

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 pretensioners (buckle), 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 SDM 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. 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 6 air bags. The 6 air bags are located in the steering wheel (dual inflators), instrument panel (passenger side) (single inflator), driver side seat, passenger side seat, left roof rail, and right roof rail. To view the locations of the air bags refer to [Master Electrical Component List](#). 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 driver steering wheel air bag has 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 of the air bag. For more severe frontal collisions a full deployment is initiated which consists of stage 1 and stage 2 of the air bag. The current passing through the air bags ignites 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 Buckle Pretensioners

The seat belt pretensioners (driver and passenger) consist of a housing, seat belt buckle, 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](#). 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

There are 4 impact sensors, they are located in the front of the vehicle (2, left and right), and on the B-pillar (2, left and right). To view the locations of the impact sensors refer to [Master Electrical Component List](#). 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 sensors are not part of the deployment loop, but instead provide input to the Inflatable Restraint Sensing and Diagnostic Module (SDM). 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.

Seat Position Sensor

The seat position sensor is used to determine the proximity of a front driver seat position with respect to the front air bags. The seat position sensor interfaces with the inflatable restraint sensing and diagnostic module (SDM). The state of the seat position sensor allows the inflatable restraint sensing and diagnostic module to disable stage 2 of the front air bag for a front seat that is forward of the forward/rearward point in the seat track travel. The seat

position sensor is a hall effect sensor that is mounted on the outboard seat track of the driver seat. The seat track includes a metal bracket that shunts the seat position sensor magnetic circuit creating 2 states of seat position, the shunted state represents a rearward seat position and the non-shunted state represents a forward position. The seat position sensor provides 2 current ranges, one range for the shunted state and a second range for a non-shunted state which are inputs to the inflatable restraint sensing and diagnostic module. When the inflatable restraint sensing and diagnostic module receives input from a seat position sensor that state 1 threshold is reached (seat is rearward), the inflatable restraint sensing and diagnostic module will enable stage 2 deployment. When state 2 threshold is reached (seat is forward), the inflatable restraint sensing and diagnostic module will disable stage 2 deployment on the side the seat is forward. The inflatable restraint sensing and diagnostic module monitors the seat position sensor circuit and if a fault is detected, the inflatable restraint sensing and diagnostic module will set code B0079 and disable stage 2 frontal deployment.

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](#).

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 01

Driver Steering Wheel Air Bag Deployment Loop Stage 1 Short to Battery

DTC B0012 02

Driver Steering Wheel Air Bag Deployment Loop Stage 1 Short to Ground

DTC B0012 04

Driver Steering Wheel Air Bag Deployment Loop Stage 1 Open

DTC B0012 0D

Driver Steering Wheel Air Bag Deployment Loop Stage 1 High Resistance

DTC B0012 0E

Driver Steering Wheel Air Bag Deployment Loop Stage 1 Low Resistance

DTC B0013 01

Driver Steering Wheel Air Bag Deployment Loop Stage 2 Short to Battery

DTC B0013 02

Driver Steering Wheel Air Bag Deployment Loop Stage 2 Short to Ground

DTC B0013 04

Driver Steering Wheel Air Bag Deployment Loop Stage 2 Open

DTC B0013 0D

Driver Steering Wheel Air Bag Deployment Loop Stage 2 High Resistance

DTC B0013 0E

Driver Steering Wheel Air Bag Deployment Loop Stage 2 Low Resistance

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	—

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Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
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 Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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.

⇓ **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.

⇓ **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

⇓ **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**

- 2.1. 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.

- 2.2. 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.

⇓ **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**

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

- 4.2. 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.

⇓ **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**

- 6.1. 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.

- 6.2. 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.

⇓ **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**

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

8.2. 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.

↓ **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.

↓ **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, B0021, B0031, or B0038

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 B0014 01

Driver Seat Side Air Bag Deployment Loop Short to Battery

DTC B0014 02

Driver Seat Side Air Bag Deployment Loop Short to Ground

DTC B0014 04

Driver Seat Side Air Bag Deployment Loop Open

DTC B0014 0D

Driver Seat Side Air Bag Deployment Loop High Resistance

DTC B0014 0E

Driver Seat Side Air Bag Deployment Loop Low Resistance

DTC B0021 01

Passenger Seat Side Air Bag Deployment Loop Short to Battery

DTC B0021 02

Passenger Seat Side Air Bag Deployment Loop Short to Ground

DTC B0021 04

Passenger Seat Side Air Bag Deployment Loop Open

DTC B0021 0D

Passenger Seat Side Air Bag Deployment Loop High Resistance

DTC B0021 0E

Passenger Seat Side Air Bag Deployment Loop Low Resistance

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Left Front Seat Air Bag High Control	B0014 02, B0014 0E	B0014 0D	B0014 04, B0014 0D	B0014 01	—

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Left Front Seat Air Bag Low Control	B0014 02, B0014 0E	B0014 0D	B0014 04, B0014 0D	B0014 01	—
Right Front Seat Air Bag High Control	B0021 02, B0021 0E	B0021 0D	B0021 04, B0021 0D	B0021 01	—
Right Front Seat Air Bag Low Control	B0021 02, B0021 0E	B0021 0D	B0021 04, B0021 0D	B0021 01	—

Circuit/System Description

During a side or frontal crash of sufficient force the Inflatable Restraint Sensing and Diagnostic Module will allow current to flow through the deployment loop in order to deploy an air bag. There are 2 shorting bars used within the connector that will short together the control circuits, when the connector is disconnected. This will help to prevent unwanted deployment of the air bag or retractor pretensioner during servicing.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B0014 01, B0021 01

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

B0014 02, B0021 02

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

B0014 04, B0021 04

The air bag control circuit is open for 2 seconds.

B0014 0D, B0021 0D

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

B0014 0E, B0021 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:

- Left and right seat air bags
- Inline harness connector
- 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. 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 Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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 side air bag
 - Inflatable Restraint Sensing and Diagnostic Module
 - All wiring harness connectors
 - 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 appropriate scan tool Deployment Loop Resistance parameters stay consistently between 2.1 and 4.0 Ω without any spikes or dropouts while moving the harness near each connector.

- F106 Seat Side Air Bag
- Any inline harness connector
- K36 Inflatable Restraint Sensing and Diagnostic Module

⇒ **If less than 2.1 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.
- Ensure each connector and CPA is correctly seated.

⇓ **If within 2.1 and 4.0 Ω without any spikes or dropouts**

2. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the scan tool and then disconnect the appropriate F106 Seat Side Air Bag harness connector. It may take up to 2 minutes for all vehicle systems to power down.

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

⇒ **If 25 Ω or less**

2.1. Disconnect the X2 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.

2.2. 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.

⇓ **If greater than 25 Ω**

3. Ignition ON.

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

- Control circuit terminal 1
- Control circuit terminal 2

⇒ **If 11 V or greater**

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

4.2. 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.

↓ **If less than 11 V**

5. Ignition OFF.

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

- Control circuit terminal 1
- Control circuit terminal 2

⇒ **If 25 Ω or less**

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

6.2. 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.

↓ **If greater than 25 Ω**

7. Ignition OFF, 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**

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

8.2. 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.

↓ **If less than 2 Ω**

9. Ignition OFF, connect the harness connector at the F106 Seat Side 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 B0014 or B0021 is not set.

⇒ **If DTC B0014 or B0021 is set**

Replace the appropriate F106 Seat Side Air Bag.

↓ **If DTC B0014 or B0021 is not set**

12. All OK.

Repair Instructions

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

- [Front Seat Outboard Seat Back Airbag Replacement](#)
- [Control Module References](#) for Inflatable Restraint Sensing and Diagnostic Module replacement, programming and setup

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 0D	B001B 04	B001B 01	—

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
	B001B 0E				
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 2 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 seconds.

B0015 02, B001A 02, B001B 02, B0022 02

The pretensioner control circuit is shorted to ground for 2 seconds.

B0015 04, B001A 04, B001B 04, B0022 04

The pretensioner control circuit is open for 2 seconds.

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

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

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

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

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 Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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.
- ⇓ **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 minutes 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**

 - 2.1. 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.
 - 2.2. 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.

⇓ **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**

- 4.1. Ignition OFF, disconnect the X2 harness connector at the K36 Inflatable Restraint and Sensing Diagnostic Module, ignition ON
- 4.2. 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.

⇓ **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**

- 6.1. Disconnect the X2 harness connector at the K36 Inflatable Restraint and Sensing Diagnostic Module.
- 6.2. 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.

⇓ **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**

- 8.1. Ignition OFF, disconnect the X2 harness connector at the K36 Inflatable Restraint and Sensing Diagnostic Module.
- 8.2. 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.

⇓ **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.

⇓ **If DTC B0015, B001A, B001B, or B0022 is not set**

12. All OK.

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

- [Seat Belt Buckle Pretensioner Replacement](#) for Seat Belt Anchor Pretensioner replacement
- [Front Seat Belt Retractor Replacement](#)
- [Control Module References](#) for Inflatable Restraint and Sensing Diagnostic Module replacement, programming and setup

DTC B0016, B0018, B0023, or B0025

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 B0016 01

Left Roof Rail Air Bag Deployment Loop Short to Battery

DTC B0016 02

Left Roof Rail Air Bag Deployment Loop Short to Ground

DTC B0016 04

Left Roof Rail Air Bag Deployment Loop Open

DTC B0016 0D

Left Roof Rail Air Bag Deployment Loop High Resistance

DTC B0016 0E

Left Roof Rail Air Bag Deployment Loop Low Resistance

DTC B0023 01

Right Roof Rail Air Bag Deployment Loop Short to Battery

DTC B0023 02

Right Roof Rail Air Bag Deployment Loop Short to Ground

DTC B0023 04

Right Roof Rail Air Bag Deployment Loop Open

DTC B0023 0D

Right Roof Rail Air Bag Deployment Loop High Resistance

DTC B0023 0E

Right Roof Rail Air Bag Deployment Loop Low Resistance

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Left Roof Rail Air Bag High Control	B0016 02, B0016 0E	B0016 0D	B0016 04, B0016 0D	B0016 01	—

Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
Left Roof Rail Air Bag Low Control	B0016 02, B0016 0E	B0016 0D	B0016 04, B0016 0D	B0016 01	—
Right Roof Rail Air Bag High Control	B0023 02, B0023 0E	B0023 0D	B0023 04, B0023 0D	B0023 01	—
Right Roof Rail Air Bag Low Control	B0023 02, B0023 0E	B0023 0D	B0023 04, B0023 0D	B0023 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 2 shorting bars which will short together control circuits, 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

B0016 01, B0023 01

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

B0016 02, B0023 02

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

B0016 04, B0023 04

The air bag control circuit is open for 2 seconds.

B0016 0D, B0023 0D

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

B0016 0E, B0023 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:

- Left and right roof rail air bags
- Inline harness connectors
- Harness side of the inflatable restraint sensing and 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 DTC 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 Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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.
 - Roof rail air bag
 - Roof rail air bag wiring harness connector
 - Inflatable restraint sensing and diagnostic module
 - 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 appropriate scan tool Deployment Loop Resistance parameter stays consistently between 2.1 and 4.0 Ω without any spikes or dropouts while moving the harness near each connector listed below:

- F105L Roof Rail Air Bag – Left
- F105R Roof Rail Air Bag – Right
- Any inline harness connector
- K36 inflatable restraint sensing and diagnostic module

⇒ **If less than 2.1 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.

⇓ **If within 2.1 and 4.0 Ω without any spikes or dropouts**

2. All OK

Circuit/System Testing

1. Ignition OFF. Scan tool disconnected. Disconnect the harness connector at the appropriate F105 Roof Rail Air Bag. It may take up to 2 min for all vehicle systems to power down.

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

⇒ **If 25 Ω or less**

2.1. Disconnect the X2 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.

2.2. 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.

