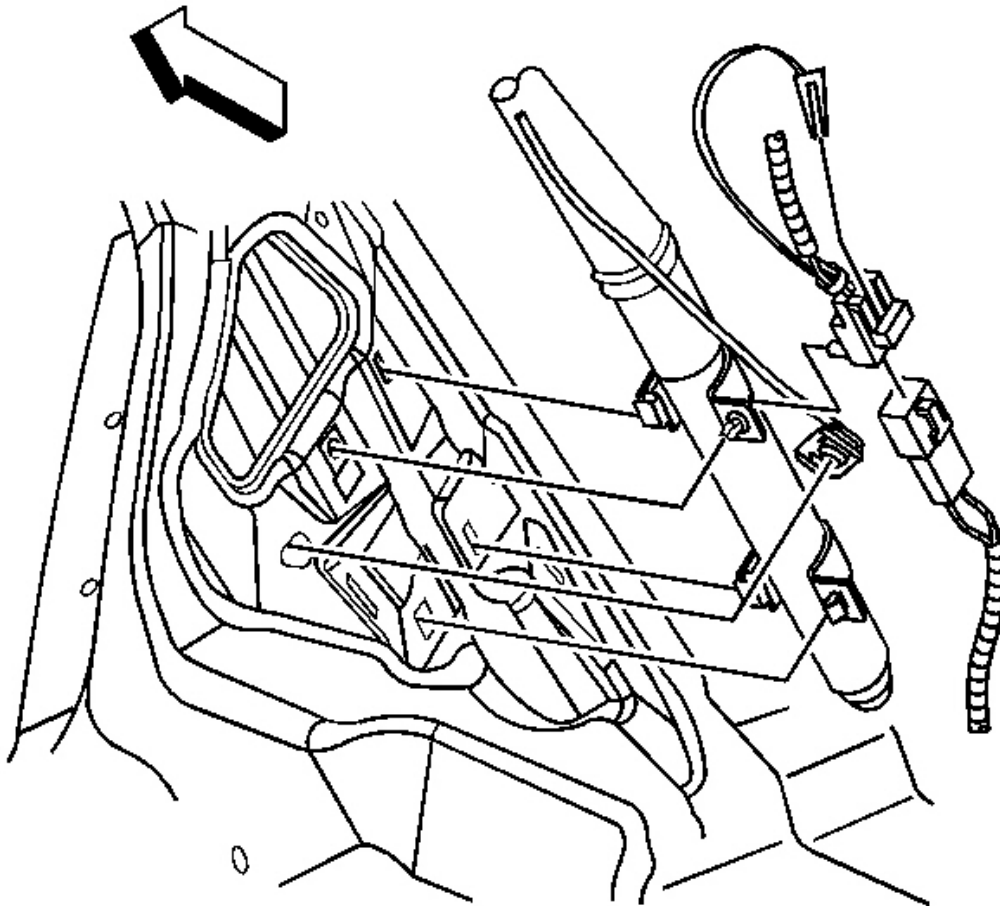


Fig. 105: Locating Roof Rail Module Connector
Courtesy of GENERAL MOTORS CORP.

60. Connect the deployment harness to the roof rail module yellow connector.

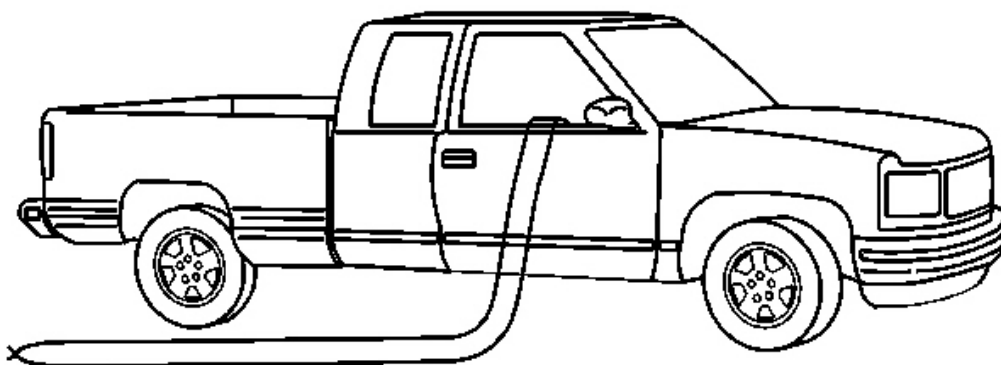


Fig. 106: Routing The Deployment Harness Out Of The Vehicle's Passenger Side
Courtesy of GENERAL MOTORS CORP.

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.

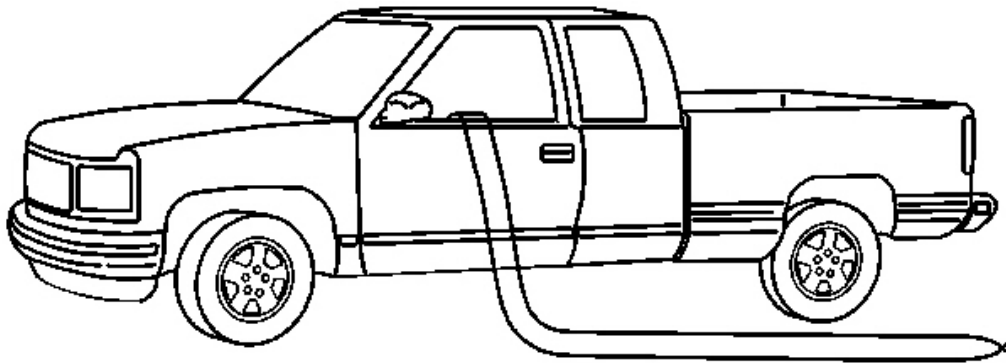


Fig. 107: Routing The Deployment Harness Out Of The Vehicle's Driver Side
Courtesy of GENERAL MOTORS CORP.

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**
 - **Roof Side Rail Inflatable Restraint Module Replacement - Front**

Tools Required

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

CAUTION: Refer to SIR Seatbelt Pretensioner Handling Caution .

Scrapping Procedure

During the course of a vehicle's 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.
- 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.

