

2021 RESTRAINTS

Supplemental Restraints - Canyon, Colorado

SPECIFICATIONS

FASTENER SPECIFICATIONS

Reusable Threaded Fastener Tightening Specifications

NOTE:

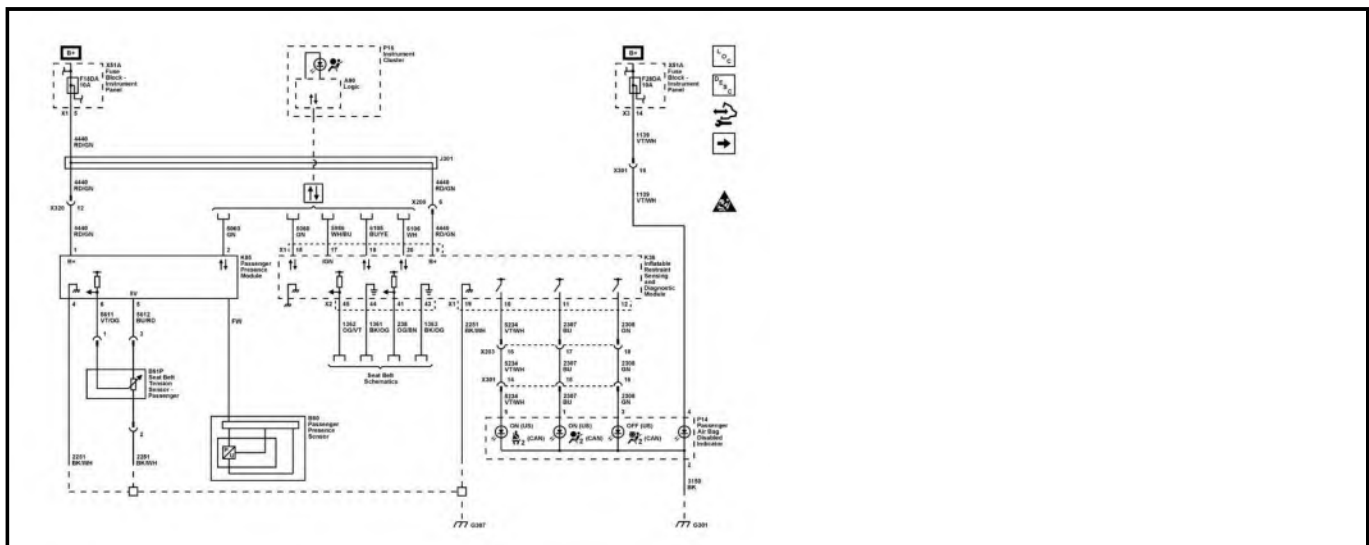
All fasteners listed in this table can be reused after removal.

Application	Specification
	Metric (English)
Airbag Front End Discriminating Sensor Assembly Bolt	7.5 N.m (66 lb in)
Airbag Sensing and Diagnostic Module Nut	9 N.m (80 lb in)
Airbag Side Impact Rear Sensor Assembly Fastener	7.5 N.m (66 lb in)
Driver or Passenger Seat Belt Retractor Fastener - Lower Retractor, Upper Fastener	9 N.m (80 lb in)
Driver or Passenger Seat Belt Tensioner Cover Fastener	6 N.m (53 lb in)
Driver or Passenger Seat Belt Tensioner Fastener	45 N.m (33 lb ft)
Driver or Passenger Seat Retractor Side Belt Fastener - Lower	45 N.m (33 lb ft)
Driver or Passenger Seat Retractor Side Belt Fastener - Upper	45 N.m (33 lb ft)
Front and Rear Row Seat Roof Rail Airbag Fastener	9 N.m (80 lb in)
Front Seat Belt Anchor Plate Bolt	45 N.m (33 lb ft)
Front Seat Outboard Seat Back Airbag Nut	9 N.m (80 lb in)
Inflatable Restraint Side Impact Sensor Assembly Fastener	7.5 N.m (66 lb in)
Steering Wheel Airbag Coil Bolt	3 N.m (27 lb in)

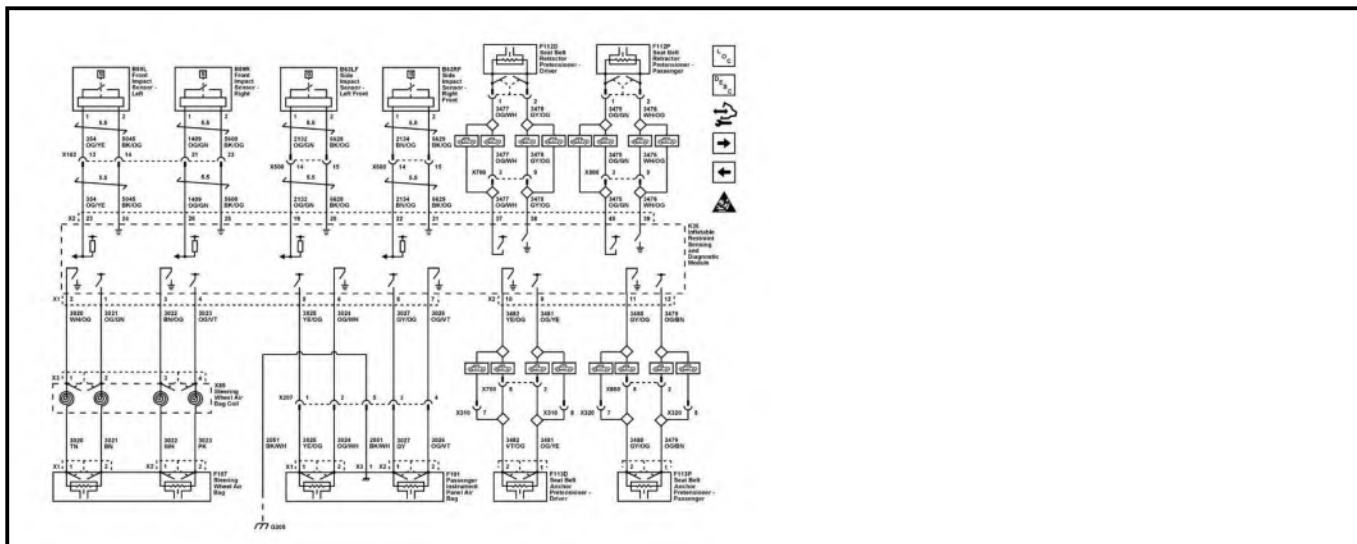
SCHEMATIC WIRING DIAGRAMS

SIR WIRING SCHEMATICS

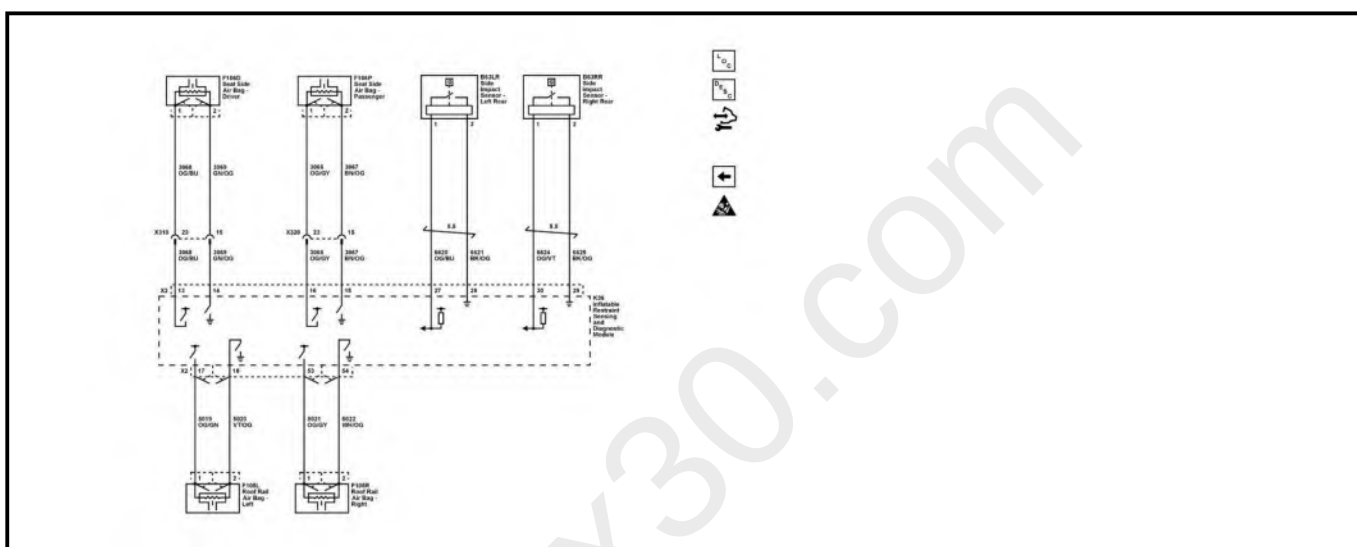
Module Power, Ground, MIL, Indicators, and Passenger Presence



Front Impact Sensors, Front Air Bags and Seat Belt Pretensioners



Seat and Roof Rail Air Bags and Rear Side Impact Sensors



DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B0012 OR B0013

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 B0012

Driver Steering Wheel Air Bag Deployment Loop Stage 1

DTC B0013

Driver Steering Wheel Air Bag Deployment Loop Stage 2

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Driver Steering Wheel Air Bag Stage 1 High Control	B0012 02, B0012 0E	B0012 0D	B0012 04, B0012 0D	B0012 01	-
Driver Steering Wheel Air Bag Stage 1 Low Control	B0012 02, B0012 0E	B0012 0D	B0012 04, B0012 0D	B0012 01	-
Driver Steering Wheel Air Bag Stage 2 High Control	B0013 02, B0013 0E	B0013 0D	B0013 04, B0013 0D	B0013 01	-
Driver Steering Wheel Air Bag Stage 2 Low Control	B0013 02, B0013 0E	B0013 0D	B0013 04, B0013 0D	B0013 01	-

Circuit/System Description

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

Conditions for Running the DTC

Ignition voltage is between 9 - 16 V.

Conditions for Setting the DTC

B0012 01 stage 1 or B0013 01 stage 2

The steering wheel air bag deployment loop is shorted to voltage for 2 s

B0012 02 stage 1 or B0013 02 stage 2

The steering wheel air bag deployment loop is shorted to ground for 2 s

B0012 04 stage 1 or B0013 04 stage 2

The steering wheel air bag deployment loop is open for 2 s

B0012 0D stage 1 or B0013 0D stage 2

The steering wheel air bag deployment loop resistance is greater than 4.4 Ω for 2 s

B0012 0E stage 1 or B0013 0E stage 2

The steering wheel air bag deployment loop resistance is less than 1.7 Ω for 2 s

Action Taken When the DTC Sets

- The inflatable restraint sensing and diagnostic module requests the instrument cluster to illuminate the AIR BAG indicator.
- The inflatable restraint sensing and diagnostic module will store a DTC, however if an event occurs the system will still attempt deployment.

Conditions for Clearing the DTC

- The condition for setting the DTC is no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aid

NOTE: **The following diagnostic aids apply for both current and history DTCs.**

A worn steering wheel air bag coil can cause a repeated history DTC to set. To verify this condition, turn the steering wheel 360 degrees in one direction then back 360 degrees in the other direction, multiple times, while viewing the scan tool Deployment Loop Resistance parameters.

An incorrectly installed connector position assurance (CPA) or incorrectly seated connector can cause a shorting bar to short both control circuits together. Check the connectors and CPAs if a DTC with symptom byte 02 or 0E is set, to ensure the shorting bars are not causing the circuits to be shorted together. Shorting bars are used in the locations listed below:

- Steering wheel air bag assembly
- Steering wheel air bag coil assembly
- Inline harness connectors
- Harness side of the inflatable restraint sensing and diagnostic module connector

Terminal fretting or incorrectly seated connector can cause an open/high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 04 or 0D is set.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Inline Harness Connector End Views - Index** or **Component Connector End Views - Index**

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

NOTE:

- Refer to **SIR Service Precautions**.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
 - Driver steering wheel air bag
 - Driver steering wheel air bag coil
 - Inflatable restraint sensing and diagnostic module
 - Air bag wiring harness connector

- **Inflatable restraint sensing and diagnostic module wiring harness connector**

- **The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click. The CPA isolates the shorting-bars within the connector allowing the deployment circuit to operate properly. Replace any CPA that is damaged or missing.**
- **If the condition is intermittent or cannot be duplicated, disconnect the connectors and add dielectric grease/lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087). This procedure will correct the high resistance condition due to terminal fretting corrosion.**

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 - 4.0 Ω without any spikes or dropouts while turning the steering wheel 360 degrees in one direction then back 360 degrees in the other direction.

- **If less than 2.1 Ω or greater than 4.0 Ω**

Refer to Circuit/System Testing.

- **If there are spikes or dropouts**

Replace the X85 Steering Wheel Air Bag Coil.

- **Go to next step: If between 2.1 - 4.0 Ω without any spikes or dropouts**

2. Verify DTC B0012 or B0013 is only set as a history DTC.

- **If the DTC is set as current**

Refer to Circuit/System Testing.

- **Go to next step: If the DTC is set as history**

3. Verify the scan tool Deployment Loop Resistance parameters stay consistently between 2.1 - 4.0 Ω without any drop outs or spikes while moving the harness near each connector listed below.

- X85 Steering Wheel Air Bag Coil
- F107 Steering Wheel Air Bag
- Any inline harness connector
- K36 Inflatable Restraint Sensing and Diagnostic Module
- **If the reading is erratic while moving the harness, perform the following**
- Inspect each connector terminal for damage or corrosion and repair as necessary
- Apply dielectric grease/lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087) to each connector terminal
- Ensure each connector and CPA is correctly seated
- **Go to next step: If between 2.1 - 4.0 Ω without any spikes or dropouts**

4. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the scan tool and disconnect the appropriate harness connector listed below at the F107 Driver Steering Wheel Air Bag.

- DTC B0012 connector X1
- DTC B0013 connector X2

2. Test for greater than 25 Ω between the control circuit terminal 1 and the control circuit terminal 2.

- **If 25 Ω or less**

1. Disconnect the X1 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

NOTE:

Some connectors may be equipped with shorting bars as a safety component to prevent accidental deployment. When testing on a connector with shorting bars, the shorting bars must be disabled to ensure accurate test results. Insert an appropriate pick from EL-38125-580 and depress the shorting bars above the appropriate terminals. This will lift the shorting bar from the terminal and allow accurate test results. Take care not to damage the connector, shorting bar, or terminal when depressing the shorting bar.

2. Test for infinite resistance between the two control circuits.

- If less than infinite resistance, repair the short between the two circuits.
- If infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

• **Go to next step: If greater than 25 Ω**

3. Ignition ON.

4. Test for less than 11 V between each control circuit terminal listed below and ground:

- Control circuit terminal 1
- Control circuit terminal 2

• **If 11 V or greater**

1. Ignition OFF, disconnect the X1 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module, ignition ON.

2. Test for less than 1 V between the control circuit and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

• **Go to next step: If less than 11 V**

5. Ignition OFF.

6. Test for greater than 25 Ω between each control circuit terminal listed below and ground:

- Control circuit terminal 1
- Control circuit terminal 2

• **If 25 Ω or less**

1. Disconnect the X1 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

NOTE:

Some connectors may be equipped with shorting bars as a safety component to prevent accidental deployment. When testing on a connector with shorting bars, the shorting bars must be disabled to ensure accurate test results. Insert an appropriate pick from EL-38125-580 and depress the shorting bars above the appropriate terminals. This will lift the shorting bar from the terminal and allow accurate test results. Take care not to damage the connector, shorting bar, or terminal when depressing the shorting bar.

2. Test for infinite resistance between the control circuit and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

• **Go to next step: If greater than 25 Ω**

7. Install a 3 A fused jumper wire between the control circuit terminal 1 and the control circuit terminal 2, ignition ON.

8. Verify the appropriate scan tool Deployment Loop Resistance parameter is consistently less than 2 Ω while turning the steering wheel 360 degrees in one direction then back 360 degrees in the other direction.

• **If the reading is erratic while turning the steering wheel**

Replace the X85 Steering Wheel Air Bag Coil.

• **If 2 Ω or greater**

1. Ignition OFF, disconnect the X1 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
2. Test for less than 2 Ω in the K85 Steering Wheel Airbag Coil and each control circuit end to end.
 - If 2 Ω or greater, replace the X85 Steering Wheel Air Bag Coil or repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.
- **Go to next step: If less than 2 Ω**
9. Ignition OFF, connect the harness connector at the F107 Steering Wheel Air Bag, press in the CPA (if equipped) until an audible and/or tactile click is heard.
10. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
11. Verify DTC B0012 or B0013 is not set.
 - **If DTC B0012 or B0013 is set**
 Test or replace the F107 Steering Wheel Air Bag.
 - **Go to next step: If DTC B0012 or B0013 is not set**
12. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Steering Wheel Airbag Coil Replacement](#)
- [Steering Wheel Airbag Replacement](#)
- [SIR/SRS Wiring Repairs](#)
- [Control Module References](#) for inflatable restraint sensing and diagnostic module replacement, programming and setup

DTC B0014 OR B0021

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC B0014

Driver Seat Side Air Bag Deployment Loop

DTC B0021

Passenger Seat Side Air Bag Deployment Loop

Symptom Byte Information: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Low Resistance	Open/High Resistance	Short to Voltage	Signal Performance
Control - Terminal 1, 2 @ F106D Seat Side Air Bag - Driver	B0014 02	B0014 0E	B0014 04, 0D	B0014 01	-
Control - Terminal 1, 2 @ F106P Seat Side Air Bag -	B0021 02	B0021 0E	B0021 04, 0D	B0021 01	-

Circuit	Short to Ground	Low Resistance	Open/High Resistance	Short to Voltage	Signal Performance
Passenger					

Circuit/System Description

For an overview of the component/system, refer to: [Supplemental Inflatable Restraint System Description and Operation](#)

Circuit	Description
Control - Terminal 1	The output circuit is switched to 12 V to activate the component.
Control - Terminal 2	The output circuit is switched to ground to activate the component.

Component	Description
F106 Seat Side Air Bag	The pyrotechnic unit contains an ignitor, which, when supplied with voltage, ignites the propellant in the gas generator.
K36 Inflatable Restraint Sensing and Diagnostic Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

- Ignition = On
- Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

B0014 01, B0021 01

Control Circuit = Short to Voltage - For greater than 2 s

B0014 02, B0021 02

Control Circuit = Short to Ground - For greater than 2 s

B0014 04, B0021 04

Control Circuit = Open - For greater than 2 s

B0014 0D, B0021 0D

Deployment Loop Resistance = Greater than 4.2 ohms - For greater than 2 s

B0014 0E, B0021 0E

Deployment Loop Resistance = Less than 1.4 ohms - For greater than 2 s

Actions Taken When the DTC Sets

Air Bag Malfunction Indicator = On

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

[SIR Wiring Schematics](#)

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#)

Special Tools

<sptool><sptool-no>EL-38125-580</sptool-no><sptool-desc>Terminal Release Tool Kit</sptool-desc></sptool>

[Circuit/System Verification](#)

NOTE:

- Refer to: [SIR Service Precautions](#)
- Inspect the terminals of the following components and connectors for damage or corrosion and repair or replace as necessary:
 - F106 Seat Side Air Bag
 - K36 Inflatable Restraint Sensing and Diagnostic Module
 - Inline Harness Connector
- The connector position assurance (CPA) should seat with an audible and/or tactile click. The CPA isolates the shorting-bars within the connector allowing the deployment circuit to operate properly.
- If the condition is intermittent, wiggle the related wiring harnesses and connectors, with the ignition/vehicle on or engine running, while monitoring the scan tool circuit status parameters for the component. The parameters will display if there is a condition with the circuit or a connection.
- If the condition is intermittent or cannot be duplicated, disconnect the connectors and add dielectric grease or lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087). This procedure may correct the high resistance condition due to terminal fretting corrosion.
 - F106 Seat Side Air Bag & Harness Connector
 - K36 Inflatable Restraint Sensing and Diagnostic Module & Harness Connector

1. Ignition - On/Vehicle - In Service Mode

2. Verify the appropriate scan tool parameter: Deployment Loop 1 - 20 Resistance = 2.1 to 4.0 ohms

- **If not between 2.1 and 4.0 ohms**

Refer to: Circuit/System Testing

- **Go to next step: If between 2.1 and 4.0 ohms**

3. Verify the appropriate scan tool parameter: Deployment Loop 1 - 20 Resistance = The value should not spike or drop out.

Perform the action while monitoring the parameter:

- Wiggle the harness and connector: F106 Seat Side Air Bag
- Wiggle the harness and connector: K36 Inflatable Restraint Sensing and Diagnostic Module
- Wiggle the harness and connector: Inline Harness Connector
- **If the value spikes or drops out**
 1. Ignition/Vehicle & All vehicle systems - Off
 2. Verify the condition does not exist with the component and repair as necessary:

NOTE: Apply dielectric grease or lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087) to each connector terminal.

- F106 Seat Side Air Bag @ Wiring Harness Connector - Corrosion/Defective/Loose/Poor Connection/Visible Damage
- K36 Inflatable Restraint Sensing and Diagnostic Module @ Wiring Harness Connector - Corrosion/Defective/Loose/Poor Connection/Visible Damage
- Inline Harness Connector - Corrosion/Defective/Loose/Poor Connection/Visible Damage
- **Go to next step: If the value does not spike or drop out**

4. All OK.

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the appropriate electrical connector: F106 Seat Side Air Bag
3. Test for greater than 25 ohms between the test points: Control circuit terminal 1 & Control circuit terminal 2
 - **If 25 ohms or less**
 1. Disconnect the appropriate electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
 2. Test for infinite resistance between the test points: Control circuit terminal 1 & Control circuit terminal 2 @ Component harness
 - If less than infinite resistance - Repair the short between the circuits.
 - If infinite resistance - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module
 - **Go to next step: If greater than 25 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Test for less than 11 V between the test points:
 - Control circuit terminal 1 & Ground
 - Control circuit terminal 2 & Ground
 - **If 11 V or greater**
 1. Ignition/Vehicle & All vehicle systems - Off
 2. Disconnect the appropriate electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
 3. Ignition - On/Vehicle - In Service Mode
 4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module
 - **Go to next step: If less than 11 V**
6. Ignition/Vehicle & All vehicle systems - Off

7. Test for greater than 25 ohms between the test points:

- Control circuit terminal 1 & Ground
- Control circuit terminal 2 & Ground
- **If 25 ohms or less**

1. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module

2. Test for infinite resistance between the test points:

- Control circuit terminal 1 @ Component harness & Ground
- Control circuit terminal 2 @ Component harness & Ground
- If less than infinite resistance - Repair the short to ground on the circuit.
- If infinite resistance - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If greater than 25 ohms**

8. Ignition/Vehicle & All vehicle systems - Off

9. Connect a 3 A fused jumper wire between the test points: Control circuit terminal 1 & Control circuit terminal 2

10. Ignition - On/Vehicle - In Service Mode

11. Verify the appropriate scan tool parameter: Deployment Loop 1 - 20 Resistance = Less than 2 ohms

- **If 2 ohms or greater**

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module

3. Test for less than 2 ohms between the test points:

- Control circuit terminal 1 @ Component harness & The other end of the circuit
- Control circuit terminal 2 @ Component harness & The other end of the circuit
- If 2 ohms or greater - Repair the open/high resistance in the circuit.
- If less than 2 ohms - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If less than 2 ohms**

12. Ignition/Vehicle & All vehicle systems - Off

13. Connect the electrical connector: F106 Seat Side Air Bag

14. Ignition - On/Vehicle - In Service Mode

15. Clear the DTCs.

16. Operate the vehicle within the Conditions for Running the DTC.

Verify the DTC does not set.

- **If the DTC sets**

Replace the appropriate component: F106 Seat Side Air Bag

- **Go to next step: If the DTC is not set**

17. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [SIR/SRS Wiring Repairs](#)
- [Front Seat Outboard Seat Back Airbag Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC B0015, B001A, B001B, OR B0022

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 B0015

Driver Seat Belt Retractor Pretensioner Deployment Loop

DTC B001A

Driver Seat Belt Anchor Pretensioner Deployment Loop

DTC B001B

Passenger Seat Belt Anchor Pretensioner Deployment Loop

DTC B0022

Passenger Seat Belt Retractor Pretensioner Deployment Loop

For symptom byte information refer to [Symptom Byte List](#) .

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Driver Seat Belt Retractor Pretensioner High Control	B0015 02, B0015 0E	B0015 0D	B0015 04, B0015 0D	B0015 01	-
Driver Seat Belt Retractor Pretensioner Low Control	B0015 02, B0015 0E	B0015 0D	B0015 04, B0015 0D	B0015 01	-
Driver Seat Belt Anchor Pretensioner Low Control	B001A 02, B001A 0E	B001A 0D	B001A 04	B001A 01	-
Driver Seat Belt Anchor Pretensioner High Control	B001A 02, B001A 0E	B001A 0D	B001A 04	B001A 01	-
Passenger Seat Belt Anchor Pretensioner Low Control	B001B 02, B001B 0E	B001B 0D	B001B 04	B001B 01	-
Passenger Seat Belt Anchor Pretensioner High Control	B001B 02, B001B 0E	B001B 0D	B001B 04	B001B 01	-
Passenger Seat Belt Retractor Pretensioner High Control	B0022 02, B0022 0E	B0022 0D	B0022 04, B0022 0D	B0022 01	-
Passenger Seat Belt Retractor Pretensioner Low Control	B0022 02, B0022 0E	B0022 0D	B0022 04, B0022 0D	B0022 01	-

Circuit/System Description

During a side or frontal crash of sufficient force the inflatable restraint sensing and diagnostic module (SDM) will allow current to flow through the deployment loop in order to deploy an air bag or pretensioner. There are two shorting bars which will short the control circuits together when the connector is disconnected. This will help to prevent unwanted deployment of the air bag or pretensioner during servicing.

Conditions for Running the DTC

Ignition voltage is between 9 - 16 V.

Conditions for Setting the DTC

B0015 01, B001A 01, B001B 01, B0022 01

The pretensioner control circuit is shorted to voltage for 2 s

B0015 02, B001A 02, B001B 02, B0022 02

The pretensioner control circuit is shorted to ground for 2 s

B0015 04, B001A 04, B001B 04, B0022 04

The pretensioner control circuit is open for 2 s

B0015 0D, B001A 0D, B001B 0D, B0022 0D

The pretensioner deployment loop resistance is greater than 4.2 Ω for 2 s

B0015 0E, B001A 0E, B001B 0E, B0022 0E

The pretensioner deployment loop resistance is less than 1.4 Ω for 2 s

Action Taken When the DTC Sets

- The inflatable restraint and sensing diagnostic module requests the instrument cluster to illuminate the AIR BAG indicator.
- The inflatable restraint and sensing diagnostic module will store a DTC, however if an event occurs the system will still attempt deployments.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aid

NOTE: The following diagnostic aids apply for both current and history DTCs.

An incorrectly installed connector position assurance (CPA) or incorrectly seated connector can cause a shorting bar to short both control circuits together. Check the connectors and CPAs if a DTC with symptom byte 02 or 0E is set, to ensure the shorting bars are not causing the circuits to be shorted together. Shorting bars are used in the locations listed below:

- Driver and passenger anchor or retractor pretensioners
- Inline harness connectors
- Harness side of the Inflatable Restraint and Sensing Diagnostic Module connector

Terminal fretting or incorrectly seated connectors can cause an open/high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 04 or 0D is set. DTCs of deployment loops which are in the seat can occur because of stress or damage to the harness due to seat movement. Move the seat to the full extent of travel while using the scan tool to observe deployment type loop parameters.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Electrical Information Reference

- [Circuit Testing](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)
- [Connector Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

NOTE:

- Refer to [SIR Service Precautions](#).
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
 - Seat belt retractor pretensioner
 - Inflatable restraint and sensing diagnostic module
 - Seat belt retractor pretensioner wiring harness connector
 - Inflatable restraint and sensing diagnostic module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click. The CPA isolates the shorting-bars within the connector allowing the deployment circuit to operate properly.
- If the condition is intermittent or cannot be duplicated, disconnect the connectors and add Nyogel lubricant 760G. This procedure will correct the high resistance condition due to terminal fretting corrosion.

1. Verify the appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 - 4.0 Ω without any spikes or dropouts while moving the harness near each connector listed below:

- F113 Seat Belt Anchor Pretensioner
- F112 Seat Belt Retractor Pretensioner
- Any inline harness connector
- K36 Inflatable Restraint and Sensing Diagnostic Module
- **If less than 2.1 Ω or greater than 4.0 Ω**

Refer to Circuit/System Testing.

- **If there are spikes or dropouts, perform the following**
- Inspect each connector terminal and harness for damage or corrosion and repair as necessary.
- Ensure each connector and CPA is correctly seated.
- **Go to next step: If between 2.1 - 4.0 Ω without any spikes or dropouts**

2. All OK.

Circuit/System Testing

1. Ignition OFF, scan tool disconnected, disconnect the appropriate harness connector listed below. It may take up to 2 min for all vehicle systems to power down.

- F113 Seat Belt Anchor Pretensioner

- F112 Seat Belt Retractor Pretensioner

2. Test for greater than 25 Ω between the control circuit terminals 1 and 2.

- **If 25 Ω or less**

1. Disconnect the X2 harness connector at the K36 Inflatable Restraint and Sensing Diagnostic Module.

NOTE:

Some connectors may be equipped with shorting bars as a safety component to prevent accidental inflator deployment. When testing on a connector with shorting bars, the shorting bars must be disabled to ensure accurate test results. Insert an appropriate pick from EL-38125-580 and depress the shorting bars above the appropriate terminals. This will lift the shorting bar from the terminal and allow accurate test results. Take care not to damage the connector, shorting bar, or terminal when depressing the shorting bar.

2. Test for infinite resistance between the two control circuits.

- If less than infinite resistance, repair the short between the two circuits.
- If infinite resistance, replace the K36 Inflatable Restraint and Sensing Diagnostic Module.

- **Go to next step: If greater than 25 Ω**

3. Ignition ON.

4. Test for less than 11 V between each control circuit terminal listed below and ground:

- Control circuit terminal 1
- Control circuit terminal 2

- **If 11 V or greater**

1. Ignition OFF, disconnect the X2 harness connector at the K36 Inflatable Restraint and Sensing Diagnostic Module, ignition ON

2. Test for less than 1 V between the control circuit and ground.

- If 1 V or greater, repair the short to voltage on the circuit.
- If less than 1 V, replace the K36 Inflatable Restraint and Sensing Diagnostic Module.

- **Go to next step: If less than 11 V**

5. Ignition OFF.

6. Test for greater than 25 Ω between each control circuit terminal listed below and ground:

- Control circuit terminal 1
- Control circuit terminal 2

- **If 25 Ω or less**

1. Disconnect the X2 harness connector at the K36 Inflatable Restraint and Sensing Diagnostic Module.

2. Test for infinite resistance between the control circuit and ground.

- If less than infinite resistance, repair the short to ground on the circuit.
- If infinite resistance, replace the K36 Inflatable Restraint and Sensing Diagnostic Module.

- **Go to next step: If greater than 25 Ω**

7. Install a 3 A fused jumper wire between the control circuit terminals 1 and 2, ignition ON.

8. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω .

- **If 2 Ω or greater**

1. Ignition OFF, disconnect the X2 harness connector at the K36 Inflatable Restraint and Sensing Diagnostic Module.

2. Test for less than 2 Ω in each control circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K36 Inflatable Restraint and Sensing Diagnostic Module.

- **Go to next step: If less than 2 Ω**

9. Ignition OFF, connect the harness connector at the F113 Seat Belt Anchor Pretensioner or F112 Seat Belt Retractor Pretensioner, press in the CPA (if equipped) until an audible and/or tactile click is heard.

10. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
11. Verify DTC B0015, B001A, B001B, or B0022 is not set.
 - **If DTC B0015, B001A, B001B, or B0022 is set**
 Replace the F113 Seat Belt Anchor Pretensioner or F112 Seat Belt Retractor Pretensioner.
 - **Go to next step: If DTC B0015, B001A, B001B, or B0022 is not set**
12. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Front Seat Belt Anchor Plate Tensioner Replacement \(Crew Cab\)](#), or [Front Seat Belt Anchor Plate Tensioner Replacement \(Extended Cab\)](#) for seat belt anchor pretensioner replacement
- [Front Seat Belt Retractor Replacement \(Crew Cab\)](#), or [Front Seat Belt Retractor Replacement \(Extended Cab\)](#)
- [Control Module References](#) for inflatable restraint and sensing diagnostic module replacement, programming and setup

DTC B0016 OR B0023

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis:[Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC B0016

Left Roof Rail Air Bag Deployment Loop

DTC B0023

Right Roof Rail Air Bag Deployment Loop

Symptom Byte Information: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Low Resistance	Open/High Resistance	Short to Voltage	Signal Performance
Control - Terminal 1, 2 @ F105L Roof Rail Air Bag - Left	B0016 02	B0016 0E	B0016 04, 0D	B0016 01	-
Control - Terminal 1, 2 @ F105R Roof Rail Air Bag - Right	B0023 02	B0023 0E	B0023 04, 0D	B0023 01	-

Circuit/System Description

For an overview of the component/system, refer to: [Supplemental Inflatable Restraint System Description and Operation](#)

Circuit	Description
Control - Terminal 1	The output circuit is switched to 12 V to activate the component.

Circuit	Description
Control - Terminal 2	The output circuit is switched to ground to activate the component.

Component	Description
F105 Roof Rail Air Bag	The pyrotechnic unit contains an ignitor, which, when supplied with voltage, ignites the propellant in the gas generator.
K36 Inflatable Restraint Sensing and Diagnostic Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

B0016 01, B0023 01

Control Circuit = Short to Voltage - For greater than 2 s

B0016 02, B0023 02

Control Circuit = Short to Ground - For greater than 2 s

B0016 04, B0023 04

Control Circuit = Open - For greater than 2 s

B0016 0D, B0023 0D

Resistance = Greater than 4.2 ohms - For greater than 2 s

B0016 0E, B0023 0E

Resistance = Less than 1.4 ohms - For greater than 2 s

Actions Taken When the DTC Sets

Air Bag Malfunction Indicator = On

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)

- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#)

Special Tools

<sptool><sptool-no>EL-38125-580</sptool-no><sptool-desc>Terminal Release Tool Kit</sptool-desc></sptool>

[Circuit/System Verification](#)

NOTE:

- Refer to: [SIR Service Precautions](#)
- Inspect the terminals of the following components and connectors for damage or corrosion and repair or replace as necessary:
 - F105 Roof Rail Air Bag
 - K36 Inflatable Restraint Sensing and Diagnostic Module
 - Inline Harness Connector
- The connector position assurance (CPA) should seat with an audible and/or tactile click. The CPA isolates the shorting-bars within the connector allowing the deployment circuit to operate properly.
- If the condition is intermittent, wiggle the related wiring harnesses and connectors, with the ignition/vehicle on or engine running, while monitoring the scan tool circuit status parameters for the component. The parameters will display if there is a condition with the circuit or a connection.
- If the condition is intermittent or cannot be duplicated, disconnect the connectors and add dielectric grease or lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087). This procedure may correct the high resistance condition due to terminal fretting corrosion.
 - F105 Roof Rail Air Bag & Harness Connector
 - K36 Inflatable Restraint Sensing and Diagnostic Module & Harness Connector

1. Ignition - On/Vehicle - In Service Mode

2. Verify the appropriate scan tool parameter: Deployment Loop 1 - 20 Resistance = 2.1 to 4.0 ohms

- **If not between 2.1 and 4.0 ohms**

Refer to: Circuit/System Testing

- **Go to next step: If between 2.1 and 4.0 ohms**

3. Verify the appropriate scan tool parameter: Deployment Loop 1 - 20 Resistance = The value should not spike or drop out.

Perform the action while monitoring the parameter:

- Wiggle the harness and connector: F105 Roof Rail Air Bag
- Wiggle the harness and connector: K36 Inflatable Restraint Sensing and Diagnostic Module
- Wiggle the harness and connector: Inline Harness Connector
- **If the value spikes or drops out**

1. Ignition/Vehicle & All vehicle systems - Off

2. Verify the condition does not exist with the component and repair as necessary:

NOTE:

Apply dielectric grease or lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087) to each connector terminal.

- F105L Roof Rail Air Bag - Left @ Wiring Harness Connector - Corrosion/Defective/Loose/Poor Connection/Visible Damage
- F105R Roof Rail Air Bag - Right @ Wiring Harness Connector - Corrosion/Defective/Loose/Poor Connection/Visible Damage
- K36 Inflatable Restraint Sensing and Diagnostic Module @ Wiring Harness Connector - Corrosion/Defective/Loose/Poor Connection/Visible Damage
- Inline Harness Connector - Corrosion/Defective/Loose/Poor Connection/Visible Damage

• **Go to next step: If the value does not spike or drop out**

4. All OK.

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the appropriate electrical connector: F105 Roof Rail Air Bag
3. Test for greater than 25 ohms between the test points: Control circuit terminal 1 & Control circuit terminal 2
 - **If 25 ohms or less**
 1. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
 2. Test for infinite resistance between the test points: Control circuit terminal 1 & Control circuit terminal 2 @ Component harness
 - If less than infinite resistance - Repair the short between the circuits.
 - If infinite resistance - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module
 - **Go to next step: If greater than 25 ohms**
4. Ignition - On/Vehicle - In Service Mode
5. Test for less than 11 V between the test points:
 - Control circuit terminal 1 & Ground
 - Control circuit terminal 2 & Ground
 - **If 11 V or greater**
 1. Ignition/Vehicle & All vehicle systems - Off
 2. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
 3. Ignition - On/Vehicle - In Service Mode
 4. Test for less than 1 V between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module
 - **Go to next step: If less than 11 V**
6. Ignition/Vehicle & All vehicle systems - Off
7. Test for greater than 25 ohms between the test points:
 - Control circuit terminal 1 & Ground
 - Control circuit terminal 2 & Ground
 - **If 25 ohms or less**
 1. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
 2. Test for infinite resistance between the test points:
 - Control circuit terminal 1 @ Component harness & Ground
 - Control circuit terminal 2 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - If infinite resistance - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If greater than 25 ohms**

8. Ignition/Vehicle & All vehicle systems - Off
9. Connect a 3 A fused jumper wire between the test points: Control circuit terminal 1 & Control circuit terminal 2
10. Ignition - On/Vehicle - In Service Mode
11. Verify the appropriate scan tool parameter: Deployment Loop 1 - 20 Resistance = Less than 2 ohms

- **If 2 ohms or greater**

1. Ignition/Vehicle & All vehicle systems - Off
2. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
3. Test for less than 2 ohms between the test points:
 - Control circuit terminal 1 @ Component harness & The other end of the circuit
 - Control circuit terminal 2 @ Component harness & The other end of the circuit
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If less than 2 ohms**

12. Ignition/Vehicle & All vehicle systems - Off
13. Connect the electrical connector: F105 Roof Rail Air Bag
14. Ignition - On/Vehicle - In Service Mode
15. Clear the DTCs.
16. Operate the vehicle within the Conditions for Running the DTC.

Verify the DTC does not set.

- **If the DTC sets**

Replace the appropriate component: F105 Roof Rail Air Bag

- **Go to next step: If the DTC is not set**

17. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

- [Front and Rear Row Roof Rail Airbag Replacement](#)
- [SIR/SRS Wiring Repairs](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC B0019 OR B0020

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 B0019

Passenger Instrument Panel Air Bag Deployment Loop Stage 1

DTC B0020

Passenger Instrument Panel Air Bag Deployment Loop Stage 2

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Passenger Instrument Panel Air Bag Stage 1 High Control	B0019 02, B0019 0E	B0019 0D	B0019 04, B0019 0D	B0019 01	-
Passenger Instrument Panel Air Bag Stage 1 Low Control	B0019 02, B0019 0E	B0019 0D	B0019 04, B0019 0D	B0019 01	-
Passenger Instrument Panel Air Bag Stage 2 High Control	B0020 02, B0020 0E	B0020 0D	B0020 04, B0020 0D	B0020 01	-
Passenger Instrument Panel Air Bag Stage 2 Low Control	B0020 02, B0020 0E	B0020 0D	B0020 04, B0020 0D	B0020 01	-

Circuit/System Description

During a side or frontal crash of sufficient force the Inflatable Restraint Sensing and Diagnostic Module (SDM) will allow current to flow through the deployment loop in order to deploy an air bag or pretensioner. There are two shorting bars which will short the control circuits together when the connector is disconnected. This will help to prevent unwanted deployment of the air bag or pretensioner during servicing.

Conditions for Running the DTC

Ignition voltage is between 9 - 16 V.

Conditions for Setting the DTC

B0019 01, B0020 01

The air bag control circuit is shorted to voltage for 2 seconds.

B0019 02, B0020 02

The air bag control circuit is shorted to ground for 2 seconds.

B0019 04, B0020 04

The air bag control circuit is open for 2 seconds.

B0019 0D, B0020 0D

The air bag deployment loop resistance is greater than 4.2 Ω for 2 seconds.

B0019 0E, B0020 0E

The air bag deployment loop resistance is less than 1.4 Ω for 2 seconds.

Action Taken When the DTC Sets

- The Inflatable Restraint Sensing and Diagnostic Module requests the instrument cluster to illuminate the AIR BAG indicator.
- The Inflatable Restraint Sensing and Diagnostic Module will store a DTC, however if an event occurs the system will still attempt deployments.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aid

NOTE: The following diagnostic aids apply for both current and history DTCs.

An incorrectly installed connector position assurance (CPA) or incorrectly seated connector can cause a shorting bar to short both control circuits together. Check the connectors and CPAs if a DTC with symptom byte 02 or 0E is set, to ensure the shorting bars are not causing the circuits to be shorted together. Shorting bars are used in the locations listed below:

- Passenger Instrument Panel Air Bag
- Inline harness connectors
- Harness side of the Inflatable Restraint Sensing and Diagnostic Module connector

Terminal fretting or incorrectly seated connector can cause an open/high resistance condition. Check the circuit terminals for fretting or incorrectly seated connector if a DTC with symptom byte 04 or 0D is set.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

Master Electrical Component List , or Inline Harness Connector End Views - Index or Component Connector End Views - Index

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References for scan tool information

Special Tools

EL-38125-580 Terminal Release Tool Kit

Circuit/System Verification

NOTE:

- Refer to SIR Service Precautions.
- Inspect all terminals for damage or corrosion when disconnecting connectors. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
 - Passenger Instrument Panel Air Bag
 - Inflatable Restraint Sensing and Diagnostic Module
 - Passenger Instrument Panel Air Bag wiring harness connector
 - Inflatable Restraint Sensing and Diagnostic Module wiring harness connector
- The connector and connector position assurance (CPA) may seat independent of each other. Both the connector and CPA should seat with an audible and/or tactile click. The CPA isolates the shorting-bars within the connector allowing the deployment circuit to operate properly.
- If the condition is intermittent or cannot be duplicated, disconnect the connectors and add dielectric grease/lubricant (Nyogel 760G or equivalent,

meeting GM specification 9986087). This procedure will correct the high resistance condition due to terminal fretting corrosion.

1. Verify the scan tool Deployment Loop Resistance parameters stay consistently between 2.1 - 4.0 Ω without any spikes or dropouts while moving the harness near each connector listed below:

- F101 Passenger Instrument Panel Air Bag
- Any inline harness connector
- K36 Inflatable Restraint Sensing and Diagnostic Module
- **If less than 2.1 Ω or greater than 4.0 Ω**

Refer to Circuit/System Testing.

- **If there are spikes or dropouts, perform the following:**
- Inspect each connector terminal and harness for damage or corrosion and repair as necessary
- Apply dielectric grease/lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087) to each connector terminal
- Insure each connector and CPA is correctly seated.
- **Go to next step: If between 2.1 - 4.0 Ω without any spikes or dropouts**

2. All OK.

Circuit/System Testing

1. Ignition OFF, scan tool disconnected, Disconnect the X207 inline harness connector for the F101 passenger instrument panel air bag located behind the glove box. It may take up to 2 minutes for all vehicle systems to power down.

2. Test for greater than 25 Ω on the K36 SDM side of the connector between the appropriate control circuit terminals listed below:

- F101 Passenger Instrument Panel Air Bag stage 1 control circuit terminal 1 X207 and 2 X207
- F101 Passenger Instrument Panel Air Bag stage 2 control circuit terminal 3 X207 and 4 X207
- **If 25 Ω or less**

1. Disconnect the X1 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

NOTE:

Some connectors may be equipped with shorting bars as a safety component to prevent accidental inflator deployment. When testing on a connector with shorting bars, the shorting bars must be disabled to ensure accurate test results. Insert an appropriate pick from EL-38125-580 and depress the shorting bars above the appropriate terminals. This will lift the shorting bar from the terminal and allow accurate test results. Take care not to damage the connector, shorting bar, or terminal when depressing the shorting bar.

2. Test for infinite resistance between the two control circuits.

- If less than infinite resistance, repair the short between the two circuits.
- If infinite resistance, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

• **Go to next step: If greater than 25 Ω**

3. Test for less than 11 V between each control circuit terminals listed below and ground:

- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 1 X207
- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 2 X207
- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 3 X207
- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 4 X207
- **If 11 V or greater**

Repair the short to voltage on the circuit.

- **Go to next step: If less than 11 V**

4. Ignition OFF.

5. Test for greater than 25 Ω between each control circuit terminals listed below and ground:

- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 1 X207
- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 2 X207
- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 3 X207
- F101 Instrument Panel Harness to Passenger Air Bag Extension Harness 4 X207
- **If 25 Ω or less**

Repair the short to ground on the circuit.

- **Go to next step: If greater than 25 Ω**

6. Install a 3 A fused jumper wire between the control circuit terminals listed below:

- F101 Passenger Instrument Panel Air Bag stage 1 control circuit terminal 1 X207 and 2 X207
- F101 Passenger Instrument Panel Air Bag stage 2 control circuit terminal 3 X207 and 4 X207

7. Ignition ON.

8. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω .

- **If 2 Ω or greater**

1. Ignition OFF, disconnect the X1 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.

2. Test for less than 2 Ω in each control circuit end to end.

- If 2 Ω or greater, repair the open/high resistance in the circuit.
- If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

- **Go to next step: If less than 2 Ω**

9. Ignition OFF, connect all the harness connectors, press in the CPA (if equipped) until an audible and/or tactile click is heard.

10. Scan tool disconnected, disconnect the appropriate X1 (DTC B0019) or X2 (DTC B0020) harness connector at the F101 Passenger instrument panel air bag. It may take up to 2 minutes for all vehicle systems to power down.

11. Test for less than 11 V between each control circuit terminals listed below and ground:

- F101 Passenger Instrument Panel Air Bag control circuit terminal 1 X1
- F101 Passenger Instrument Panel Air Bag control circuit terminal 2 X1
- F101 Passenger Instrument Panel Air Bag control circuit terminal 1 X2
- F101 Passenger Instrument Panel Air Bag control circuit terminal 2 X2
- **If 11 V or greater**

Repair the short to voltage on the circuit.

- **Go to next step: If less than 11 V**

12. Ignition OFF.

13. Test for greater than 25 Ω between each control circuit terminals listed below and ground:

- F101 Passenger Instrument Panel Air Bag control circuit terminal 1 X1
- F101 Passenger Instrument Panel Air Bag control circuit terminal 2 X1
- F101 Passenger Instrument Panel Air Bag control circuit terminal 1 X2
- F101 Passenger Instrument Panel Air Bag control circuit terminal 2 X2
- **If 25 Ω or less**

Repair the short to ground on the circuit.

- **Go to next step: If greater than 25 Ω**

14. Install a 3 A fused jumper wire between the control circuit terminals listed below:

- F101 Passenger Instrument Panel Air Bag stage 1 control circuit terminal 1 X1 and 2 X1
- F101 Passenger Instrument Panel Air Bag stage 2 control circuit terminal 1 X2 and 2 X2

15. Ignition ON.

16. Verify the scan tool Deployment Loop Resistance parameter is less than 2 Ω .

- **If 2 Ω or greater**

1. Ignition OFF, disconnect the X1 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
2. Test for less than 2 Ω in each control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit between the F101 Passenger Instrument Panel Air Bag connector and the X207 inline harness connector.
 - If less than 2 Ω , replace the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - **Go to next step: If less than 2 Ω**

17. Ignition OFF, connect the harness connector at the F101 Passenger Instrument Panel Air Bag, press in the CPA (if equipped) until an audible and/or tactile click is heard.

18. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.

19. Verify DTC B0019 or B0020 is not set.

- **If DTC B0019 or B0020 is set**

Replace the F101 Passenger Instrument Panel Air Bag.

- **Go to next step: If DTC B0019 or B0020 is not set**

20. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Instrument Panel Airbag Replacement](#)
- [SIR/SRS Wiring Repairs](#)
- [Control Module References](#) Diagnostic Module control module replacement, programming and setup

DTC B0052

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC B0052

Deployment Commanded Circuit

Symptom Byte Information: [Symptom Byte List](#)

Circuit/System Description

Component	Description
K36 Inflatable Restraint Sensing and Diagnostic Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

- Ignition = On
- Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

Deployment Commanded

Actions Taken When the DTC Sets

Air Bag Malfunction Indicator = On

Conditions for Clearing the DTC

Use a scan tool.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

Master Electrical Component List , or Inline Harness Connector End Views - Index or Component Connector End Views - Index

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

NOTE: Refer to: SIR Service Precautions

1. Ignition - On/Vehicle - In Service Mode
2. Refer to: Repairs and Inspections Required After a Collision
3. Clear DTCs - Use a scan tool.
4. Verify DTC B0052 is not set.
 - **If the DTC is set**

Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If the DTC is not set**

5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: Diagnostic Repair Verification

For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC 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 B0071

Passenger Seat Belt Tension Sensor Circuit

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Passenger Seat Belt Tension Sensor Signal	B0071 03	B0071 04	B0071 07	B0071 08
Passenger Seat Belt Tension Sensor Low Reference	-	B0071 07	-	-

Circuit/System Description

The seat belt tension sensor is a 2-wire sensor mounted on the passenger seat belt buckle and provides an input to the passenger presence module. When an infant car seat is properly restrained on the front passenger seat, the seat belt is tightly secured through the car seat. The seat belt pulls on the tension sensor and changes the voltage signal to the passenger presence module. The passenger presence module monitors the belt tension sensor signal circuit and if a fault is detected, DTC will be set. When the passenger presence module detects this DTC it will send out a serial data message and the inflatable restraint sensing and diagnostic module will notify the customer of the enable/disable status by illuminating the OFF indicator on the PASSENGER AIR BAG ON/OFF indicators. The inflatable restraint sensing and diagnostic module will then suppress the deployment of the passenger instrument panel air bag and illuminate the AIR BAG indicator.

Conditions for Running the DTC

Ignition voltage is between 9 - 16 volts.

Conditions for Setting the DTC

- The passenger presence module detects the voltage at the passenger seat belt tension sensor signal circuit is less than 0.5 V or greater than 4.5 V for 1 s.
- The passenger presence module detects the voltage at the passenger seat belt tension sensor voltage reference circuit is less than 4.5 V or greater than 9.1 V for 1 s.
- The passenger presence module detects the amperage at the passenger seat belt tension sensor low reference circuit is 25 mA or greater for 1 s.

Action Taken When the DTC Sets

- The passenger presence module will set a DTC, and then communicate with the inflatable restraint sensing and diagnostic module.
- The inflatable restraint sensing and diagnostic module will set DTC B0081
- The inflatable restraint sensing and diagnostic module disables the passenger instrument panel air bag.
- The passenger presence module will illuminate the passenger air bag status OFF indicator.
- The inflatable restraint sensing and diagnostic module requests the instrument panel to illuminate the AIR BAG indicator.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aids

Inspect the passenger seat belt tension sensor signal and low reference circuits carefully for cutting and/or chafing.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Testing

NOTE: The seat belt buckle replacement with the seat belt tension sensor must be serviced as a complete unit.

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

- **Passenger seat belt tension sensor**
- **Passenger presence module**
- **Passenger seat belt tension sensor wiring harness connector**
- **Passenger presence module wiring harness connector**

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connector at the B61P Seat Belt Tension Sensor - Passenger. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the low reference circuit terminal 2 and ground.

- **If greater than 10 Ω**

1. Ignition OFF, disconnect the harness connector at the K85 Passenger Presence Module. It may take up to 2 min for all vehicle systems to power down.

2. Test for less than 10 Ω between the low reference circuit and ground.

- If less than 10 Ω , replace the K85 Passenger Presence Module.
- If greater than 10 Ω , repair the open/high resistance.

- **Go to next step: If less than 10 Ω**
3. Ignition ON.
 4. Test for less than 6 V between the signal circuit terminal 1 and ground.
 - **If 6 V or greater**
 1. Ignition OFF, disconnect the harness connector at the K85 Passenger Presence Module, ignition ON.
 2. Test for less than 1 V between the signal circuit and ground.
 - If 1 V or greater, repair the short to voltage on the circuit.
 - If less than 1 V, replace the K85 Passenger Presence Module.
 - **Go to next step: If less than 6 V**
 5. Ignition OFF.
 6. Test for greater than 5K Ω between the signal circuit terminal 1 and ground. It may take up to 2 minutes for all vehicle systems to power down.
 - **If less than 5K Ω**
 1. Disconnect the harness connector at the K85 Passenger Presence Module.
 2. Test for Infinite resistance between the signal circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the K85 Passenger Presence Module.
 - **Go to next step: If greater than 5K Ω**
 7. Disconnect the harness connector at the K85 Passenger Presence Module.
 8. Test for less than 2 Ω between the B61P Seat Belt Tension Sensor - Passenger signal circuit terminal 1 and the K85 Passenger Presence Module signal circuit terminal 6.
 - **If 2 Ω or greater**

Repair the open/high resistance in the circuit.
 - **Go to next step: If less than 2 Ω**
 9. If all circuits test normal, replace the B61P Seat Belt Tension Sensor - Passenger.
 10. Ignition ON, clear DTCs. Operate the vehicle within the Conditions for Running the DTC.
 11. Verify DTC B0071 does not set.
 - **If DTC B0071 is set**

Replace the K85 Passenger Presence Module.
 - **Go to next step: If DTC B0071 is not set**
 12. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Front Seat Belt Buckle Replacement](#) for B61P Seat Belt Tension Sensor - Passenger
- [Control Module References](#) for passenger presence module replacement, programming, and setup

DTC B0081 (INFLATABLE RESTRAINT SENSING AND DIAGNOSTIC MODULE)

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 B0081 00

Passenger Presence Module Malfunction (sets in the Inflatable Restraint Sensing and Diagnostic Module)

DTC B0081 11

Passenger Presence Module Above Threshold (Build Check Failure) (sets in the Passenger Presence Module)

DTC B0081 3A

Passenger Presence Module Incorrect Component Installed (sets in the Inflatable Restraint Sensing and Diagnostic Module)

DTC B0081 4B

Passenger Presence Module Calibration Not Learned (sets in the Passenger Presence Module)

DTC B0081 5A

Passenger Presence Module Plausibility Failure (sets in the Passenger Presence Module)

DTC B0081 71

Passenger Presence Module Invalid Serial Data Received (sets in Inflatable Restraint Sensing and Diagnostic Module)

Circuit/System Description

When the ignition is turned ON, the Passenger Presence Module and the Inflatable Restraint Sensing and Diagnostic Module performs tests to diagnose critical malfunctions within itself. When the Inflatable Restraint Sensing and Diagnostic Module has completed the power-up mode, the Inflatable Restraint Sensing and Diagnostic Module will establish communication with the Passenger Presence Module. The Inflatable Restraint Sensing and Diagnostic Module will also request the instrument panel cluster to illuminate both of the PASSENGER AIR BAG ON/OFF indicators for 5 seconds. If the Inflatable Restraint Sensing and Diagnostic Module detects that the Passenger Presence Module has set a current DTC, the Inflatable Restraint Sensing and Diagnostic Module will then disable the passenger instrument panel air bag deployment loop, set DTC B0081, and illuminate the AIR BAG indicator.

Conditions for Running the DTC

Ignition voltage is between 9 - 16 V.

Conditions for Setting the DTC

Any of the following conditions must exist for 5 seconds:

B0081 00

The Inflatable Restraint Sensing and Diagnostic Module has a general fault present.

B0081 11

The Passenger Presence Module is above maximum threshold. The Passenger Presence Module failed the preload/build check.

B0081 3A

The Inflatable Restraint Sensing and Diagnostic Module has received a mismatch message indicating the wrong Passenger Presence Module is installed on the vehicle.

B0081 4B

The Passenger Presence Module is not calibrated. Preload procedure has not been run.

B0081 5A

The Passenger Presence Module detects a plausibility error.

B0081 71

The Inflatable Restraint Sensing and Diagnostic Module has received invalid or no serial data from the Passenger Presence Module.

Action Taken When the DTC Sets

- The inflatable restraint sensing and diagnostic module requests the instrument cluster to illuminate the AIR BAG indicator.
- The passenger instrument panel air bag deployment loop will be disabled.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aids

If either the inflatable restraint sensing and diagnostic module or passenger presence module were replaced verify that the correct part numbers were used for the vehicle application.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Inline Harness Connector End Views - Index** or **Component Connector End Views - Index**

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Electrical Information Reference

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

Scan Tool Reference

K85 Passenger Presence Module: Scan Tool Information for scan tool information

Circuit/System Verification

NOTE:

- When removing connectors inspect for damage, corrosion or poor connection. Damage or corrosion in the following requires repair or replacement of the affected component/connector.
- Passenger Presence Module
- Inflatable Restraint Sensing and Diagnostic Module
- Passenger Presence Module harness connector
- Inflatable Restraint Sensing and Diagnostic Module wiring harness connector

1. Ignition ON, verify that DTC B0081 is the only DTC set in the Inflatable Restraint Sensing and Diagnostic Module or Passenger Presence Module.
 - If any other DTCs are set, refer to [Diagnostic Trouble Code \(DTC\) List - Vehicle](#).
2. Verify DTC B0081 00, DTC B0081 3A, or DTC B0081 71 is not set in the Inflatable Restraint Sensing and Diagnostic Module. If any of these DTCs set in the Inflatable Restraint Sensing and Diagnostic Module diagnose the following:
 - Inflatable Restraint Sensing and Diagnostic Module DTC B0081 00:
 - If DTC B0081 00 sets in the Inflatable Restraint Sensing and Diagnostic Module then refer to step 3 and diagnose the Passenger Presence Module DTC B0081 5A. By diagnosing the Passenger Presence Module DTC B0081 5A, DTC B0081 00 will be fixed in the Inflatable Restraint Sensing and Diagnostic Module.
 - Inflatable Restraint Sensing and Diagnostic Module DTC B0081 3A:
 - Either an incorrect replacement Passenger Presence Module or Inflatable Restraint Sensing and Diagnostic Module was placed in this vehicle. Check and make sure the part numbers are correct for each module. If the part numbers are correct clear this DTC and see if DTC B0081 3A resets as a current DTC. If DTC B0081 3A resets then replace the Passenger Presence Module. Clear DTCs again and check if DTC B0081 3A sets as current again. If DTC B0081 3A sets again then replace the Inflatable Restraint Sensing and Diagnostic Module.
 - Inflatable Restraint Sensing and Diagnostic Module DTC B0081 71:
 - If DTC B0081 71 sets in the Inflatable Restraint Sensing and Diagnostic Module then refer to Circuit/System Testing below.
3. DTC B0081 11, DTC B0081 4B, or DTC B0081 5A is set in the Passenger Presence Module, diagnose the following:
 - Passenger Presence Module DTC B0081 11:
 - If DTC B0081 11 sets in the Passenger Presence Module if the correct calibration was not learned by the Passenger Presence Module. Make sure there is nothing on the passenger seat, not even a scan tool. Perform the Passenger Presence Module Preload procedure, refer to [Passenger Presence System Rezeroing](#). Clear the DTC's and check if DTC B0081 11 sets again in the Passenger Presence Module. If DTC B0081 11 sets again replace the Passenger Presence Module.
 - Passenger Presence Module DTC B0081 4B:
 - If DTC B0081 4B sets in the Passenger Presence Module if the correct calibration was not learned by the Passenger Presence Module. Make sure there is nothing on the passenger seat, not even a scan tool. Perform the Passenger Presence Module Preload procedure, refer to [Passenger Presence System Rezeroing](#). Clear the DTC's and check if DTC B0081 11 sets again in the Passenger Presence Module. If DTC B0081 11 sets again replace the Passenger Presence Module.
 - Passenger Presence Module DTC B0081 5A:
 - If DTC B0081 5A sets in the Passenger Presence Module check the connections at the Inflatable Restraint Sensing and Diagnostic Module and Passenger Presence Module. Clear the DTC's and check if DTC B0081 5A sets again as a current DTC in the Passenger Presence Module. If DTC B0081 5A sets then replace the Passenger Presence Module. Clear DTCs again and check if DTC B0081 5A sets as current again. If DTC B0081 5A sets again then replace the Inflatable Restraint Sensing and Diagnostic Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

DTC B0081 (PASSENGER PRESENCE MODULE)

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 B0081 11

Passenger Presence Module High Input

DTC B0081 4B

Passenger Presence Module Calibration Not Learned

DTC B0081 5A

Passenger Presence Module Not Plausible

Circuit/System Description

When the ignition is turned ON, the inflatable restraint sensing and diagnostic module and the passenger presence module perform tests to diagnose critical malfunctions. Upon a successful power-up mode the inflatable restraint sensing and diagnostic module will illuminate both PASSENGER AIRBAG ON/OFF indicators. If the inflatable restraint sensing and diagnostic module detects a fault in the passenger presence module, it may disable the passenger instrument panel air bag deployment loop, set DTC B0081 and illuminate the air bag indicator.

Conditions for Running the DTC

Ignition voltage is between 9 - 16 V.

Conditions for Setting the DTC

Any of the following conditions must exist for 5 s.

B0081 11

The passenger presence module has failed the rezero procedure.

B0081 4B

The passenger presence module is not calibrated.

B0081 5A

The passenger presence module sets this code when the passenger presence module has lost communication with the inflatable restraint sensing and diagnostic module.

Action Taken When the DTC Sets

- The inflatable restraint sensing and diagnostic module requests the instrument cluster to illuminate the AIR BAG indicator.
- The passenger instrument panel air bag deployment loop will be disabled.

Conditions for Clearing the DTC

- The condition for setting the DTC no longer exists.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aids

- If either the inflatable restraint sensing and diagnostic module or passenger presence module were replaced verify that the correct part numbers were used for the vehicle application.
- If this DTC is set as either current or history it may have been caused by an electronic device. If an electronic device (Computers, MP3 Players, Cell Phones, Diagnostic Scan Tool, Power Inverter, etc.) was placed on the passenger seat the passenger presence module may command the passenger air bag indicator to turn on and/or command the passenger seat belt indicator to turn on. Make sure there are no objects on the passenger seat and clear the DTCs. If this DTC resets then perform this diagnostic. If the DTC does not reset there is no further work needed on the passenger presence system.

- If this DTC is set as either current or history it may have been caused by an aftermarket seat heater. The aftermarket seat heater may command the passenger air bag indicator to turn on and/or command the passenger seat belt indicator to turn on. Remove the aftermarket seat heater from the passenger seat and clear the DTCs. If this DTC resets then perform this diagnostic. If the DTC does not reset there is no further work needed on the passenger presence system.