⇓ **If greater than 25 Ω**

3. Ignition ON.

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

- Control circuit terminal 1
- Control circuit terminal 2

⇒ **If 11 V or greater**

4.1. Ignition OFF. Disconnect the X2 harness connector at the K36 inflatable restraint sensing and diagnostic module. Ignition ON.

4.2. 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.

↓ **If less than 11 V**

5. Ignition OFF.

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

- Control circuit terminal 1
- Control circuit terminal 2

⇒ **If 25 Ω or less**

6.1. Disconnect the X2 harness connector at the K36 inflatable restraint sensing and diagnostic module.

6.2. 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.

↓ **If greater than 25 Ω**

7. Ignition OFF. 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**

8.1. Ignition OFF. Disconnect the X2 harness connector at the K36 inflatable restraint sensing and diagnostic module.

8.2. 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.

↓ **If less than 2 Ω**

9. Ignition OFF, connect the harness connector at the F105 Roof Rail 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 B0016 or B0023 is not set.

⇒ **If DTC B0016 or B0023 is set**

Test or replace the F105 Roof Rail Air Bag.

↓ **If DTC B0016 or B0023 is not set**

12. All OK.

Repair Instructions

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

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

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 01

Passenger Instrument Panel Air Bag Deployment Loop Stage 1 Short to Battery

DTC B0019 02

Passenger Instrument Panel Air Bag Deployment Loop Stage 1 Short to Ground

DTC B0019 04

Passenger Instrument Panel Air Bag Deployment Loop Stage 1 Open

DTC B0019 0D

Passenger Instrument Panel Air Bag Deployment Loop Stage 1 High Resistance

DTC B0019 0E

Passenger Instrument Panel Air Bag Deployment Loop Stage 1 Low Resistance

DTC B0020 01

Passenger Instrument Panel Air Bag Deployment Loop Stage 2 Short to Battery

DTC B0020 02

Passenger Instrument Panel Air Bag Deployment Loop Stage 2 Short to Ground

DTC B0020 04

Passenger Instrument Panel Air Bag Deployment Loop Stage 2 Open

DTC B0020 0D

Passenger Instrument Panel Air Bag Deployment Loop Stage 2 High Resistance

DTC B0020 0E

Passenger Instrument Panel Air Bag Deployment Loop Stage 2 Low Resistance

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	—

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Circuit	Short to Ground	High Resistance	Open	Short to Voltage	Signal Performance
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 Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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.

↓ **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 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.

2. Test for greater than 25 Ω between the appropriate 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

⇒ **If 25 Ω or less**

2.1. 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.

2.2. 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.

↓ **If greater than 25 Ω**

3. 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.

↓ **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 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.

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

7. Ignition ON.

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

⇒ **If 2 Ω or greater**

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

8.2. 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.

↓ **If less than 2 Ω**

9. 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.

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

11. Verify DTC B0019 or B0020 is not set.

⇒ **If DTC B0019 or B0020 is set**

Replace the F101 Passenger Instrument Panel Air Bag.

↓ **If DTC B0019 or B0020 is not set**

12. All OK.

Repair Instructions

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

- [Instrument Panel Airbag Replacement](#)
- [Control Module References](#) for Inflatable Restraint Sensing and Diagnostic Module control module replacement, programming and setup

DTC B0052

Diagnostic Instructions

- Perform the [Diagnostic System Check - Vehicle](#) prior to using the 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 B0052 00

Deployment Commanded

DTC B0052 56

Deployment Commanded Too Many Transitions

Circuit/System Description

The inflatable restraint sensing and diagnostic module (SDM) senses vehicle impacts and provides deployment signals to the air bags and anchor and/or retractor pretensioners when warranted. The inflatable restraint sensing and diagnostic module sets DTC B0052 after each command for deployment. DTC B0052 will latch and not clear after 3 commanded deployments by the inflatable restraint sensing and diagnostic module. Therefore the inflatable restraint sensing and diagnostic module has to be replaced.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

- The inflatable restraint sensing and diagnostic module detects a frontal impact of sufficient force to warrant deployment of the frontal air bags.
- The inflatable restraint sensing and diagnostic module detects a side impact or rollover (if equipped) of sufficient force to warrant deployment of a seat air bag and/or roof rail air bag.

Action Taken When the DTC Sets

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

Conditions for Clearing the DTC

- DTC B0052 00 is a DTC that may be cleared with a scan tool without replacing the inflatable restraint sensing and diagnostic module. This DTC will not clear if deployment has been commanded more than two times, and the inflatable restraint sensing and diagnostic module would have to be replaced.
- DTC B0052 56 is a latched DTC. The DTC cannot be cleared with the scan tool. Replacement of the inflatable restraint sensing and diagnostic module is required.

Reference Information

Schematic Reference

[SIR Schematics](#)

Connector End View Reference

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[Component Connector End Views](#)**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 that DTC B0052 00 is not set.
⇒ **If DTC B0052 00 is set**
Clear the DTC. If the DTC will not clear, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.
⇓ **If DTC B0052 00 is not set**
2. Verify that DTC B0052 56 is not set.
⇒ **If DTC B0052 56 is set**
Replace the K36 Inflatable Restraint Sensing and Diagnostic Module.
⇓ **If DTC B0052 56 is not set**
3. All OK.

[Repair Instructions](#)

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

[Control Module References](#) for inflatable restraint sensing and diagnostic module replacement, programming and setup

DTC B0079 or B0080

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 B0079 01

Driver Seat Position Sensor Circuit Short to Battery

DTC B0079 02

Driver Seat Position Sensor Circuit Short to Ground

DTC B0079 04

Driver Seat Position Sensor Circuit Open

DTC B0079 05

Driver Seat Position Sensor Circuit High Voltage or Open

DTC B0079 06

Driver Seat Position Sensor Circuit Low Voltage or Open

DTC B0079 08

Driver Seat Position Sensor Circuit Performance-Signal Invalid

DTC B0079 0C

Driver Seat Position Sensor Circuit Low Current

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Driver Seat Position Signal	B0079 02, B0079 06	B0079 04, B0079 05, B0079 06, B0079 0C	B0079 01	B0079 08
Driver Seat Position Sensor Low Reference	B0079 02, B0079 06	B0079 04, B0079 05, B0079 06, B0079 0C	B0079 01	B0079 08

Circuit/System Description

The Seat Position Sensor is used to determine the proximity of the front driver or passenger seat position with respect to the front air bag. There are two states of seat position, forward and rearward. The Seat Position Sensor interfaces with the Inflatable Restraint Sensing and

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Diagnostic Module (SDM) and allows the Inflatable Restraint Sensing and Diagnostic Module to disable stage 2 of the air bag for a front seat that is forward of the forward/rearward point in seat track. The Seat Position Sensor provides two current ranges, one range for the forward seat position and one for rearward seat position. When the Inflatable Restraint Sensing and Diagnostic Module receives input from a Seat Position Sensor that the seat is rearward, and the Inflatable Restraint Sensing and Diagnostic Module will not disable stage 2 deployment. When the seat is forward, the Inflatable Restraint Sensing and Diagnostic Module will disable stage 2 deployment. The Inflatable Restraint Sensing and Diagnostic Module monitors the Seat Position Sensor circuit and if a fault is detected, the Inflatable Restraint Sensing and Diagnostic Module will set code B0079 and disable stage 2 frontal deployment.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

B0079 01

The Inflatable Restraint Sensing and Diagnostic Module detects the Seat Position Sensor signal circuit is shorted to voltage for 2 seconds.

B0079 02

The Inflatable Restraint Sensing and Diagnostic Module detects the Seat Position Sensor signal circuit is shorted to ground for 2 seconds.

B0079 04

The Inflatable Restraint Sensing and Diagnostic Module detects the Seat Position Sensor signal circuit is open for 2 seconds.

B0079 05

The Inflatable Restraint Sensing and Diagnostic Module detects the Seat Position Sensor signal circuit is open or has a high voltage condition for 2 seconds.

B0079 06

The Inflatable Restraint Sensing and Diagnostic Module detects the Seat Position Sensor signal circuit is shorted to ground or an open for 2 seconds.

B0079 08

The Inflatable Restraint Sensing and Diagnostic Module detects an invalid signal on the Seat Position Sensor signal circuit.

B0079 0C

The Inflatable Restraint Sensing and Diagnostic Module detects a low current condition in the Seat Position Sensor signal circuit for 2 seconds.

Action Taken When the DTC Sets

- The Inflatable Restraint Sensing and Diagnostic Module defaults the Seat Position Sensor to seat forward threshold.
- The Inflatable Restraint Sensing and Diagnostic Module requests the instrument panel cluster to illuminate the AIR BAG indicator.

Conditions for Clearing the DTC

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

Reference Information

Schematic Reference[SIR Schematics](#)**Connector End View Reference**[Component Connector End Views](#)**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 that DTC B0079 08 is not set.
⇒ **If DTC B0079 08 is set.**
⇒ Replace the appropriate B88 Seat Position Sensor.
↓ **If DTC B0079 08 is not set.**
2. Ignition ON.
3. Observe the scan tool Seat Position Sensor parameter. The reading should be Forward or Rearward. With the scan tool verify that the Seat Position Sensor parameter is Forward or Rearward.
⇒ **If not Forward or Rearward**
⇒ Refer to Circuit/System Testing.
↓ **If Forward or Rearward**
4. Make sure the seat has zero weight on it.
5. Observe the scan tool while moving the seat to the full forward and then full rearward positions. The Seat Position Sensor parameter should change between Forward and Rearward.
⇒ **If the parameter does not change**
⇒ Refer to Circuit/System Testing.
↓ **If the parameter changes**
6. All OK.

[Circuit/System Testing](#)

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

- Seat Position Sensor
- Inflatable Restraint Sensing and Diagnostic Module module
- Seat Position Sensor wiring harness connector
- Inflatable Restraint Sensing and Diagnostic Module wiring harness connector

1. Ignition OFF.
2. Disconnect the harness connector at the B88 Seat Position Sensor.

3. Test for less than 10 Ω between the low reference circuit terminal 1 and ground.

⇒ **If 10 Ω or greater**

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

3.2. Test for less than 2 Ω in the low reference 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.

⇓ **If less than 10 Ω**

4. Ignition ON.

5. Test for 4–9 V between the signal circuit terminal 2 and ground.

⇒ **If less than 4 V**

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

5.2. Test for infinite resistance between the signal circuit and ground.

⇒ If less than infinite resistance, repair the short to ground on the circuit.

5.3. Test for less than 2 Ω in the signal 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.

⇒ **If greater than 9 V**

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

5.2. 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 K36 Inflatable Restraint Sensing and Diagnostic Module.