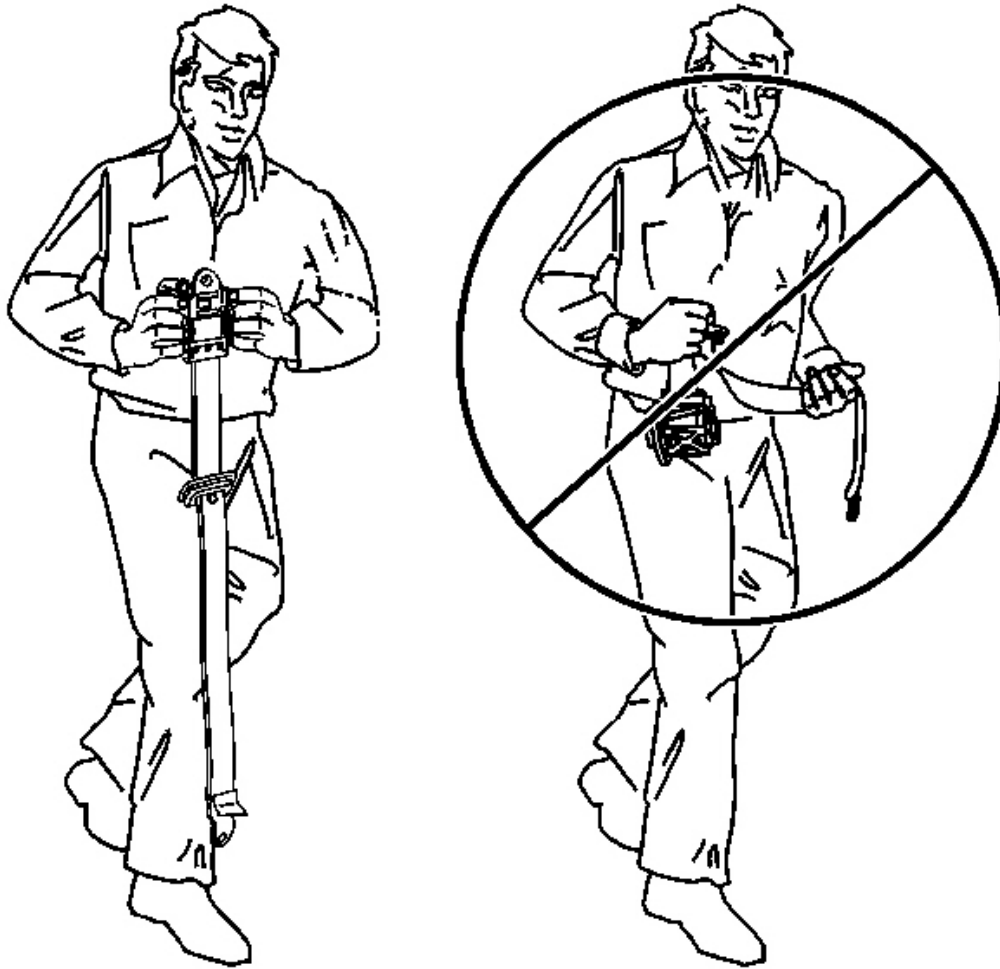


Fig. 108: Proper Transportation of Seat Belt Pretensioner
Courtesy of GENERAL MOTORS CORP.

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.

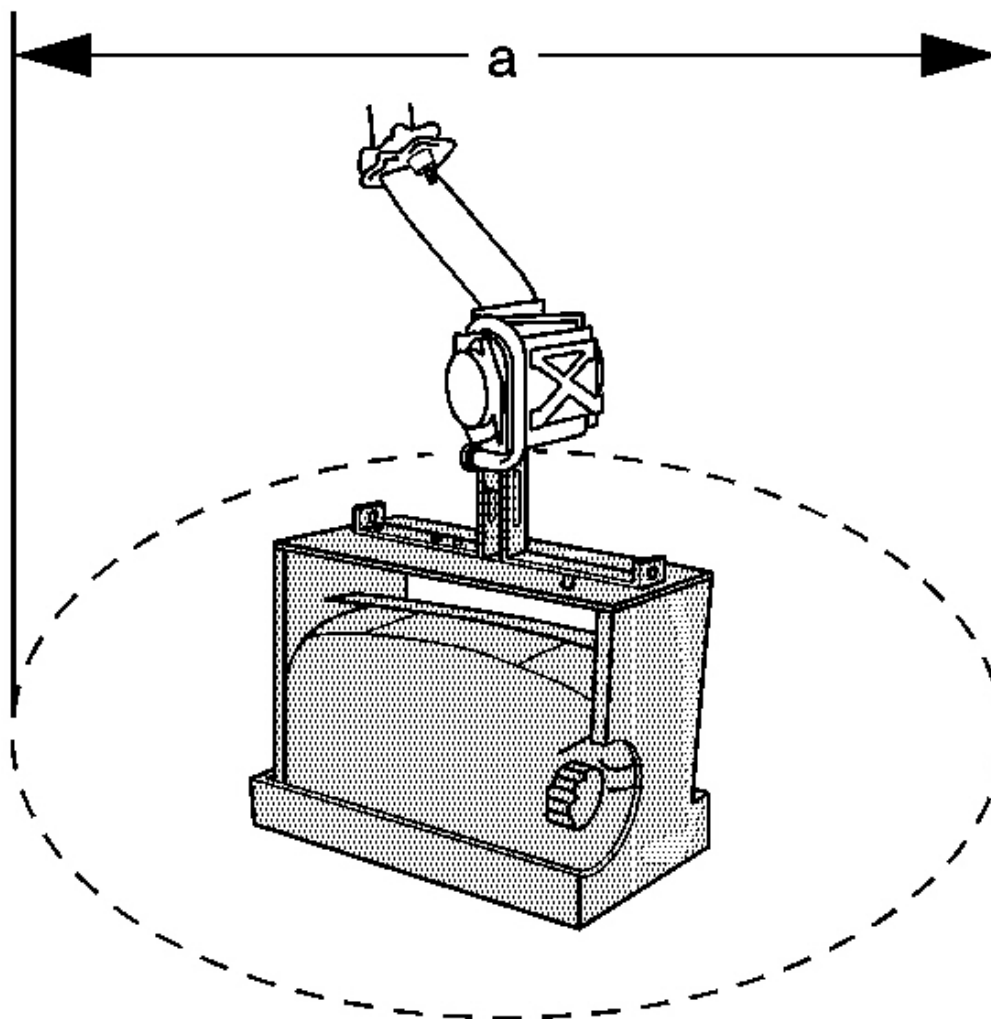


Fig. 109: Illustrating Proper Space For Deployment Of Pretensioner
Courtesy of GENERAL MOTORS CORP.

6. Clear a space on the ground about 1.85 m (6 ft) in diameter (a) 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.

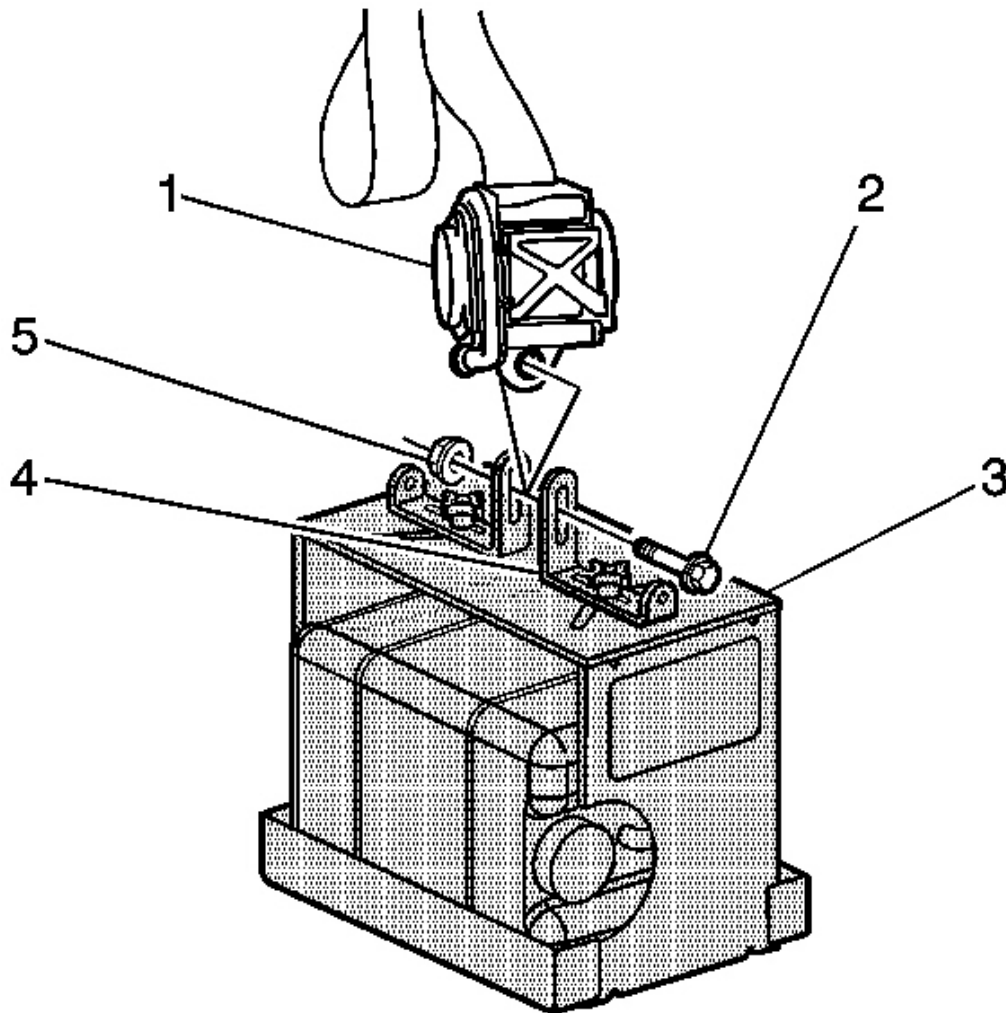


Fig. 110: Seat Belt Pretensioner And SIR Deployment Fixture
Courtesy of GENERAL MOTORS CORP.