Reference Information

Description and Operation

Supplemental Inflatable Restraint System Description and Operation

Scan Tool Reference

K85 Passenger Presence Module: Scan Tool Information for scan tool information

Circuit/System Verification

NOTE:

- This system is serviced as a kit (seat foam, module and sensing mat). Perform a passenger presence system rezero procedure whenever a component is replaced. Refer to **Passenger Presence System Rezeroing**.
- Both K36 Inflatable Restraint Sensing and Diagnostic Module and K85 Passenger Presence Module set DTC B0081 but with different symptom bytes. Therefore it is important to identify which module has set the DTC B0081. Use the symptom bytes as a way of identify the correct module to diagnose.
- The K36 Inflatable Restraint Sensing and Diagnostic Module sets a B0081 3A when an incorrect K85 Passenger Presence Module is installed.

1. Verify that the seat is free of any objects or an aftermarket seat heater.

- **If objects and/or an aftermarket seat heater is present**

1. Remove objects and/or aftermarket seat heater.

2. Ignition ON, clear the DTC.

3. Verify that DTC B0081 is not set

- If the DTC B0081 is set, replace the K85 Passenger Presence Module
- Go to next step: If the DTC B0081 is not set

4. All OK.

- **Go to next step: If the seat is empty and does not have an aftermarket seat heater**

2. Verify that DTC B0081 3A is not set in the K36 Inflatable Restraint Sensing and Diagnostic Module.

- **If DTC B0081 3A is set in the K36 Inflatable Restraint Sensing and Diagnostic Module**

Replace the K85 Passenger Presence Module.

- **Go to next step: If DTC B0081 3A is not set in the K36 Inflatable Restraint Sensing and Diagnostic Module**

3. Verify that DTC B0081 11 or DTC B0081 4B is not set in the K85 Passenger Presence Module.

NOTE:

The K36 Inflatable Restraint Sensing and Diagnostic Module sets a redundant B0081 00 DTC when the K85 Passenger Presence Module sets a DTC B0081 11 or B0081 4B.

- **If DTC B0081 11 or DTC B0081 4B is set in the K85 Passenger Presence Module**

Perform the passenger presence system rezero procedure. Refer to **Passenger Presence System Rezeroing**.

- **Go to next step: If neither of these DTCs are set in the K85 Passenger Presence Module**

4. Verify DTC B0081 5A is not set in the K85 Passenger Presence Module.

- **If DTC B0081 5A is set in the K85 Passenger Presence Module**

1. Verify the connections at the K36 Inflatable Restraint Sensing and Diagnostic Module and K85 Passenger Presence Module, for terminal corrosion, properly seated connectors, and the connector position assurance is installed.

2. Clear the DTC.

3. Verify DTC B0081 5A does not set in the K85 Passenger Presence Module.

- If DTC B0081 5A sets, replace the K85 Passenger Presence Module.
- Go to next step: If DTC B0081 5A does not set

4. All OK.

- **Go to next step: If DTC B0081 5A is not set in the K85 Passenger Presence Module**

5. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

DTC B0083-B0088

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

DTC Descriptor

DTC B0083

Left Front Impact Sensor

DTC B0084

Right Front Impact Sensor

DTC B0085

Left Front Side Impact Sensor

DTC B0086

Right Front Side Impact Sensor

DTC B0087

Left Rear Side Impact Sensor

DTC B0088

Right Rear Side Impact Sensor

Symptom Byte Information: [Symptom Byte List](#)

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Signal - Terminal 1 @ B59L Front Impact Sensor - Left	B0083 02	B0083 04	B0083 01	B0083 08, 0F

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Low Reference - Terminal 2 @ B59L Front Impact Sensor - Left	B0083 02	B0083 04	B0083 01	B0083 08, 0F
Signal - Terminal 1 @ B59R Front Impact Sensor - Right	B0084 02	B0084 04	B0084 01	B0084 08, 0F
Low Reference - Terminal 2 @ B59R Front Impact Sensor - Right	B0084 02	B0084 04	B0084 01	B0084 08, 0F
Signal - Terminal 1 @ B63LF Side Impact Sensor - Left Front	B0085 02	B0085 04	B0085 01	B0085 08, 0F
Low Reference - Terminal 2 @ B63LF Side Impact Sensor - Left Front	B0085 02	B0085 04	B0085 01	B0085 08, 0F
Signal - Terminal 1 @ B63RF Side Impact Sensor - Right Front	B0086 02	B0086 04	B0086 01	B0086 08, 0F
Low Reference - Terminal 2 @ B63RF Side Impact Sensor - Right Front	B0086 02	B0086 04	B0086 01	B0086 08, 0F
Signal - Terminal 1 @ B63LR Side Impact Sensor - Left Rear	B0087 02	B0087 04	B0087 01	B0087 08, 0F
Low Reference - Terminal 2 @ B63LR Side Impact Sensor - Left Rear	B0087 02	B0087 04	B0087 01	B0087 08, 0F
Signal - Terminal 1 @ B63RR Side Impact Sensor - Right Rear	B0088 02	B0088 04	B0088 01	B0088 08, 0F
Low Reference - Terminal 2 @ B63RR Side Impact Sensor - Right Rear	B0088 02	B0088 04	B0088 01	B0088 08, 0F

Circuit/System Description

For an overview of the component/system, refer to: [Supplemental Inflatable Restraint System Description and Operation](#)

Circuit	Description
Signal	The control module input circuit has an internal resistance connected to 5 V.
Low Reference	Grounded through the control module.

Component	Description
B59 Front Impact Sensor	The impact sensors detect acceleration and provide input to the Inflatable Restraint Sensing and Diagnostic Module.
B63 Side Impact Sensor	The impact sensors detect acceleration and provide input to the Inflatable Restraint Sensing and Diagnostic Module.
K36 Inflatable Restraint Sensing and Diagnostic Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Conditions for Running the DTC

- Ignition = On
- Ignition Voltage = 9 to 16 V

Conditions for Setting the DTC

B0083 01, B0084 01, B0085 01, B0086 01, B0087 01, B0088 01

Impact Sensor Circuit = Short to Voltage - For greater than 10 s

B0083 02, B0084 02, B0085 02, B0086 02, B0087 02, B0088 02

Impact Sensor Circuit = Short to Ground - For greater than 10 s

B0083 04, B0084 04, B0085 04, B0086 04, B0087 04, B0088 04

Impact Sensor Circuit = Open - For greater than 10 s

B0083 0F, B0084 0F, B0085 0F, B0086 0F, B0087 0F, B0088 0F

Impact Sensor Circuit = Erratic - For greater than 10 s

B0083 39, B0084 39, B0085 39, B0086 39, B0087 39, B0088 39

Impact Sensor Circuit = Invalid Data

B0083 3A, B0084 3A, B0085 3A, B0086 3A, B0087 3A, B0088 3A

Impact Sensor Circuit - Identification Information = Invalid

B0083 71, B0084 71, B0085 71, B0086 71, B0087 71, B0088 71

Impact Sensor Circuit = Invalid Serial Data

Actions Taken When the DTC Sets

Air Bag Malfunction Indicator = On

Conditions for Clearing the DTC

- A current DTC will clear when the diagnostic runs and passes.
- A history DTC will clear after 50 consecutive malfunction-free ignition cycles.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Inline Harness Connector End Views - Index** or **Component Connector End Views - Index**

Description and Operation

For an overview of the component/system, refer to: **Supplemental Inflatable Restraint System Description and Operation**

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

NOTE:

- Refer to: [SIR Service Precautions](#)
- Inspect the terminals of the following components and connectors for damage or corrosion and repair or replace as necessary:
 - B59 Front Impact Sensor
 - B63 Side Impact Sensor
 - K36 Inflatable Restraint Sensing and Diagnostic Module
 - Inline Harness Connector
- The connector position assurance (CPA) should seat with an audible and/or tactile click. The CPA isolates the shorting-bars within the connector allowing the deployment circuit to operate properly.
- If the condition is intermittent, wiggle the related wiring harnesses and connectors, with the ignition/vehicle on or engine running, while monitoring the scan tool circuit status parameters for the component. The parameters will display if there is a condition with the circuit or a connection.
- If the condition is intermittent or cannot be duplicated, disconnect the connectors and add dielectric grease or lubricant (Nyogel 760G or equivalent, meeting GM specification 9986087). This procedure may correct the high resistance condition due to terminal fretting corrosion.
 - B59 Front Impact Sensor & Harness Connector
 - B63 Side Impact Sensor & Harness Connector
 - K36 Inflatable Restraint Sensing and Diagnostic Module & Harness Connector

1. Ignition - On/Vehicle - In Service Mode

2. Verify the following conditions do not exist: Symptom Byte: {08, 0F, 3A, 39}

- **If the specified state**

Replace the appropriate component:

- B59 Front Impact Sensor
- B63 Side Impact Sensor
- **Go to next step: If not the specified state**

3. Verify the following conditions do not exist: Symptom Byte: {01, 02, 04, 71}

- **If the specified state**

Refer to: Circuit/System Testing

- **Go to next step: If no DTC is set**

4. All OK.

Circuit/System Testing

1. Ignition/Vehicle & All vehicle systems - Off

2. Disconnect the appropriate electrical connector:

- B59 Front Impact Sensor
- B63 Side Impact Sensor

3. Test for less than 10 ohms between the test points: Low Reference terminal 2 & Ground

- **If 10 ohms or greater**

1. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module

2. Test for less than 2 ohms between the test points: Low Reference terminal 2 @ Component harness & The other end of the circuit @ Control module harness

- If 2 ohms or greater - Repair the open/high resistance in the circuit.
- If less than 2 ohms - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If less than 10 ohms**

4. Test for less than 1 V between the test points: Signal circuit terminal 1 & Ground

- **If 1 V or greater**

1. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
2. Test for less than 1 V between the test points: Signal circuit terminal 1 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If less than 1 V**

5. Connect a DMM between the test points: Signal circuit terminal 1 & Ground & Set - (min/max)

6. Ignition - On/Vehicle - In Service Mode

Verify the DMM displays between 4 and 9 V.

- **If less than 4 V**

1. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
2. Test for infinite resistance between the test points: Signal circuit terminal 1 & Low Reference terminal 2
 - If less than infinite resistance - Repair the short between the circuits.
 - Go to next step: If infinite resistance
3. Test for infinite resistance between the test points: Signal circuit terminal 1 @ Component harness & Ground
 - If less than infinite resistance - Repair the short to ground on the circuit.
 - Go to next step: If infinite resistance
4. Test for less than 2 ohms between the test points: Signal circuit terminal 1 @ Component harness & The other end of the circuit @ Control module harness
 - If 2 ohms or greater - Repair the open/high resistance in the circuit.
 - If less than 2 ohms - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **If greater than 9 V**

1. Disconnect the electrical connector: K36 Inflatable Restraint Sensing and Diagnostic Module
2. Ignition - On/Vehicle - In Service Mode
3. Test for less than 1 V between the test points: Signal circuit terminal 1 @ Component harness & Ground
 - If 1 V or greater - Repair the short to voltage on the circuit.
 - If less than 1 V - Replace the component: K36 Inflatable Restraint Sensing and Diagnostic Module

- **Go to next step: If between 4 and 9 V**

7. Connect all electrical connectors.

8. Ignition - On/Vehicle - In Service Mode

9. Clear the DTCs.

10. Operate the vehicle within the Conditions for Running the DTC.

11. Verify the DTC does not set.

- **If the DTC sets**

Replace the appropriate component:

- B59 Front Impact Sensor
- B63 Side Impact Sensor

- **Go to next step: If the DTC does not set**

12. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: [Diagnostic Repair Verification](#)

-
- [Airbag Side Impact Sensor Replacement](#)
- [Airbag Side Impact Rear Sensor Replacement](#)
- For control module replacement, programming, and setup refer to: [Control Module References](#)

DTC B1001 (PASSENGER PRESENCE SYSTEM)

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 00

Option Configuration Error

Circuit/System Description

The Inflatable Restraint Sensing and Diagnostic Module (SDM) stores a 4-digit primary key for the Passenger Presence Module. The Inflatable Restraint Sensing and Diagnostic Module sends the Passenger Presence Module the primary key. If the Passenger Presence Module determines that it is the wrong primary key, the Passenger Presence Module will set DTC B1001 and send the Inflatable Restraint Sensing and Diagnostic Module a vehicle mismatch message. The Inflatable Restraint Sensing and Diagnostic Module then will set DTC B0081 and illuminate the SIR warning indicator. The Passenger Presence Module does not use a secondary key.

Conditions for Running the DTC

Ignition voltage is between 9 - 16 volts.

Conditions for Setting the DTC

The 4-digit primary key stored in the Inflatable Restraint Sensing and Diagnostic Module does not match the 4-digit key stored in the Passenger Presence Module.

Action Taken When the DTC Sets

- The Inflatable Restraint Sensing and Diagnostic Module requests the instrument panel cluster to illuminate the AIR BAG indicator.
- The passenger instrument panel air bag deployment is disabled.

Conditions for Clearing the DTC

The 4-digit Primary Key in the Inflatable Restraint Sensing and Diagnostic Module and in the Passenger Presence Module match.

Diagnostic Aids

This DTC is an indication that the passenger presence system module was not set-up correctly, is not the correct part number or that the Passenger Presence Module is defective.

Reference Information

Schematic Reference

[SIR Wiring Schematics](#)

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Description and Operation

[Supplemental Inflatable Restraint System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

[Circuit/System Verification](#)

NOTE: When removing connectors inspect for damage or corrosion. Damage or corrosion in the following requires repair or replacement of the affected.

- Passenger Presence Module
- Passenger Presence Module wiring harness

1. Verify the correct K85 Passenger Presence Module part number has been installed

- **If the K85 Passenger Presence Module installed has an incorrect part number**

Replace the K85 Passenger Presence Module.

- **Go to next step: If the K85 Passenger Presence Module installed has a correct part number**

2. Verify that DTC B1001 is not set as current in the K85 Passenger Presence Module.

- **If DTC is set as current. If Inflatable Restraint Sensing and Diagnostic Module part number is correct**

1. Verify the Inflatable Restraint Sensing and Diagnostic Module part number is correct.

- If the K36 Inflatable Restraint Sensing and Diagnostic Module part number is incorrect, replace the K36 Inflatable Restraint Sensing and Diagnostic Module
- Go to next step: If the K36 Inflatable Restraint Sensing and Diagnostic Module part number is correct

2. Replace the K85 Passenger Presence Module

- **Go to next step: If the DTC is no set as current**

3. All OK.

[Repair Instructions](#)

Perform the [Diagnostic Repair Verification](#) after completing the diagnostic procedure.

[Control Module References](#) for K85 Passenger Presence Module and K36 Inflatable Restraint Sensing and Diagnostic Module replacement, setup, and programming

DTC B1001 (INFLATABLE RESTRAINT SENSING AND DIAGNOSTIC MODULE)

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 00

Option Configuration

Circuit/System Description

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

Conditions for Running the DTC

System voltage is between 9 - 16 V.

Conditions for Setting the DTC

The 4-digit Primary Data Key stored in the inflatable restraint sensing and diagnostic module does not match the 4 digits stored in the body control module.

Action Taken When the DTC Sets

- The inflatable restraint sensing and diagnostic module requests the instrument cluster to illuminate the AIR BAG indicator.
- The inflatable restraint sensing and diagnostic module disables all deployments.

Conditions for Clearing the DTC

The last 4-digit Primary Data Key in the inflatable restraint sensing and diagnostic module matches the last 4 digits stored in the Body Control Module.

Diagnostic Aids

- This DTC is an indication that an incorrect inflatable restraint sensing and diagnostic module is installed in the vehicle, or that the inflatable restraint sensing and diagnostic module and/or the body control module was replaced without reprogramming the body control module with the new information.
- If the inflatable restraint sensing and diagnostic module was previously programmed and DTC B1001 is now set, the setup portion of program was not completed. Proceed to the inflatable restraint sensing and diagnostic module setup portion of the [K36 Inflatable Restraint Sensing and Diagnostic Module: Programming and Setup](#)

Reference Information

Schematic Reference

[SIR Wiring Schematics](#)

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Description and Operation

[Supplemental Inflatable Restraint System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)
- [Connector Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

1. Verify the scan tool K36 Inflatable Restraint Sensing and Diagnostic Module Primary Key Status parameter is Valid.
 - **If the K36 Inflatable Restraint Sensing and Diagnostic Module Primary Key Status parameter is Invalid**

Perform the K36 Inflatable Restraint Sensing and Diagnostic Module setup. Refer to [K36 Inflatable Restraint Sensing and Diagnostic Module: Programming and Setup](#) .
 - **Go to next step: If the K36 Inflatable Restraint Sensing and Diagnostic Module Primary Key Status parameter is Valid**
2. All OK.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

[Control Module References](#) for module replacement, programming and setup

DTC B1019

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 B1019 00

System Configuration Error

Circuit/System Description

The inflatable restraint sensing and diagnostic module monitors the number of safety components installed on the vehicle. When the ignition is turned ON, the inflatable restraint sensing and diagnostic module evaluates the number of safety components installed and compares it to the number of components the inflatable restraint sensing and diagnostic module expects to see on the vehicle with its current calibration. If there is a mismatch between detected components and the components programmed with the inflatable restraint sensing and diagnostic module calibration, DTC B1019 will set. The components (if equipped) that the inflatable restraint sensing and diagnostic module will detect include inflatable restraint deployment loops, impact sensors, passenger presence system components, seat position sensors, disable switches, and seat belt switches.

Conditions for Running the DTC

Ignition voltage is between 9 - 16 V.

Conditions for Setting the DTC

The setup for the inflatable restraint sensing and diagnostic module has not been completed and the inflatable restraint sensing and diagnostic module does not detect the passenger presence system (if equipped), the correct number of sensors, or deployment loops, that is expected with this calibration.

Action Taken When the DTC Sets

- The inflatable restraint sensing and diagnostic module requests the instrument cluster to illuminate the AIR BAG warning indicator.
- The DTC must be cleared before running the setup inflatable restraint sensing and diagnostic module.
- Air bag indicator will continue to flash until inflatable restraint sensing and diagnostic module setup procedure is complete.

Conditions for Clearing the DTC

- The condition for setting the DTC is no longer present.
- A history DTC will clear once 100 malfunction-free ignition cycles have occurred.

Diagnostic Aids

The inflatable restraint sensing and diagnostic module scan tool deployment loop, impact sensor, and passenger presence (if equipped) data will match what the inflatable restraint sensing and diagnostic module has been programmed to expect to see on the vehicle. B1019 DTC will set if a deployment loop or impact sensor is added or removed from the system, or if the passenger presence is not detected.

DTC B1019 will set when an open/high resistance DTC sets for a deployment loop or impact sensor. This causes mismatch between the learned and actual components connected to the inflatable restraint sensing and diagnostic module.

DTC B1019 can set with no other DTCs if an unused deployment loop or impact sensor circuit is shorted to ground. This causes a mismatch between the learned and actual components connected to the inflatable restraint sensing and diagnostic module.

Reference Information

Schematic Reference

- [Seat Belt Wiring Schematics](#)
- [SIR Wiring Schematics](#)

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Description and Operation

- [Seat Belt System Description and Operation](#)
- [Supplemental Inflatable Restraint System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Testing for Intermittent Conditions and Poor Connections](#)
- [Connector Repairs](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

NOTE: DTC B1019 can set after the inflatable restraint sensing and diagnostic module has been replaced and/or reprogrammed before the setup procedure is completed. The setup procedure cannot be completed if DTC B1019 is set as current or history. If a short or open is detected in a deployment circuit prior to the setup procedure being performed, the inflatable restraint sensing and diagnostic module will set DTC B1019.

1. Ignition ON.
2. Verify no other K36 Inflatable Restraint Sensing and Diagnostic Module DTCs are set.
 - **If other K36 Inflatable Restraint Sensing and Diagnostic Module DTCs are set**
Diagnose those DTCs first. Refer to [Diagnostic Trouble Code \(DTC\) List - Vehicle](#)
 - **Go to next step: If no other K36 Inflatable Restraint Sensing and Diagnostic Module DTCs are set**
3. Verify the enabled impact sensors identified in the scan tool data list match the number of actual impact sensors installed on the vehicle.
 - **If the number of enabled impact sensors do not match**
 1. Verify the correct K36 Inflatable Restraint Sensing and Diagnostic Module calibration file is loaded in the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - If the K36 Inflatable Restraint Sensing and Diagnostic Module calibration file is correct and the vehicle contains an incorrect number of sensors, identify which sensors are missing to make the vehicle match the K36 Inflatable Restraint Sensing and Diagnostic Module impact sensor calibration scan tool data list.
 - Go to next step: If the calibration file is incorrect
 2. Reprogram the K36 Inflatable Restraint Sensing and Diagnostic Module. Refer to [K36 Inflatable Restraint Sensing and Diagnostic Module: Programming and Setup](#)
 - **Go to next step: If the number of enabled impact sensors match**
4. Verify the enabled deployment loops identified in the scan tool data list match the deployment loops installed on the vehicle.
 - **If the number of enabled deployment loops do not match**
 1. Verify the correct K36 Inflatable Restraint Sensing and Diagnostic Module calibration file is loaded in the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - If the K36 Inflatable Restraint Sensing and Diagnostic Module calibration file is correct and the vehicle contains an incorrect number of loops, identify which deployment loops are missing to make the vehicle match the K36 Inflatable Restraint Sensing and Diagnostic Module impact sensor calibration scan tool data list.
 - Go to next step: If the calibration file is incorrect
 2. Program the K36 Inflatable Restraint Sensing and Diagnostic Module. Refer to [K36 Inflatable Restraint Sensing and Diagnostic Module: Programming and Setup](#)
 - **Go to next step: If the number of enabled deployment loops match**
5. Verify a passenger presence system is equipped on the vehicle.
 - **If a passenger presence system is not equipped on the vehicle**
Replace the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - **Go to next step: If a passenger presence system is equipped on the vehicle**
6. Verify the scan tool Passenger Presence System Enable Status parameter is Enabled.
 - **If the Passenger Presence System Enable Status parameter is not Enabled**
Refer to [K36 Inflatable Restraint Sensing and Diagnostic Module: Programming and Setup](#)
 - **Go to next step: If the Passenger Presence System parameter is Enabled**
7. Verify the scan tool Passenger Presence System Learn Status parameter is Learned.
 - **If the Passenger Presence System Learn Status parameter is not Learned**

1. Verify the scan tool can communicate with the passenger presence system.
 - If the scan tool will not communicate with the passenger presence system, refer to [Scan Tool Does Not Communicate with Low Speed GMLAN Device](#)
 - Go to next step: If the scan tool communicates
2. Ignition OFF, disconnect the scan tool. It may take up to 2 min for all vehicle systems to power down. Ignition ON.
3. Verify DTC B1019 is not set as current.
 - If the DTC is set as current, refer to [K36 Inflatable Restraint Sensing and Diagnostic Module: Programming and Setup](#)
 - Go to next step: If the DTC is not set as current
4. All OK.
 - **Go to next step: If the Passenger Presence System Learn status is Learned**
8. Replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

[Control Module References](#) for module replacement, programming and setup

PASSENGER PRESENCE SYSTEM REZEROING

Introduction

The inflatable restraints passenger presence system is a calibrated system that requires re-zeroing or a zero check anytime the seat cushion trim attachments have been removed or the passenger presence system has been replaced. The procedures below are designed to assist in the re-zeroing of the passenger presence system. Before you start, read these procedures carefully and completely. For further information regarding the passenger presence system refer to [Supplemental Inflatable Restraint System Description and Operation](#).

NOTE: The following procedures must be followed:

1. Read this procedure carefully and completely.
2. The passenger presence system will not function properly if the passenger presence system re-zeroing procedure is not performed.
3. Perform the [Diagnostic Repair Verification](#) after successfully completing the re-zeroing procedure to ensure the system is functioning properly.

Passenger Presence System Re-zeroing Procedure

NOTE:

- Before the passenger presence system can be re-zeroed the front passenger seat must be completely empty of all items. The presence of any liquid or items on the front passenger seat will affect the calibration and operation of the passenger presence system.
- DTC B0081 will set if the re-zero system test is performed with:
 - An aftermarket seat heater located too close to the sensor mat
 - A scan tool, laptop, or other electronic device is in the seat
 - The seat is damp or wet
 - An object or person is in the seat

1. Verify that the temperature is between 32°F (0°C) to 100°F (38 °C) before running a re-zero procedure.
2. Verify the seat is completely dry.
3. Empty the front outboard passenger seat.

4. Verify that all SIR and passenger presence system components, connectors, and connector position assurances are properly connected and mounted.
5. Install a scan tool.
6. Turn ON the ignition, with the engine OFF.

NOTE: The presence of current DTCs, except DTC B0081 11 or B0081 4B, will prevent the passenger presence system from re-zeroing and may set additional DTCs.

7. With a scan tool, perform the Passenger Presence Sensor Learn procedure.
8. If the test fails, confirm that the seat is empty and completely dry. Perform the Passenger Presence Sensor Learn test again. If the test fails again, verify DTC B0081 is not set as current, if the DTC is set refer to [Diagnostic Trouble Code \(DTC\) List - Vehicle](#) . If the test successfully completed, cycle the ignition OFF.
9. After the passenger presence system has been successfully re-zeroed, perform the [Diagnostic Repair Verification](#) .

SYMPTOMS - SIR

NOTE: Complete the following steps before using the symptom tables:

1. Perform [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 inflatable restraint sensing and diagnostic module (SDM) can communicate via the serial data link.
2. Review the SIR system description and operation in order to familiarize yourself with the system functions. Refer to [Supplemental Inflatable Restraint System Description and Operation](#).

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the SIR system.
- 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 [Airbag Indicator Malfunction - Driver](#) for a Driver Air Bag Indicator Malfunction.

Refer to [Airbag Indicator Malfunction - Passenger](#) for a Passenger Air Bag Indicator Malfunction.

AIRBAG INDICATOR MALFUNCTION - DRIVER

Diagnostic Instructions

- Perform the Diagnostic System Check prior to using this diagnostic procedure: [Diagnostic System Check - Vehicle](#)
- Review the description of Strategy Based Diagnosis: [Strategy Based Diagnosis](#)
- An overview of each diagnostic category can be found here: [Diagnostic Procedure Instructions](#)

Circuit/System Description

For an overview of the component/system, refer to: [Supplemental Inflatable Restraint System Description and Operation](#)

Component	Description
K36 Inflatable Restraint Sensing and Diagnostic Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Reference Information

Schematic Reference

SIR Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Inline Harness Connector End Views - Index** or **Component Connector End Views - Index**

Electrical Information Reference

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

Scan Tool Reference

Control Module References

Circuit/System Verification

1. Ignition - On/Vehicle - In Service Mode
2. Verify the condition does not exist: Air Bag Malfunction Indicator = Flashing
 - **If the condition exists**
Refer to: **K36 Inflatable Restraint Sensing and Diagnostic Module: Programming and Setup**
 - **Go to next step: If no condition exists**
3. Verify there are no DTCs set related to the following component/system: K36 Inflatable Restraint Sensing and Diagnostic Module
 - **If a related DTC is set**
Refer to: **Diagnostic Trouble Code (DTC) List - Vehicle**
 - **Go to next step: If a related DTC is not set**
4. Perform the appropriate scan tool control function: All Indicators @ P16 Instrument Cluster - On and Off
Verify the component activates: Air Bag Malfunction Indicator = On and Off
 - **If the component does not work as specified**
Replace the component: P16 Instrument Cluster
 - **Go to next step: If the component works as specified**
5. All OK.

Repair Instructions

Perform the Diagnostic Repair Verification after completing the repair: **Diagnostic Repair Verification**

For control module replacement, programming, and setup refer to: **Control Module References**

AIRBAG INDICATOR MALFUNCTION - PASSENGER

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.

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Control - Terminal 1 @ P14 Passenger Air Bag Disabled Indicator	B067F 02	B067F 04	B067F 01	-
Control - Terminal 3 @ P14 Passenger Air Bag Disabled Indicator	B0680 02	B0680 04	B0680 01	-
Ground - Terminal 2 @ P14 Passenger Air Bag Disabled Indicator	-	B067F 04, B0680 04	-	-

Circuit/System Description

For an overview of the component/system, refer to: [Supplemental Inflatable Restraint System Description and Operation](#)

Circuit	Description
Control	The output circuit is switched to 12 V to activate the component.
Ground	Chassis Ground

Component	Description
P14 Passenger Air Bag Disabled Indicator	The assembly contains individual switches. Each function has its own switch. The switches are connected to a resistor ladder so that a specific resistance is generated for each switch.
K36 Inflatable Restraint Sensing and Diagnostic Module	The control module monitors several sensors that can detect a collision. When a collision is detected, the control module will trigger certain air bags and seat belt pretensioners, depending on the angle and severity of the impact.

Reference Information

Schematic Reference

[SIR Wiring Schematics](#)

Connector End View Reference

[Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#)

Description and Operation

[Supplemental Inflatable Restraint System Description and Operation](#)

Electrical Information Reference

- [Circuit Testing](#)
- [Connector Repairs](#)

- [Testing for Intermittent Conditions and Poor Connections](#)
- [Wiring Repairs](#)

Scan Tool Reference

[Control Module References](#) for scan tool information

Circuit/System Verification

NOTE: The passenger air bag ON and OFF indicators may not operate as expected if there are supplemental inflatable restraint (SIR) DTCs. Repair all SIR DTCs before proceeding with this diagnostic.

1. Ignition ON.
2. Verify the passenger air bag ON indicator turns ON and OFF when commanding the Passenger Air Bag ON Indicator ON and OFF with a scan tool.
 - **If the air bag ON indicator does not turn ON or OFF**
Refer to Circuit/System Testing.
 - **Go to next step: If the air bag ON indicator turns ON or OFF**
3. Verify the passenger air bag OFF indicator turns ON and OFF when commanding the Passenger Air Bag OFF Indicator ON and OFF with a scan tool.
 - **If the air bag OFF indicator does not turn ON or OFF**
Refer to Circuit/System Testing.
 - **Go to next step: If the air bag OFF indicator turns ON or OFF**
4. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the P14 Passenger Air Bag Disabled Indicator. It may take up to 2 minutes for all vehicle systems to power down.
2. Test for less than 10 Ω between the ground circuit terminal E and ground.
 - **If 10 Ω or greater**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ground circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , repair the open/high resistance in the ground connection.
 - **Go to next step: If less than 10 Ω**
3. Ignition ON.
4. Verify a test lamp illuminates between the ignition circuit terminal B and ground.
 - **If the test lamp does not illuminate and the circuit fuse is good**
 1. Ignition OFF.
 2. Test for less than 2 Ω in the ignition circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , verify the fuse is OK and there is voltage at the fuse.
 - **If the test lamp does not illuminate and the circuit fuse is open**
 1. Ignition OFF.
 2. Test for infinite resistance between the ignition circuit and ground.
 - If less than infinite resistance, repair the short to ground on the circuit.
 - If infinite resistance, replace the disconnected control module.
 - **Go to next step: If the test lamp illuminates**

5. Ignition ON, command the passenger air bag OFF indicator OFF with a scan tool.
6. Test for less than 11 V between the ignition circuit terminal B and the control circuit terminal F.
 - **If 11 V or greater**
 1. Ignition OFF, disconnect the X1 harness connector at the P16 Instrument Cluster, ignition ON.
 2. Test for less than 1 V between B+ and control circuit.
 - If 1 V or greater, repair the short to ground on the circuit.
 - If less than 1 V, replace the P16 Instrument Cluster.
 - **Go to next step: If less than 11 V**
7. Command the passenger air bag OFF indicator ON with a scan tool.
8. Test for 1 V or greater between the ignition circuit terminal B and the control circuit terminal F.
 - **If less than 1 V**
 1. Disconnect the harness connector at the P16 Instrument Cluster.
 2. Test for less than 1 V between the control circuit and ground.
 - If greater than 1 V, repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the P16 Instrument Cluster.
 - **Go to next step: If 1 V or greater**
9. Command the passenger air bag ON indicator OFF with a scan tool.
10. Test for less than 11 V between the ignition circuit terminal B and the control circuit terminal C.
 - **If 11 V or greater**
 1. Ignition OFF, disconnect the X1 harness connector at the P16 Instrument Cluster, ignition ON.
 2. Test for less than 1 V between B+ and control circuit.
 - If 1 V or greater, repair the short to ground on the circuit.
 - If less than 1 V, replace the P16 Instrument Cluster.
 - **Go to next step: If less than 11 V**
11. Command the passenger air bag ON indicator ON with a scan tool.
12. Test for 1 V or greater between the ignition circuit terminal B and the control circuit terminal C.
 - **If less than 1 V**
 1. Disconnect the harness connector at the P16 Instrument Cluster.
 2. Test for less than 1 V between the control circuit and ground.
 - If greater than 1 V, repair the short to voltage on the circuit.
 - Go to next step: If less than 1 V
 3. Test for less than 2 Ω in the control circuit end to end.
 - If 2 Ω or greater, repair the open/high resistance in the circuit.
 - If less than 2 Ω , replace the P16 Instrument Cluster.
 - **Go to next step: If 1 V or greater**
13. Test or replace the P14 Passenger Air Bag Disabled Indicator.