⇓ **If between 4–9 V**

6. Replace the B88 Seat Position Sensor.

Repair Instructions

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

- [Airbag Front Seat Position Sensor Replacement](#)
- [SIR/SRS Wiring Repairs](#)
- [Control Module References](#) for Inflatable Restraint Sensing and Diagnostic Module replacement, setup, and programming

DTC B0083-B0088

Diagnostic Instructions

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

DTC Descriptors

DTC B0083 02

Left Front Impact Sensor Short to Ground

DTC B0083 05

Left Front Impact Sensor High Voltage/Open

DTC B0083 39

Left Front Impact Sensor Internal Electronic Failure

DTC B0083 3A

Left Front Impact Sensor Incorrect Component Installed

DTC B0083 71

Left Front Impact Sensor Invalid Serial Data Received

DTC B0084 02

Right Front Impact Sensor Short to Ground

DTC B0084 05

Right Front Impact Sensor High Voltage/Open

DTC B0084 39

Right Front Impact Sensor Internal Electronic Failure

DTC B0084 3A

Right Front Impact Sensor Incorrect Component Installed

DTC B0084 71

Right Front Impact Sensor Invalid Serial Data Received

DTC B0085 02

Left Front Side Impact Sensor Short to Ground

DTC B0085 05

Left Front Side Impact Sensor High Voltage/Open

DTC B0085 39

Left Front Side Impact Sensor Internal Malfunction

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DTC B0085 3A

Left Front Side Impact Sensor Incorrect Component Installed

DTC B0085 71

Left Front Side Impact Sensor Invalid Serial Data Received

DTC B0086 02

Right Front Side Impact Sensor Short to Ground

DTC B0086 05

Right Front Side Impact Sensor High Voltage/Open

DTC B0086 39

Right Front Side Impact Sensor Internal Malfunction

DTC B0086 3A

Right Front Side Impact Sensor Incorrect Component Installed

DTC B0086 71

Right Front Side Impact Sensor Invalid Serial Data Received

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Left Front Impact Sensor High Signal	B0083 02	B0083 05	B0083 05	B0083 3A
Left Front Impact Sensor Low Reference	B0083 02	B0083 05	B0083 05	B0083 3A
Right Front Impact Sensor High Signal	B0084 02	B0084 05	B0084 05	B0084 3A
Right Front Impact Sensor Low Signal	B0084 02	B0084 05	B0084 05	B0084 3A
Left Front Side Impact Sensor High Signal	B0085 02	B0085 05	B0085 05	B0085 39
Left Front Side Impact Sensor Low Reference	B0085 02	B0085 05	B0085 05	B0085 39
Right Front Side Impact Sensor High Signal	B0086 02	B0086 05	B0086 05	B0086 39
Right Front Side Impact Sensor Low Reference	B0086 02	B0086 05	B0086 05	B0086 39

Circuit/System Description

The impact sensors are equipped on vehicles to supplement the supplemental inflatable restraint (SIR) System performance. The impact sensors are electronic and are not part of the deployment loops, but instead provide inputs to the inflatable restraint sensing and diagnostic

module. The impact sensors can assist in determining the severity of some frontal and side collisions. The inflatable restraint sensing and diagnostic module uses the input from the impact sensors to assist in determining the severity of a collision further supporting air bag deployment. If the inflatable restraint sensing and diagnostic module determines a deployment is warranted, the inflatable restraint sensing and diagnostic module will cause current to flow through the deployment loops deploying the air bags.

Conditions for Running the DTC

Ignition voltage is between 9–16 V.

Conditions for Setting the DTC

Any of the following conditions exist for 10 S:

B0083 02, B0084 02, B0085 02, B0086 02

- The sensor has been shorted to ground.
- The sensor current is greater than 23 mA for greater than 5 ms.

B0083 05, B0084 05, B0085 05, B0086 05

- The sensor circuit is high voltage/open.
- The inflatable restraint sensing and diagnostic module has not received a message from the sensor for greater than 375 ms.

B0083 39, B0084 39, B0085 39, B0086 39

- The inflatable restraint sensing and diagnostic module has received a Not OK message from the sensor.
- The inflatable restraint sensing and diagnostic module has not received a message.

B0083 3A, B0084 3A, B0085 3A, B0086 3A

- The inflatable restraint sensing and diagnostic module has received identification message from the sensor, which does not match the identification stored in the inflatable restraint sensing and diagnostic module memory.
- The inflatable restraint sensing and diagnostic module has reset the impact sensor twice without detecting the correct identification message.

B0083 71, B0084 71, B0085 71, B0086 71

The inflatable restraint sensing and diagnostic module has received invalid serial data from the sensor.

Action Taken When the DTC Sets

The inflatable restraint sensing and diagnostic module requests the instrument panel cluster 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.
- An ignition cycle is required for the DTC to go from current to history.

Diagnostic Aid

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

Terminal fretting, damaged terminals, damaged connectors, 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 05 is set.

Reference Information

Schematic Reference

[SIR Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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:

- 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.
 - Impact sensor
 - Impact sensor wiring harness connector
 - Inflatable restraint sensing and diagnostic module
 - 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 that DTC B0083–B0086 symptom byte 3A, 39, or 71 is not set as current.

⇒ **If DTC B0083–B0086 symptom byte 3A, 39 or 71 is set as current**

Replace the appropriate B59 or B63 Impact Sensor.

⇓ **If DTC B0083–B0086 symptom byte 3A, 39 or 71 is not set as current**

2. Verify that DTC B0083–B0086 symptom byte 01, 02, 04, or 05 is not set as current.

⇒ **If DTC B0083–B0086 symptom byte 01, 02, 04, or 05 is set as current**

Refer to Circuit/System Testing.

⇓ **If DTC B0083–B0086 symptom byte 01, 02, 04, 05 is not set as current**

3. All OK.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the appropriate B59 or B63 Impact Sensor. It may take up to 2 min for all vehicle systems to power down.
2. Test for less than $10\ \Omega$ between the low reference circuit terminal 2 and ground.
⇒ **If $10\ \Omega$ or greater**
 - 2.1. Ignition OFF, disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - 2.2. Test for less than $2\ \Omega$ in the low reference circuit end to end.
⇒ If $2\ \Omega$ or greater, repair the open/high resistance in the circuit.
⇒ If less than $2\ \Omega$, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.
- ⇓ **If less than $10\ \Omega$**
3. Test for greater than $50k\ \Omega$ between the signal circuit terminal 1 and ground.
⇒ **If $50k\ \Omega$ or less**
 - 3.1. Disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - 3.2. 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 K36 Inflatable Restraint Sensing and Diagnostic Module.
- ⇓ **If greater than $50k\ \Omega$**
4. Ignition ON, wait 1 min, test for less than 1 V between the signal circuit terminal 1 and ground.
⇒ **If 1 V or greater**
 - 4.1. Ignition OFF, disconnect the harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - 4.2. Ignition ON, test for less than 1 V between the signal circuit and ground.
⇒ If greater than 1 V, repair the short to voltage on the circuit.
⇒ If less than 1 V, replace the K36 Inflatable Restraint Sensing and Diagnostic Module.
- ⇓ **If less than 1 V**

Note: When using the MIN MAX function, autorange on the DMM may not function properly. To ensure accurate test results, turn off autorange and manually set the DMM range to 000.0 V.
5. Ignition OFF, install a DMM between the signal circuit terminal 1 and ground. Set the DMM to capture DC voltage using the MIN MAX function. Turn off autorange and manually set the DMM range to 000.0 V. Ignition ON.
6. Verify the MAX voltage captured by the DMM is between 4–9V.
⇒ **If less than 4 V**
 - 6.1. Disconnect the X2 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module.
 - 6.2. 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
 - 6.3. Test for less than $2\ \Omega$ in the signal circuit end to end.
⇒ If $2\ \Omega$ or greater, repair the open/high resistance in the circuit.
⇒ If less than $2\ \Omega$, replace the Inflatable Restraint Sensing and Diagnostic Module.
- ⇒ **If greater than 9V**
 - 6.1. Ignition OFF. Disconnect the X2 harness connector at the K36 Inflatable Restraint Sensing and Diagnostic Module. Ignition ON.
 - 6.2. Test for less than 1 V between the signal circuit terminal 1 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.

↓ **If between 4–9V**

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

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

9. Verify the DTC does not set.

⇒ **If the DTC sets**

Replace the B59 or B63 Impact Sensor.

↓ **If the DTC does not set**

10. All OK.

Repair Instructions

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

- [Front End Inflatable Restraint Discriminating Sensor Replacement](#)
- [Airbag Side Impact Sensor Replacement](#)
- [Control Module References](#) for inflatable restraint sensing and diagnostic module replacement, programming and setup

DTC B1001

Diagnostic Instructions

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

DTC Descriptor

DTC B1001 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 [Inflatable Restraint Sensing and Diagnostic Module Programming and Setup](#)

Reference Information

Schematic Reference

[SIR Schematics](#)

Connector End View Reference

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[Component Connector End Views](#)**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 [Inflatable Restraint Sensing and Diagnostic Module Programming and Setup](#).
 - ⇓ **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.

- [SIR/SRS Wiring Repairs](#)
- [Control Module References](#) for inflatable restraint sensing and diagnostic 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 Schematics](#)
- [SIR Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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](#)
- ⇓ **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**
 - 3.1. 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.

↓ If the calibration file is incorrect

3.2. Reprogram the K36 Inflatable Restraint Sensing and Diagnostic Module. Refer to [Inflatable Restraint Sensing and Diagnostic Module Programming and Setup](#)

↓ **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**

4.1. 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.

↓ If the calibration file is incorrect

4.2. Program the K36 Inflatable Restraint Sensing and Diagnostic Module. Refer to [Inflatable Restraint Sensing and Diagnostic Module Programming and Setup](#)

↓ **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.

↓ **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 [Inflatable Restraint Sensing and Diagnostic Module Programming and Setup](#)

↓ **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**

7.1. 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](#)

↓ If the scan tool communicates

7.2. Ignition OFF, disconnect the scan tool. It may take up to 2 min for all vehicle systems to power down. Ignition ON.

7.3. Verify DTC B1019 is not set as current.

⇒ If the DTC is set as current, refer to [Inflatable Restraint Sensing and Diagnostic Module Programming and Setup](#)

↓ If the DTC is not set as current

7.4. All OK.

↓ **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.

- [SIR/SRS Wiring Repairs](#)
- [Control Module References](#) for inflatable restraint sensing and diagnostic 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 to 100°F 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. Refer to [Checking Aftermarket Accessories](#).
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to [Testing for Intermittent Conditions and Poor Connections](#).

Symptom List

Refer to [Airbag Indicator Malfunction](#) in order to diagnose the symptom.

Airbag Indicator Malfunction

Diagnostic Instructions

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

Circuit/System Description

When the ignition is turned ON the driver air bag indicator will illuminate, and then turn OFF after the bulb check is complete. The inflatable restraint sensing and diagnostic module (SDM) performs diagnostic tests on the SIR system during the bulb check. If any malfunction exists the inflatable restraint sensing and diagnostic module will request the instrument cluster to illuminate the air bag indicator steady, via serial data. If a preexisting malfunction exists, the air bag indicator will illuminate steady immediately after the ignition is turned ON. If the ignition 1 voltage is outside of the normal operating voltage range of 9–16 V, the inflatable restraint sensing and diagnostic module will command the instrument cluster to illuminate the air bag indicator ON, even with no DTCs present, and then disable all deployment loops.

Diagnostic Aids

- A DTC B1370 may set if the ignition 1 circuit is outside the 9–16 V range.
- A flashing driver air bag indicator is displayed if the inflatable restraint sensing and diagnostic module was programmed but did not fully complete the programming. For a flashing driver airbag indicator, refer to [Inflatable Restraint Sensing and Diagnostic Module Programming and Setup](#).

Reference Information

Schematic Reference

[SIR Schematics](#)

Connector End View Reference

[Component Connector End Views](#)

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

1. Verify the air bag indicator turns ON and OFF when commanding the All Indicators ON and OFF with a scan tool.

⇒ **If the air bag indicator does not turn ON or OFF**

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Replace the P16 Instrument Cluster.

↓ **If the air bag indicator does turn ON or OFF**

2. Replace the K36 Inflatable Restraint Sensing and Diagnostic Module.

Repair Instructions

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

- [SIR/SRS Wiring Repairs](#)
- [Control Module References](#) for instrument cluster or inflatable restraint sensing and diagnostic 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. 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 Repairs and Inspections Required After a Collision .
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
* DTCs will be lost when the negative battery cable is disconnected.	

SIR Service Precautions

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.

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 65°C (149°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 92 cm (3 feet) 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 Schematics](#) or [Electrical Center Identification Views](#).
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 Schematics](#) or [Electrical Center Identification Views](#).
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](#).

SIR Service Precautions

General Service Instructions

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.