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.

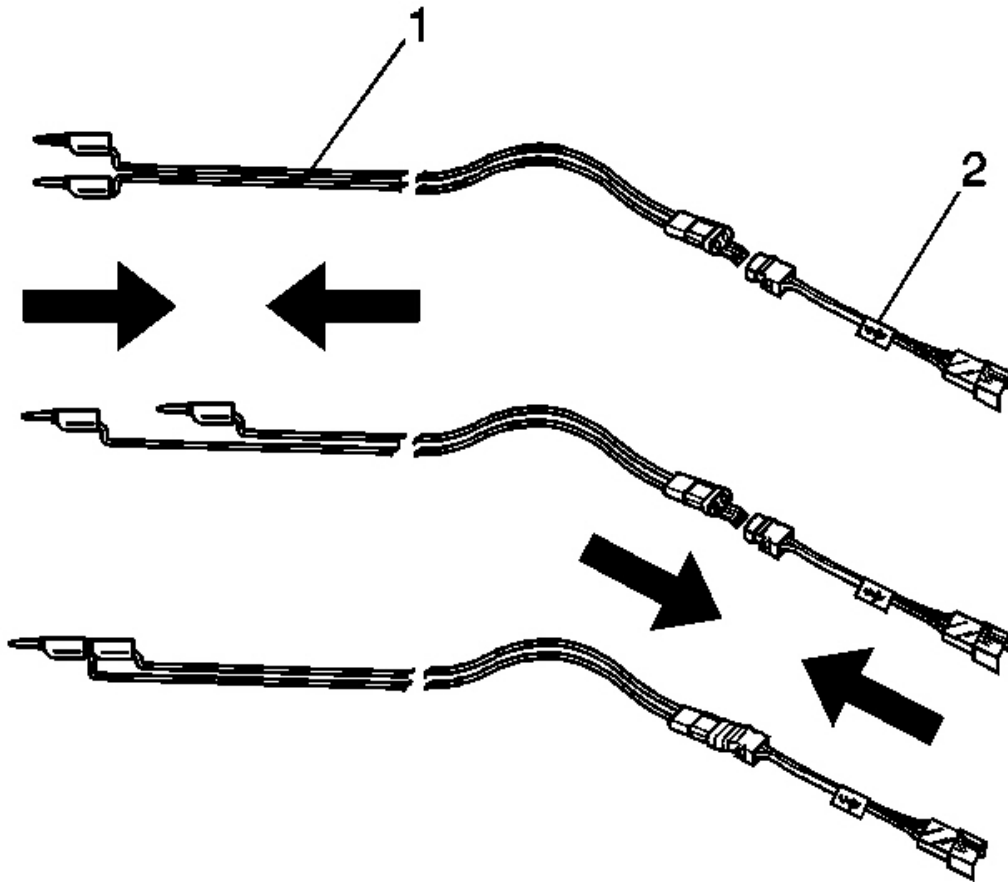


Fig. 111: Identifying SIR Deployment Harness & Adapter
Courtesy of GENERAL MOTORS CORP.

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.

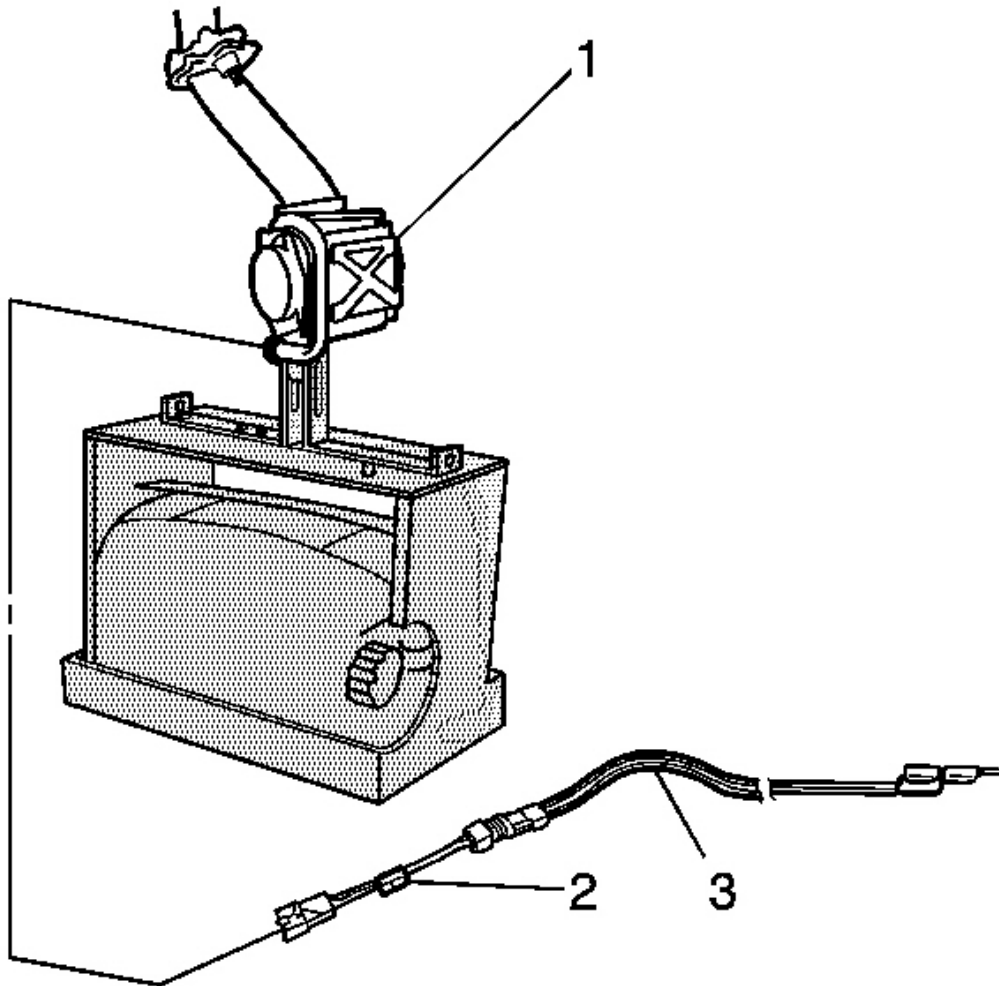


Fig. 112: Identifying Seat Belt Pretensioner Connector, Adapter & Deployment Harness

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.