Repair Instructions

Perform the [Diagnostic Repair Verification](#) after completing the repair.

- [Instrument Panel Airbag Arming Status Display Replacement](#)
- [Control Module References](#) for control module replacement, programming and setup

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 [Supplemental Inflatable Restraint System Description and Operation](#).

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. One example would be when adjusting the side door striker using a hammer or mallet. The ignition should be in the OFF position for ANY service work that requires impact to the body or frame. 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.

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> .
When performing SIR diagnostics.	Follow the appropriate SIR service manual diagnostic procedure(s) *
When moving, removing or replacing an SIR component or a component attached to an SIR component. (Anytime you remove fasteners.)	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
* DTC's may be lost when the negative battery cable is disconnected.	

SIR Service Precautions

WARNING: 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.

WARNING: 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 Inflatable Restraint Sensing and Diagnostic Module loses battery power during a collision. Deployment power is available for as much as 2 minutes after disconnecting the vehicle power. Waiting 2 minutes before working on the system after disabling the SIR system prevents deployment of the air bags from the reserved energy supply.

The inflatable restraint sensing and diagnostic module (SDM) fasteners should not be removed until the battery is disconnected, and the SDM electrical connector is removed. Fasteners should be re-installed and torqued to proper specifications before reattaching the SDM electrical connector. The electrical connector must be reattached before reconnecting the negative battery cable to the battery.

The SDM is equipped with a roll-over sensor. Turning the SDM over while under power may result in airbag deployment. Make sure the SDM is completely disconnected for at least a minute before handling this module.

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 air bags to temperatures above 85°C (185°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 80 cm (31.5 Inches) or greater:

- Inflatable Restraint Sensing and Diagnostic Module (SDM)
- Any air bag
- Driver steering wheel air bag coil
- Any impact sensor
- Seat belt anchor and/or retractor pretensioners
- Passenger presence module and/or occupant 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.

WARNING: 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 Inflatable Restraint Sensing and Diagnostic Module. Refer to [SIR Wiring Schematics](#), or [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) .
4. Wait 2 minutes 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 Inflatable Restraint Sensing and Diagnostic Module. Refer to [SIR Wiring Schematics](#), or [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) .
3. Turn the ignition switch to the ON position. The AIR BAG indicator will illuminate or 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 2 minutes 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 illuminate or 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

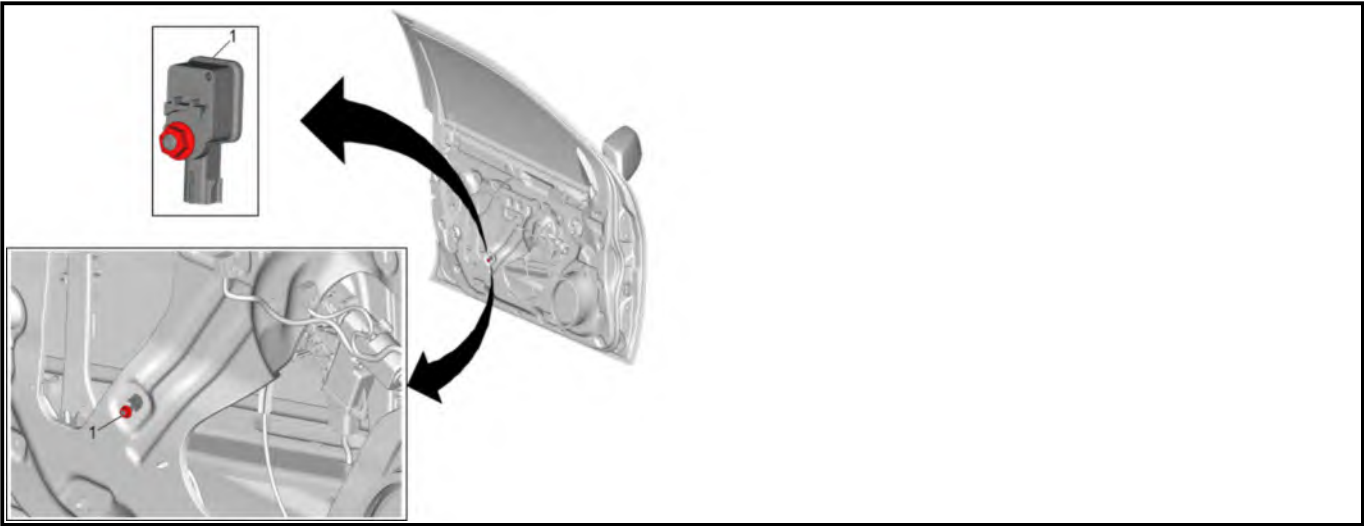
SIR SERVICE PRECAUTIONS

- WARNING:** If a service procedure indicates that a module is to be replaced, a new production unit **MUST** be ordered from the GM Parts Catalog or certified supplier. Using a module that has been reset by a 3rd party company is strictly prohibited. Not using a new production unit may result in improper performance of the safety system in the event of an accident, which may result in bodily injury.
- WARNING:** 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.
- WARNING:** 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.

General Service Instructions

- NOTE:** The Inflatable Restraint Sensing and Diagnostic Module (SDM) maintains a reserved energy supply. The reserved energy supply provides deployment power for the SIR air bags. Deployment power may be available for up to 2 minutes after disconnecting the vehicle power. Disabling the SIR system prevents deployment of the SIR air bags from the reserved energy supply.
- NOTE:** 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 air bags to temperatures above 85 Â°C (185 Â°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
- NOTE:** Discard any of the following components if it has been dropped from a height of 80 cm (31.5 in) or greater:
- Inflatable Restraint Sensing and Diagnostic Module
 - Passenger Presence System
 - Airbag
 - Driver steering wheel airbag coil
 - Seat belt pretensioner
 - Impact sensor

AIRBAG SIDE IMPACT SENSOR REPLACEMENT

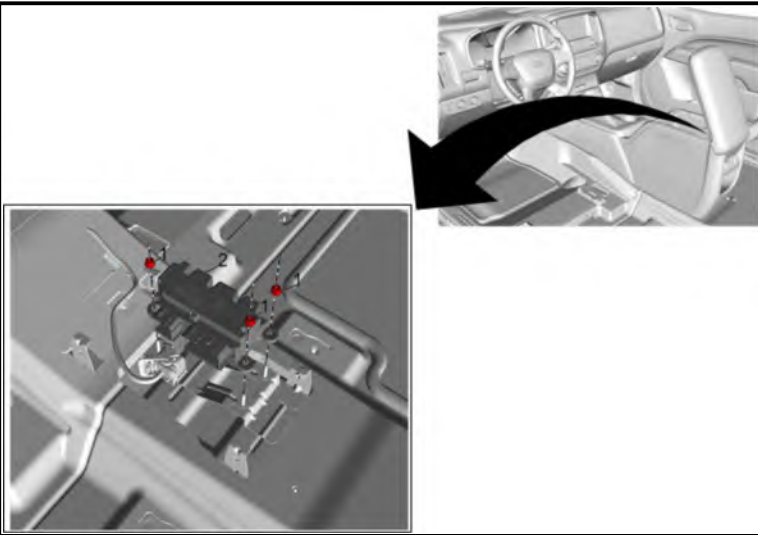


NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: 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. WARNING: Do not strike or jolt the inflatable restraint side impact sensor (SIS). Before applying power to the SIS make	

Callout	Component Name
sure that it is securely fastened. Failure to observe the correct installation procedures could cause SIR deployment, personal injury, or unnecessary SIR system repairs. Preliminary Procedures 1. Disable the supplemental inflatable restraint (SIR) system. Refer to SIR Disabling and Enabling. 2. Remove the front side door trim panel. Refer to Front Side Door Trim Replacement. 3. Remove the front side door water deflector.	
1	Inflatable Restraint Side Impact Sensor Assembly CAUTION: Refer to Fastener Caution. Procedure 1. Disconnect the electrical connector. 2. Loosen the fasteners and slide the sensor out of the keyhole slots. 3. The bolts are integral to the sensor assembly, DO NOT remove separately. NOTE: The sensor is located on the inside of the front door inner panel. Tighten 7.5 N.m (66 lb in)

RESTRAINTS CONTROL MODULE REPLACEMENT



NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Do not strike or jolt the Restraints Control Module (RCM). Before applying power to the RCM, make sure that it is securely fastened. Failure to observe the correct installation procedure could cause Supplemental Inflatable Restraint (SIR) deployment, personal injury, or unnecessary SIR system repairs. WARNING: Refer to SIR Warning . Preliminary Procedures 1. Disable the SIR system. SIR Disabling and Enabling	

Callout	Component Name
2.	Front Floor Console Compartment Replacement (Automatic Transmission) , or Front Floor Console Compartment Replacement (Manual Transmission)
1	Airbag Sensing and Diagnostic Module Nut (Qty: 3) CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
2	Restraints Control Module Procedure 1. Disconnect the electrical connectors. 2. Perform the necessary programming and setup procedure: Control Module References 3. Enable the SIR System. SIR Disabling and Enabling

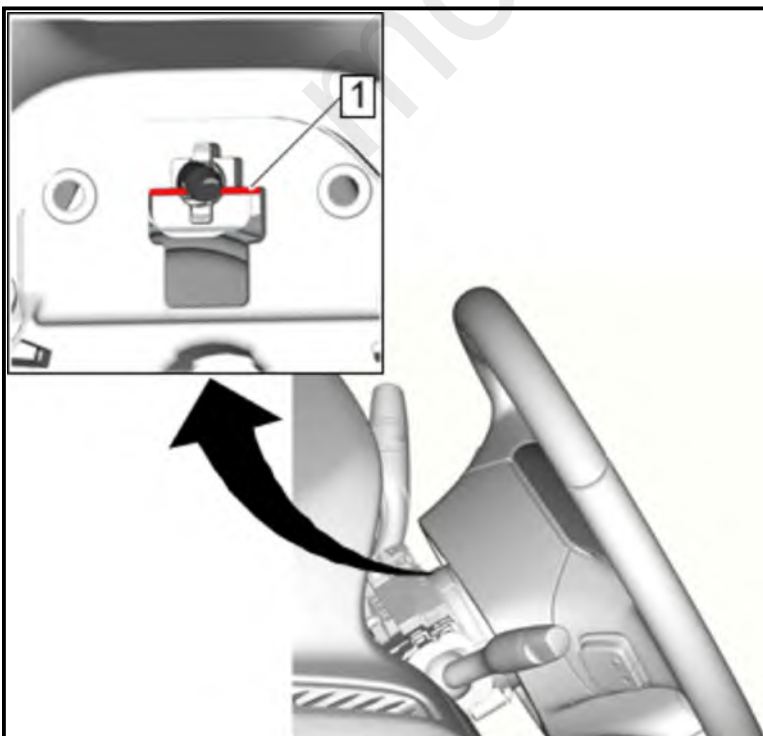
STEERING WHEEL AIRBAG REPLACEMENT

Removal Procedure

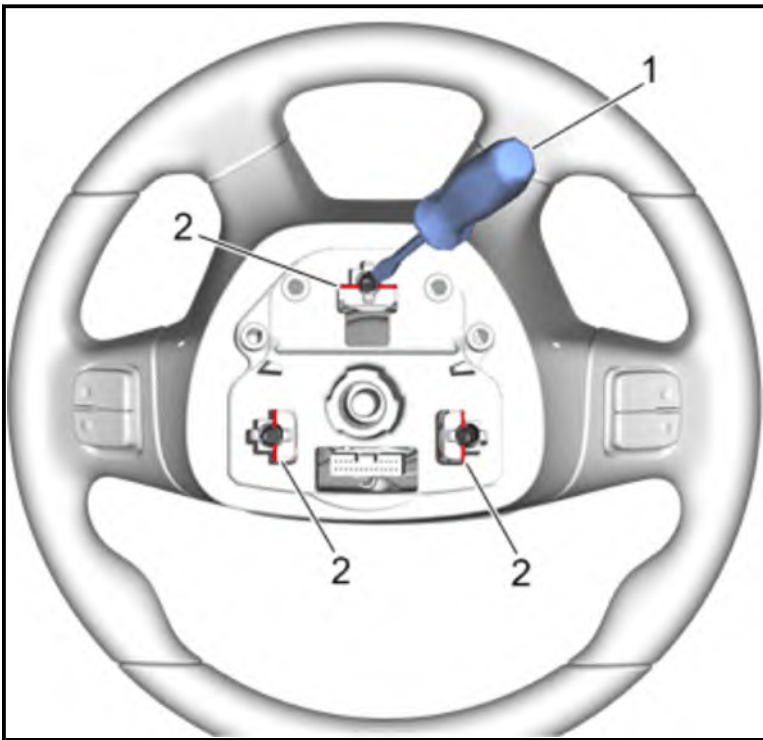
WARNING: Refer to **SIR Inflator Module Handling and Storage Warning** .

WARNING: Refer to **SIR Warning** .

1. Disable the SIR system. **SIR Disabling and Enabling**
2. Steering Column Upper Trim Cover - Reposition - **Steering Column Upper Trim Cover Replacement**
3. Turn the steering wheel to gain access to the spring fasteners (1) located on the backside of the steering wheel.

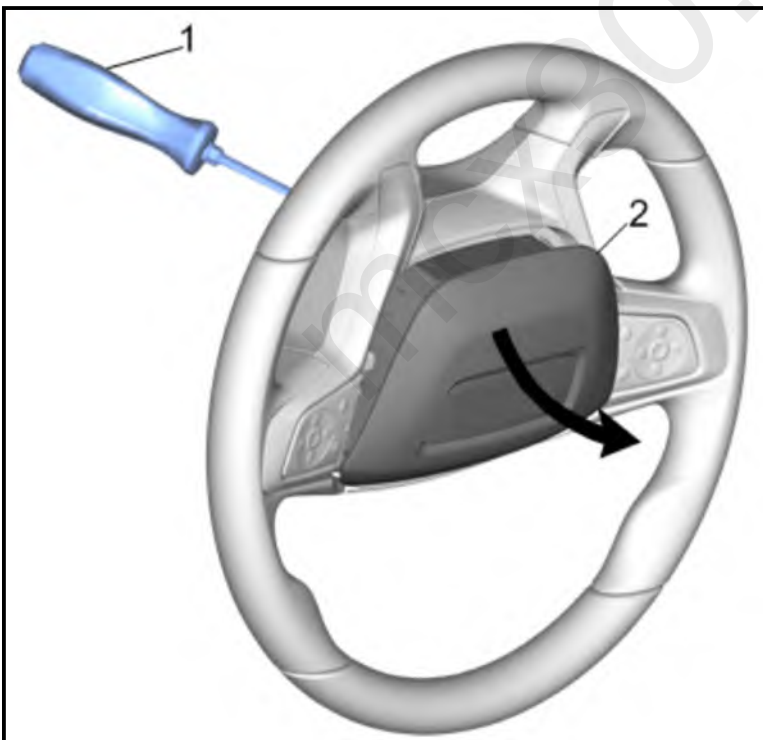


4. Insert a screwdriver (1) or equivalent tool into service opening.



NOTE: Rotate the steering wheel so that the service opening is at the top.

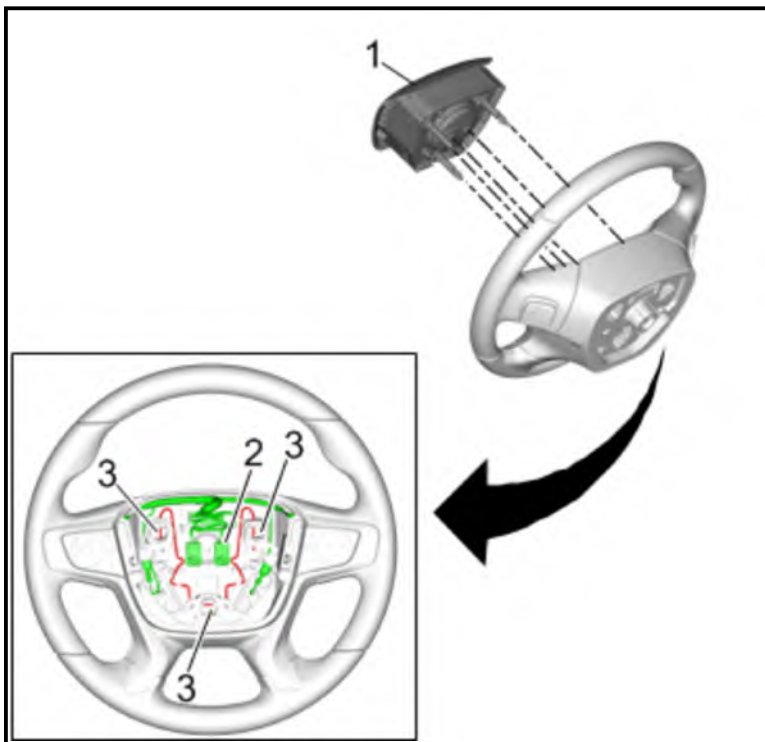
5. Apply and keep constant pressure on handle to push spring inward to disengage the spring fastener (2).
6. Rotate and repeat the steps to release the other two spring fasteners (2).
7. To release the steering wheel airbag (2) from the steering wheel, move the airbag downward, while the steering wheel remains in the upside-down position.



8. Release the connector position assurance (CPA) retainers.
9. Disconnect the electrical connectors.
10. Steering Wheel Airbag (2) - Remove
11. **Inflatable Restraint Module Handling and Scrapping (Except Europe)**

Installation Procedure

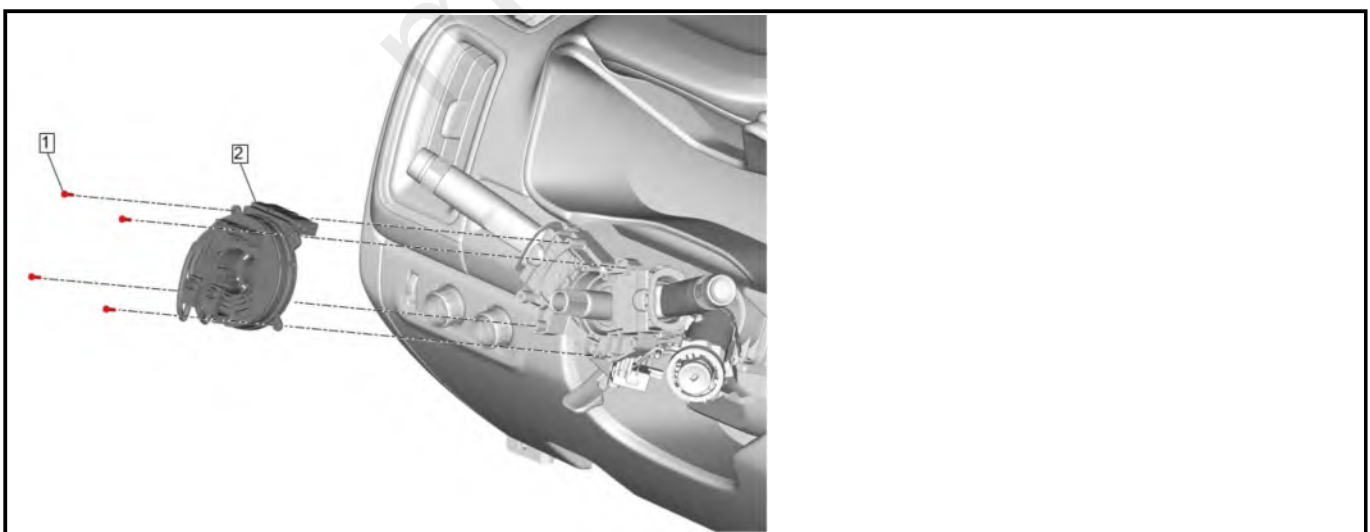
1. Connect the electrical connectors (2) and close secondary locking.



WARNING: After installation of the steering wheel airbag module to the steering wheel, slightly pull the module outward. If there is no give on the airbag module then it is secured correctly. If the airbag module is not fully attached personal injury could result.

2. Align the steering wheel airbag fasteners to the steering wheel spring fastener (3).
3. Push the steering wheel airbag (1) firmly into the steering wheel in order to engage both upper spring fasteners.
4. After both upper spring fasteners snapped in, push at the lower area of the inflatable restraint module to engage the lower spring fastener.
5. Steering Column Upper Trim Cover - Install - [Steering Column Upper Trim Cover Replacement](#)
6. Enable the SIR System. [SIR Disabling and Enabling](#).

STEERING WHEEL AIRBAG COIL REPLACEMENT



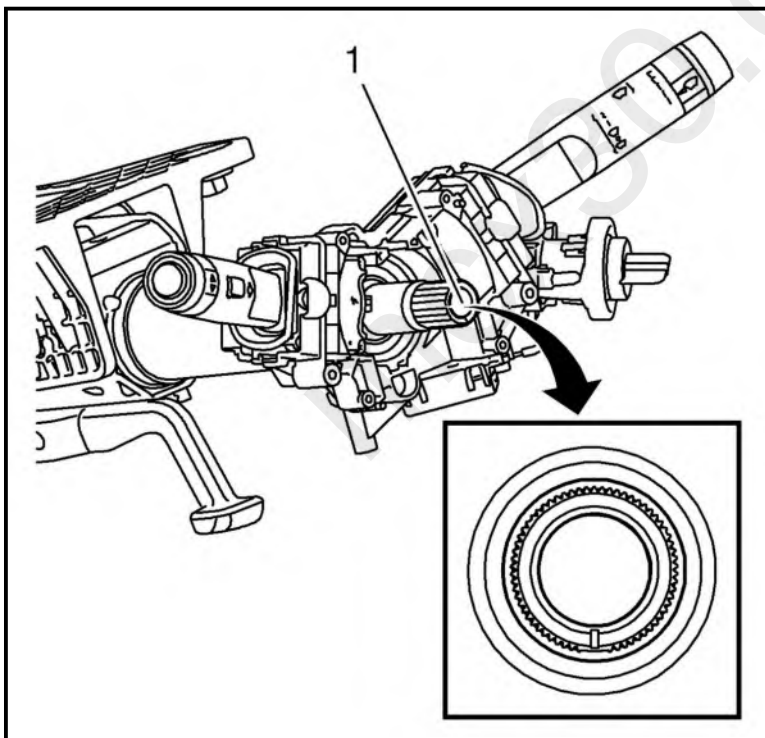
NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
Preliminary Procedures	
1.	Steering Wheel Replacement

Callout	Component Name
2. <u>Steering Column Lower Trim Cover Replacement</u>	
1	Steering Wheel Airbag Coil Bolt [4x] CAUTION: Refer to <u>Fastener Caution</u> . Tighten 3 N.m (27 lb in)
2	Steering Wheel Airbag Coil Procedure 1. Disconnect the electrical connectors. 2. Ensure the steering wheel airbag coil is CENTERED during installation. <u>Steering Wheel Airbag Coil Centering</u>

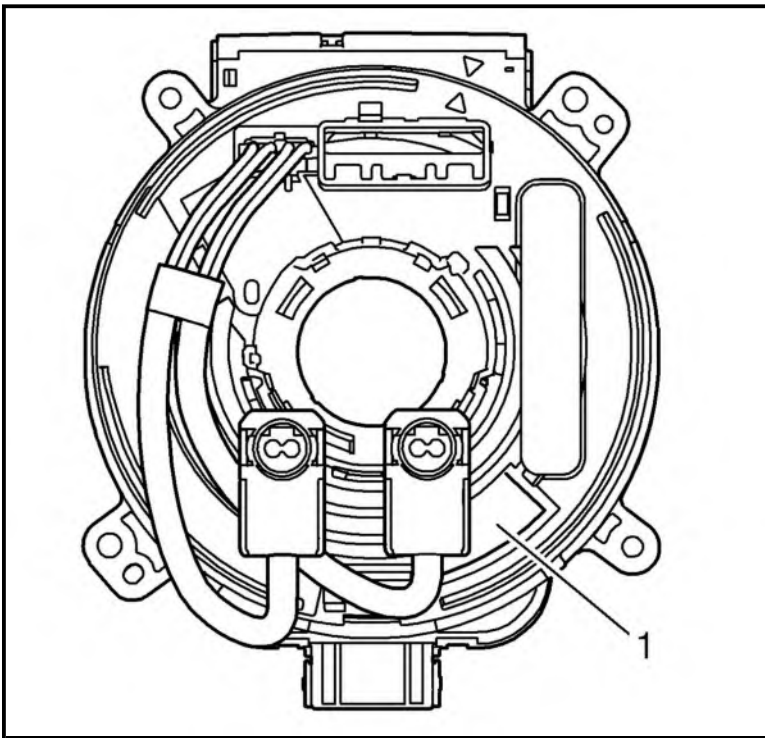
STEERING WHEEL AIRBAG COIL CENTERING

1. Verify the following conditions before centering the supplemental inflatable restraint (SIR) steering wheel module coil:



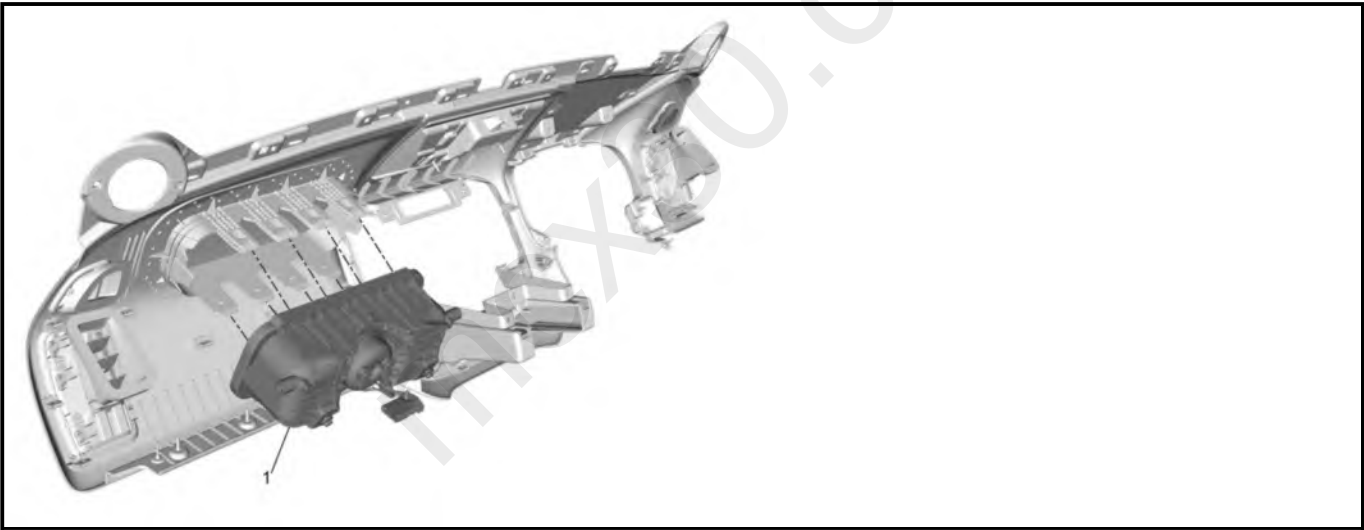
CAUTION: The new SIR coil assembly will be centered. Improper alignment of the SIR coil assembly may damage the unit, causing an inflatable restraint malfunction.

- The wheels on the vehicle are straight ahead.
 - The centering mark (1) of the steering shaft is in the 6 o'clock position.
2. Turn the lobe of the coil clockwise until the coil ribbon stops. Do not force.
 3. Turn the lobe of the coil counterclockwise approximately 3 turns to the neutral position.
 4. Properly align the coil until the centering window turns yellow (1). This indicates the CENTER position of the coil.



NOTE: The quantity of electrical connectors may vary depending upon the content of the vehicle.

INSTRUMENT PANEL AIRBAG REPLACEMENT



NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Inflator Module Handling and Storage Warning .	
WARNING: Refer to SIR Warning .	

Callout	Component Name
Preliminary Procedures 1. Disable the SIR system. SIR Disabling and Enabling 2. Remove the instrument panel. Refer to Instrument Panel Assembly Replacement .	
1	Instrument Panel Airbag Procedure 1. Inflatable Restraint Module Handling and Scrapping (Except Europe) 2. Insert a wood straight edge, one per side behind all locking tabs, to simultaneously release the instrument panel airbag housing from the instrument panel chute without overextending the airbag locking tabs. Use a wood straight edge that is approximately 50.8 cm (20 in) long and 5 mm (0.20 in) thick with a rounded edge. 3. Enable the SIR System. SIR Disabling and Enabling

AIRBAG FRONT PASSENGER PRESENCE MODULE REPLACEMENT



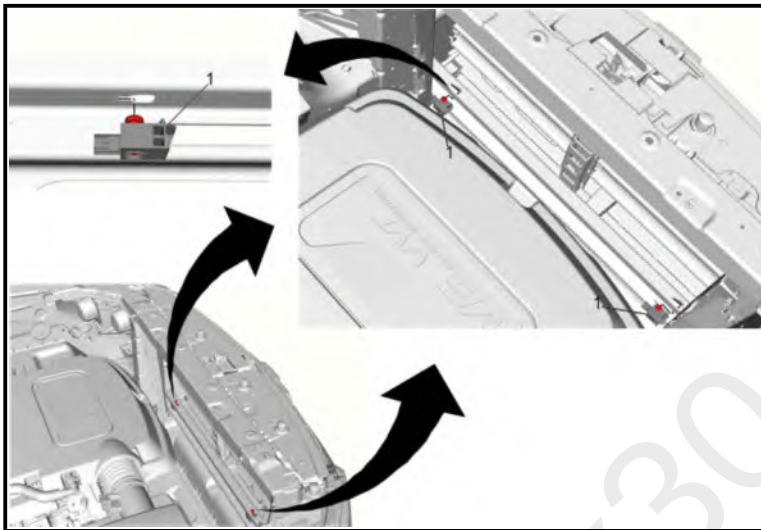
NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Warning .	
WARNING: To avoid personal injury, perform a passenger presence sensor rezeroing/learn on the passenger presence system whenever you remove or replace the	

Callout	Component Name
seat cushion trim. Failure to do so may cause the system to malfunction. WARNING: The passenger seat cushion assembly is serviced in a kit with the airbag front passenger presence module, cushion pad (and if equipped, heat mat, vent mat, vent mat support, comfort pads). All components in the service kit are assembled and calibrated as a unit and must be replaced as a complete assembly to prevent possible injury to the occupant. Using only some of the components in the service kit will cause the passenger presence system to operate improperly. Preliminary Procedure 1. Remove the driver or passenger seat. Refer to Front Seat Removal and Installation .	