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:

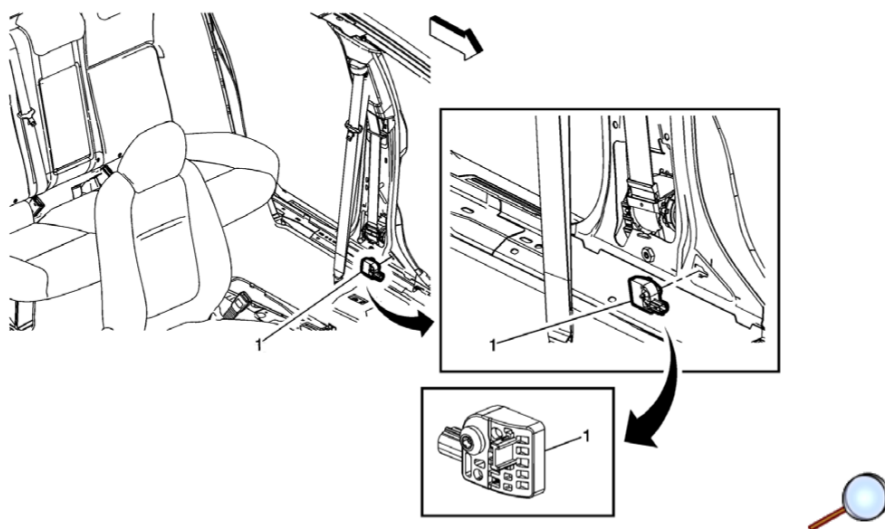
- Do not expose air bags to temperatures above 85 °C (185 °F)
- Verify the correct replacement part number. Do not substitute a component from a different vehicle
- Use only original GM replacement parts available from your authorized GM dealer. Do not use salvaged parts for repairs to the SIR system

Note: Discard any of the following components if it has been dropped from a height of 80 cm (15.75 in) or greater:

- Inflatable Restraint Sensing and Diagnostic Module
- Passenger instrument panel air bag
- Driver steering wheel air bag
- Driver steering wheel air bag coil
- Roof rail air bags
- Front and /or side impact sensors
- Seat belt anchor and/or retractor pretensioners
- Front seat side air bag
- Knee air bag

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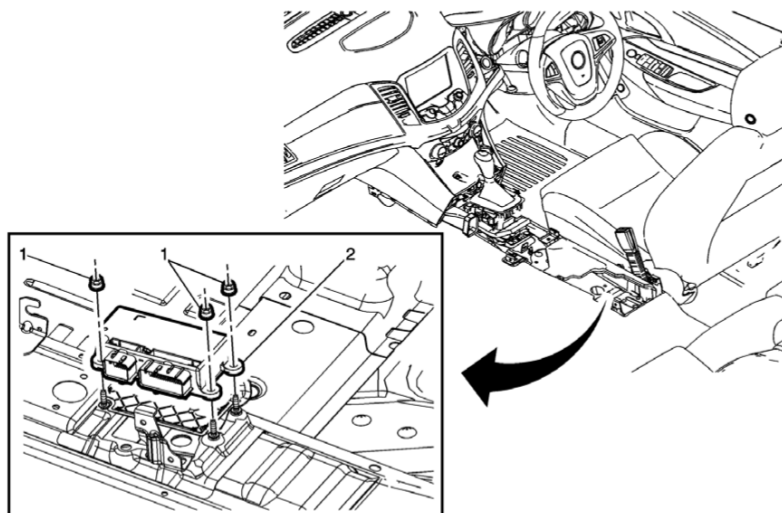
Airbag Side Impact Sensor Replacement



Airbag Side Impact Sensor Replacement

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 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 center pillar lower trim panel. Refer to Center Pillar Lower Trim Panel Replacement.	
1	Airbag 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. Tighten 7.5 N·m (66 lb in)

Airbag Sensing and Diagnostic Module Replacement



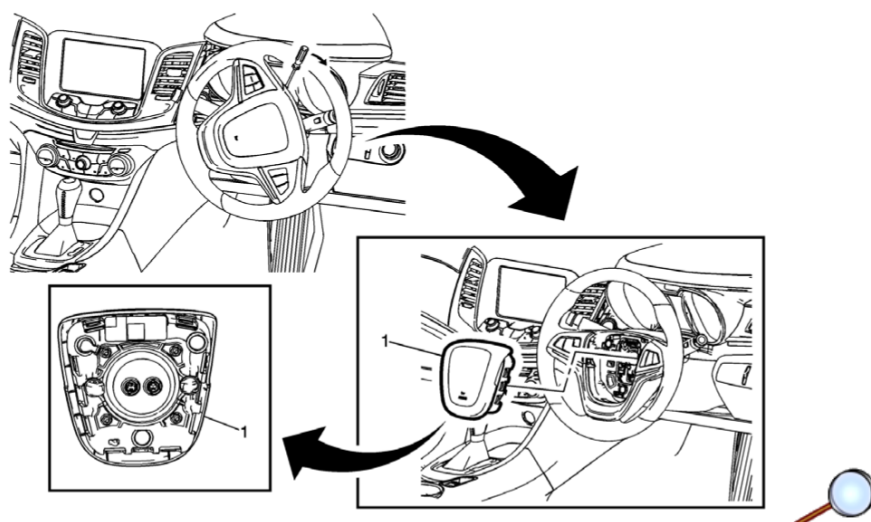
Airbag Sensing and Diagnostic Module Replacement

Callout	Component Name
Warning: Refer to SIR Warning. 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. Preliminary Procedures 1. Disable the supplemental inflatable restraint (SIR) system. Refer to SIR Disabling and Enabling. 2. Remove the front floor console. Refer to Front Floor Console Replacement. 3. Disconnect the electrical connector.	
1	Airbag Sensing and Diagnostic Module Fastener (Qty: 3) Caution: Refer to Fastener Caution. Tighten 9N•m (80 lb in)
2	Airbag Sensing and Diagnostic Module Assembly Procedure 1. When installing, ensure the arrow on the module is pointed towards the front of the vehicle. 2. If installing a replacement module, program the module. Refer to Control Module References.

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Callout	Component Name
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Steering Wheel Airbag Replacement

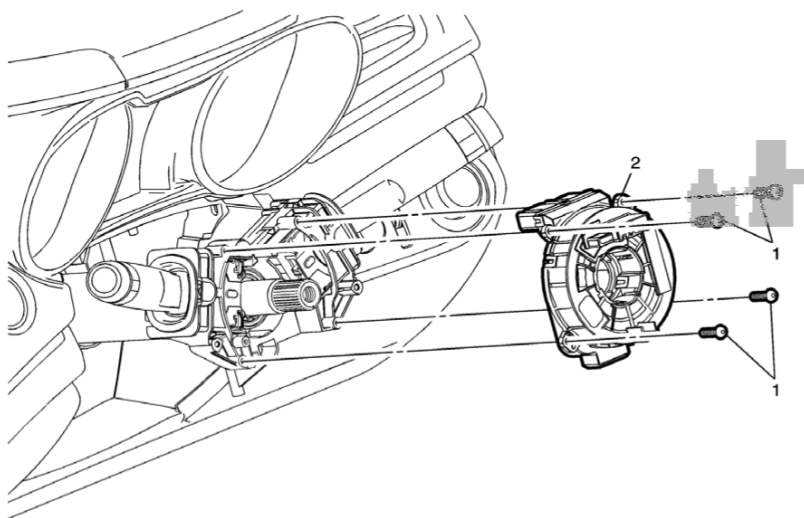


Steering Wheel Airbag Replacement

Callout	Component Name
Warning: Refer to SIR Inflator Module Handling and Storage Warning. Warning: Refer to SIR Warning. Procedure - For vehicles fitted with keyless start, follow the procedure for unlocking the steering column. Refer to Steering Column Lock Control Module Replacement. - Disable the SIR system. Refer to SIR Disabling and Enabling.	
1	Steering Wheel Airbag Assembly Procedure - Rotate steering wheel clockwise to expose access hole located on the rear of the steering wheel. - Fully insert a small screwdriver or equivalent tool at a slight angle into access hole. - Apply and keep constant pressure on handle towards instrument panel moving the tool in an outward direction to push the spring fastener inward to release the steering wheel airbag from the steering wheel.. - Rotate the steering wheel counter clockwise to expose remaining access hole. Repeat above for this side. - Release the connector position assurance (CPA) retainer. - Disconnect the electrical connectors. - Refer to Inflatable Restraint Module Handling and Scrapping.

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Steering Wheel Airbag Coil Replacement



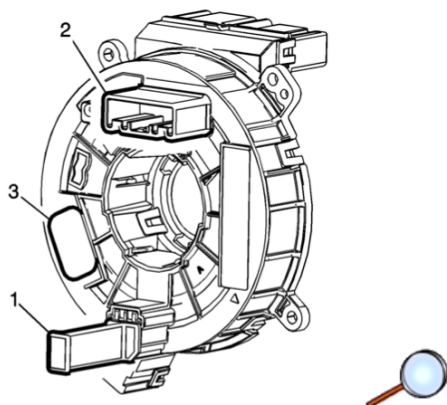
Steering Wheel Airbag Coil Replacement

Callout	Component Name
Preliminary Procedures 1. Remove the steering wheel. Refer to Steering Wheel Replacement . 2. Remove the steering column upper and lower trim covers. Refer to Steering Column Lower Trim Cover Replacement .	
1	Steering Wheel Airbag Coil Fastener (Qty: 4) Caution: Refer to Fastener Caution .
2	Steering Wheel Airbag Coil Procedure 1. Disconnect any electrical connectors as necessary. 2. Transfer the steering angle sensor. Refer to Steering Angle Sensor Replacement . 3. Ensure the steering wheel airbag coil is centered during installation. If installing a NEW coil, remove the centering tab AFTER the coil is on the steering column. Refer to Airbag Steering Wheel Module Coil Centering .

Airbag Steering Wheel Module Coil Centering

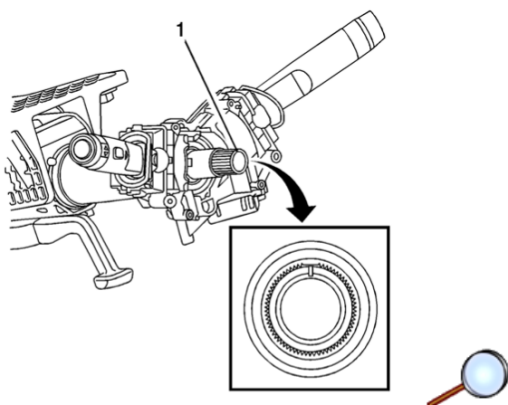
Note: If a double wire harness strap is installed onto the wire harness assembly and steering column, the original holder for the wire strap(s) MUST be reused during installation.

1. Remove the wire harness strap(s) where necessary.

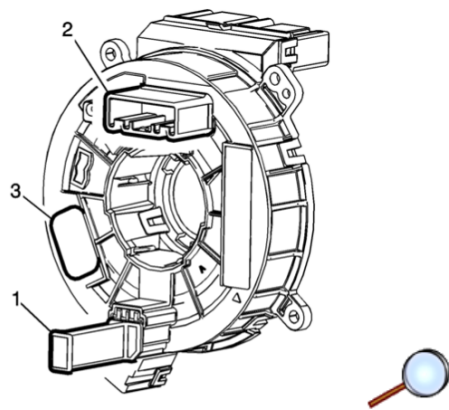


Caution: The new SIR coil assembly will be centered. Improper alignment of the SIR coil assembly may damage the unit, causing an inflatable restraint malfunction.

2. Inspect the inflatable restraint steering wheel module coil. If the yellow lock pin (1) is present, the uplead post (2) is at the 12:00 position and the loop (u-turn) appears in the centering window (3) then the coil is already in the centered position and no further action is required.



3. If the coil needs to be centered, perform the following preliminary steps:
 - The wheels on the vehicle are straight ahead.
 - The block tooth (1) on the steering shaft is in the 12 o'clock position.
 - The ignition switch is in the LOCK position.