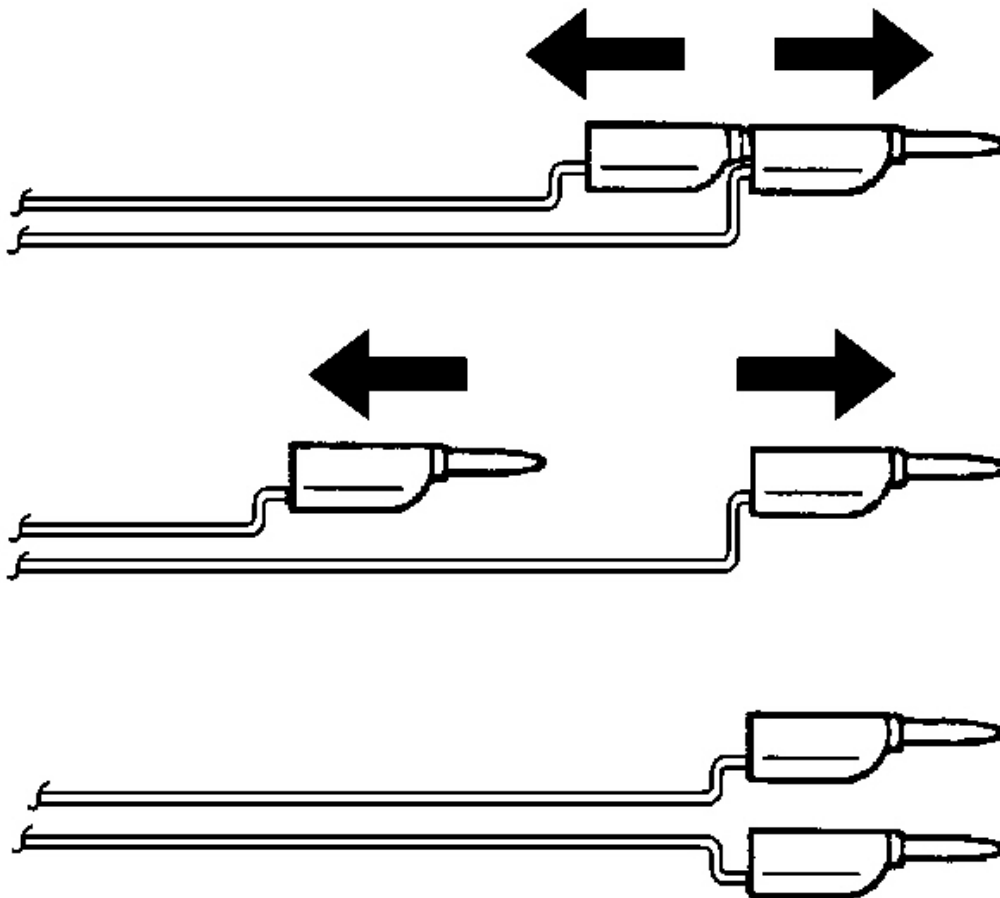


Fig. 113: Separating Banana Plugs
Courtesy of GENERAL MOTORS CORP.

17. Separate the 2 banana plugs on the SIR deployment harness.

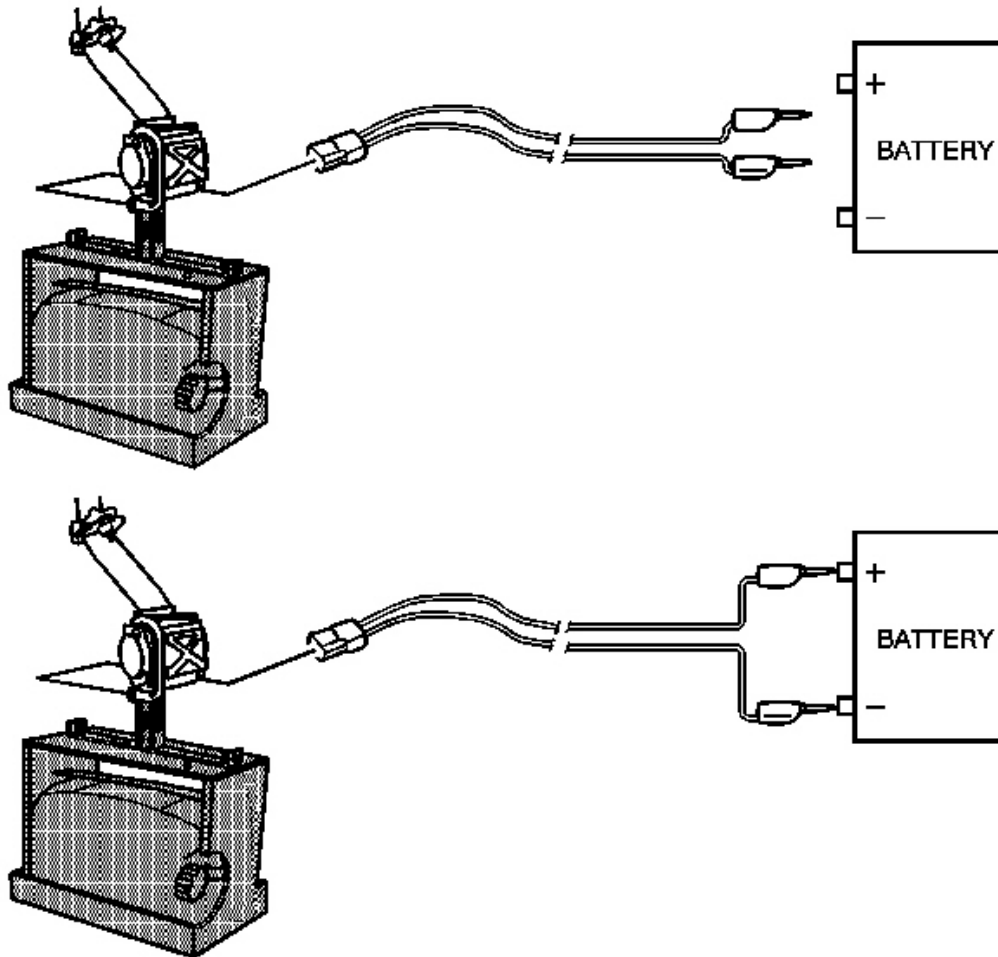


Fig. 114: Deploying Seat Belt Pretensioner
Courtesy of GENERAL MOTORS CORP.

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.

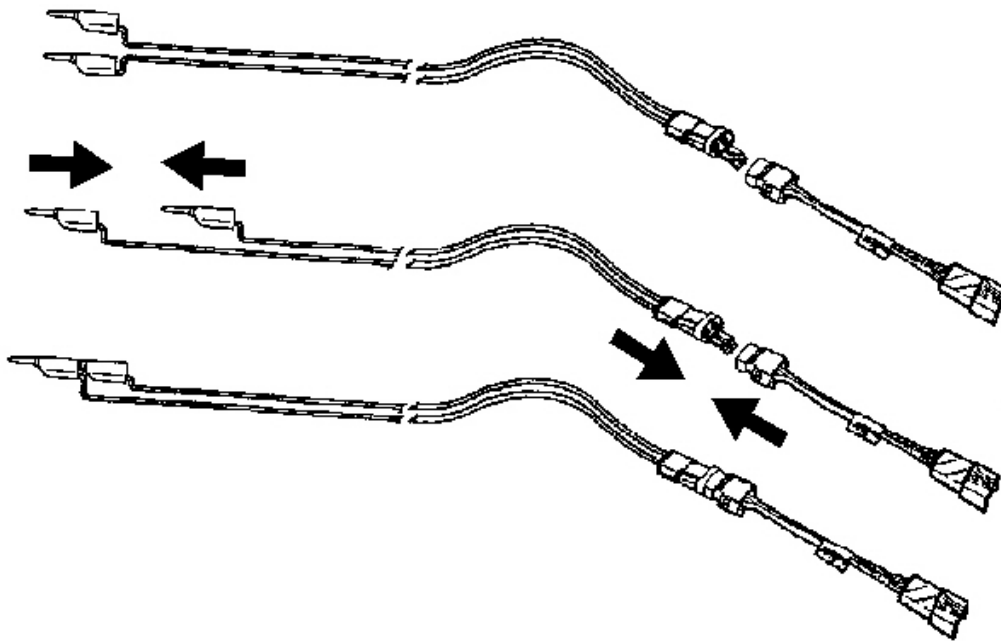


Fig. 115: View Of Deployment Harness Leads
Courtesy of GENERAL MOTORS CORP.

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 rebuilding as the same VIN.