Callout	Component Name
2. Remove the front seat cushion cover and pad. Refer to Front Seat Cushion Cover and Pad Replacement .	
1	Airbag Front Passenger Presence Module Retainer (Qty: 3)
2	Airbag Front Passenger Presence Module Procedure 1. Unhook the module from the bracket on the underside of seat frame and push up through seat pan. 2. Disconnect the electrical connector and remove the sensor and module from the seat pan. 3. Passenger Presence System Rezeroing

FRONT END INFLATABLE RESTRAINT DISCRIMINATING SENSOR REPLACEMENT



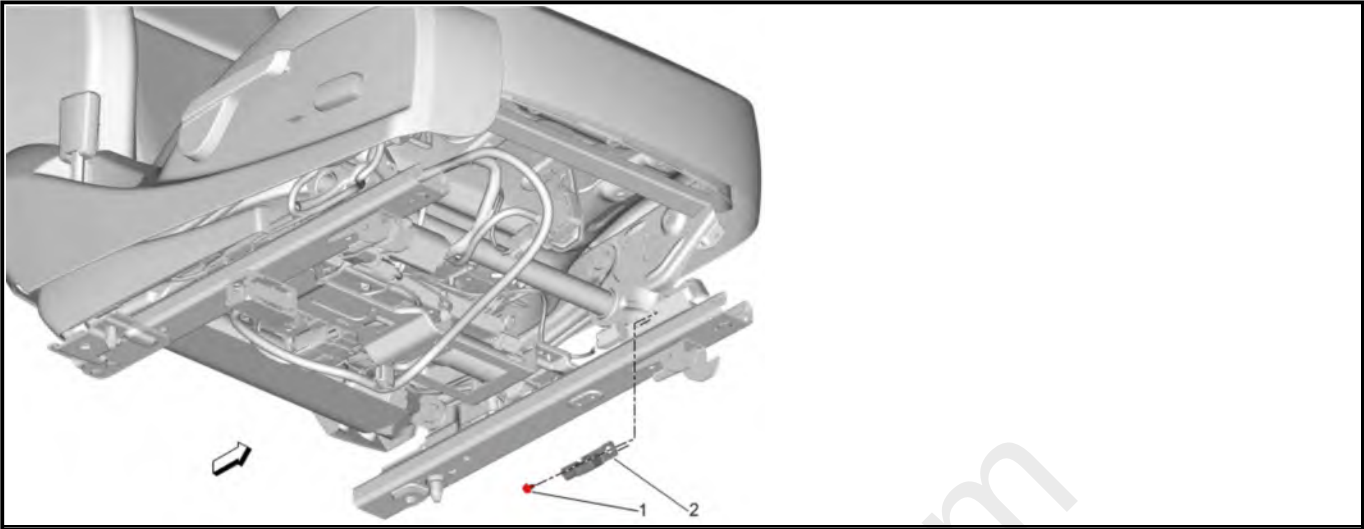
NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Warning .	
WARNING: Refer to SIR Inflator Module Handling and Storage Warning .	
WARNING: Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these	

Callout	Component Name
parts if necessary: • The seat cushion frame • The seat recliner, if equipped • The seat adjuster • The seat back frame Failure to do so may cause future personal injury. Preliminary Procedures 1. Disable the SIR system. Refer to SIR Disabling and Enabling. 2. Front Bumper Shutter Replacement (Without Bison) , or Front Bumper Shutter Replacement (With Bison)	
1	Airbag Front End Discriminating Sensor Assembly (Qty: 2) CAUTION: Refer to Fastener Caution . Procedure 1. Disconnect electrical connector. 2. Loosen the bolts and slide the sensor out of the keyhole slots. 3. The bolts are integral to the sensor assembly and DO NOT remove separately. 4. Enable the SIR System. SIR Disabling and Enabling NOTE: Integral sensor assembly bolt uses Left Hand threads. Use counterclockwise rotation to loosen fastener at TORX® tip end. If accessing at pan head end of the fastener, use clockwise rotation to loosen bolt.

Callout	Component Name
	Tighten 7.5 N.m (66 lb in)

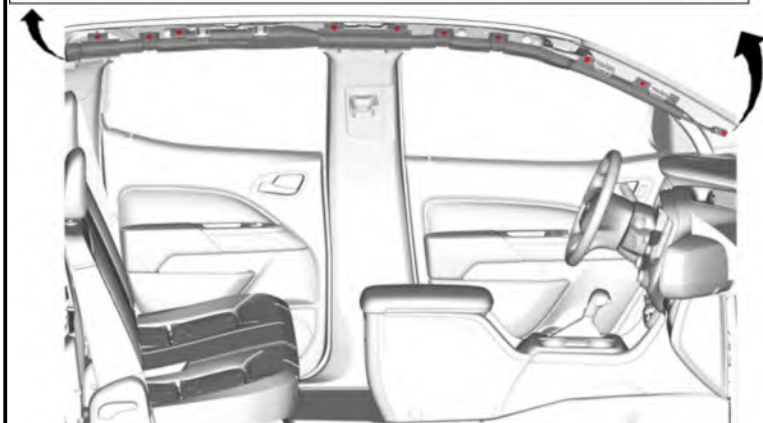
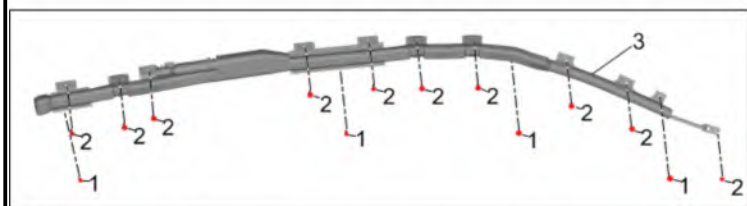
AIRBAG FRONT SEAT POSITION SENSOR REPLACEMENT



NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Warning . Preliminary Procedures 1. Disable the supplemental inflatable restraint (SIR) system. Refer to SIR Disabling and Enabling . 2. Remove the drivers seat. Refer to Front Seat Removal and Installation .	
1	Airbag Front Seat Position Sensor Fastener CAUTION: Refer to Fastener Caution .
2	Airbag Front Seat Position Sensor Procedure Disconnect the electrical connector.

FRONT AND REAR ROW ROOF RAIL AIRBAG REPLACEMENT

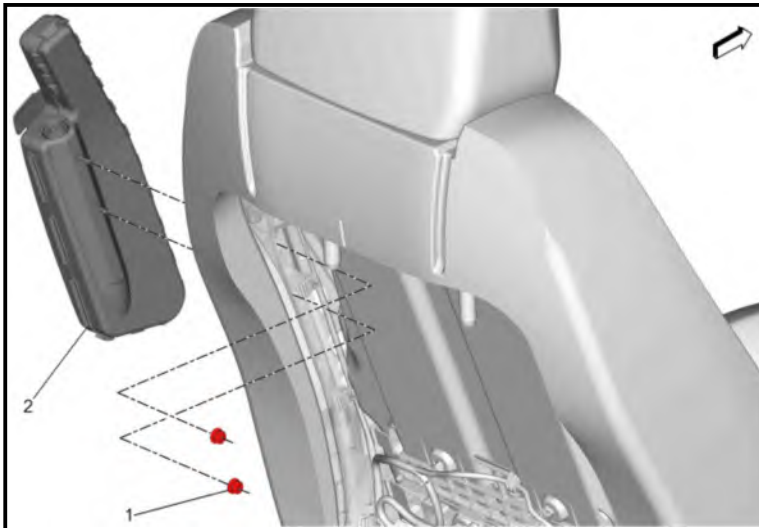


NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: In order to prevent SIR deployment, personal injury, or unnecessary SIR system repairs, do not strike the door or the door pillar in the area of the side impact sensor (SIS). Turn OFF the ignition and remove the key when performing service in the area of the SIS. WARNING: When installing the roof rail airbag, do not twist or turn the airbag 360	

Callout	Component Name
degrees. Securing the roof rail airbag with an airbag twisted or turned 360 degrees may cause the airbag not to deploy correctly and could cause personal injury. WARNING: Refer to SIR Warning . WARNING: Refer to SIR Inflator Module Handling and Storage Warning . Preliminary Procedures 1. Disable the SIR system. Refer to SIR Disabling and Enabling 2. It is only necessary to lower the headliner. Only do those steps in headliner replacement that will lower the headliner enough to gain access to the part. Refer to Headlining Trim Panel Replacement (Crew Cab) , or Headlining Trim Panel Replacement (Extended Cab).	
1	Front and Rear Row Seat Roof Rail Airbag Retainer (Qty: 4)
2	Front and Rear Row Seat Roof Rail Airbag Fastener (Qty: 10) CAUTION: Refer to Fastener Caution . Tighten 9 N.m (80 lb in)
3	Front and Rear Row Seat Roof Rail Airbag Assembly Procedure 1. Disconnect the electrical connector. 2. Remove the roof side rail inflatable restraint module from the vehicle. 3. Refer to Inflatable Restraint Module Handling and Scrapping (Except Europe).

FRONT SEAT OUTBOARD SEAT BACK AIRBAG REPLACEMENT



NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary: • The seat cushion frame • The seat recliner, if equipped • The seat adjuster • The seat back frame Failure to do so may cause future personal injury. WARNING: Do not repair or replace the seat stitching or seams in the	

Callout	Component Name
seat back trim cover with an internal mounted seat side airbag module. Replace the complete seat back trim cover from the OEM. Non-OEM seat stitching may cause improper airbag deployment which could result in personal injury. Preliminary Procedure 1. Disable the SIR system. Refer to SIR Disabling and Enabling. 2. Remove the driver or passenger seat back cover and pad. Refer to Front Seat Back Cover and Pad Replacement.	
1	Front Seat Outboard Seat Back Airbag Nuts (Qty: 2) CAUTION: Refer to Fastener Caution. Procedure 1. Locally separate the seat cushion cover from the seat cushion pad by pulling the cover away from the pad. 2. Disengage the harness retainer near the airbag module. 3. Remove the airbag module nuts. Note the airbag module and harness routing for re-installation. 4. Note the routing of the airbag module studs through the cover during re-installation. Tighten 9 N.m (80 lb in)
2	Front Seat Outboard Seat Back Airbag Procedure 1. Remove the connector position assurance (CPA) from the module electrical connector. 2. Disconnect the electrical connector.

Callout	Component Name
	3. Remove the airbag module from the two inside cover flaps. Remove the airbag module from the top of the seat back trim cover chute. 4. Install the airbag module through the top of the seat back trim cover chute. Once the airbag module is in the chute, align the airbag module studs through the chute holes. Be sure not to twist the chute when installing the airbag to the seat back cushion frame. 5. Refer to Inflatable Restraint Module Handling and Scrapping (Except Europe).

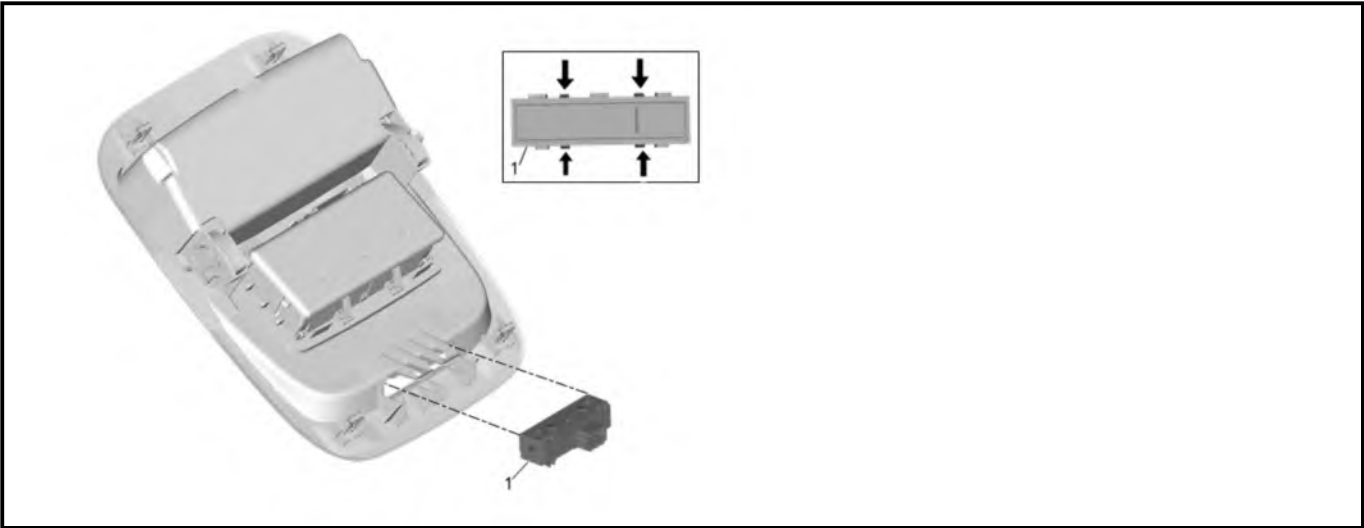
AIRBAG SIDE IMPACT REAR SENSOR REPLACEMENT



NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Warning . WARNING: Refer to SIR Inflator Module Handling and Storage Warning . WARNING: Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary: • The seat cushion frame	

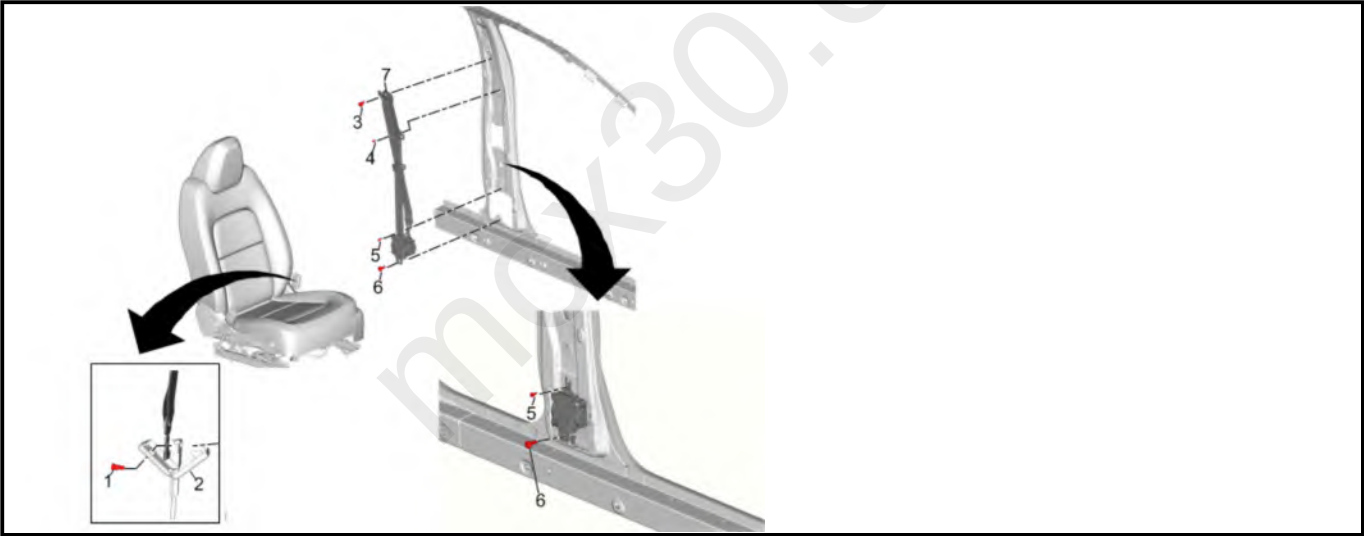
Callout	Component Name
• The seat recliner, if equipped • The seat adjuster • The seat back frame Failure to do so may cause future personal injury. Preliminary Procedures 1. Disable the SIR system. Refer to SIR Disabling and Enabling. 2. Remove the body lock pillar garnish molding. Refer to Body Lock Pillar Garnish Molding Replacement.	
1	Airbag Side Impact Rear Sensor Assembly CAUTION: Refer to Fastener Caution. Procedure 1. Disconnect electrical connector. 2. Loosen the fastener and slide the sensor out of the keyhole slot. NOTE: Integral sensor assembly bolt uses Left Hand threads. Use counterclockwise rotation to loosen fastener at TORX® tip end. If accessing at pan head end of the fastener, use clockwise rotation to loosen bolt. Tighten 7.5 N.m (66 lb in)



NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
Preliminary Procedure Remove the roof console. Refer to Roof Console Replacement .	
1	Inflatable Restraint Instrument Panel Module Indicator Assembly Procedure Depress the 4 tabs to release from the roof console.

FRONT SEAT BELT RETRACTOR REPLACEMENT (CREW CAB)

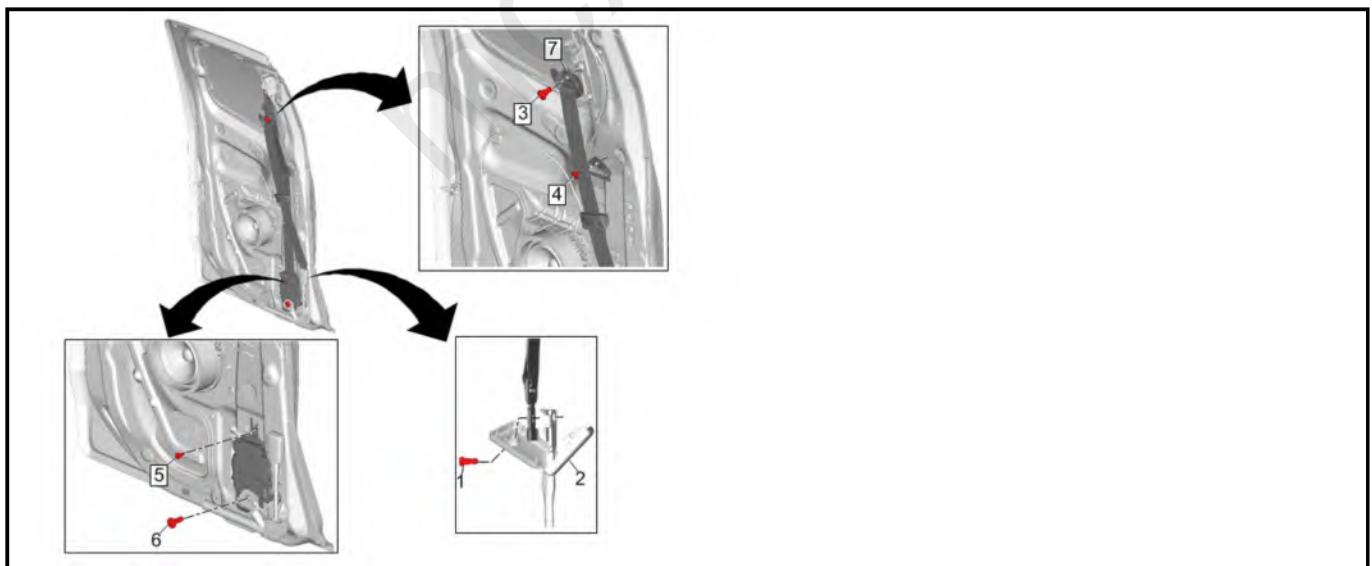


Callout	Component Name
WARNING: Refer to SIR Warning .	
WARNING: Refer to SIR Inflator Module Handling and Storage Warning .	
WARNING:	

Callout	Component Name
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 appropriate country, regional or local laws. Preliminary Procedures 1. Move the front seat to a full forward and full up position. 2. Disable the SIR. Refer to SIR Disabling and Enabling. 3. Remove the center pillar lower trim panel. Refer to Center Pillar Lower Trim Panel Replacement.	
1	Driver or Passenger Seat Belt Tensioner Cover Fastener

Callout	Component Name
	CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
2	Driver or Passenger Seat Belt Tensioner Cover
3	Driver or Passenger Seat Retractor Side Belt Fastener (Upper) Tighten 45 N.m (33 lb ft)
4	Driver or Passenger Seat Retractor Side Belt Push On Retainer Procedure Use a flat-bladed tool to remove locking pin in retainer.
5	Driver or Passenger Seat Belt Retractor Fastener (Lower retractor, upper fastener) Tighten 9 N.m (80 lb in)
6	Driver or Passenger Seat Retractor Side Belt Fastener (Lower) Tighten 45 N.m (33 lb ft)
7	Driver or Passenger Front Seat Belt Retractor Assembly Procedure 1. Disconnect the electrical connector. 2. Refer to Pretensioner Handling and Scrapping (Except Europe). 3. If vehicle is equipped with front seat motorized retractor (AX7). Refer to Control Module References .

FRONT SEAT BELT RETRACTOR REPLACEMENT (EXTENDED CAB)



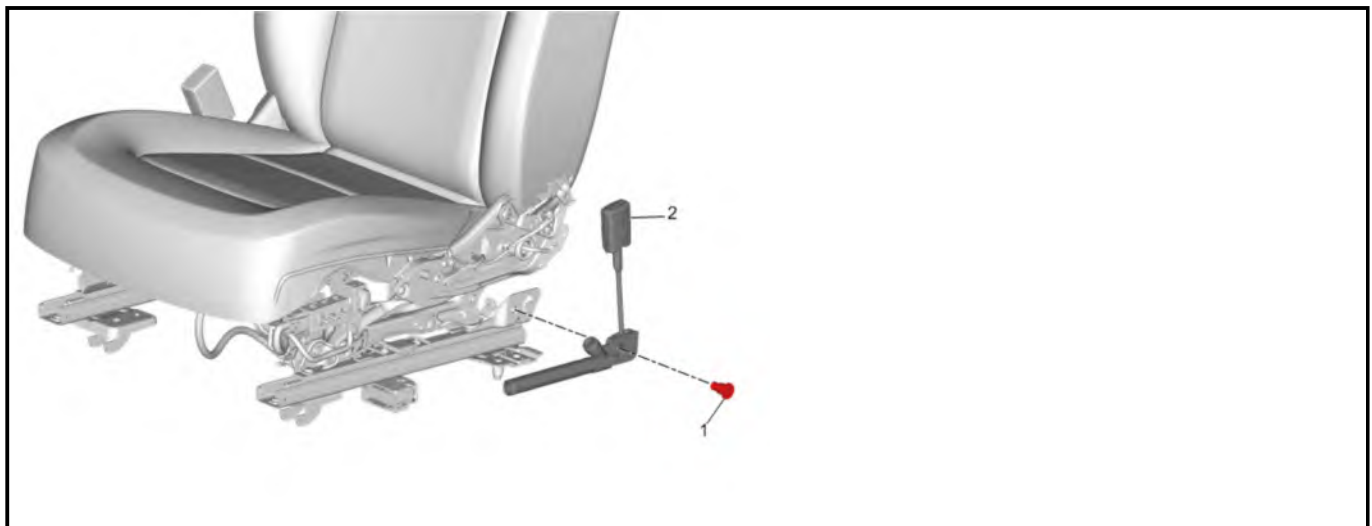
NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Warning .	

Callout	Component Name
WARNING: Refer to SIR Inflator Module Handling and Storage Warning . WARNING: 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 appropriate country, regional or local laws.	

Callout	Component Name
Preliminary Procedures Rear Side Door Trim Replacement (Extended Cab) Rear Side Door Latch Control Replacement Front Seat Belt Anchor Plate Tensioner Replacement (Extended Cab)	
1	Driver or Passenger Seat Belt Tensioner Cover Fastener CAUTION: Refer to Fastener Caution . Tighten 6 N.m (53 lb in)
2	Driver or Passenger Seat Belt Tensioner Cover
3	Driver or Passenger Seat Retractor Side Belt Fastener (Upper) Tighten 45 N.m (33 lb ft)
4	Driver or Passenger Seat Retractor Side Belt Push On Retainer Procedure Use a flat-bladed tool to remove locking pin in retainer.
5	Driver or Passenger Seat Belt Retractor Fastener (Lower retractor, upper fastener) Tighten 9 N.m (80 lb in)
6	Driver or Passenger Seat Retractor Side Belt Fastener (Lower) Tighten 45 N.m (33 lb ft)
7	Driver or Passenger Front Seat Belt Retractor Assembly Procedure - Disconnect the electrical connector. Pretensioner Handling and Scrapping (Except Europe). Control Module References for programming and set-up procedures, if required.

FRONT SEAT BELT ANCHOR PLATE TENSIONER REPLACEMENT (CREW CAB)

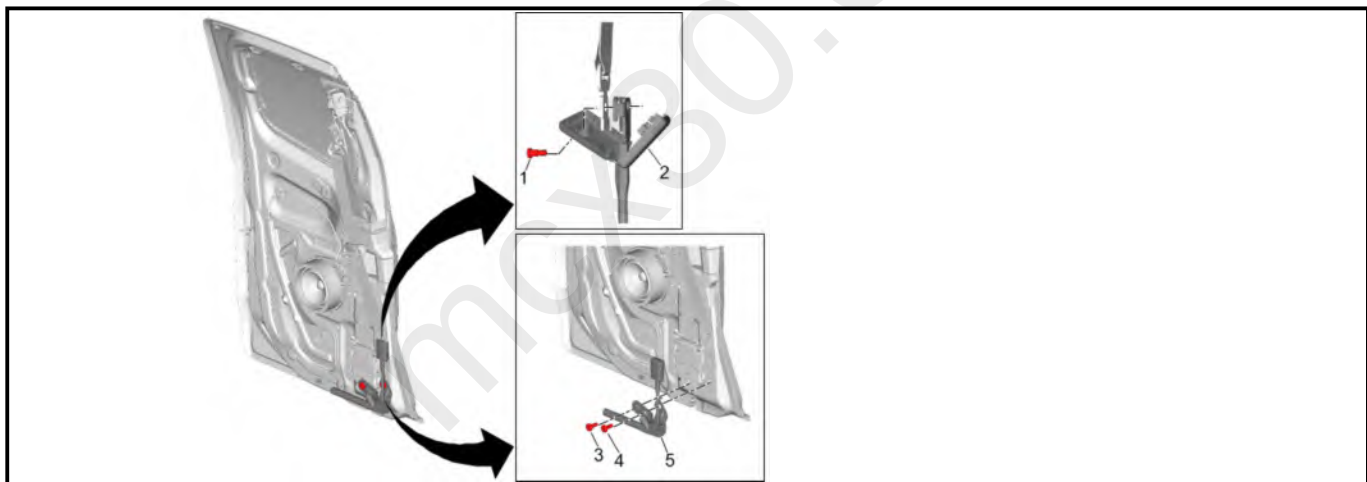


NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Warning . WARNING: 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 appropriate country, regional or local laws. Preliminary Procedures	

Callout	Component Name
	1. Move the front seat to the full forward and full up position. 2. Disable the SIR. Refer to SIR Disabling and Enabling. 3. Disconnect the seat belt from the tensioner. Refer to Front Seat Belt Retractor Replacement (Crew Cab). 4. Remove the driver or passenger front seat belt anchor plate tensioner cover. Refer to Front Seat Belt Anchor Plate Tensioner Cover Replacement. 5. For pretensioner handling and scrapping, refer to Pretensioner Handling and Scrapping (Except Europe).
1	Driver or Passenger Seat Belt Tensioner Fastener CAUTION: Refer to Fastener Caution Tighten 45 N.m (33 lb ft)
2	Driver or Passenger Seat Belt Tensioner Assembly Procedure Disconnect the electrical connector.

FRONT SEAT BELT ANCHOR PLATE TENSIONER REPLACEMENT (EXTENDED CAB)



NOTE: Callouts in the following chart represent components shown in graphic above.

Callout	Component Name
WARNING: Refer to SIR Warning .	
WARNING: In order to prevent accidental deployment and the risk of personal injury, do not	

Callout	Component Name
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 appropriate country, regional or local laws. Preliminary Procedures 1. SIR Disabling and Enabling 2. Rear Side Door Trim Replacement (Extended Cab) 3. Pretensioner Handling and Scrapping (Except Europe)	
1	Driver or Passenger Seat Belt Tensioner Cover Fastener CAUTION: Refer to Fastener Caution . Tighten

Callout	Component Name
	6 N.m (53 lb in)
2	Driver or Passenger Seat Belt Tensioner Cover
3	Driver or Passenger Seat Retractor Side Belt Fastener (Lower) Tighten 45 N.m (33 lb ft)
4	Front Seat Belt Anchor Plate Bolt Tighten 45 N.m (33 lb ft)
5	Front Seat Belt Anchor Plate Tensioner Assembly Procedure Disconnect the electrical connector.

REPAIRS AND INSPECTIONS REQUIRED AFTER A COLLISION

Repairs and Inspections Required After a Collision

WARNING:

Proper operation of the Supplemental Inflatable Restraint (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 of the air bag(s) in a frontal collision or deployment of the air bag(s) for conditions less severe than intended.

WARNING:

Do not repair or replace the seat

stitching or seams in the seat back trim cover with an internal mounted seat side airbag module.

Replace the complete seat back trim cover from the OEM. Non-OEM seat stitching may cause improper airbag deployment which could result in personal injury.

NOTE:

General Motors (GM) vehicles, systems and components are engineered, tested and manufactured to protect vehicle occupants based upon both government mandated and internal corporate requirements relative to durability, NVH (noise/vibration/harshness), occupant protection, and vehicle safety. Only authentic Genuine GM Parts are designed, engineered, manufactured and tested to the General Motors internal and government mandated standards and are the only ones equivalent to the original equipment installed on the vehicle.

1. After ANY collision, perform the following belt operational and functional checks:

- Turn the ignition switch to the ON position. Verify proper operation of the seat belt reminder lamp with the belt buckled and with the belt unbuckled.
- For each seating position:
 1. Inspect the shoulder belt guide to ensure that the seat belt webbing is seated flat in the guide slot and that the seat belt webbing does not bind.
 2. Verify that the seat belt buckle is accessible.

3. Fully extend the seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
 4. Allow the seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor.
 5. Snap the seat belt latch plate into the buckle. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
 6. Push the button on the buckle. Verify the seat belt latch plate releases easily from the buckle and the button returns to its original position.
2. In instances of vehicle collision where damage is limited to minor outer body panel cosmetic distortion: visually inspect vehicle for extent of damage, repair and replace components as necessary.
 3. In instances of vehicle collision where damage exceeds minor outer body panel cosmetic distortion, unrelated components can be subject to damage outside of obvious visual detection method in the area of impact. The table below references components requiring inspection or replacement to promote a safe and quality repair. Some inspections may require disassembly of vehicle components or additional functional tests. If you detect any damage, replace the component.