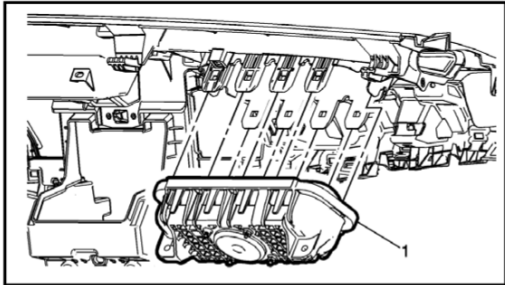
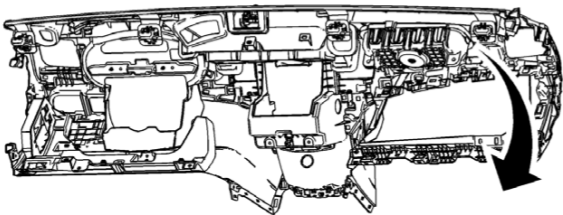


4. To center the coil, perform the following steps:

- Hold the coil with the face up.
- Slowly rotate the coil hub clockwise until the coil ribbon stops.
- Slowly rotate the coil hub counterclockwise approximately 2.5 turns until the uplead post (2) is at the 12:00 position.
- View the centering window (3) and ensure the loop (u-turn) is visible. If the loop is visible then the coil is in the CENTER position.
- While holding the coil hub in the CENTER position, align the coil with the steering column components and slide onto the steering shaft.

5. If a double wire harness strap is installed onto the wire harness assembly and steering column, the wires must be routed up against the column. One wire harness strap will surround one lead from the coil to the steering column. The other wire harness strap will surround all other leads to the steering column.

Instrument Panel Airbag Replacement

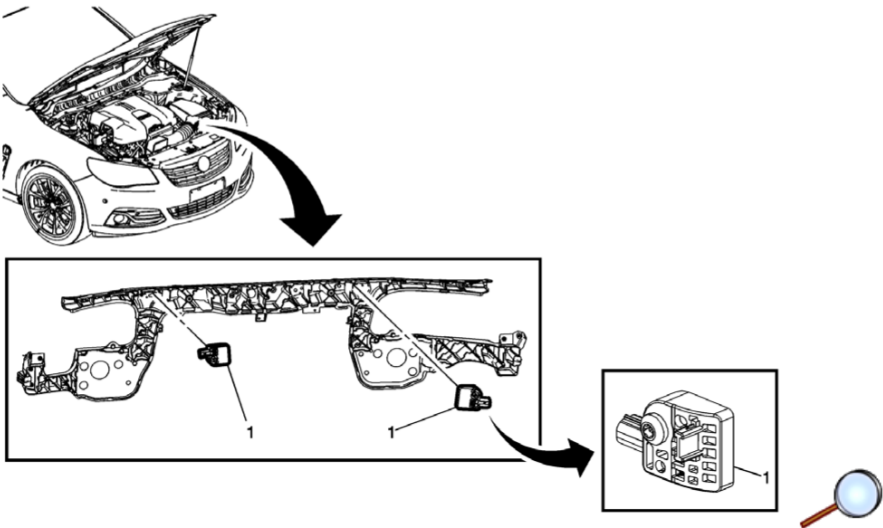


Instrument Panel Airbag Replacement

Callout	Component Name
Warning: Refer to SIR Inflator Module Handling and Storage Warning. Warning: Refer to SIR Warning. Preliminary Procedures 1. Disable the SIR system. Refer to SIR Disabling and Enabling. 2. Remove the instrument panel assembly. Refer to Instrument Panel Assembly Replacement.	
1	Instrument Panel Airbag Assembly Procedure 1. Refer to Inflatable Restraint Module Handling and Scrapping. 2. Use a screwdriver or equivalent at one side of the housing to release tabs. Release all tabs simultaneously to release the PAB housing from IP chute. 3. Enable the SIR system. Refer to SIR Disabling and Enabling.

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Front End Inflatable Restraint Discriminating Sensor Replacement

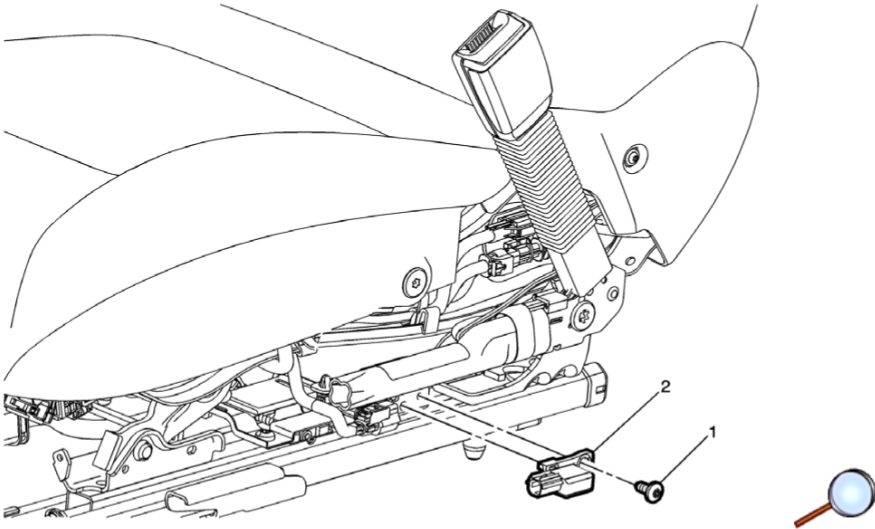


Airbag Front End Discriminating Sensor Replacement

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 • 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 supplemental inflatable restraint (SIR) system. Refer to SIR Disabling and Enabling. 2. The radiator upper mounts can be taken off and the radiator lent back to aid in the removal. Refer to Radiator Upper Mount Replacement.	
1	Airbag Front End Discriminating Sensor Assembly (Qty: 2) Caution: Refer to Fastener Caution. Procedure 1. Disconnect the electrical connectors.

Callout	Component Name
	2. Loosen the bolts and slide the sensors out of the keyhole slots. 3. The bolts are integral to the sensor assembly and DO NOT remove separately. Tighten 7.5 N·m (66 lb in)

Airbag Front Seat Position Sensor Replacement



Airbag Front Seat Position Sensor Replacement

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 driver or passenger seat. Refer to Driver or Passenger Seat Removal and Installation.	
1	Airbag Front Seat Position Sensor Bolt Caution: Refer to Fastener Caution . Tighten 3 N•m (25 lb in)
2	Airbag Front Seat Position Sensor Procedure Disconnect the electrical connector.

Front Seat Outboard Seat Back Airbag Replacement

Removal Procedures

Warning: Following the deployment of a side impact air bag, inspect the following parts for damage. Replace these parts if necessary:

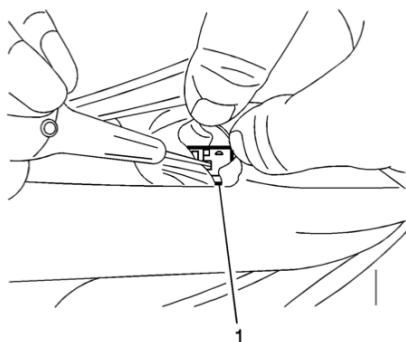
- The seat cushion frame
- The seat recliner, if equipped
- The seat adjuster
- The seat back frame

Failure to do so may cause future personal injury.

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

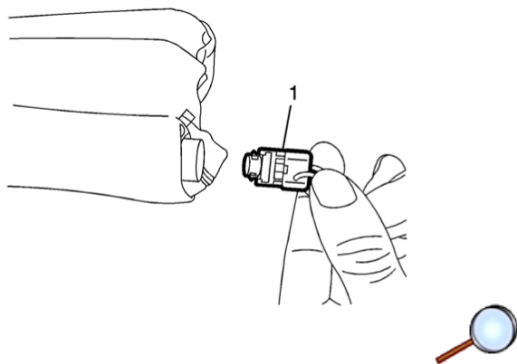
Warning: Refer to [SIR Warning](#).

1. Disable the SIR system. Refer to [SIR Disabling and Enabling](#).
2. Remove driver or passenger seat. Refer to [Driver or Passenger Seat Removal and Installation](#).
3. Raise the rear cover of the front seat back cover and pad to expose the inflatable restraint module. Refer to [Driver or Passenger Seat Back Cover and Pad Replacement](#).

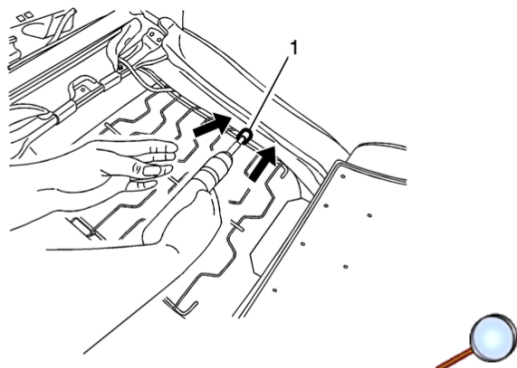


4. Remove the connector position assurance (CPA) lock (1) from the inflatable restraint module electrical connector.

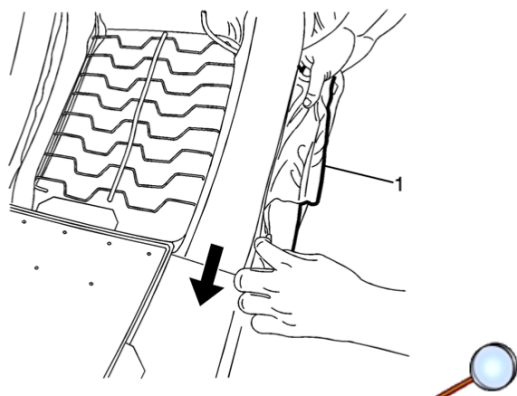
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5. Disconnect the electrical connector (1).



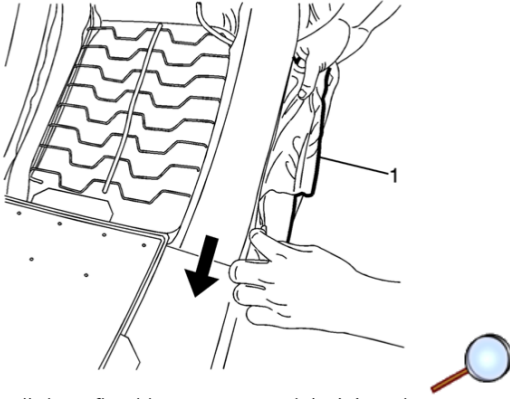
6. Remove the two inflatable restraint module retaining nuts (1).



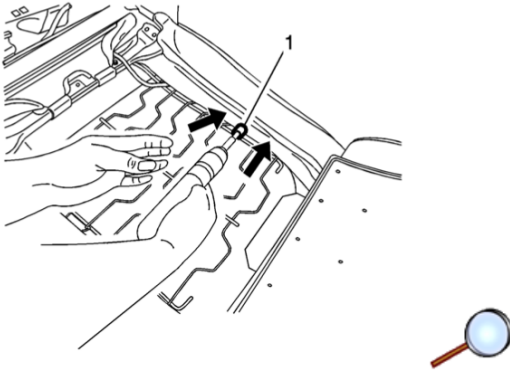
7. Pull the seat pocket cover outwards and withdraw the inflatable restraint module (1).

8. Refer to [Inflatable Restraint Module Handling and Scrapping](#)

[Installation Procedures](#)

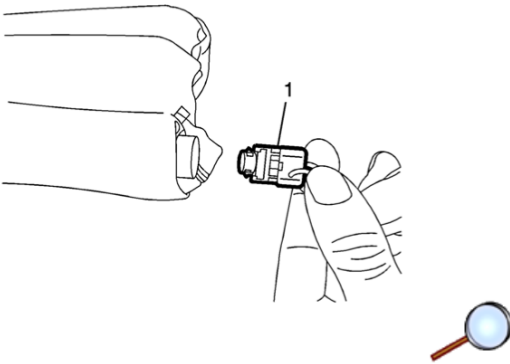


1. Install the inflatable restraint module (1) to the seat pocket cover.

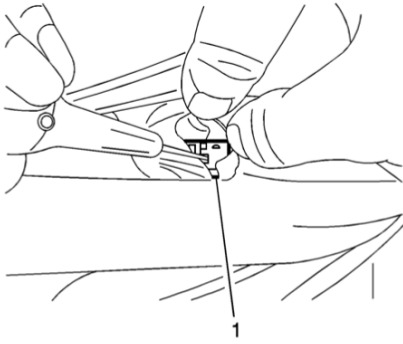


Caution: Refer to [Fastener Caution](#).