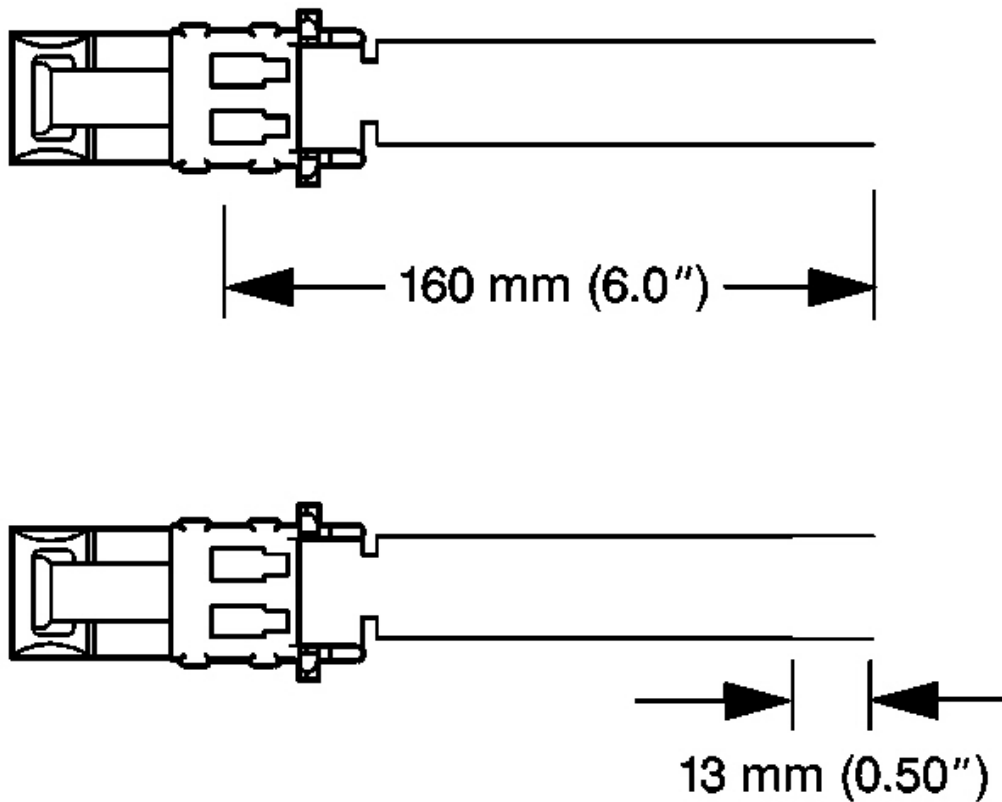


Fig. 116: Stripping Connector Wire Lead
Courtesy of GENERAL MOTORS CORP.

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.

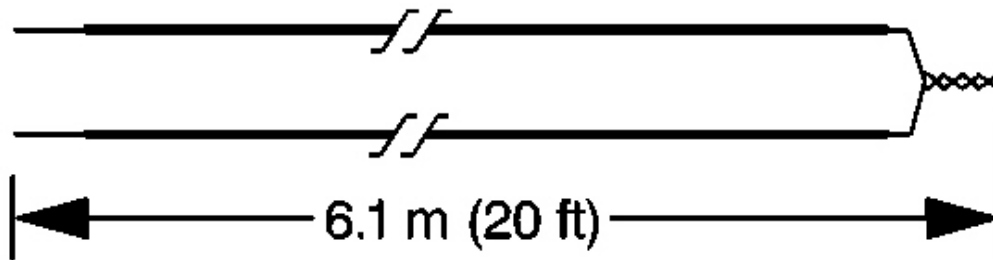


Fig. 117: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

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.

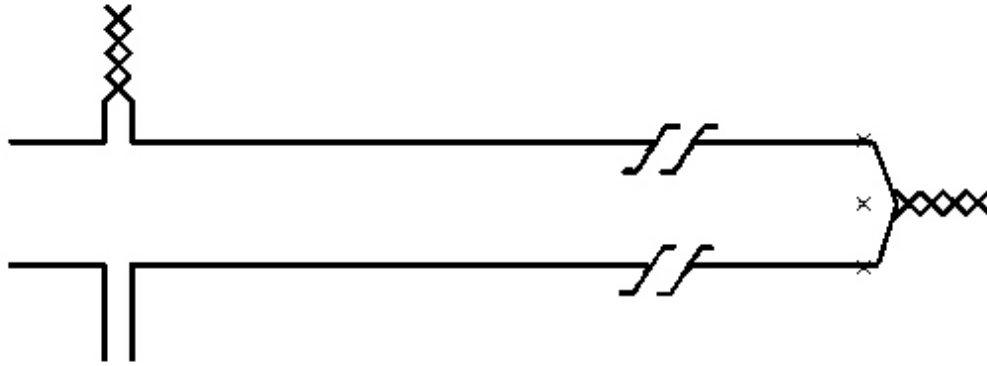


Fig. 118: Twisting Together Connector Wire Lead To Deployment Wire
Courtesy of GENERAL MOTORS CORP.

11. Twist together one connector wire lead to one deployment wire.
12. Inspect that the previous connections is secure.

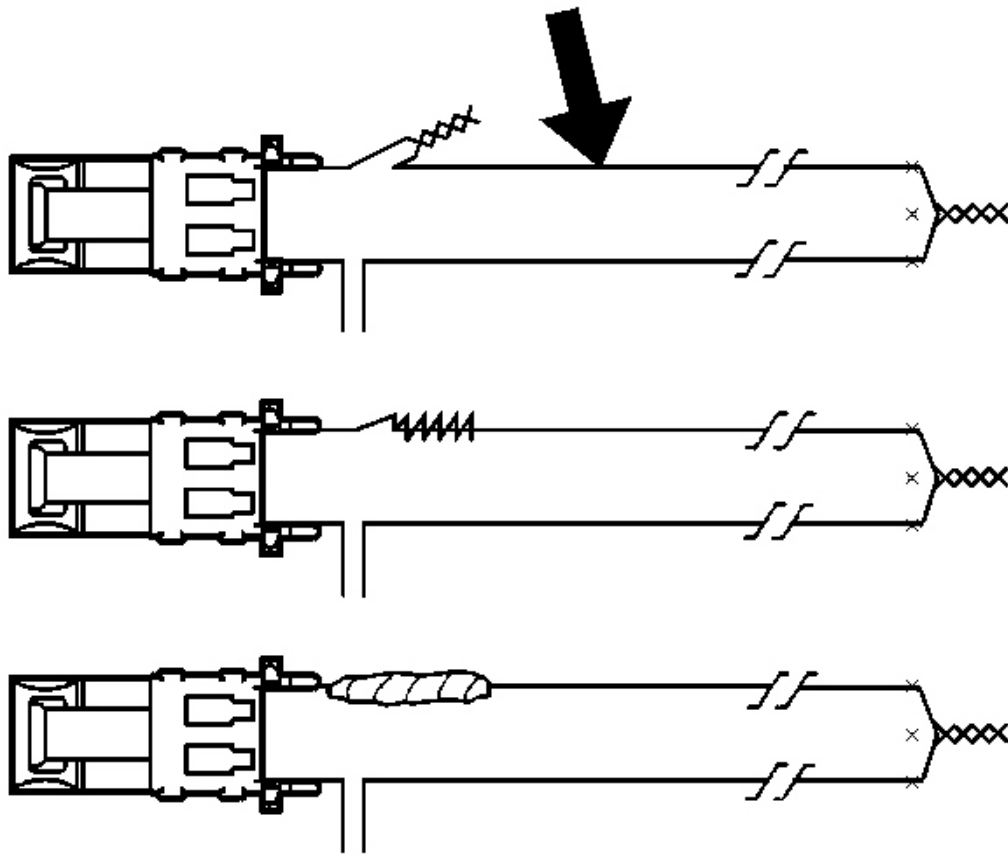


Fig. 119: Identifying I/P Module Twisted Connection
Courtesy of GENERAL MOTORS CORP.

13. Bend flat the twisted connection.
14. Secure and insulate the connection using electrical tape.

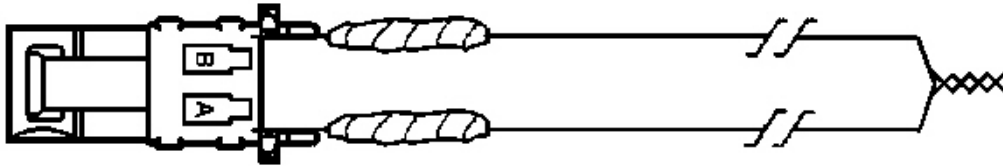


Fig. 120: View Of Dual Insulated Connector Wires
Courtesy of GENERAL MOTORS CORP.