Component	Notes or Additional Instructions	Exceeds Minor Outer Body Panel Cosmetic Distortion without Airbag Deployment	Pretensioner Deployment	Seat Side Airbag Deployment	Frontal Airbag Deployment
Brakes & Steering					
Brake Pedal	-	Inspect	Inspect	Inspect	Inspect
Steering Column	Refer to Steering Column Accident Damage Inspection in Steering Column and Wheel.	Inspect	Inspect	Replace	Replace
Steering Wheel	-	Inspect	Inspect	Replace	Replace
Steering Wheel Airbag	If not deployed, visually inspect the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if found.	Inspect	Inspect	Inspect	Replace
Steering Wheel Air Bag Coil and Coil Wiring Pigtail	If deployed, inspect for melting, scorching, or other damage due to excessive heat.	-	-	-	Inspect
Steering Wheel Air Bag Mounting Points and Hardware	-	-	-	-	Inspect
Impact Sensors					
Front and/or Side Impact Sensors	Impact Sensor Replacement Guidelines: The impact sensor replacement policy requires replacing sensors in the area of the accident damage. The area of accident damage is defined as the portion of the	Replace	Replace	Replace	Replace

	vehicle which is crushed, bent, or damaged due to a collision. If the impact sensor or the mounting structure of the impact sensor is damaged, the impact sensor must be replaced. • Replace the impact sensor whether or not the air bags have deployed. • Replace the impact sensor even if it appears to be undamaged. • Impact 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 system. Do not try to determine whether the impact sensor is undamaged, replace the impact sensor. Also, if you follow a diagnostic trouble code (DTC) procedure and a malfunctioning impact sensor is indicated, replace the impact sensor.				
Impact Sensors Mounting Points and Hardware	-	Inspect	Inspect	Inspect	Inspect
Instrument Panel					
Instrument Panel Cross Car Beam	-	Inspect	Inspect	Inspect	Inspect
Instrument Panel Knee Bolsters and Mounting Points	-	Inspect	Inspect	Inspect	Inspect
Instrument Panel Mounting Points and Instrument Panel Brackets, Braces, etc.	-	Inspect	Inspect	Inspect	Inspect
Instrument Panel Air Bag Mounting Points and Hardware	-	Inspect	Inspect	Inspect	Inspect

Instrument Panel Airbag	Visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if deformation, distortion, or indentations are found.	Inspect	Inspect	Inspect	Replace
Knee Airbag	Visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if deformation, distortion, or indentations are found.	Inspect	Inspect	Inspect	Replace
Roof and Interior Trim					
Roof and Headliner Mounting Points	-	Inspect	Inspect	Inspect	Inspect
Door trim assembly	On Side of Impact. Visually inspect door trim assembly for deformation or distortion as a result of damage. Replace if deformation or distortion is found.	Inspect	Inspect	Inspect	-
Trim Mounting Points and Hardware	On Side of Impact	-	Inspect	Inspect	-
Roof Rail Airbag Mounting Points and Hardware	On Side of Impact	-	Inspect	Inspect	-
Roof Rail Airbag	On Side of Impact. If not deployed, visually inspect roof trim for deformation or distortion as a result of damage. Replace if found.	Inspect	Inspect	Replace	-
Seats					
Seats and Seat Mounting Points	-	Inspect	Inspect	Inspect	Inspect
Seat Back Cover	If Side Air Bag(s) Deployed. If not deployed, visually inspect seat back cover and top trim cover of the airbag modules for deformation or distortion as a result of damage. Replace if deformation or distortion is found.	Inspect	Inspect	Replace	Inspect
Seat Side Air Bag	If Deployed	-	-	Replace	Replace
Seat Side Air Bag Mounting Points and Hardware	If Side Air Bag(s) Deployed	-	-	Inspect	Inspect
Seat Adjuster	-	-	-	Inspect	-
Seat Back Frame	-	-	-	Inspect	-
Seat Cushion Frame	-	-	-	Inspect	-

Seat Cushion Side Covers and Switches	On Side of Impact	-	-	Inspect	-
Seat Recliner and Cover	If Equipped	-	-	Inspect	-
Seat Belts					
Seat Belt System	This applies to seat belt systems in use by people of adult size, seat belt systems used to secure child restraints, infant carriers, and booster seats, including LATCH system and top tether anchorages. Do NOT replace single seat belt system components in vehicles that have been in a collision as described above. Always replace the entire seat belt system with the buckle, guide, and retractor assembly, which includes the latch and webbing material. 1. Replace any seat belt system that was in use during the collision serious enough to deploy any automatic restraint device such as air bags and seat belt pretensioners. 2. Replace any seat belt system that has torn, worn, or damaged components. 3. Replace any seat belt system if you observe the words "REPLACE" or "CAUTION", or if a yellow tag is visible. Do not replace a seat belt if only the child seat caution label is visible. 4. Replace any seat belt system if you are doubtful about its condition.	Inspect	-	-	-
Seat Belt Anchor and/or Retractor Pretensioners	-	Inspect	Replace	Replace	Replace
Seat Belt Anchor and/or Retractor	Visually verify the seat belt retractor units are securely	Inspect	Inspect	Inspect	Inspect

Pretensioners Mounting Points and Hardware	attached and the seat belt anchor bolts are secure.				
Sensing and Diagnostic Module (SDM)					
Inflatable Restraint Sensing and Diagnostic Module (SDM) or Restraints Control Module (RCM)	Replace only if module has set DTC B0052 (or other related SDM DTCs) or DTC B1A33 (or other related RCM DTCs) and will not clear.	-	Replace	Replace	Replace
Inflatable Restraint Sensing and Diagnostic Module (SDM) or Restraints Control Module (RCM) Mounting Points and Hardware	-	-	Inspect	Inspect	Inspect

INFLATABLE RESTRAINT MODULE HANDLING AND SCRAPPING (EUROPE)

Special Tools

EL-38826 SIR Deployment Harness

For equivalent regional tools, refer to [Special Tools](#).

Live and Undeployed Air Bag

WARNING: Refer to [SIR Inflator Module Handling and Storage Warning](#) .

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

Dual Stage Air Bags

Dual stage air bags have two deployment stages. If stage 1 was used to deploy a dual stage air bag, stage 2 may still be active. Therefore, a deployed dual stage air bag must be treated as an active air bag. If disposal of a dual stage air bag is required, both deployment loops must be energized to deploy the air bag.

Scrapping Procedure

At the end of a vehicle's useful life, certain situations may arise which will require the disposal of a live and undeployed air bag. Do NOT dispose a live and undeployed air bag through normal disposal channels until the air bag has been deployed.

Do not deploy the air bag in the following situations:

- After replacement of an air bag under warranty - the air bag may need to be returned undeployed to the manufacturer.
- If the vehicle is the subject of a product liability claim, 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 air bags - follow the instructions in the campaign service bulletin for proper SIR handling procedures.

Deployment Procedures

NOTE: Some countries, states or localities may not allow service deployment of air bags without special permission or training. Local laws regarding deploying and scrapping of air bags/devices with pyrotechnics must be followed.

You can only deploy the air bag inside of the vehicle.

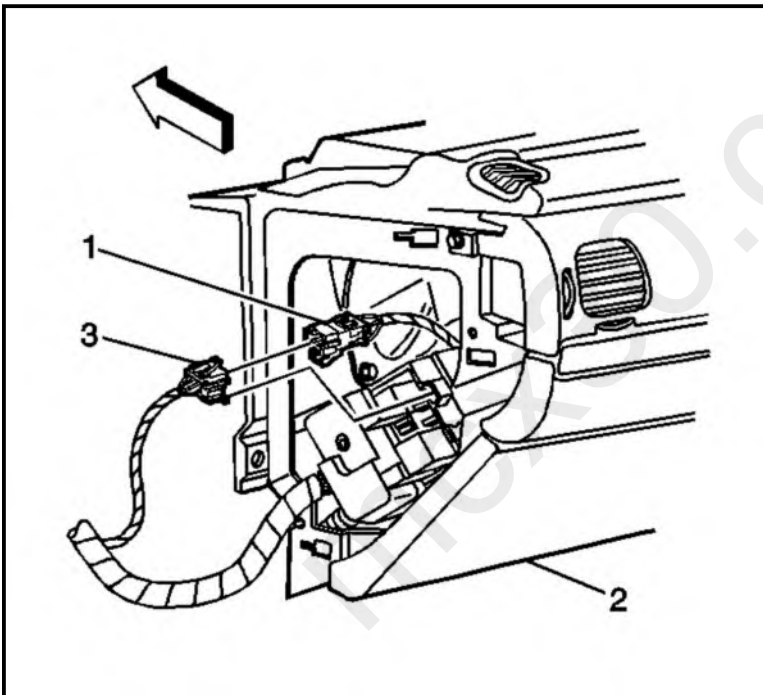
Deployment Inside Vehicle - Vehicle Scrapping Procedure

Deploy the air bags 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.

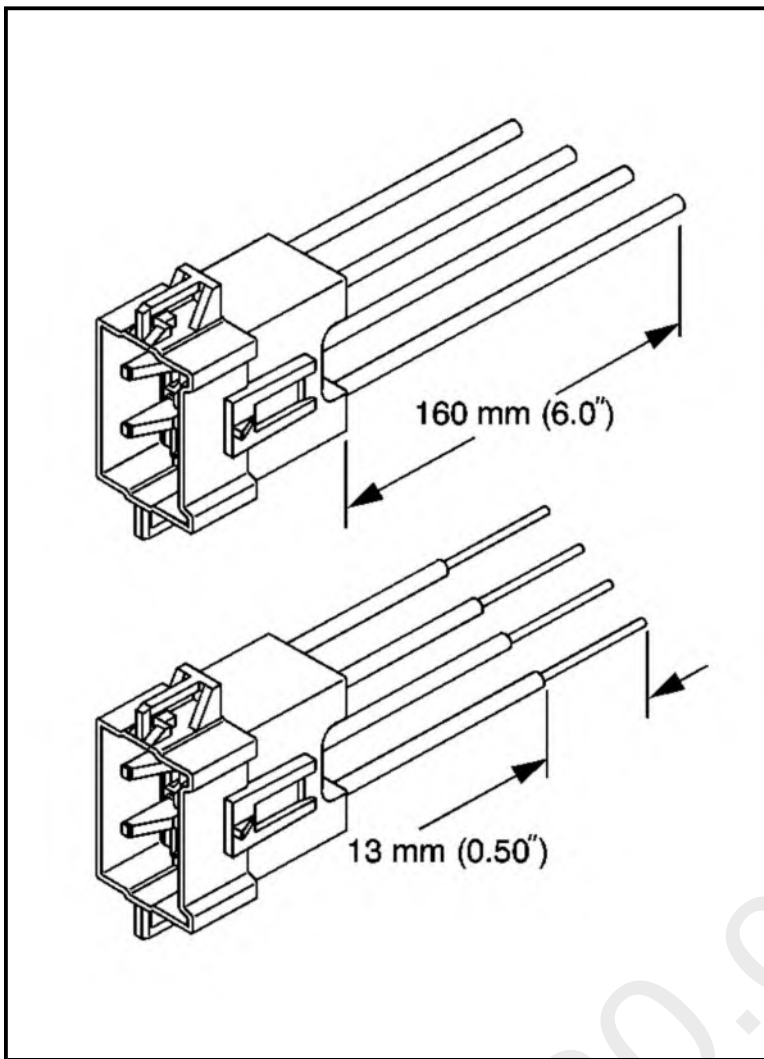
WARNING: Refer to [SIR Inflatable Module Deployment Outside Vehicle Warning](#) .

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 air bags which will be deployed are mounted securely.
4. Remove all loose objects from the front seats.
5. Disconnect the steering wheel air bag yellow connector (1) from vehicle harness yellow connector (3).



WARNING: 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.

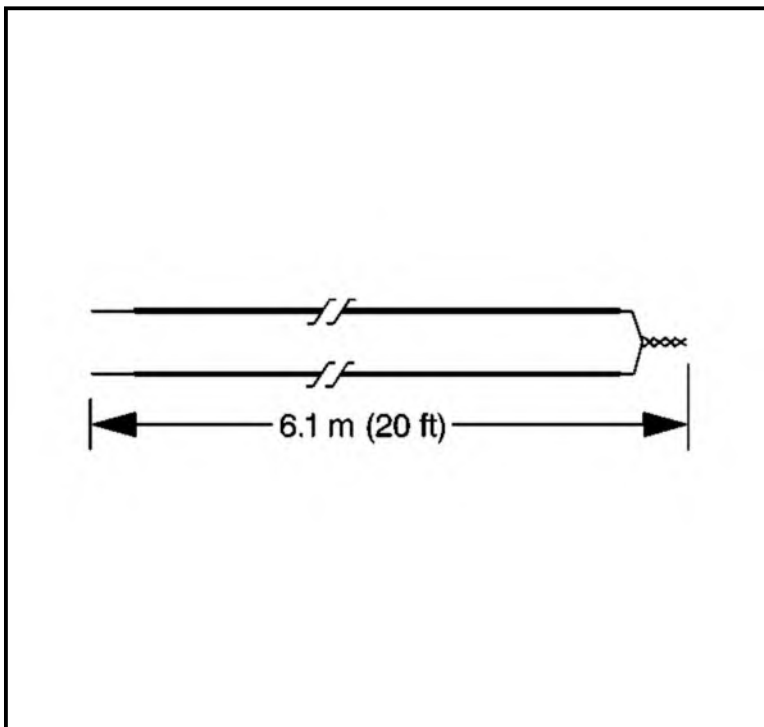
6. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.



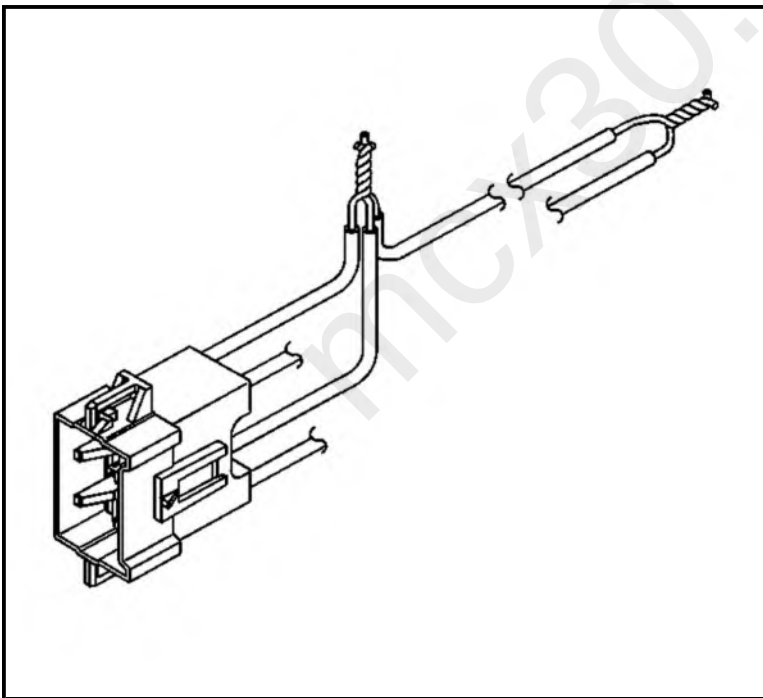
NOTE:

If the vehicle is equipped with dual stage air bags the steering wheel air bag and instrument panel air bag will each have 4 wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) for determining high and low circuits.

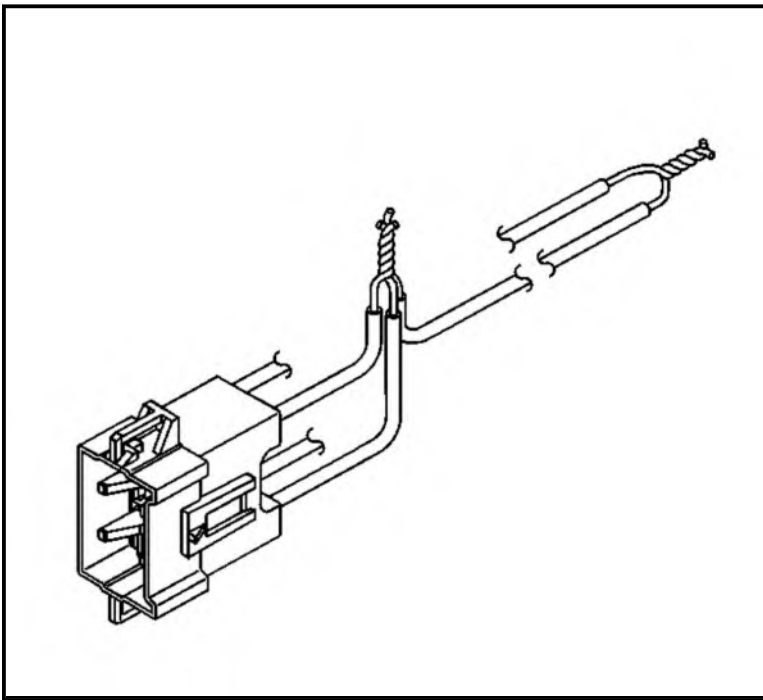
7. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
8. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. Use these wires to fabricate the driver deployment harness.



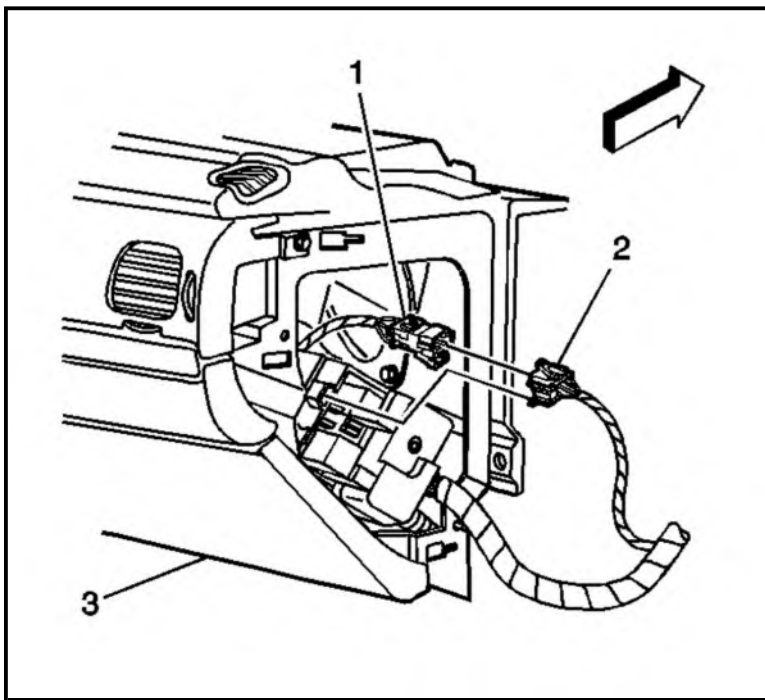
9. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
10. Twist together one end from each of the wires in order to short the wires. Deployment wires shall remain shorted, and not connected to a power source until you are ready to deploy the air bag.
11. Twist together the 2 connector wire leads from the high circuits from both stages of the steering wheel air bag, to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.



12. Inspect that the 3-wire connection is secure.
13. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
14. Twist together the 2 connector wire leads from the low circuits from both stages of the steering wheel air bag, to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.



15. Inspect that the 3-wire connection is secure.
16. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
17. Connect the deployment harness to the connector on the steering wheel air bag.
18. Route the deployment harness out of the driver side of the vehicle.
19. Disconnect the yellow left roof rail harness connector from the vehicle harness connector.
20. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
21. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
22. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the roof rail air bag deployment harness.
23. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
24. Twist together one end from each of the wires in order to short the wires.
25. Twist together one connector wire lead to one deployment wire.
26. Secure and insulate the connection using electrical tape.
27. Twist together and tape the remaining connector wire lead to the remaining deployment wire.
28. Connect the deployment harness to the yellow connector of the roof rail air bag.
29. Route the deployment harness out of the driver side of the vehicle.
30. Disconnect the instrument panel air bag yellow harness connector (1) from the vehicle harness connector (2).



NOTE: If the vehicle is equipped with dual stage air bags the steering wheel air bag and instrument panel air bag will each have 4 wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) for determining high and low circuits.

31. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
32. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
33. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the passenger deployment harness.
34. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
35. Twist together one end from each of the wires in order to short the wires.
36. Twist together the 2 connector wire leads from the high circuits from both stages of the instrument panel air bag to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.
37. Inspect that the 3-wire connection is secure.
38. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
39. Twist together the 2 connector wire leads from the low circuits from both stages of the instrument panel air bag to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.
40. Inspect that the 3-wire connection is secure.
41. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
42. Connect the deployment harness to the instrument panel air bag in-line connector.
43. Route the deployment harness out of the passenger side of the vehicle.
44. Disconnect the yellow harness connector to the right roof rail air bag from the vehicle harness connector.
45. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
46. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
47. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the roof rail air bag deployment harness.
48. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
49. Twist together one end from each of the wires in order to short the wires.
50. Twist together one connector wire lead to one deployment wire.

51. Secure and insulate the connection using electrical tape.
52. Twist together and tape the remaining connector wire lead to the remaining deployment wire.
53. Connect the deployment harness to the roof rail air bag yellow connector.
54. Route the deployment harness out of the passenger side of the vehicle.
55. Completely cover the windshield and the front door window openings with a drop cloth.
56. Stretch to the full length all of the deployment harness wires on the right side of the vehicle.
57. Deploy each deployment loop one at a time.
58. Place a power source, 12 V minimum/2A minimum, such as a vehicle battery, near the shorted end of the harnesses.
59. Separate one set of wires and touch the wire ends to the power source in order to deploy the selected air bag.
60. Disconnect the deployment harness from the power source and twist the wire ends together.
61. Continue the same process with the remaining deployment harnesses.
62. Disconnect all harnesses from the vehicle.
63. Discard the harnesses.
64. Scrap the vehicle in the same manner as a non-SIR equipped vehicle.
65. If one or all of the air bags did not deploy, remove the undeployed air bags from the vehicle.

INFLATABLE RESTRAINT MODULE HANDLING AND SCRAPPING (EXCEPT EUROPE)

NOTE: Do not use this document if vehicle is being serviced in Europe.

Special Tools

- EL-38826 SIR Deployment Harness
- EL-39401-B SIR Deployment Fixture

For equivalent regional tools, refer to [Special Tools](#).

Live and Undeployed Air Bag

WARNING: Refer to [SIR Inflator Module Handling and Storage Warning](#) .

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

Dual Stage Air Bags

Dual stage air bags have two deployment stages. If stage 1 was used to deploy a dual stage air bag, stage 2 may still be active. Therefore, a deployed dual stage air bag must be treated as an active air bag. If disposal of a dual stage air bag 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 air bag. Do NOT dispose a live and undeployed air bag through normal disposal channels until the air bag has been deployed.

Do not deploy the air bag in the following situations:

- After replacement of an air bag under warranty - the air bag may need to be returned undeployed to the manufacturer.
- If the vehicle is the subject of a product liability claim, 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 air bags - follow the instructions in the campaign service bulletin for proper SIR handling procedures.

Deployment Procedures

NOTE: Some countries, states or localities may not allow service deployment of air bags without special permission or training. Local laws regarding deploying and scrapping of air bags/devices with pyrotechnics must be followed.

You can deploy the air bag 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 Air Bag, Instrument Panel Air Bag, and Roof Rail Air Bag

Deploy the air bag 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 air bag is malfunctioning.
- The air bag is cosmetically damaged, scratched, or ripped.
- The air bag pigtail is damaged.
- The air bag connector is damaged.
- The air bag connector terminals are damaged.

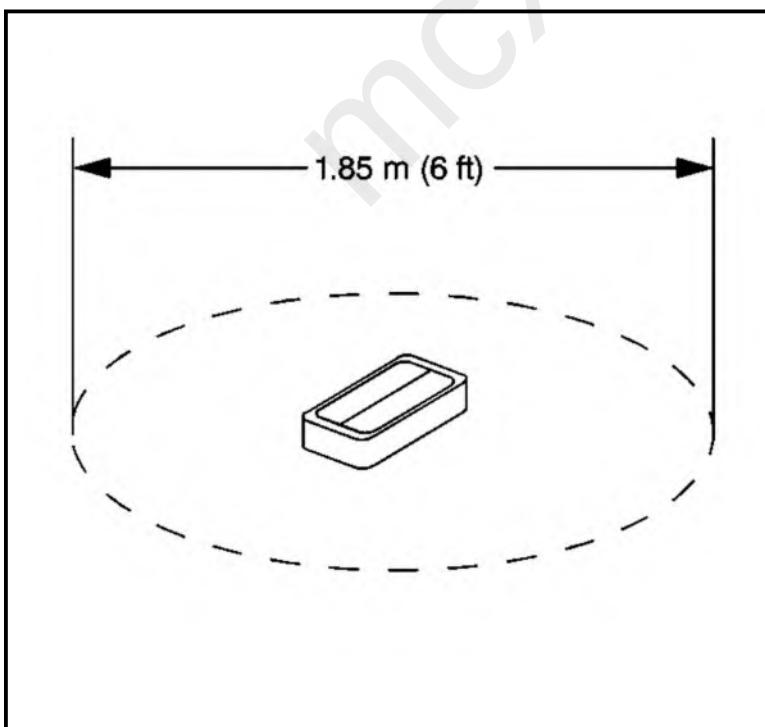
Deployment and disposal of a malfunctioning air bag is subject to any required retention period.

WARNING: Refer to [SIR Inflator Module Disposal Warning](#) .

1. Turn OFF the ignition.

WARNING: Refer to [SIR Inflator Module Handling and Storage Warning](#) .

2. Remove the air bag.
3. Clear a space on the ground about 1.85 m (6 ft) in diameter for deployment of the air bag 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.

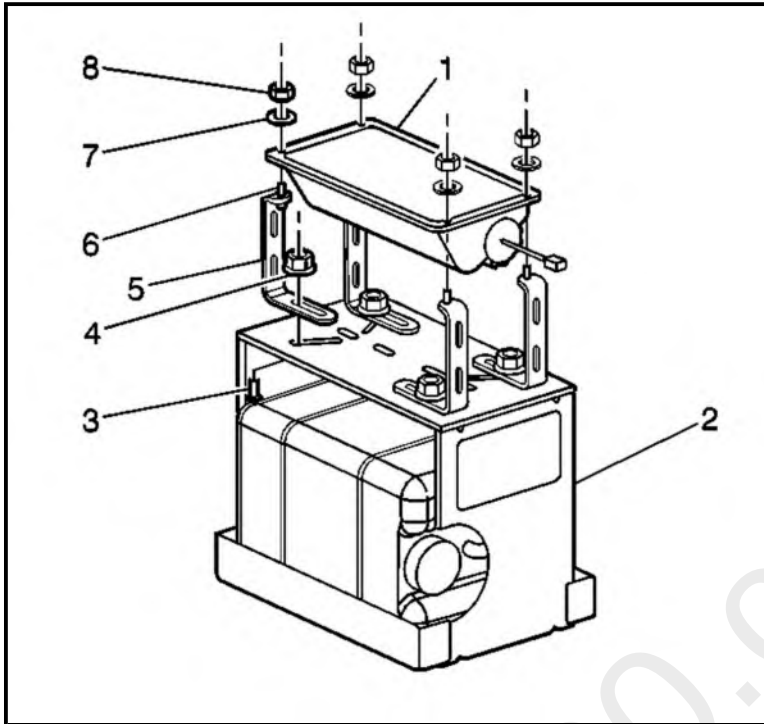


4. Clear the area of loose or flammable objects.

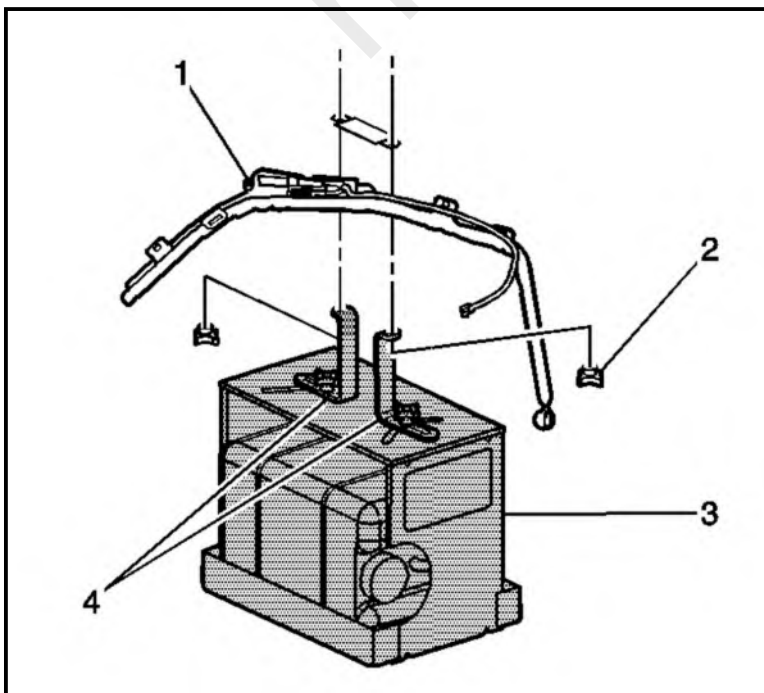
NOTE:

Dual stage deployments are only used in steering wheel and instrument panel air bags. If stage 1 was used to deploy a dual stage air bag, stage 2 may still be active. If disposal of a dual stage air bag is required, both deployment loops must be energized to deploy the air bag.

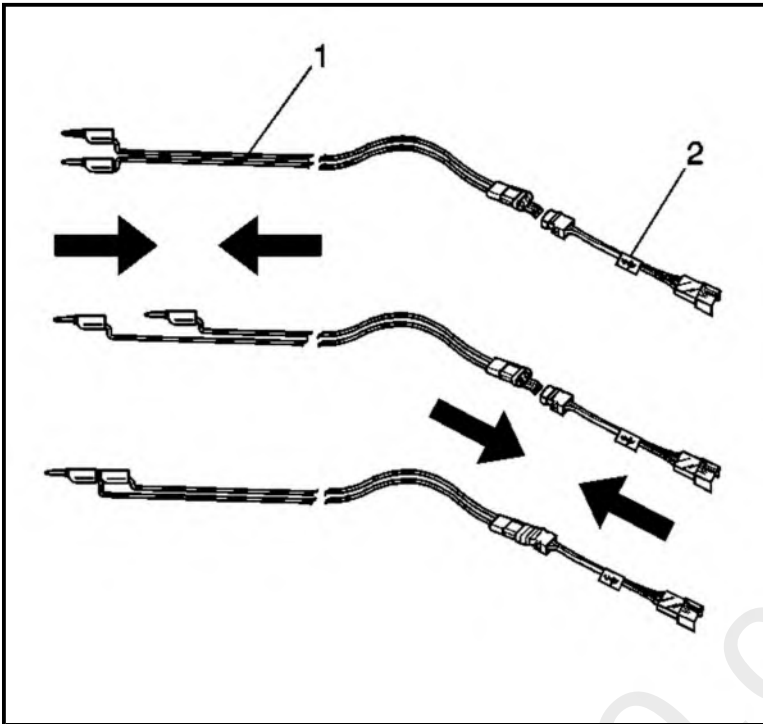
5. If you are deploying a steering wheel air bag, place the air bag in the center of the space with the vinyl trim cover facing up and away from the surface.
6. When deploying an instrument panel air bag, perform the following instructions:



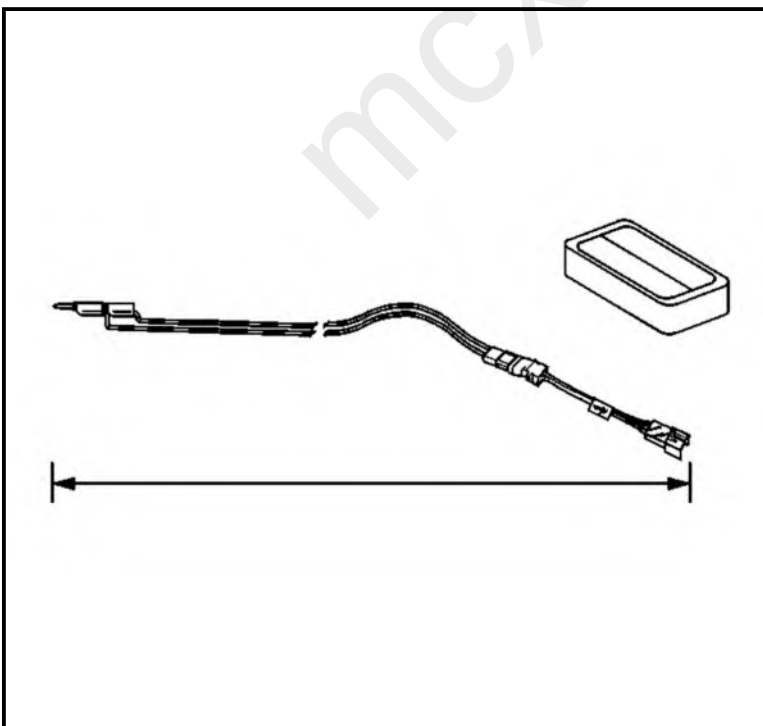
1. Place the **EL-39401-B** fixture in the center of the cleared area.
 2. Fill the deployment fixture with water or sand.
 3. Using the proper nuts and bolts, mount the instrument panel air bag (1) to the deployment fixture (2), with the vinyl trim facing up.
 4. Securely tighten all fasteners that hold the instrument panel air bag (1) to the deployment fixture (2).
7. When deploying a roof rail air bag, perform the following instructions:



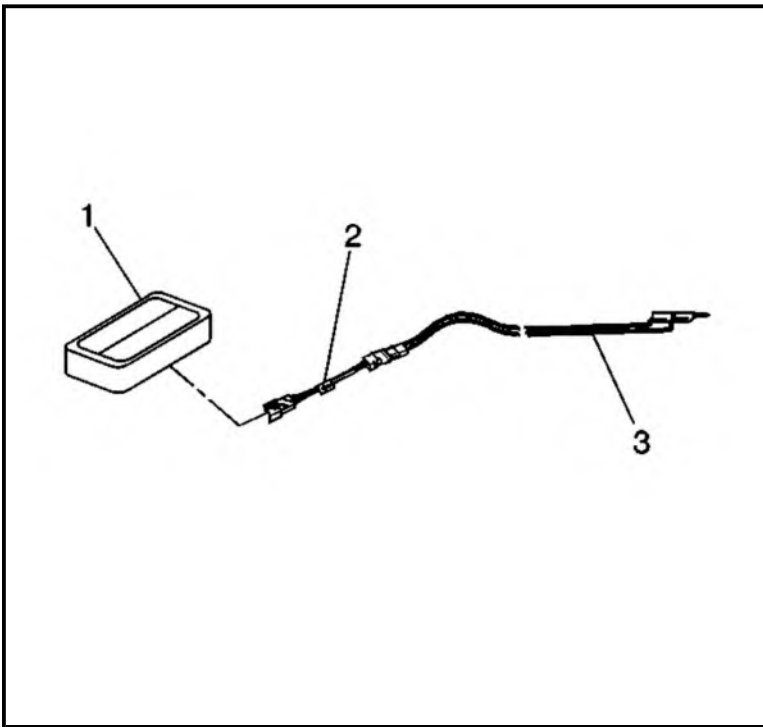
1. Place the **EL-39401-B** fixture (3) in the center of the cleared area.
 2. Fill the deployment fixture with water or sand to provide sufficient stabilization of fixture during deployment.
 3. Adjust and secure the fixture arms (4) to the deployment fixture (3), using the proper nuts and bolts.
 4. Attach the roof rail air bag in the deployment fixture and securely tighten all fasteners.
8. Inspect the **EL-38826** harness and the appropriate pigtail adapter (2) for damage. Replace as needed.