2. Install both inflatable restraint module retaining nuts (1) to the seat back frame and tighten to **9 N•m (80 lb in)**.

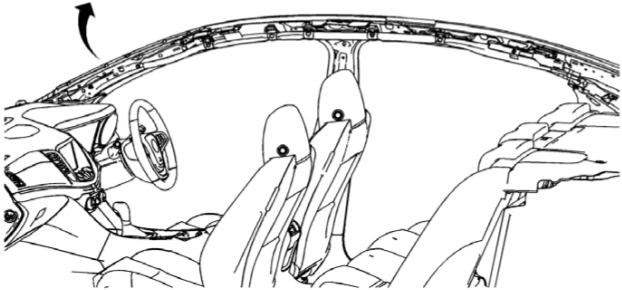
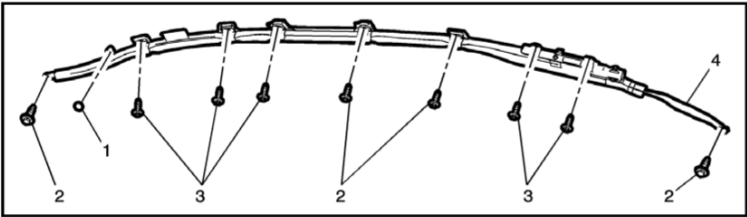


3. Connect the electrical connector (1).



4. Install the connector position assurance (CPA) lock (1) to the inflatable restraint module electrical connector.
5. Install the rear cover of the front seat back cover and pad. Refer to [Driver or Passenger Seat Back Cover and Pad Replacement](#).
6. Install the driver or passenger seat. Refer to [Driver or Passenger Seat Removal and Installation](#).

Roof Side Rail Airbag Replacement (Short Wheelbase Sedan)

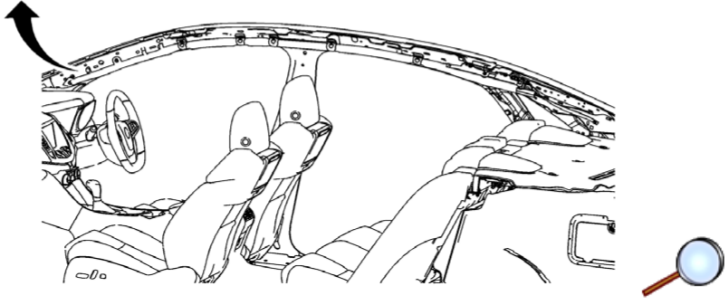
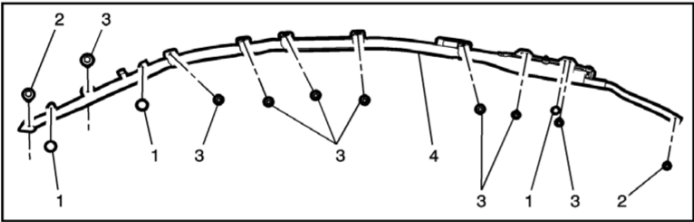


Airbag Roof Side Rail Module Replacement

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 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	
1	Airbag Roof Side Rail Module Retainer
2	Airbag Roof Side Rail Module Fastener (Qty: 2) Caution: Refer to Fastener Caution . Tighten 9N•m (80 lb in)
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Callout	Component Name
3	Roof Side Rail Airbag Strap Fastener (Qty: 7) Tighten 9 N•m (80 lb in)
4	Airbag Roof Side Rail Module 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.

Roof Side Rail Airbag Replacement (Long Wheelbase Sedan)

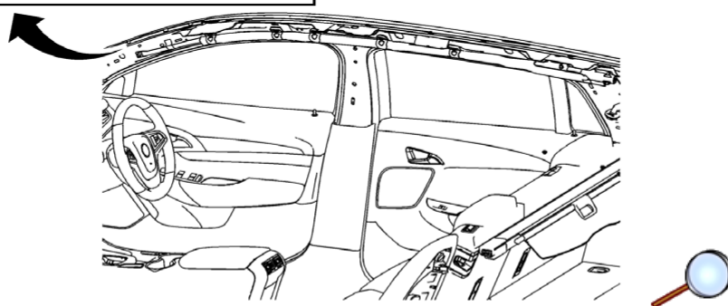
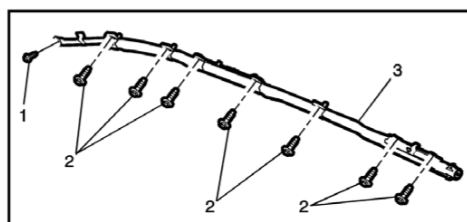


Airbag Roof Side Rail Module Replacement

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 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	
1	Airbag Roof Side Rail Module Retainer (Qty: 3)
2	Airbag Roof Side Rail Module Fastener (Qty: 2) Caution: Refer to Fastener Caution . Tighten 9N•m (80 lb in)
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Callout	Component Name
3	Roof Side Rail Airbag Strap Fastener (Qty: 8) Tighten 9 N•m (80 lb in)
4	Airbag Roof Side Rail Module 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.

Roof Side Rail Airbag Replacement (Sportwagon)

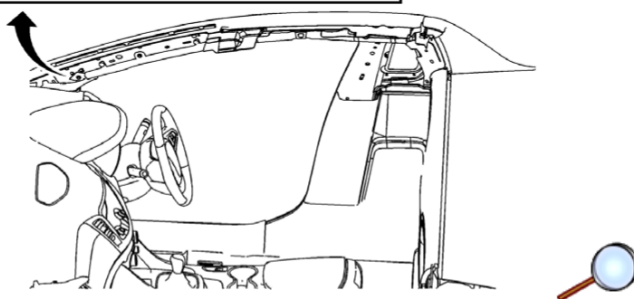
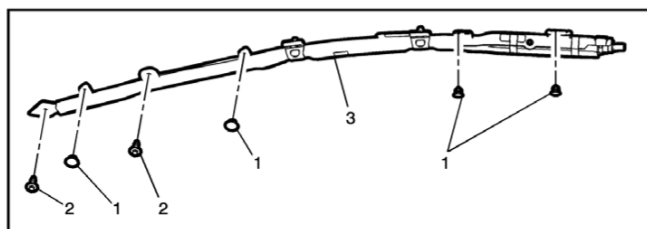


Airbag Roof Side Rail Module Replacement

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 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	
1	Airbag Roof Side Rail Module Fastener Caution: Refer to Fastener Caution . Tighten 9 N•m (80 lb in)
2	Roof Side Rail Airbag Strap Fastener (Qty: 7) Tighten 9 N•m (80 lb in)

Callout	Component Name
3	Airbag Roof Side Rail Module 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.

Roof Side Rail Airbag Replacement (Ute)

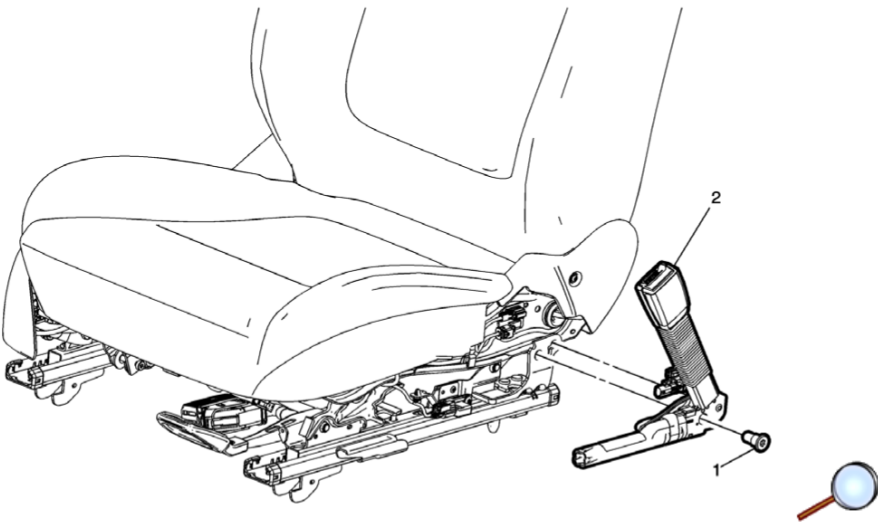


Airbag Roof Side Rail Module Replacement

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 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	
1	Airbag Roof Side Rail Module Retainer (Qty: 4)
2	Airbag Roof Side Rail Module Fastener (Qty: 2) Caution: Refer to Fastener Caution . Tighten 9 N•m (80 lb in)
3	Airbag Roof Side Rail Module Assembly Procedure

Callout	Component Name
	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.

Seat Belt Buckle Pretensioner Replacement



Seat Belt Buckle Pretensioner Replacement

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 federal, state, or local laws. Preliminary Procedures 1. Move the front seat to the full forward and full up position. 2. Disable the SIR. Refer to SIR Disabling and Enabling. 3. For pretensioner handling and scrapping, refer to Pretensioner Handling and Scrapping.	
1	Front Seat Belt Buckle Fastener Caution: Refer to Fastener Caution Tighten 42 N•m (31 lb ft)
2	Front Seat Belt Buckle Assembly Procedure Disconnect the electrical connectors.

Repairs and Inspections Required After a Collision

Accident With or Without Air Bag Deployment – Component Inspections

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.

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

- The steering column—Inspect the steering column for bending, twisting, buckling or any type of damage.
- The instrument panel knee bolsters and mounting points—Inspect the knee bolsters for bending, twisting, buckling, or any other type of damage.
- The instrument panel brackets, braces, etc.—Inspect for bending, twisting, buckling, or any other type of damage.
- The seat belts—Perform the seat belt operational and functional checks. Refer to [Repairs and Inspections Required After a Collision](#).
- The instrument panel cross car beam—Inspect for bending, twisting, buckling, or any other type of damage.
- The instrument panel mounting points and brackets—Inspect for bending, twisting, buckling, or any other type of damage.
- The seats and seat mounting points—Inspect for bending, twisting, buckling, or any other type of damage.
- The roof and headliner mounting points.
- The brake pedal --Inspect the brake pedal for bending, twisting, buckling or any type of damage.

Accident With Frontal Air Bag Deployment – Component Replacement and Inspections

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

- Driver Steering Wheel Air Bag
- Passenger instrument panel air bag, if deployed
- Inflatable Restraint Sensing and Diagnostic Module (SDM), if the Inflatable Restraint Sensing and Diagnostic Module has set DTC B0052 and will not clear
- Front and/or Side Impact Sensors
- Driver/Passenger Seat Side Air Bag, if deployed
- Seat back cover if Side Seat Air Bag is deployed
- Driver/Passenger Seat Belt Anchor and/or Retractor Pretensioners

Perform additional inspections on the following components.

- Steering wheel air bag coil and the coil wiring pigtail—Inspect for melting, scorching, or other damage due to excessive heat.
- Mounting points or mounting hardware for the passenger instrument panel air bag, steering wheel air bag, Inflatable Restraint Sensing and Diagnostic Module, seat side air bag (if deployed) and seat belt anchor and/or retractor pretensioners—Inspect for any damage and repair or replace each component as needed.

Accident With Side Seat Air Bag Deployment – Component Replacement and Inspections

After a collision involving driver/passenger side seat air bag deployment, replace the following components.

- Left/right side impact sensors on the side of the impact.
- Left/right roof rail air bag on the side of the impact.
- Inflatable Restraint Sensing and Diagnostic Module (SDM), if the Inflatable Restraint Sensing and Diagnostic Module has set DTC B0052 and will not clear.
- Inflatable Restraint Seat Belt Anchor and/or Retractor Pretensioner.
- Driver or passenger seat back cushion cover replacement.