15. Twist together, bend and tape the remaining connector wire lead to the remaining deployment wire.

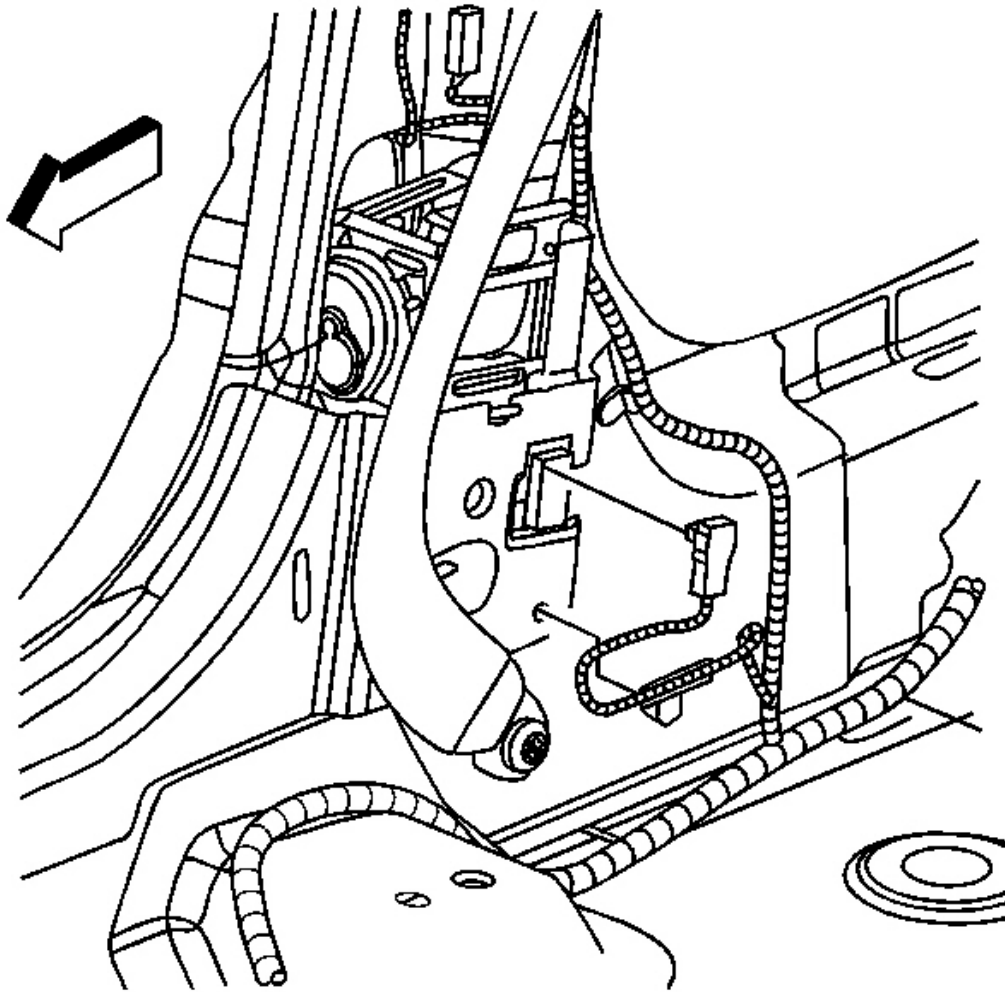


Fig. 121: View Of Seat Belt Pretensioner Connector And Wiring Harness Routing
Courtesy of GENERAL MOTORS CORP.

16. Connect the deployment harness to the seat belt pretensioner connector.

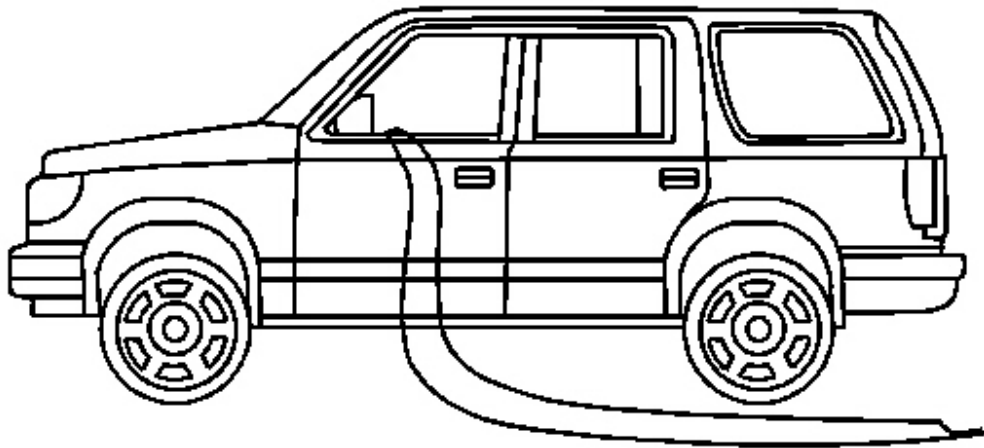


Fig. 122: Routing Wires To Apply Power For Controlled Bag Deployment (Left)
Courtesy of GENERAL MOTORS CORP.

17. Route the deployment harness out of the driver side of the vehicle.

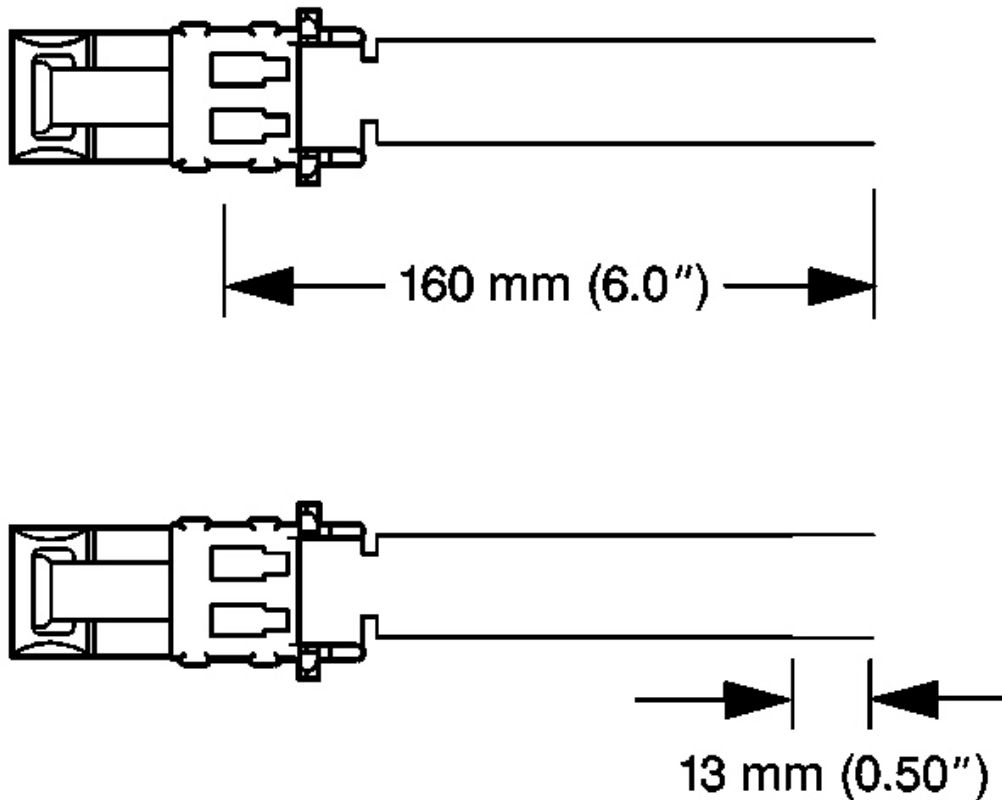


Fig. 123: Stripping Connector Wire Lead
Courtesy of GENERAL MOTORS CORP.

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.

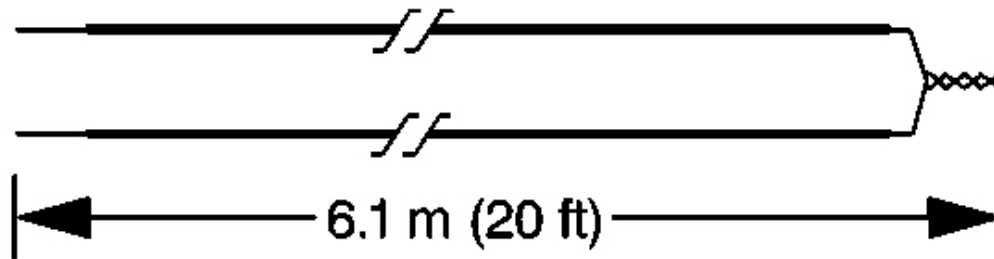


Fig. 124: Fabricating 20 Ft. Deployment Harness
Courtesy of GENERAL MOTORS CORP.