9. Short the 2 SIR deployment harness leads (1) together using one banana plug seated into the other.
10. Connect the appropriate pigtail adapter (2) to the SIR deployment harness (1).
11. Extend the SIR deployment harness and adapter to the full length from the deployment fixture or area.



12. Connect the air bag (1) to the adapter (2) on the SIR deployment harness (3).

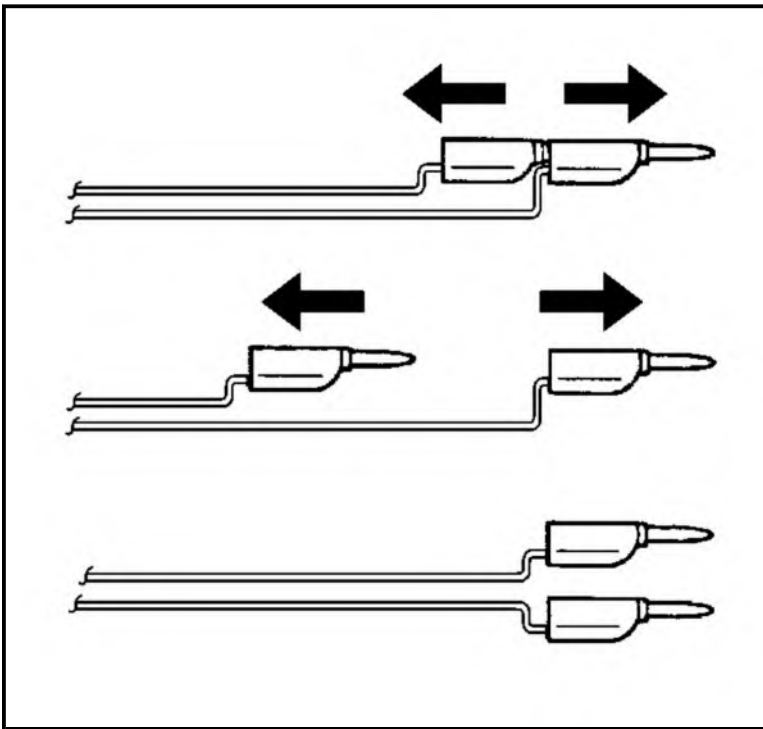


NOTE: On a dual stage air bag, both connectors must be attached to the deployment harness adapter. This will ensure that both stage 1 and stage 2 of the deployment loops are energized, regardless of the deployment state.

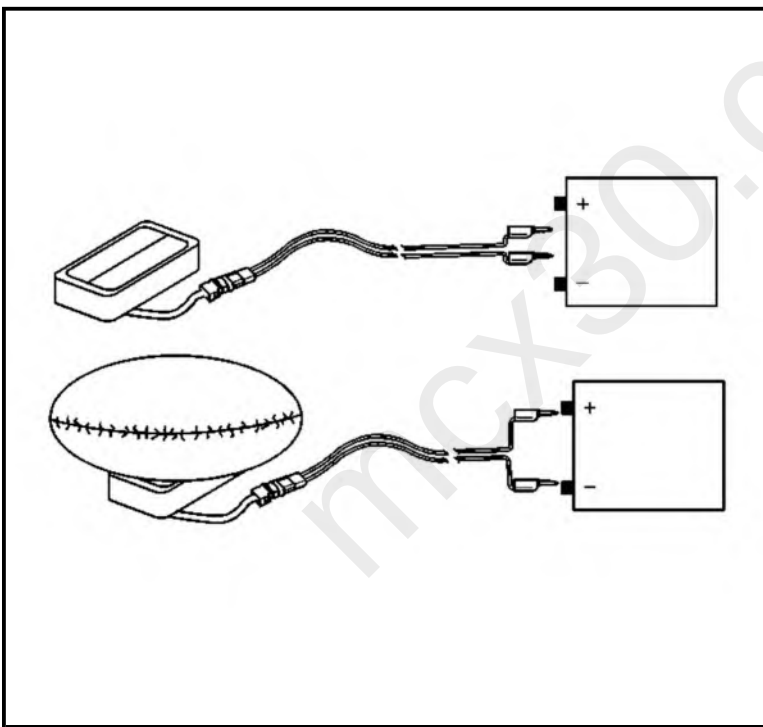
- NOTE:**
- The rapid expansion of gas involved with deploying an air bag is very loud. Notify all the people in the immediate area that you intend to deploy the air bag.
 - When the air bag deploys, the deployment fixture may jump about 30 cm (1 ft) vertically. This is a normal reaction of the air bag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

13. Clear the area of people.

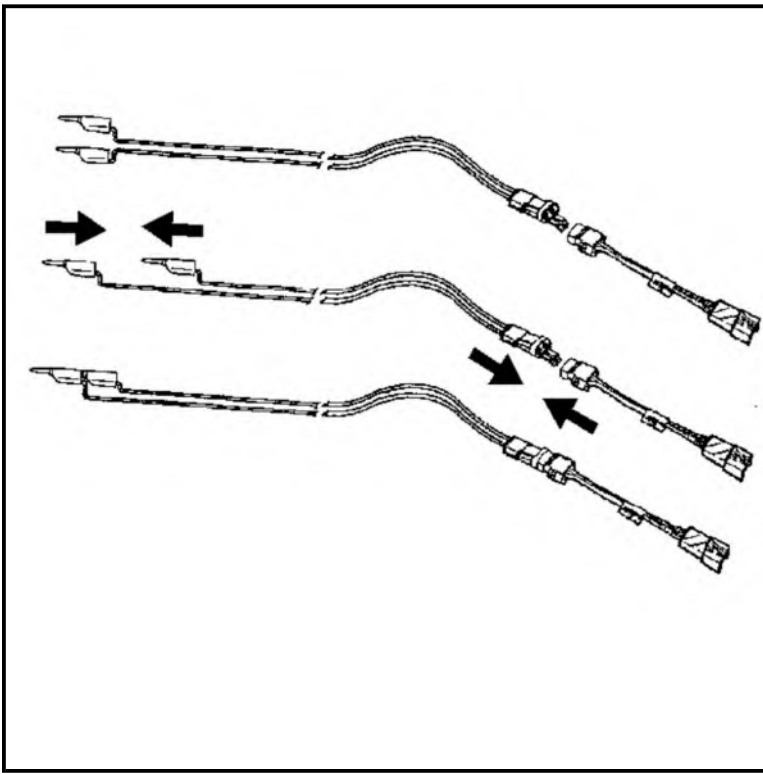
14. Separate the 2 banana plugs on the SIR deployment harness that were shorted together earlier in the procedure.



15. Place a 12 V minimum/2A minimum power source, such as a vehicle battery, near the shorted end of the harness.



16. Connect the SIR deployment harness wires to the power source. Deployment of the air bag will occur when contact is made.
17. Disconnect the SIR deployment harness from the power source after the air bag deploys.



18. If the air bag 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.

WARNING: Refer to [SIR Deployed Inflator Modules Are Hot Warning](#) .

19. Seat one banana plug into the other in order to short the deployment harness leads.
20. Put on a pair of shop gloves.
21. Disconnect the pigtail adapter from the air bag as soon as possible.
22. Inspect the pigtail adapter and the SIR deployment harness. Replace as needed.
23. Dispose of the deployed air bag through normal refuse channels.
24. Wash your hands with a mild soap.

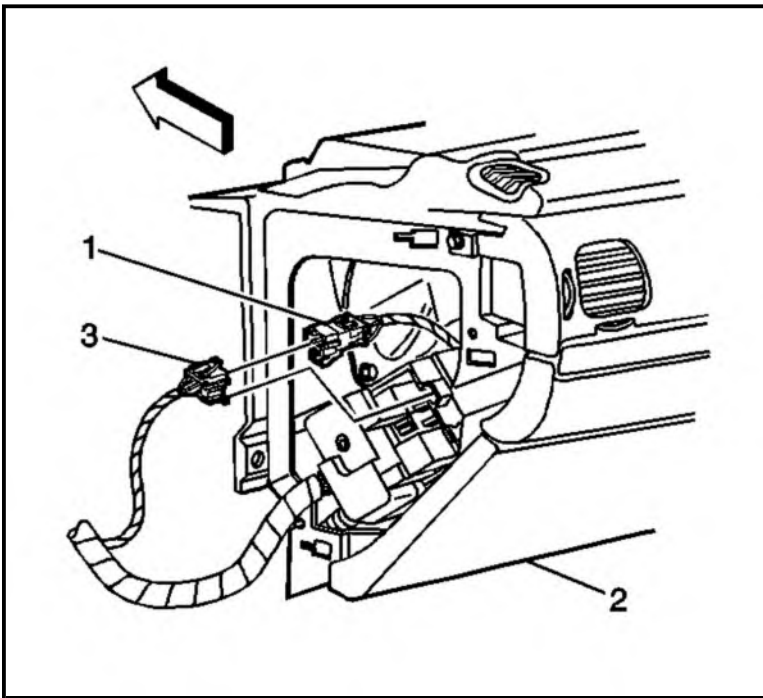
Deployment Inside Vehicle - Vehicle Scrapping Procedure

Deploy the air bags 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.

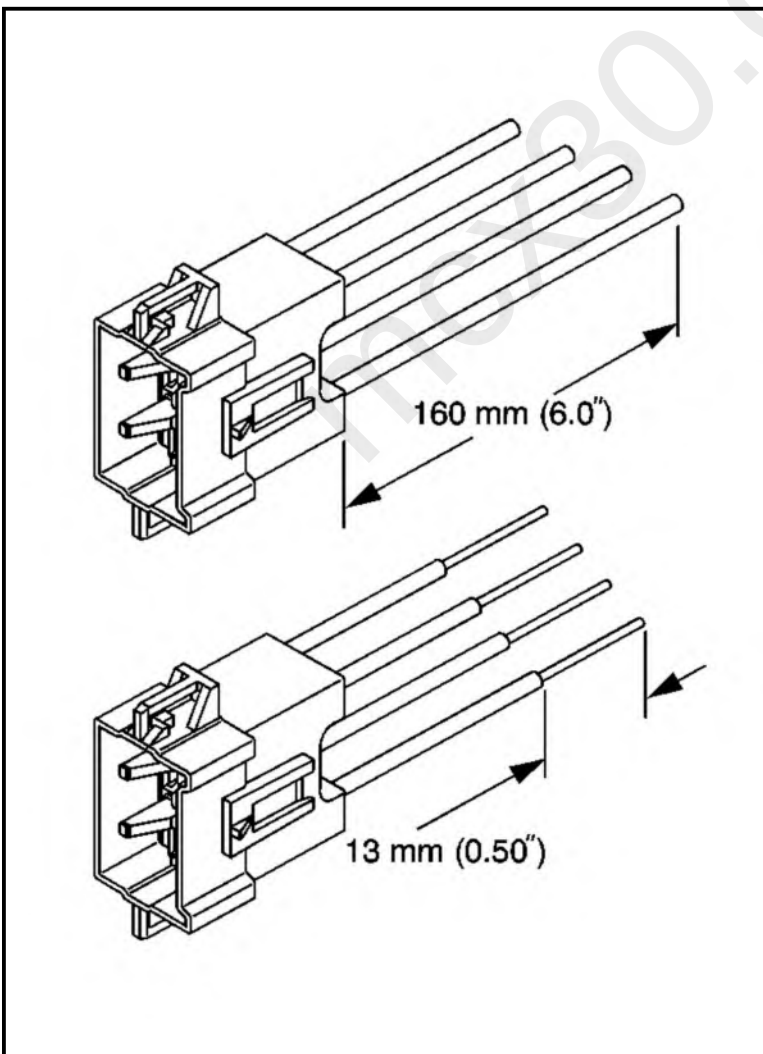
WARNING: Refer to [SIR Inflatable Module Deployment Outside Vehicle Warning](#) .

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 air bags which will be deployed are mounted securely.
4. Remove all loose objects from the front seats.
5. Disconnect the steering wheel air bag yellow connector (1) from vehicle harness yellow connector (3).



WARNING: 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.

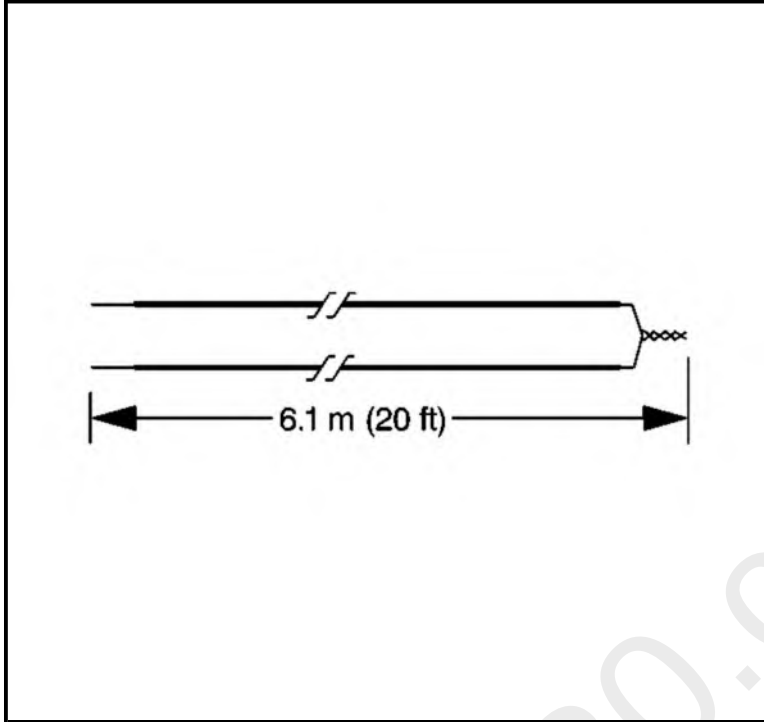
6. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.



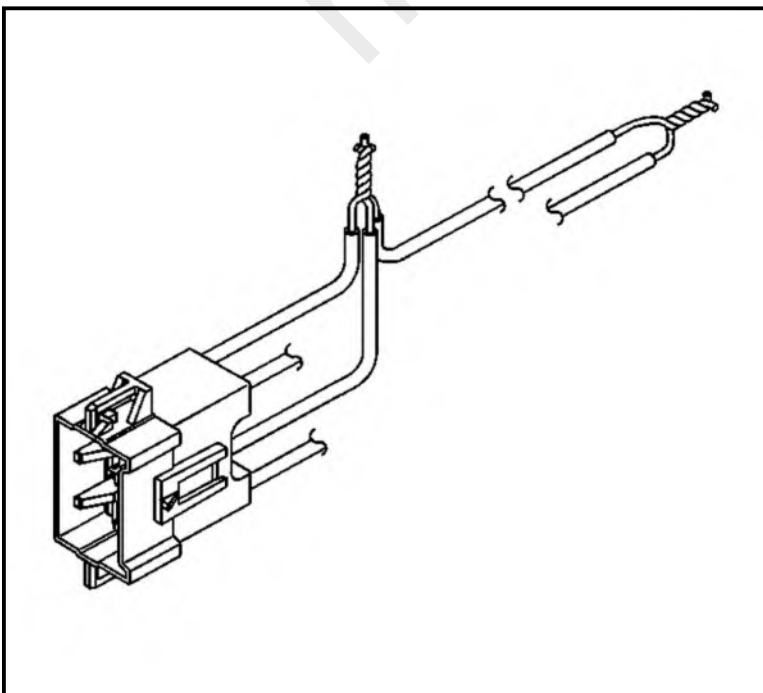
NOTE:

If the vehicle is equipped with dual stage air bags the steering wheel air bag and instrument panel air bag will each have 4 wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) for determining high and low circuits.

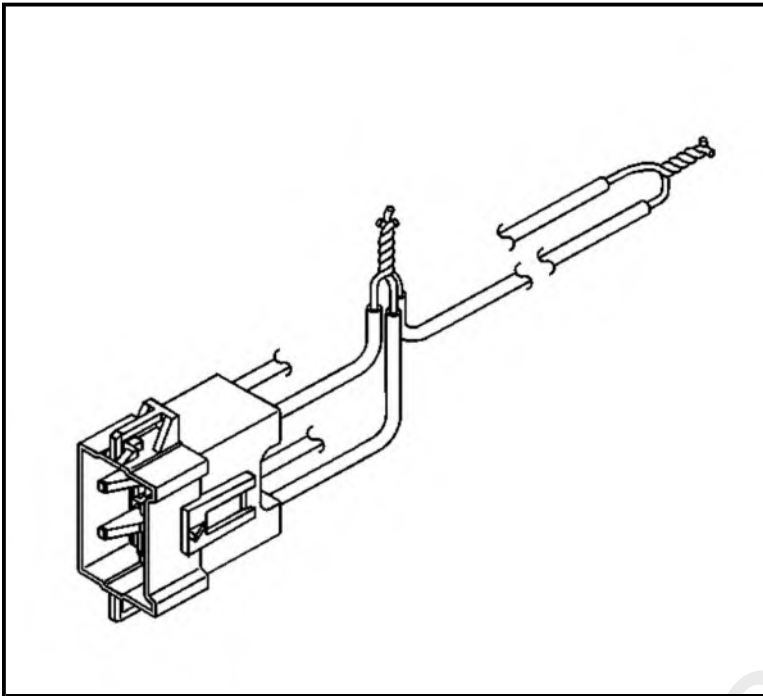
7. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
8. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. Use these wires to fabricate the driver deployment harness.



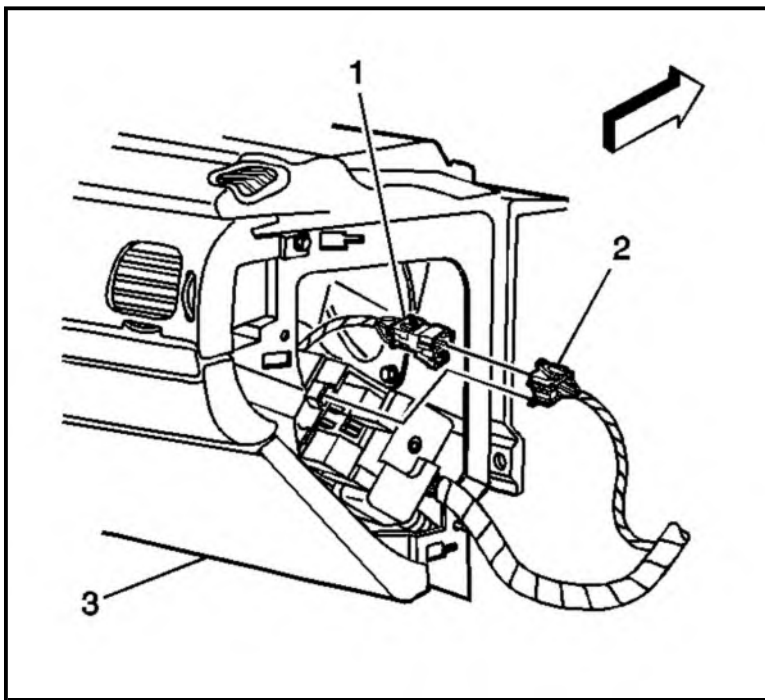
9. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
10. Twist together one end from each of the wires in order to short the wires. Deployment wires shall remain shorted, and not connected to a power source until you are ready to deploy the air bag.
11. Twist together the 2 connector wire leads from the high circuits from both stages of the steering wheel air bag, to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.



12. Inspect that the 3-wire connection is secure.
13. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
14. Twist together the 2 connector wire leads from the low circuits from both stages of the steering wheel air bag, to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.



15. Inspect that the 3-wire connection is secure.
16. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
17. Connect the deployment harness to the connector on the steering wheel air bag.
18. Route the deployment harness out of the driver side of the vehicle.
19. Disconnect the yellow left roof rail harness connector from the vehicle harness connector.
20. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
21. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
22. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the roof rail air bag deployment harness.
23. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
24. Twist together one end from each of the wires in order to short the wires.
25. Twist together one connector wire lead to one deployment wire.
26. Secure and insulate the connection using electrical tape.
27. Twist together and tape the remaining connector wire lead to the remaining deployment wire.
28. Connect the deployment harness to the yellow connector of the roof rail air bag.
29. Route the deployment harness out of the driver side of the vehicle.
30. Disconnect the instrument panel air bag yellow harness connector (1) from the vehicle harness connector (2).



NOTE: If the vehicle is equipped with dual stage air bags the steering wheel air bag and instrument panel air bag will each have 4 wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) for determining high and low circuits.

31. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
32. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
33. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the passenger deployment harness.
34. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
35. Twist together one end from each of the wires in order to short the wires.
36. Twist together the 2 connector wire leads from the high circuits from both stages of the instrument panel air bag to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.
37. Inspect that the 3-wire connection is secure.
38. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
39. Twist together the 2 connector wire leads from the low circuits from both stages of the instrument panel air bag to one set of deployment wires. Refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) in order to determine the correct circuits.
40. Inspect that the 3-wire connection is secure.
41. Secure and insulate the 3-wire connection to the deployment harness using electrical tape.
42. Connect the deployment harness to the instrument panel air bag in-line connector.
43. Route the deployment harness out of the passenger side of the vehicle.
44. Disconnect the yellow harness connector to the right roof rail air bag from the vehicle harness connector.
45. Cut the harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
46. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.
47. Cut two 6.1 m (20 ft) deployment wires from a 0.8 mm (18 gauge) or thicker multi-strand wire. These wires will be used to fabricate the roof rail air bag deployment harness.
48. Strip 13 mm (0.5 in) of insulation from both ends of the wires.
49. Twist together one end from each of the wires in order to short the wires.
50. Twist together one connector wire lead to one deployment wire.

51. Secure and insulate the connection using electrical tape.
52. Twist together and tape the remaining connector wire lead to the remaining deployment wire.
53. Connect the deployment harness to the roof rail air bag yellow connector.
54. Route the deployment harness out of the passenger side of the vehicle.
55. Completely cover the windshield and the front door window openings with a drop cloth.
56. Stretch to the full length all of the deployment harness wires on the right side of the vehicle.
57. Deploy each deployment loop one at a time.
58. Place a power source, 12 V minimum/2A minimum, such as a vehicle battery, near the shorted end of the harnesses.
59. Separate one set of wires and touch the wire ends to the power source in order to deploy the selected air bag.
60. Disconnect the deployment harness from the power source and twist the wire ends together.
61. Continue the same process with the remaining deployment harnesses.
62. Disconnect all harnesses from the vehicle.
63. Discard the harnesses.
64. Scrap the vehicle in the same manner as a non-SIR equipped vehicle.
65. If one or all of the air bags did not deploy, remove the undeployed air bags from the vehicle.

PRETENSIONER HANDLING AND SCRAPPING (EUROPE)

Special Tools

EL-38826 SIR Deployment Harness

For equivalent regional tools, refer to [Special Tools](#).

Scrapping Procedure

During the course of a vehicle's useful life, certain situations may arise which will necessitate the disposal of a live (undeployed) pretensioner. The following information covers the proper procedures for the disposing of a live (undeployed) pretensioner. Do not dispose of a live (undeployed) pretensioner through normal disposal channels until the pretensioner has been deployed. The following information covers the proper procedures for the disposing of a live (undeployed) pretensioner.

- After replacement of a pretensioner under warranty. The pretensioner may need to be returned undeployed to the original manufacturer of pretensioner.
- If the vehicle is the subject of a Product Liability report 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 pretensioners. Follow the instructions in the Campaign Service Bulletin for proper SIR handling procedures.

Deployment Procedures

NOTE: Some countries, states or localities may not allow service deployment of air bags without special permission or training. Local laws regarding deploying and scrapping of air bags/devices with pyrotechnics must be followed.

The pretensioner can only be deployed inside of the vehicle. Refer to Inflatable Restraint Module Handling and Scrapping (Europe) for deploying the pretensioner inside vehicle under Vehicle Scrapping Procedure.

PRETENSIONER HANDLING AND SCRAPPING (EXCEPT EUROPE)

NOTE: Do not use this document if vehicle is being serviced in Europe.

Special Tools

- **EL-39401-B** SIR Deployment Fixture
- **EL-38826** SIR Deployment Harness

For equivalent regional tools, refer to [Special Tools](#).

Scrapping Procedure

During the course of a vehicle's useful life, certain situations may arise which will necessitate the disposal of a live (undeployed) pretensioner. The following information covers the proper procedures for the disposing of a live (undeployed) pretensioner. Deploy the pretensioner before disposal. Do not dispose of a live (undeployed) pretensioner through normal disposal channels until the pretensioner has been deployed. The following information covers the proper procedures for the disposing of a live (undeployed) pretensioner.

- After replacement of a pretensioner under warranty. The pretensioner may need to be returned undeployed to the original manufacturer of pretensioner.
- If the vehicle is the subject of a Product Liability report 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 pretensioners. Follow the instructions in the Campaign Service Bulletin for proper SIR handling procedures.

Deployment Procedures

NOTE: Some countries, states or localities may not allow service deployment of air bags without special permission or training. Local laws regarding deploying and scrapping of air bags/devices with pyrotechnics must be followed.

The 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 Inside the Vehicle

Refer to [Inflatable Restraint Module Handling and Scrapping \(Except Europe\)](#) for deploying the pretensioner inside vehicle under Vehicle Scrapping Procedure.

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:

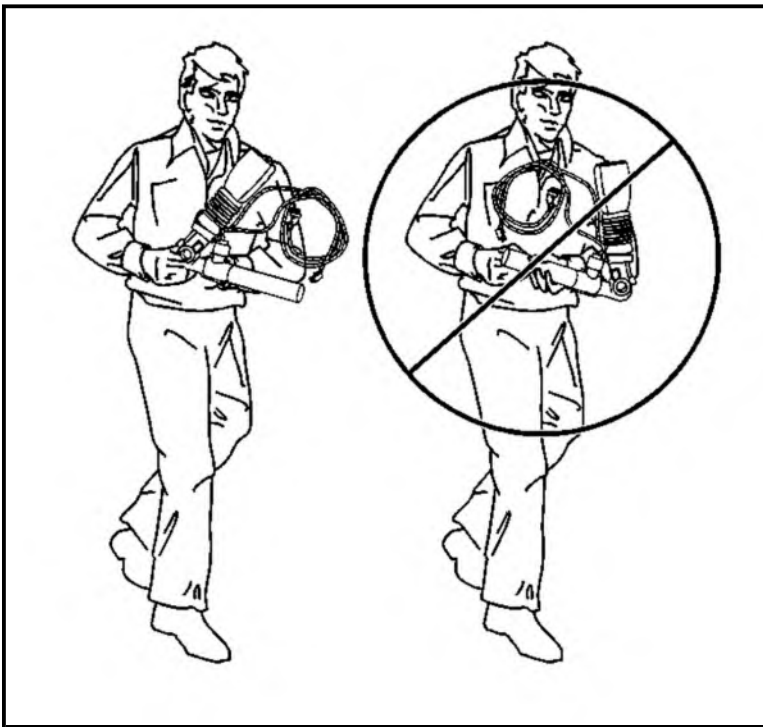
- Using the SIR diagnostics, you determine that the seat belt pretensioner is malfunctioning.
- The pretensioner pigtail (if equipped) is damaged.
- The pretensioner connector is damaged.
- The pretensioner connector terminal is damaged.

Deployment and disposal of a malfunctioning seat belt pretensioner is subject to any required retention period.

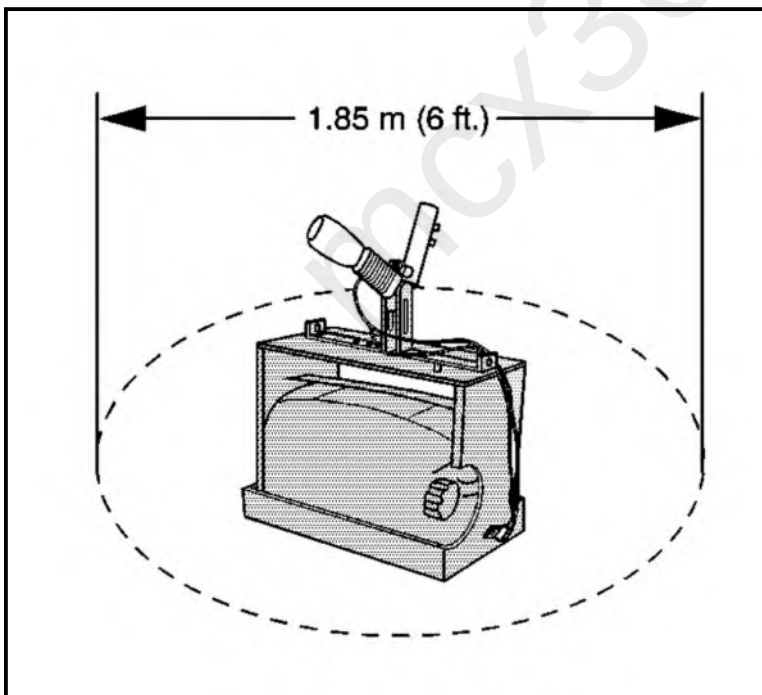
WARNING: In order to prevent accidental deployment of the pretensioner which could cause personal injury, do not dispose of an undeployed pretensioner as normal shop waste. The undeployed pretensioner contains substances that could cause severe illness or personal injury if the sealed container is damaged during disposal. Use the following deployment procedures to safely dispose of an undeployed pretensioner. Failure to dispose of a pretensioner as instructed may be a violation of federal, state, or local laws.