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.

Perform additional inspections on the following components.

- Mounting points or mounting hardware for the side impact sensors, and driver/passenger side seat air bags on the side of impact—Inspect for any damage and repair or replace each component as needed.
- Mounting points, mounting hardware, headliner and trim pieces for the left/right roof rail air bag on the side of impact—Inspect for any damage and repair or replace each component as needed.
- Mounting points or mounting hardware for the Inflatable Restraint Sensing and Diagnostic Module and seat belt anchor and/or retractor pretensioners—Inspect for any damage and repair or replace each component as needed.
- The seat cushion frame
- The seat recliner and cover, if equipped
- The seat adjuster
- The seat back frame
- Door trim assembly
- Impacted seat cushion side covers and switches

Accident With Seat Belt Pretensioner Deployment Only – Component Replacement and Inspections

After a collision involving driver/passenger Seat Belt Retractor or Anchor Pretensioner deployment, replace the following components.

- Driver and Passenger Inflatable restraint seat belt anchor pretensioner and/or retractor pretensioner
- Inflatable Restraint Sensing and Diagnostic Module (SDM), if the Inflatable Restraint Sensing and Diagnostic Module has set DTC B0052 and will not clear

Perform additional inspections for any damage and repair or replace each component as needed on the following components.

- Mounting points or mounting hardware for the Inflatable Restraint Sensing and Diagnostic Module
- Mounting points or mounting hardware for the Seat Belt Anchor Pretensioners
- Mounting points or mounting hardware for the Seat Belt Retractor Pretensioners

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 vehicle which is crushed, bent, or damaged due to a collision. An example of this would be a moderate collision where

the front of the vehicle impacts a object. If the vehicle has an impact sensor mounted forward of the radiator, it 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.

Inflatable Restraint Module Handling and Scrapping

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.

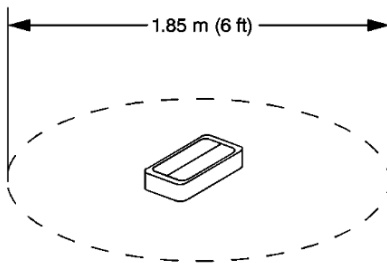
Deployment and disposal of a malfunctioning air bag is subject to any required retention period.

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

1. Turn OFF the ignition.

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

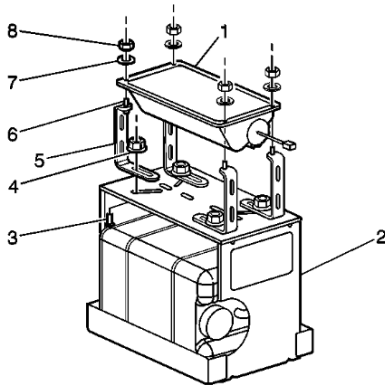
2. Remove the air bag.



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.

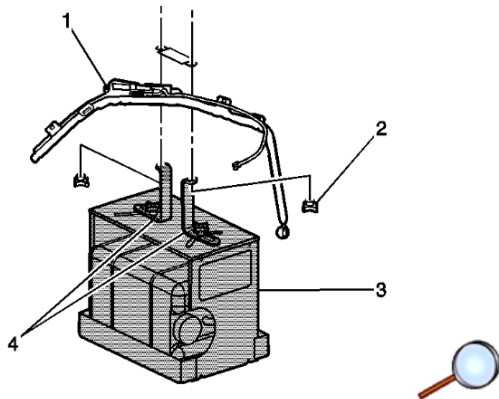
Note: Dual stage deployments are only used in steering wheel and instrument panel air bags. If stage 1 was used to deploy a dual stage air bag, stage 2 may still be active. If disposal of a dual stage air bag is required, both deployment loops must be energized to deploy the air bag.

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.

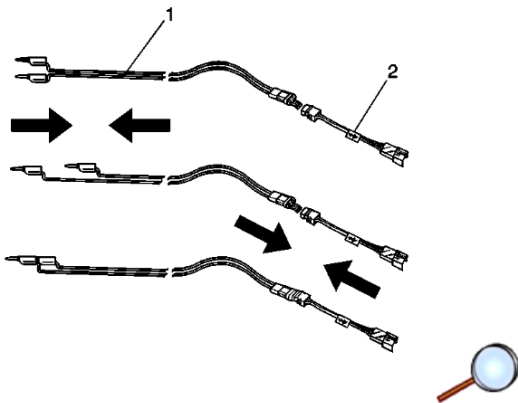


6. When deploying an instrument panel air bag, perform the following instructions:
 - 6.1. Place the *EL-39401-B* fixture in the center of the cleared area.
 - 6.2. Fill the deployment fixture with water or sand.

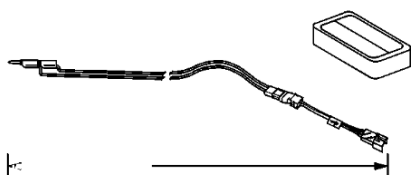
- 6.3. Using the proper nuts and bolts, mount the instrument panel air bag (1) to the deployment fixture (2), with the vinyl trim facing up.
- 6.4. Securely tighten all fasteners that hold the instrument panel air bag (1) to the deployment fixture (2).



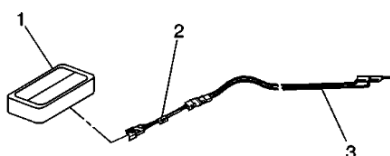
7. When deploying a roof rail air bag, perform the following instructions:
 - 7.1. Place the *EL-39401-B* fixture (3) in the center of the cleared area.
 - 7.2. Fill the deployment fixture with water or sand to provide sufficient stabilization of fixture during deployment.
 - 7.3. Adjust and secure the fixture arms (4) to the deployment fixture (3), using the proper nuts and bolts.
 - 7.4. 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.



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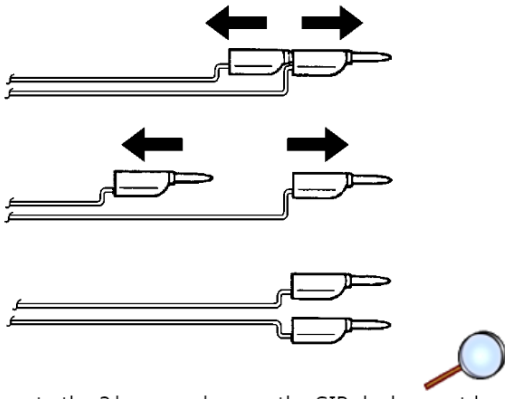
Note: On a dual stage air bag, both connectors must be attached to the deployment harness adapter. This will ensure that both stage 1 and stage 2 of the deployment loops are energized, regardless of the deployment state.

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

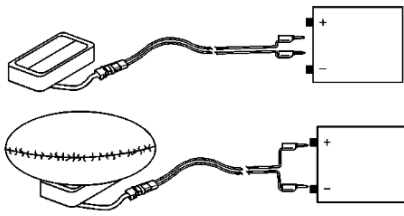
Note:

- 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.

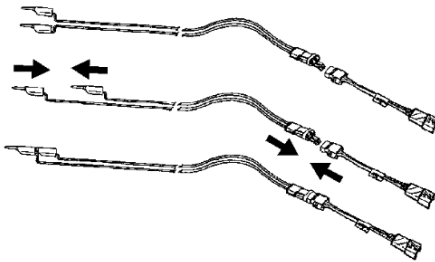
13. Clear the area of people.



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



15. Place a 12V 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.

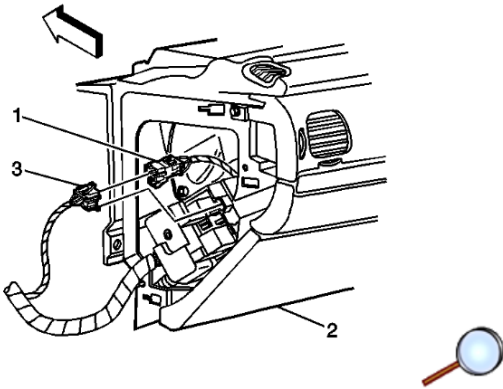
Deployment Inside Vehicle – Vehicle Scrapping Procedure

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.

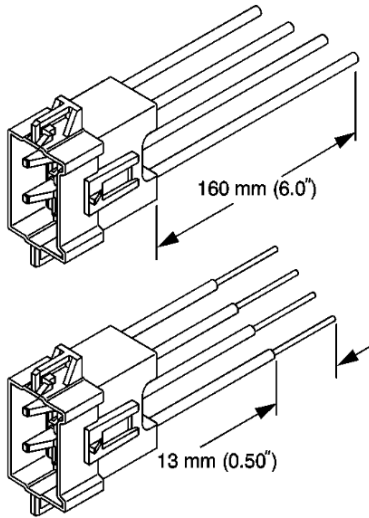
Warning: Refer to [SIR Inflatable Module Deployment Outside Vehicle Warning](#).

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.



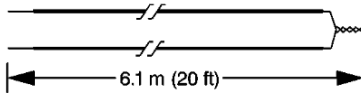
Warning: A deployed dual stage inflator module will look the same whether one or both stages were used. Always assume a deployed dual stage inflator module has an active stage 2. Improper handling or servicing can activate the inflator module and cause personal injury.

5. Disconnect the steering wheel air bag yellow connector (1) from vehicle harness yellow connector (3).

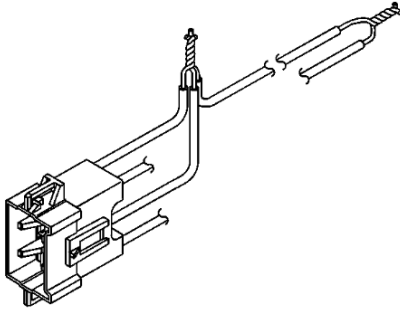


Note: If the vehicle is equipped with dual stage air bags the steering wheel air bag and instrument panel air bag will each have 4 wires. Refer to [Component Connector End Views](#) for determining high and low circuits.

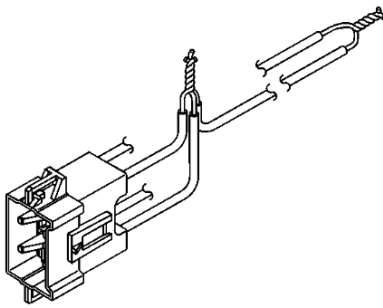
6. Cut the yellow harness connector out of the vehicle, leaving at least 16 cm (6 in) of wire at the connector.
7. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.



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.

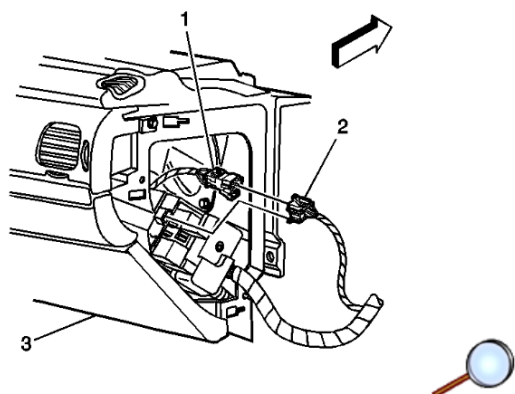


11. Twist together the 2 connector wire leads from the high circuits from both stages of the steering wheel air bag, to one set of deployment wires. Refer to [Component Connector End Views](#) in order to determine the correct circuits.
12. Inspect that the 3-wire connection is secure.
13. Secure and 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 [Component Connector End Views](#) 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 [Component Connector End Views](#) 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 [Component Connector End Views](#) 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 [Component Connector End Views](#) 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

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 (GM-1241). 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](#) 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.