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.

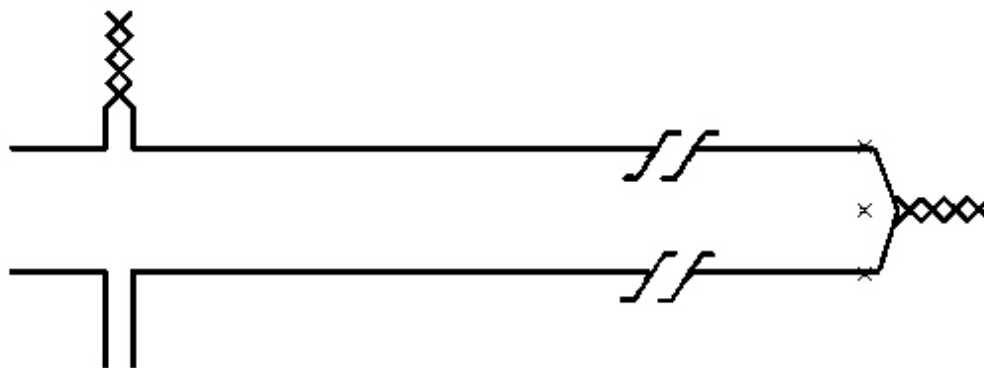


Fig. 125: Twisting Together Connector Wire Lead To Deployment Wire

Courtesy of GENERAL MOTORS CORP.

24. Twist together one connector wire lead to one deployment wire.
25. Inspect that the previous connection is secure.

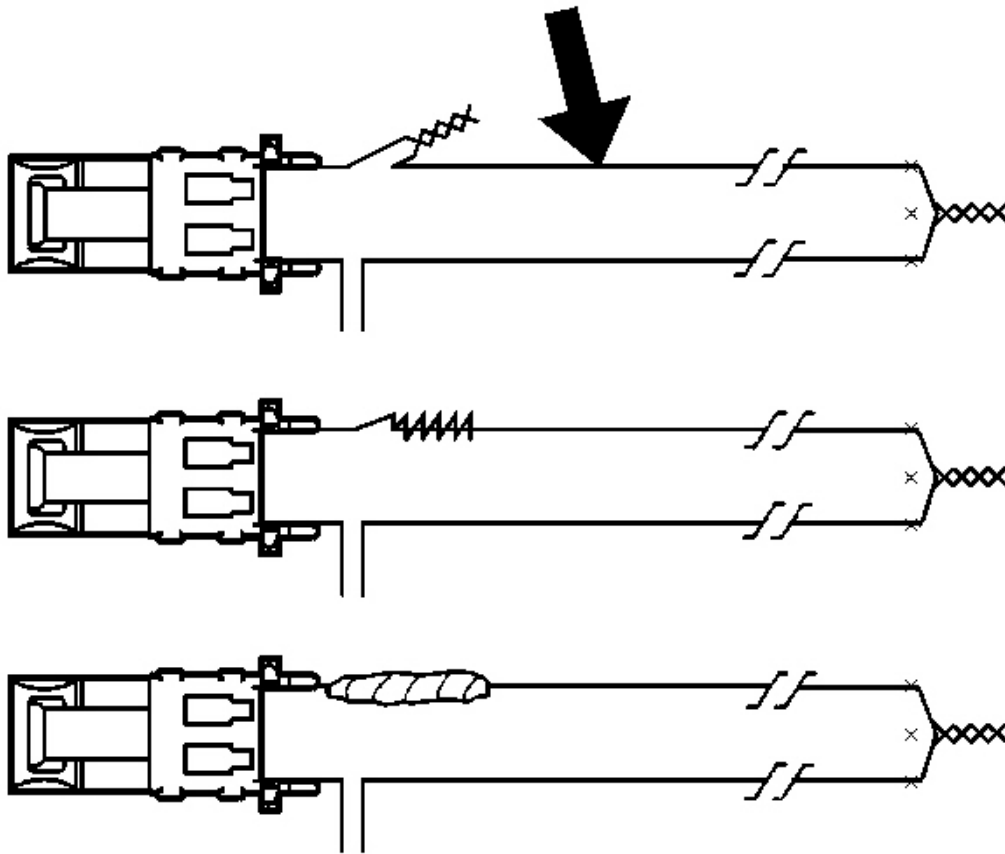


Fig. 126: Identifying I/P Module Twisted Connection
Courtesy of GENERAL MOTORS CORP.

26. Bend flat the twisted connection.
27. Secure and insulate the connection using electrical tape.

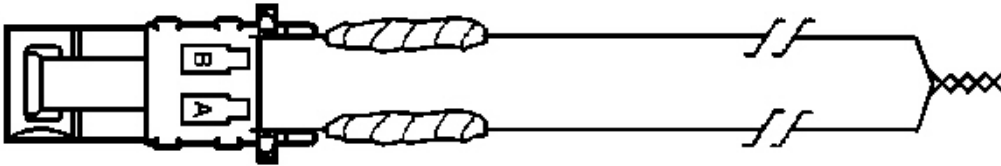


Fig. 127: View Of Dual Insulated Connector Wires
Courtesy of GENERAL MOTORS CORP.

28. Twist together, bend and tape the remaining connector wire lead to the remaining deployment wire.

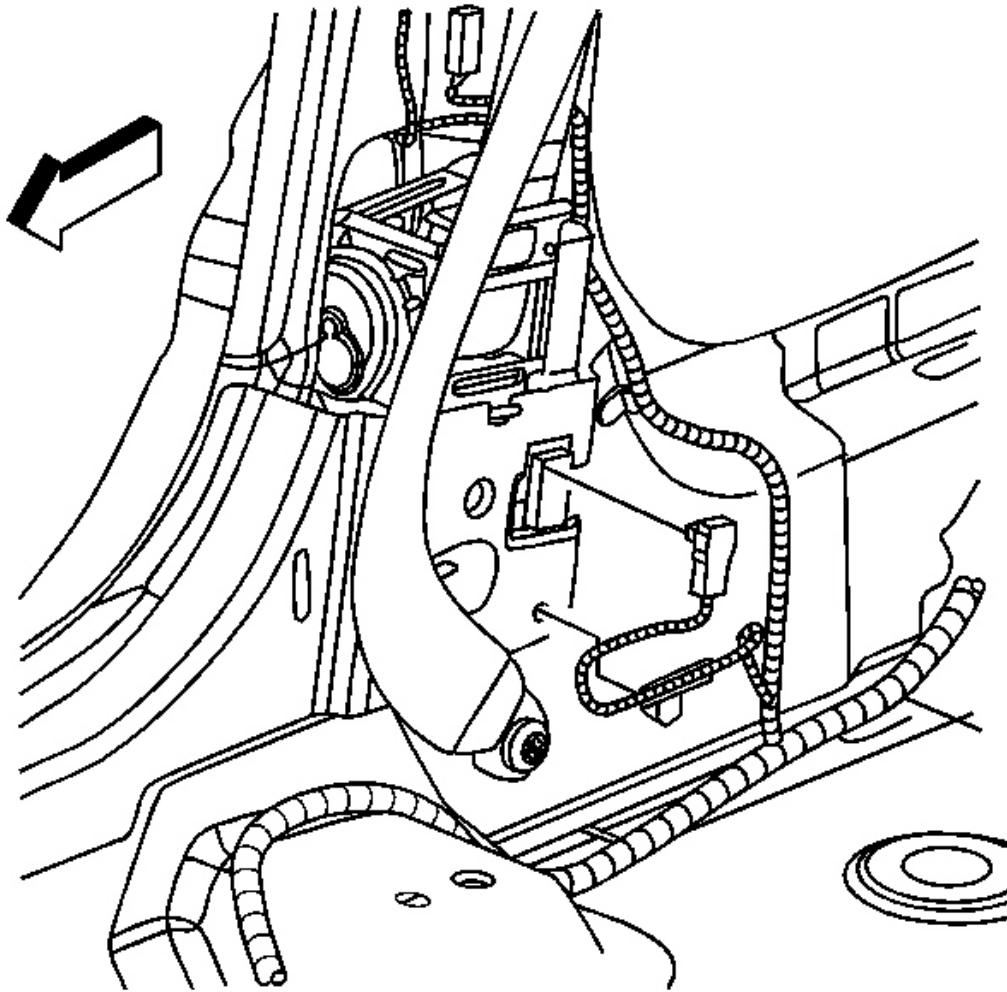


Fig. 128: View Of Seat Belt Pretensioner Connector And Wiring Harness Routing
Courtesy of GENERAL MOTORS CORP.