WARNING: When you are deploying a pretensioner for disposal, perform the deployment procedures in the order listed. Failure to follow the procedures in the order listed may result in personal injury.

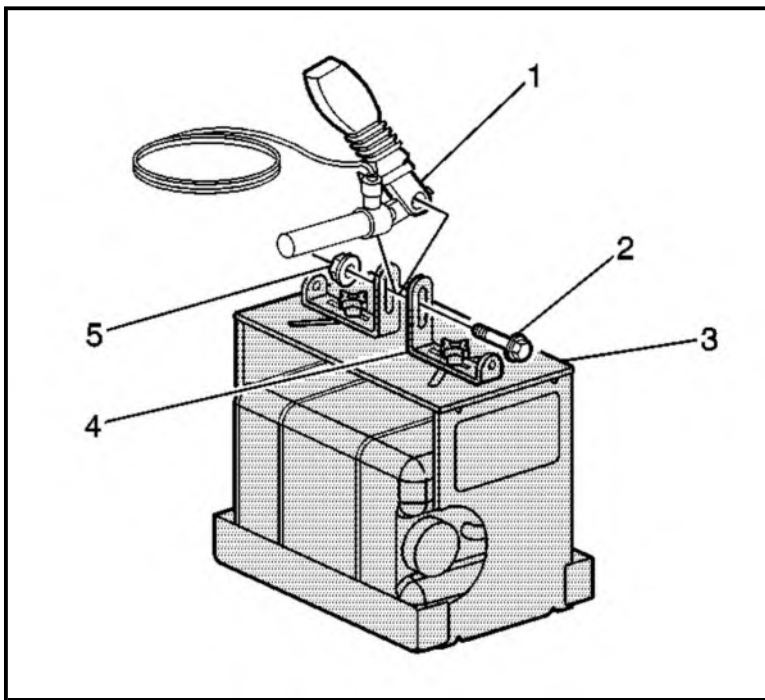
1. Turn the ignition switch to the OFF position.



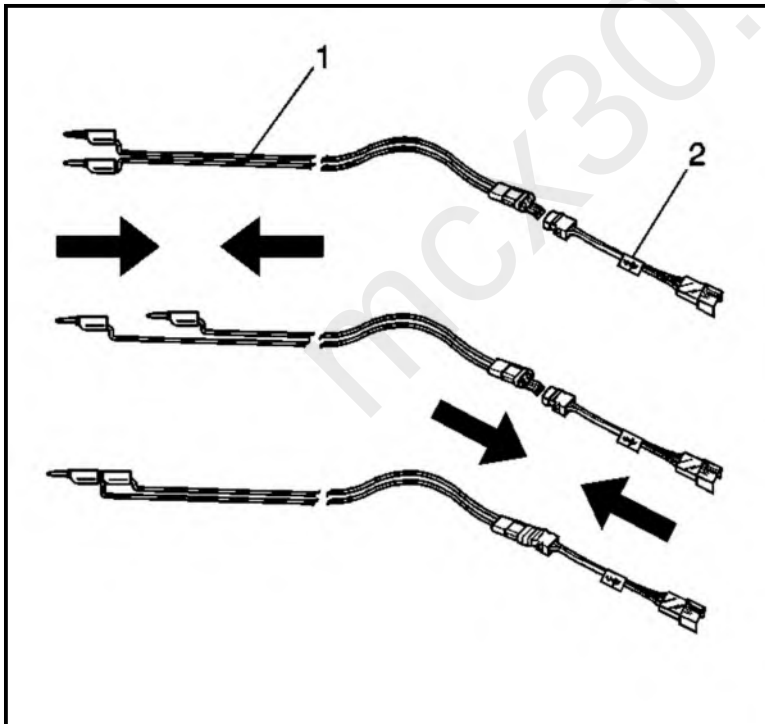
2. Remove the ignition key.
3. Put on safety glasses.
4. Remove the seat belt pretensioner from the vehicle.
5. When carrying a pretensioner to the deployment area keep the open end of pretensioner pointed away from the body.
6. Clear a space on the ground about 1.85 M (6 ft) in diameter for deployment of the 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.



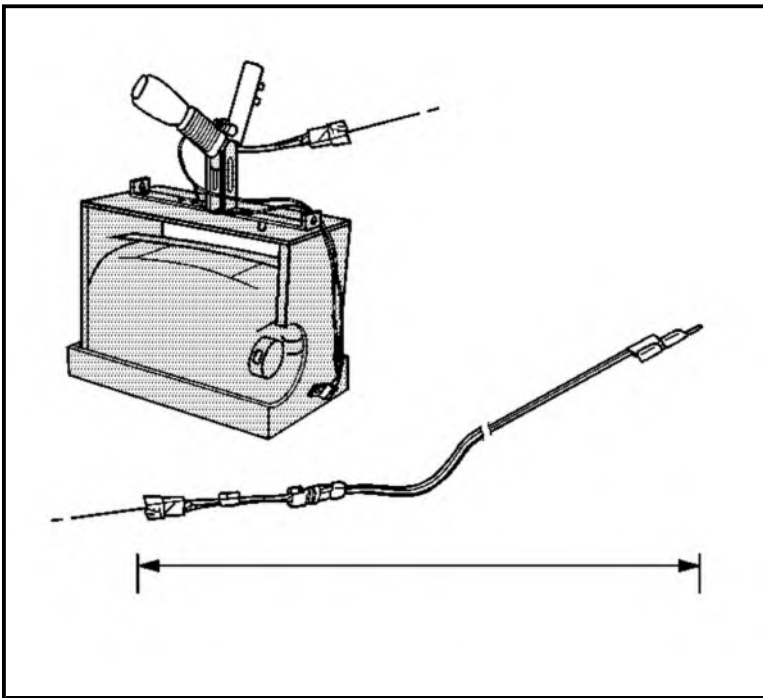
7. Make sure no loose or flammable objects are in the area.
8. Place the **EL-39401-B** SIR deployment fixture in the center of the cleared area.
9. Fill the fixture plastic reservoir with water or sand.
10. Mount the pretensioner (1) in the SIR deployment fixture (3) with the open end facing up using the following mounting method.



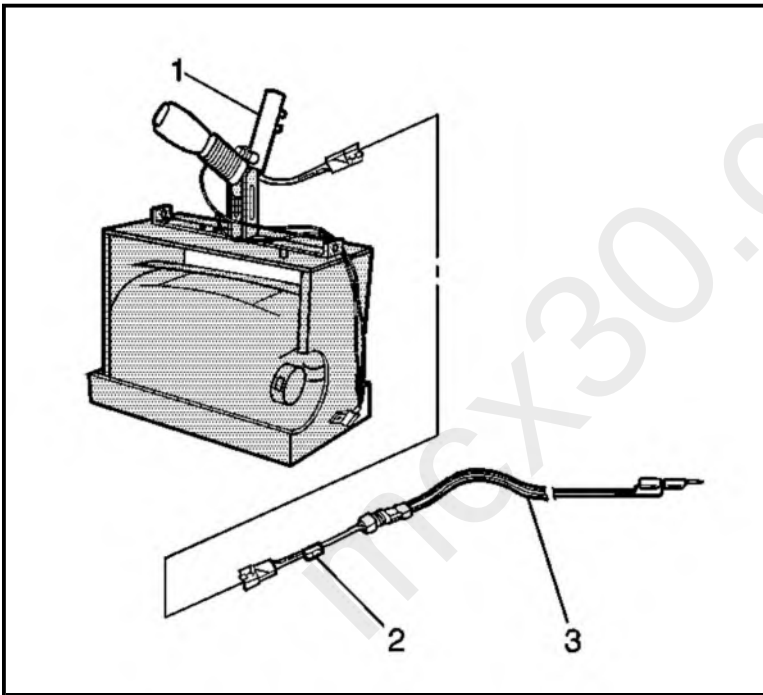
1. Adjust and secure the EL-39401-B arms (4) to the deployment fixture (3).
 2. To mount, use the proper size bolt (2) and nut (5) with washers in order to secure the pretensioner (1) to the deployment fixture brackets (4).
 3. Securely tighten all fasteners prior to deployment.
11. Inspect the **EL-38826** SIR deployment harness and the appropriate pigtail adapter for damage. Replace as needed.



12. Short the 2 SIR deployment harness (1) leads together using one banana plug seated into the other.
13. Connect the appropriate pigtail adapter (2) to the SIR deployment harness (1).
14. Extend the SIR deployment harness and adapter to full length from the deployment fixture.



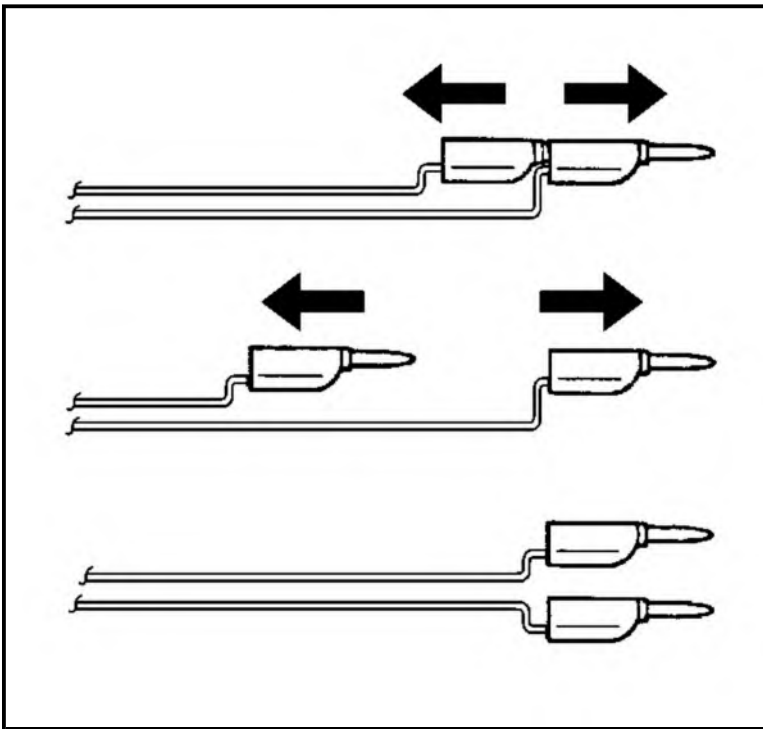
15. Connect the pretensioner (1) to the adapter (2) on the deployment harness (3).



NOTE: The rapid gas expansion involved with deploying a pretensioner is very loud. Notify all the people in the immediate area that you intend to deploy the seat belt pretensioner.

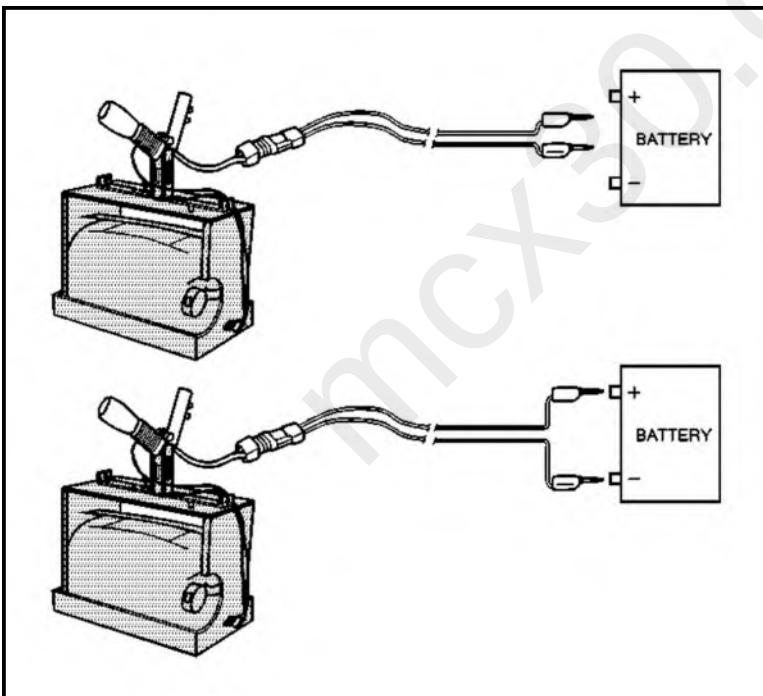
16. Clear the area of people.

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



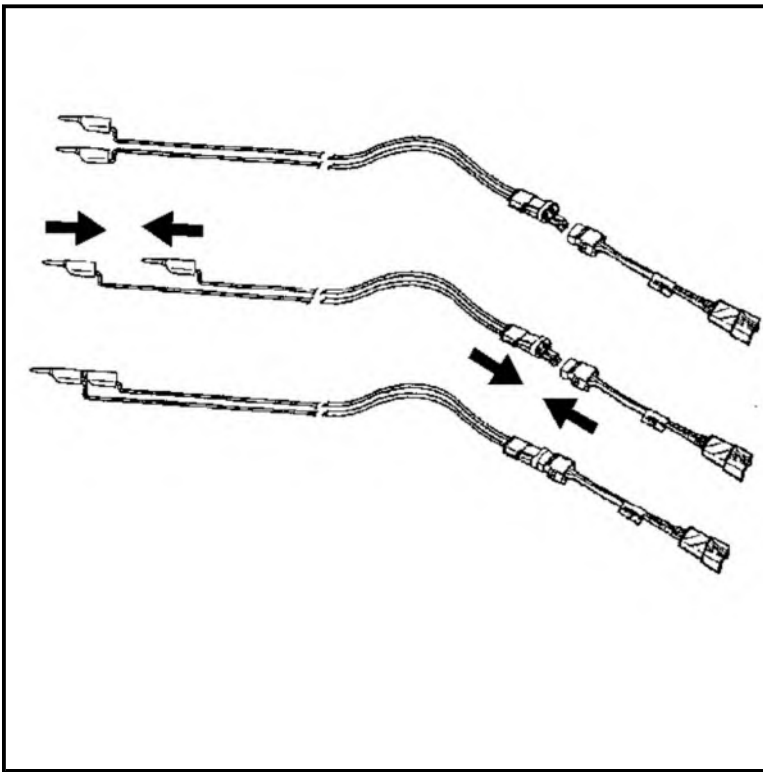
WARNING: When you are deploying a pretensioner for disposal, perform the deployment procedures in the order listed. Failure to follow the procedures in the order listed may result in personal injury.

18. Place a 12 V minimum/2 A minimum power source (i.e., vehicle battery) near the shorted end of the harness.



NOTE: When the seat belt pretensioner deploys, the deployment fixture may jump about 30 cm (1 ft) vertically. This is a normal reaction of the seat belt pretensioner due to the force of the rapid expansion of gas inside the pretensioner.

19. Connect the SIR deployment harness wires to the power source. Pretensioner deployment will occur when contact is made.
20. Disconnect the SIR deployment harness from the power source after the pretensioner deploys.
21. Seat one banana plug into the other in order to short the deployment harness leads.



22. If the 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 pretensioner as soon as possible.
25. Inspect the pigtail adapter and the SIR deployment harness. Replace as needed.
26. Dispose of the deployed pretensioner through normal refuse channels.
27. Wash hands with a mild soap.

DESCRIPTION AND OPERATION

SUPPLEMENTAL INFLATABLE RESTRAINT SYSTEM DESCRIPTION AND OPERATION

SIR System Overview

The supplemental inflatable restraint (SIR) system supplements the protection offered by the seat belts. The SIR system contains an Inflatable Restraint Sensing and Diagnostic Module (SDM), air bags, seat belt pretensioner (anchor and retractor), and impact sensors. The Inflatable Restraint Sensing and Diagnostic Module determines the severity of a collision with the assistance of impact sensors located at strategic points on the vehicle. When the Inflatable Restraint Sensing and Diagnostic Module detects a collision, the Inflatable Restraint Sensing and Diagnostic Module will process the information provided by the sensors to further support air bag or pretensioner deployment. The Inflatable Restraint Sensing and Diagnostic Module will deploy the air bags and pretensioners if it detects a collision of sufficient force. If the force of the impact is not sufficient to warrant air bag deployment, the Inflatable Restraint Sensing and Diagnostic Module may still deploy the seat belt pretensioners. The Inflatable Restraint Sensing and Diagnostic Module contains a sensing device that converts vehicle velocity changes to an electrical signal. The Inflatable Restraint Sensing and Diagnostic Module compares these signals to values stored in memory. If the signals exceed a stored value, the Inflatable Restraint Sensing and Diagnostic Module will determine the severity of the impact and either cause current to flow through the frontal deployment loops deploying the frontal air bags and pretensioners, or it will deploy the pretensioners only. The Inflatable Restraint Sensing and Diagnostic Module continuously monitors the deployment loops for malfunctions and illuminates the SIR system AIR BAG indicator if a fault is detected. The Inflatable Restraint Sensing and Diagnostic Module performs continuous diagnostic monitoring of the SIR system electrical components. Upon detection of a circuit malfunction, the Inflatable Restraint Sensing and Diagnostic Module will set a DTC and inform the driver by illuminating the SIR system AIR BAG indicator. The steering column and knee bolsters 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.

SIR System AIR BAG Indicator

The SIR system AIR BAG indicator, located in the instrument cluster, is used to notify the driver of SIR system malfunctions and to verify that the Inflatable Restraint Sensing and Diagnostic Module (SDM) is communicating with the instrument cluster. When the ignition is turned ON, the Inflatable Restraint Sensing and Diagnostic Module is supplied with ignition positive voltage. The instrument cluster will momentarily turn on the SIR system AIR BAG indicator steady for 8 seconds. While the indicator is on, the Inflatable Restraint Sensing and Diagnostic Module conducts tests on all SIR system components and circuits. If no malfunctions are detected the Inflatable Restraint Sensing and Diagnostic Module will communicate with the instrument cluster through the serial data circuit and command the SIR system AIR BAG indicator OFF. The Inflatable Restraint Sensing and Diagnostic Module provides continuous monitoring of the air bag circuits by conducting a sequence of checks. If a malfunction is detected the Inflatable Restraint Sensing and Diagnostic Module will store a diagnostic trouble code (DTC) and command the instrument cluster to illuminate the SIR system AIR BAG indicator via serial data. The presence of a SIR system malfunction could result in non-deployment of the air bags or deployment in conditions less severe than intended. The SIR system AIR BAG indicator will remain ON until the malfunction has been repaired.

Inflatable Restraint Sensing and Diagnostic Module (SDM)

The Inflatable Restraint Sensing and Diagnostic Module (SDM) is a microprocessor and the control center for the supplemental inflatable restraint (SIR) system. The Inflatable Restraint Sensing and Diagnostic Module contains internal sensors along with external impact sensors, mounted at strategic locations on the vehicle. In the event of a collision, the Inflatable Restraint Sensing and Diagnostic Module compares the signals from the internal and external impact sensors to a value stored in memory. When the generated signals exceed the stored value, the Inflatable Restraint Sensing and Diagnostic Module will cause current to flow through the appropriate deployment loops to deploy the air bags. The Inflatable Restraint Sensing and Diagnostic Module records the SIR system status when a deployment occurs and illuminates the SIR system AIR BAG indicator located in the instrument cluster. The Inflatable Restraint Sensing and Diagnostic Module performs continuous diagnostic monitoring of the SIR system electrical components and circuitry when the ignition is turned ON. If the Inflatable Restraint Sensing and Diagnostic Module detects a malfunction, a DTC will be stored and the Inflatable Restraint Sensing and Diagnostic Module will request the instrument cluster to illuminate the SIR system AIR BAG indicator, notifying the driver that a malfunction exists. In the event that ignition positive voltage is lost during a collision, the Inflatable Restraint Sensing and Diagnostic Module maintains a 23-volt loop reserve for deployment of the air bags. It is important when disabling the SIR system for servicing or rescue operations to allow the 23-volt loop reserve to dissipate, which could take up to 1 minute.

Air Bags

This vehicle contains up to 10 air bags. The 10 air bags would be located in the steering wheel, instrument panel (passenger side) (dual inflators), driver side seat outboard, passenger side seat outboard, rear driver side seat outboard, rear passenger side seat outboard, left roof rail, right roof rail, driver side knee, and passenger side knee. To view the locations of the air bags refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) . Air bags contain a housing, inflatable air bag, two initiating devices (if dual air bags), canister of gas generating material and, in some cases, stored compressed gas. The deployment loops supply current to deploy the air bags. The steering wheel and passenger instrument panel air bags have two stages of deployment, which varies the amount of restraint to the occupant according to the collision severity. For moderate frontal collisions the air bags deploy at less than full deployment which consists of stage 1. For more severe frontal collisions a full deployment is initiated which consists of stage 1 and stage 2 of the air bags. The current passing through the air bags ignite the material in the canister producing a rapid generation of gas and in some cases, the release of compressed gas. 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 and/or the bag fabric. A shorting bar (if equipped) is located in the connector.

Seat Belt Pretensioner (Anchor and Retractor)

The seat belt pretensioner (driver and passenger) consist of a housing, seat belt retractor (located in the B-pillar), seat belt anchor (located in the seat), seat belt webbing, an initiator, and a canister of gas generating materials. To view the locations of the seat belt pretensioners refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) . The initiator is part of the seat belt pretensioner deployment loop. When the vehicle is involved in a collision of sufficient force, the Inflatable Restraint Sensing and Diagnostic Module 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 pretensioners which removes all of the slack in the seat belts.

Depending on the severity of the collision, the seat belt pretensioners may deploy without the frontal air bags deploying, or they will deploy immediately before the frontal air bags deploy. A shorting bar (if equipped) is located in the connector.

Impact Sensors

This vehicle contains 6 impact sensors. The 6 impact sensors are located in the front of the vehicle (left and right), inside both front doors, and the rear compartment near C-pillar. To view the locations of the impact sensors refer to [Master Electrical Component List](#) , or [Inline Harness Connector End Views - Index](#) or [Component Connector End Views - Index](#) . The impact sensors contain a sensing device which monitors vehicle acceleration and velocity changes to detect side collisions that are severe enough to warrant air bag deployment. The impact sensor are not part of the deployment loop, but instead provide input to the Inflatable Restraint Sensing and Diagnostic Module. The Inflatable Restraint Sensing and Diagnostic Module contains a microprocessor that performs calculations using the measured accelerations and compares these calculations to a value stored in memory. When the generated calculations exceed the stored value, the Inflatable Restraint Sensing and Diagnostic Module will cause current to flow through the deployment loops deploying the appropriate air bags.

Passenger Presence System and Passenger Air Bag Indicator (If Equipped)

NOTE: **Note: The passenger presence system 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.**

The passenger presence detection system (Passenger Presence Module) is used to monitor the type of occupant that is sitting in the front passenger seat and communicate the status to the inflatable restraint sensing and diagnostic module. The inflatable restraint sensing and diagnostic module then uses this information to determine whether to enable or suppress the deployment of the passenger instrument panel air bag. The Passenger Presence Module consists of an electronic control module, a sensor mat in the seat, a harness, and PASSENGER AIR BAG ON/OFF indicators. The Passenger Presence Module transmits and receives a low-level electric field. The measured capacitance value of this field is used to determine the type of occupant sitting in the front passenger seat. If the measured capacitance is less than a calibrated value, then the Passenger Presence Module will send a hard wire data signal to the Passenger Presence Module to disable the passenger instrument panel air bag. If the measured capacitance is greater than a calibrated value, then the Passenger Presence Module will send a serial data signal to the inflatable restraint sensing and diagnostic module to enable the passenger instrument panel air bag. The inflatable restraint sensing and diagnostic module will notify the customer of the enable/disable status by illuminating one of the PASSENGER AIR BAG ON/OFF indicator. The Passenger Presence Module monitors itself for faults and will displays diagnostic trouble codes (DTCs) on the scan tool. When a fault is detected, the Passenger Presence Module sends out a message to the inflatable restraint sensing and diagnostic module. The inflatable restraint sensing and diagnostic module responds by sending a command message to the Instrument Cluster to illuminate the SIR system AIR BAG indicator.

Seat Belt Indicators

The seat belt indicators are controlled through the Inflatable Restraint Sensing and Diagnostic Module (SDM). For further information on seat belt indicators refer to [Seat Belt System Description and Operation](#)

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/Description
 The illustration shows three components of the SIR Deployment Harness. On the left is a rectangular carrying case with a latch. To its right is a coiled cable with connectors at both ends. Below the cable is a separate connector assembly. A large, light-gray watermark 'mcx30.com' is oriented diagonally across the center of the page.	EL 38826 J 38826 SIR Deployment Harness

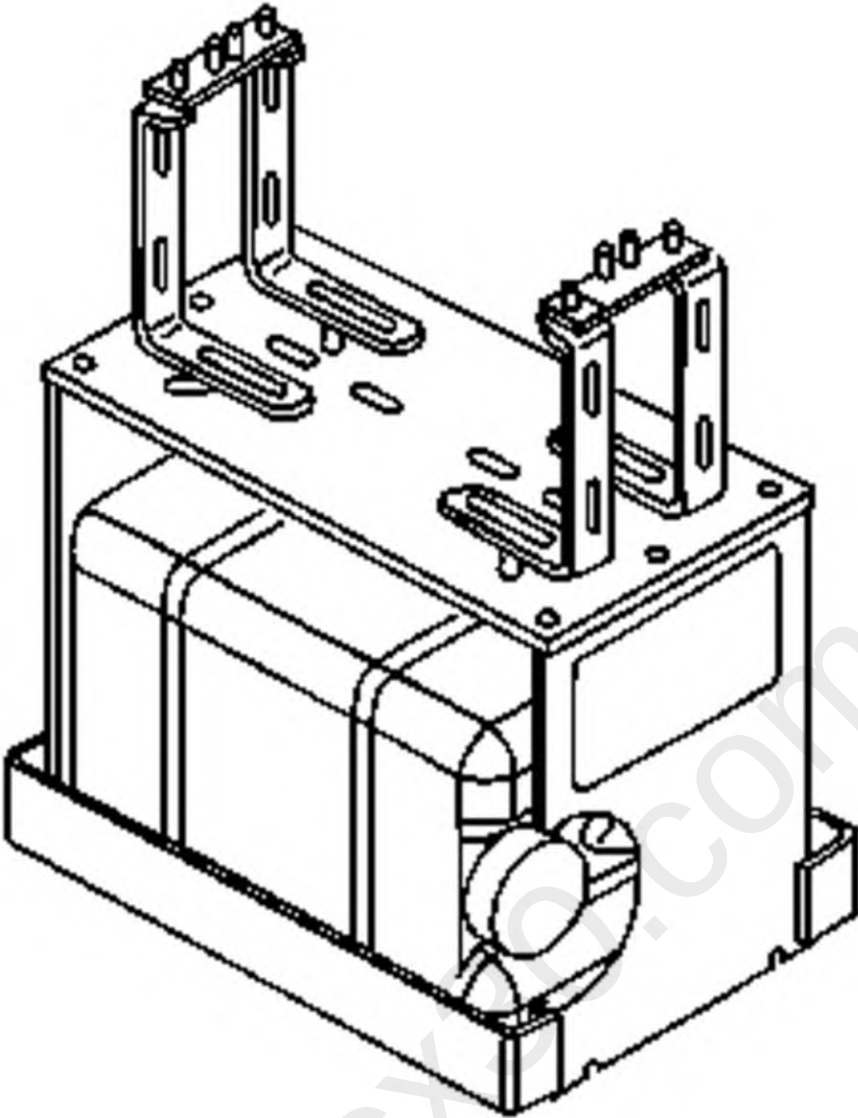
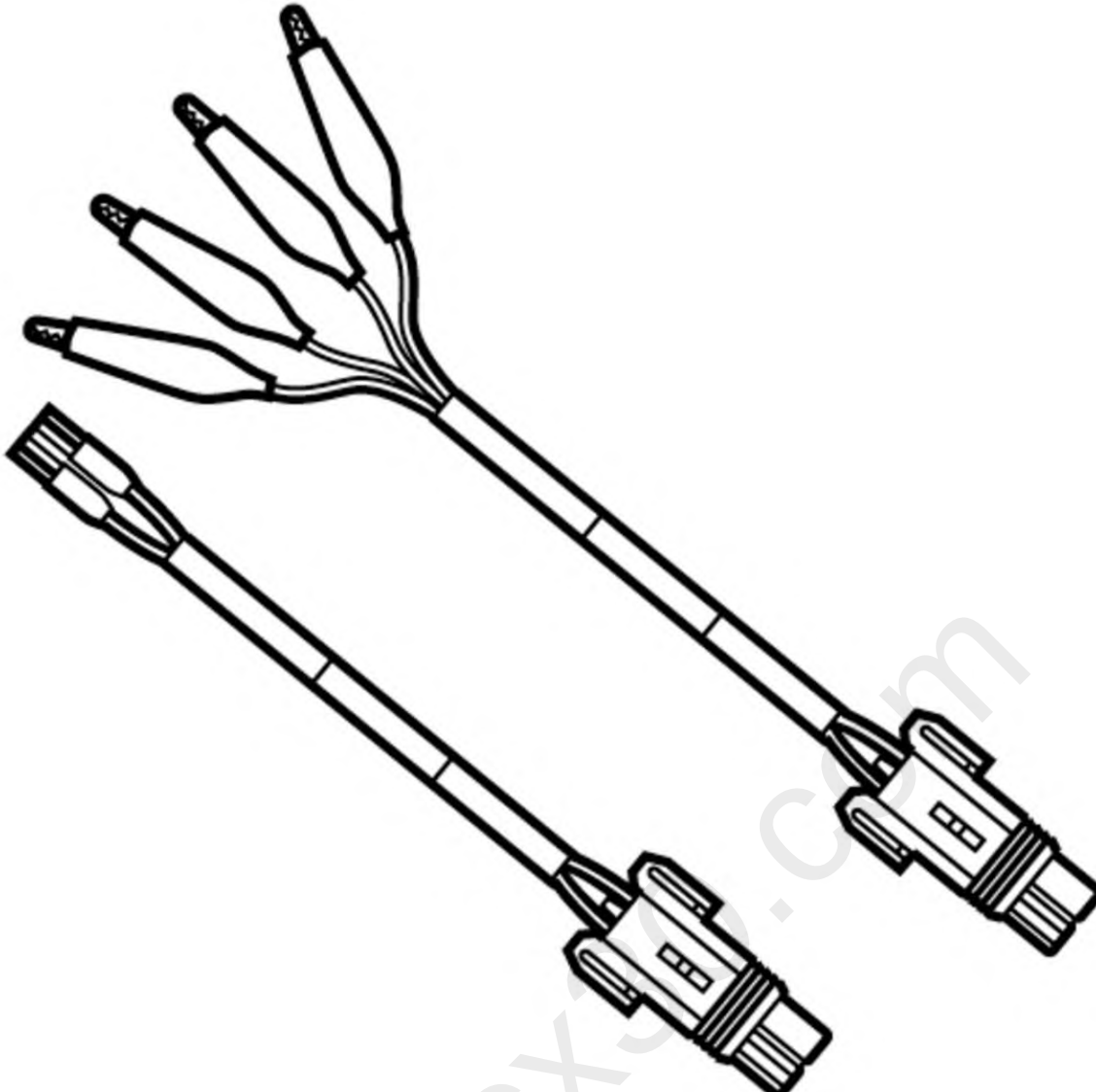
Illustration	Tool Number/Description
	EL 39401-B J 39401-B SIR Deployment Fixture

Illustration	Tool Number/Description
	EL 38826 - 200 SIR Deployment Harness Jumper