29. Connect the deployment harness to the seat belt pretensioner connector.

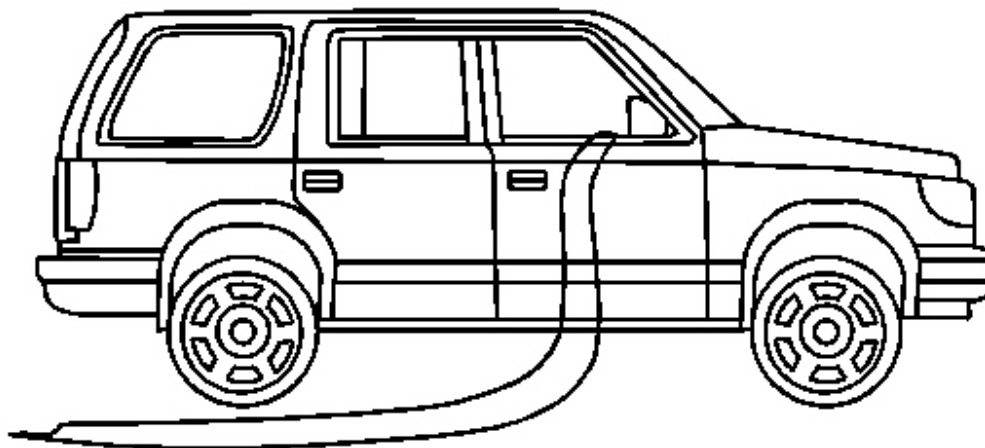


Fig. 129: Routing Wires To Apply Power For Controlled Bag Deployment (Right)
Courtesy of GENERAL MOTORS CORP.

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

SIR SYSTEM DESCRIPTION AND OPERATION

SIR System Overview

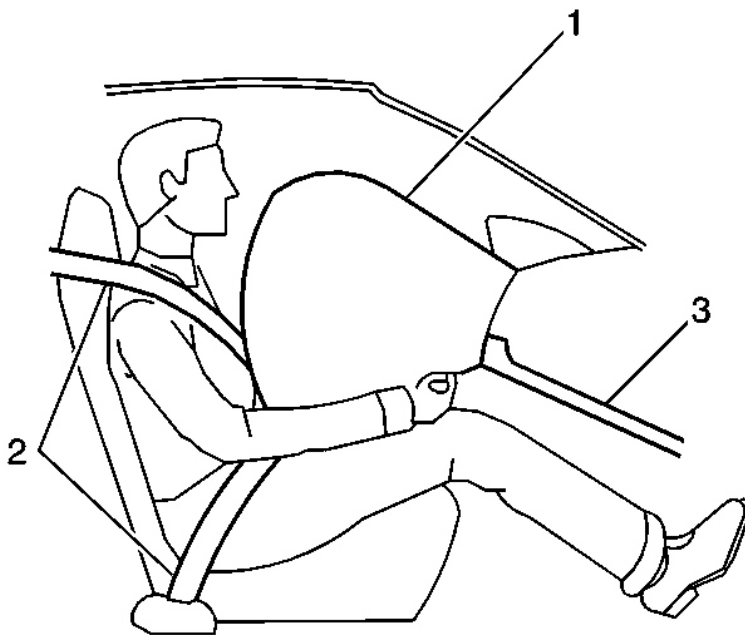
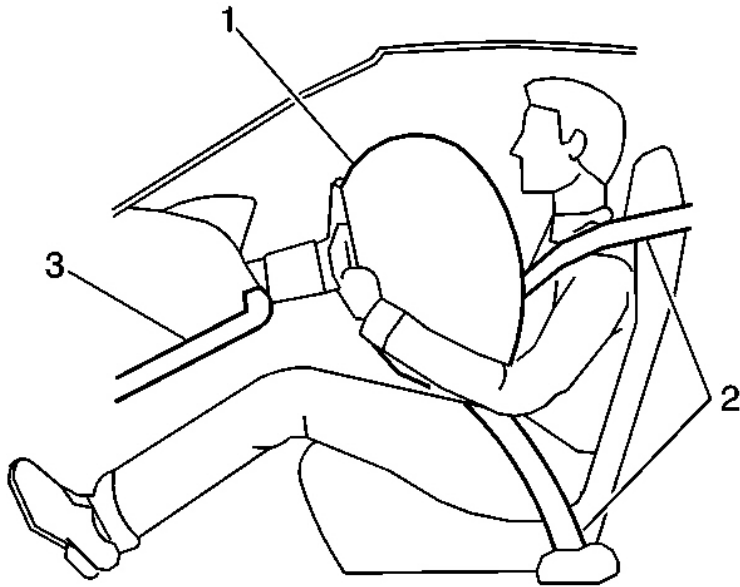


Fig. 130: Illustrating Deployed Inflatable Restraint
Courtesy of GENERAL MOTORS CORP.

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 located on the instrument panel
- Inflatable restraint Passenger Presence System (PPS)
- Inflatable restraint passenger seat belt tension sensor
- Inflatable restraint seat position sensors (SPS) (left/right)
- 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 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 (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

The roof rail modules (front) 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 (front) 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 ignition 1 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 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 indicators. 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 indicators located on the instrument panel. The PPS monitors itself for faults and will set flash diagnostic trouble codes (DTCs) if a fault is detected. The PPS will also notify the SDM of a fault and the SDM will request the instrument panel cluster (IPC) to turn ON the AIR BAG indicator located on the IPC. To determine what DTCs have been set by the PPS, the Tech 2 is used to command the SDM to request the PPS to flash the DTCs using the PASSENGER AIR BAG ON/OFF indicators located on the instrument

panel.

Inflatable Restraint Seat Position Sensors (SPS)

The 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 both the driver and passenger seats. 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 codes B0083 or B0084 and defaults to disabling stage 2 frontal deployment. This will only default on the side of the vehicle the sensor has a fault. Its important to understand that the SPS is secondary to the passenger presence system (PPS) in the disable mode the passenger air bag will not deploy regardless of the SPS status.

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 023 if a fault is detected. To determine what DTCs have been set by the PPS, the Tech 2 is used to command the SDM to request the PPS to flash the DTCs using the PASSENGER AIR BAG ON/OFF indicators located on the instrument panel.

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 ignition 1 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 class 2 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 Indicators

The PASSENGER AIR BAG ON/OFF indicators located on the instrument panel are 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 PPS module is supplied with ignition 1 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 B0092 or B0098 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 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 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 and the class 2 serial data circuit together using weather pack 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 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. The seat belt pretensioner 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.

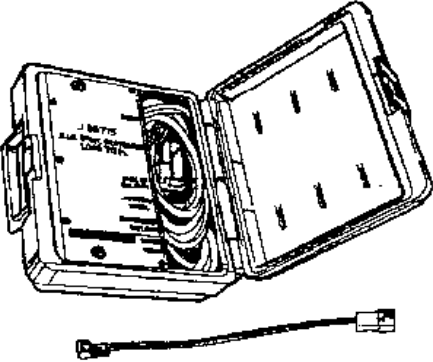

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

2007 Hummer H3

2007 RESTRAINTS Supplemental Inflatable Restraints - H3

Special Tools

Illustration	Tool Number/Description
	<p>J 38715-A Driver and Passenger SIR Load Tool</p>
	<p>J 38826 SIR Deployment Harness</p>
	<p>J 39401-B SIR Deployment Fixture</p>

2007 Hummer H3

2007 RESTRAINTS Supplemental Inflatable Restraints - H3