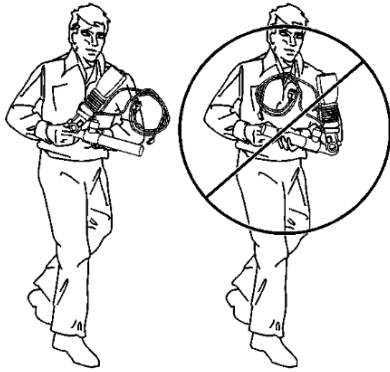
Warning: In order to prevent accidental deployment of the pretensioner which could cause personal injury, do not dispose of an undeployed pretensioner as normal shop waste. The undeployed pretensioner contains substances that could cause severe illness or personal injury if the sealed container is damaged 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.

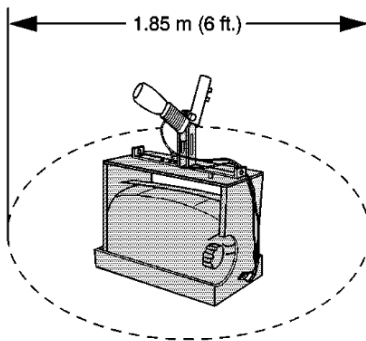
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Special Tools

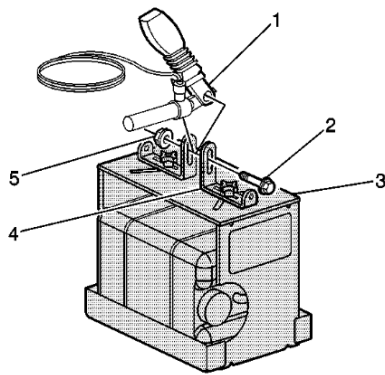
- *EL-39401-B* SIR Deployment Fixture
- *EL-38826* SIR Deployment Harness



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.

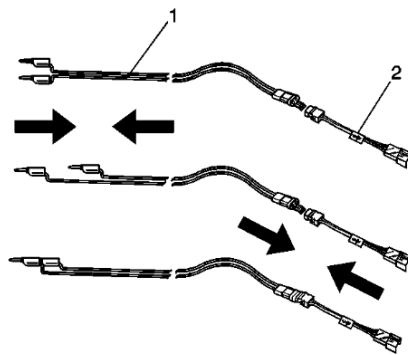


10. Mount the pretensioner (1) in the SIR deployment fixture (3) with the open end facing up using the following mounting method.

10.1. Adjust and secure the EL-39401-B arms (4) to the deployment fixture (3).

10.2. 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).

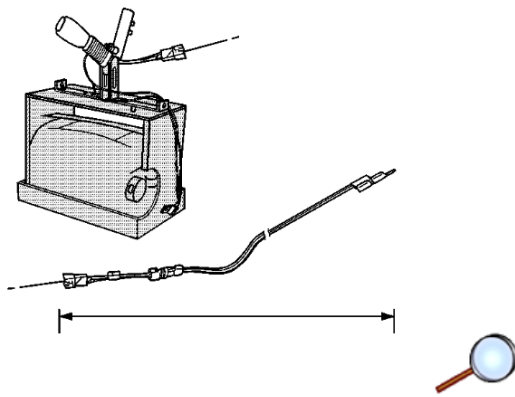
10.3. Securely tighten all fasteners prior to deployment.



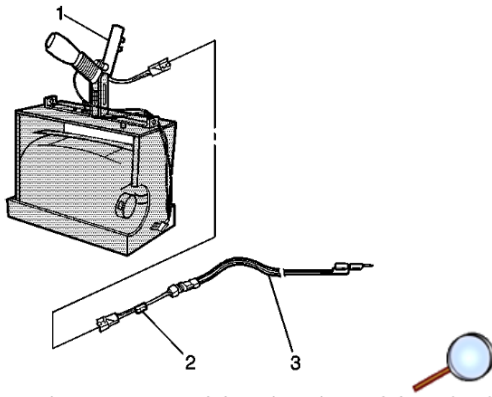
11. Inspect the *EL-38826* SIR deployment harness and the appropriate pigtail adapter for damage. Replace as needed.

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).



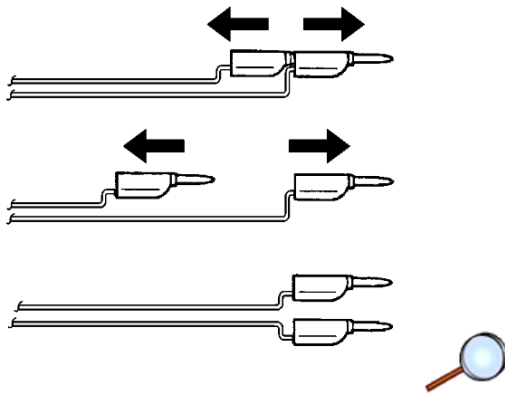
14. Extend the SIR deployment harness and adapter to full length from the deployment fixture.



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

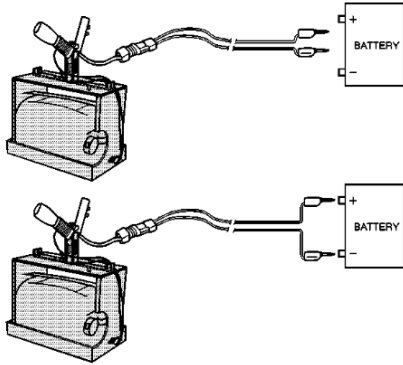
Note: The rapid gas expansion involved with deploying a pretensioner is very loud. Notify all the people in the immediate area that you intend to deploy the seat belt pretensioner.

16. Clear the area of people.



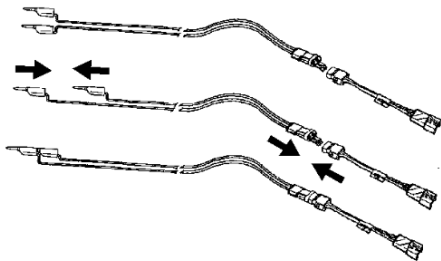
Warning: When you are deploying a pretensioner for disposal, perform the deployment procedures in the order listed. Failure to follow the procedures in the order listed may result in personal injury.

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

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

Fastener Tightening Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Airbag Front End Discriminating Sensor	7.5 N•m	66 lb in
Airbag Front Seat Position Sensor Bolt	3 N•m	25 lb in
Airbag Roof Side Rail Module Fastener	9 N•m	80 lb in
Airbag Sensing and Diagnostic Module Fastener	9 N•m	80 lb in
Airbag Side Impact Sensor	7.5 N•m	66 lb in
Driver or Passenger Seat Belt Buckle Fastener	42 N•m	31 lb ft
Front Seat Outboard Seat Back Airbag Nut	9 N•m	80 lb in
Roof Side Rail Airbag Strap Fastener	9 N•m	80 lb in

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[2014 Holden VF Sedan](#) | [VF/WN - Sedan, Ute, Sportwagon, Caprice, Lumina, HSV Service Manual 5617662](#) |
[Safety and Security](#) | [Supplemental Inflatable Restraints](#) | [Schematic and Routing Diagrams](#) |

Document ID: 3293025

SIR Schematics

Figure [Module Power, Ground, and Serial Data](#)

1:

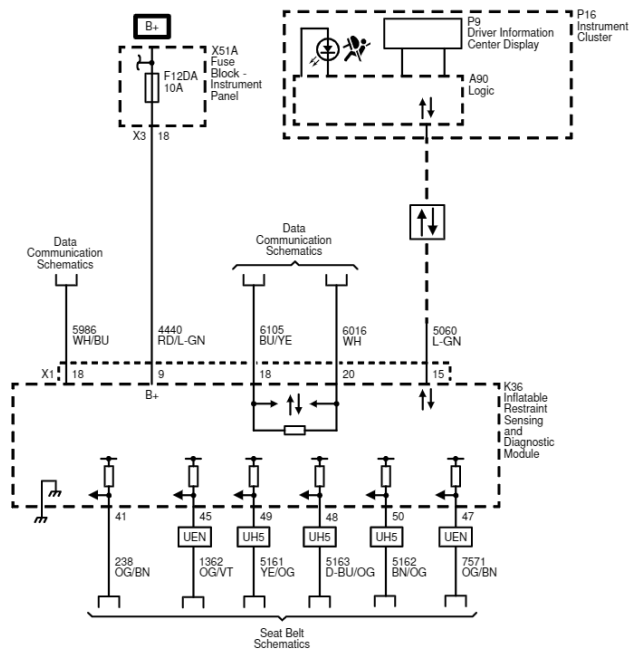
Figure [Roof Rail Air Bags, Seat Position Sensors, and Side Impact Air Bags](#)

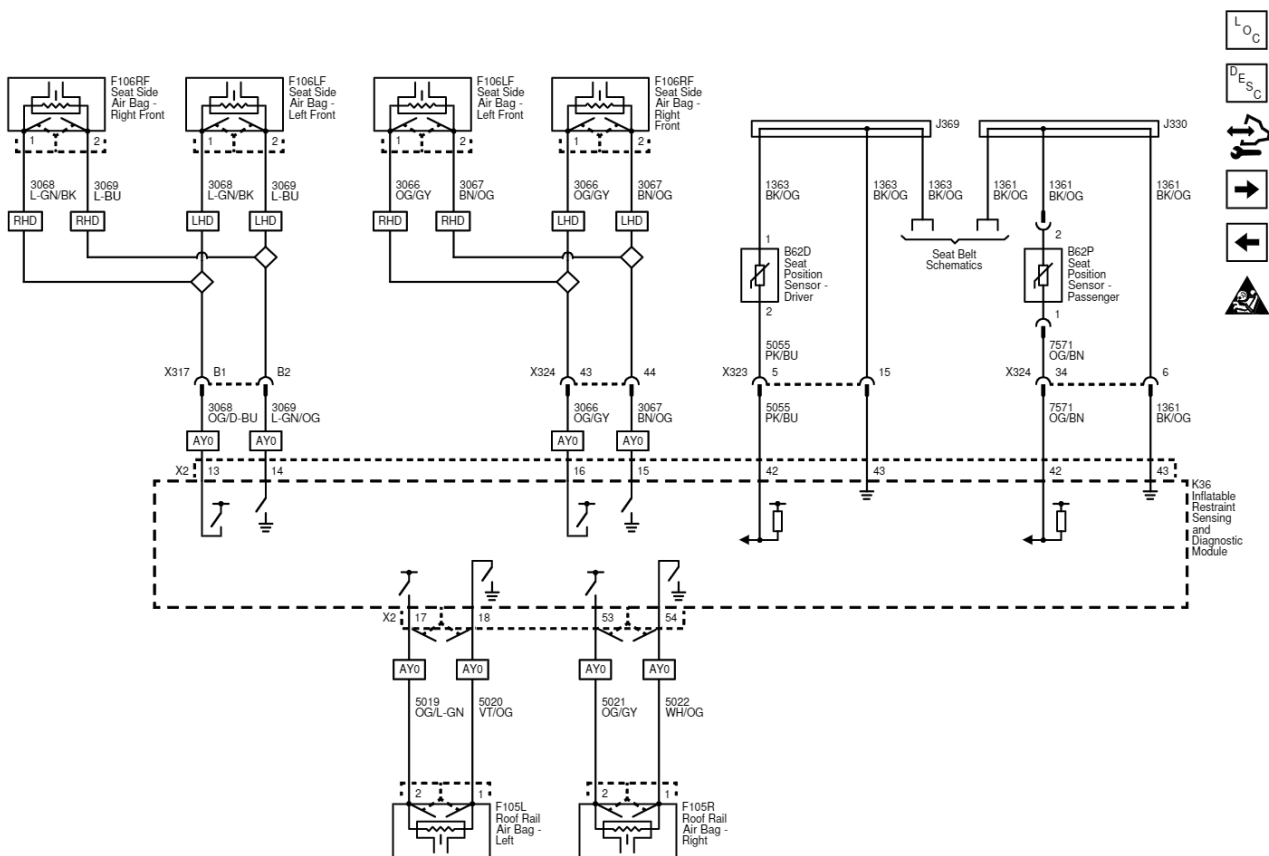
2:

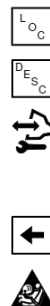
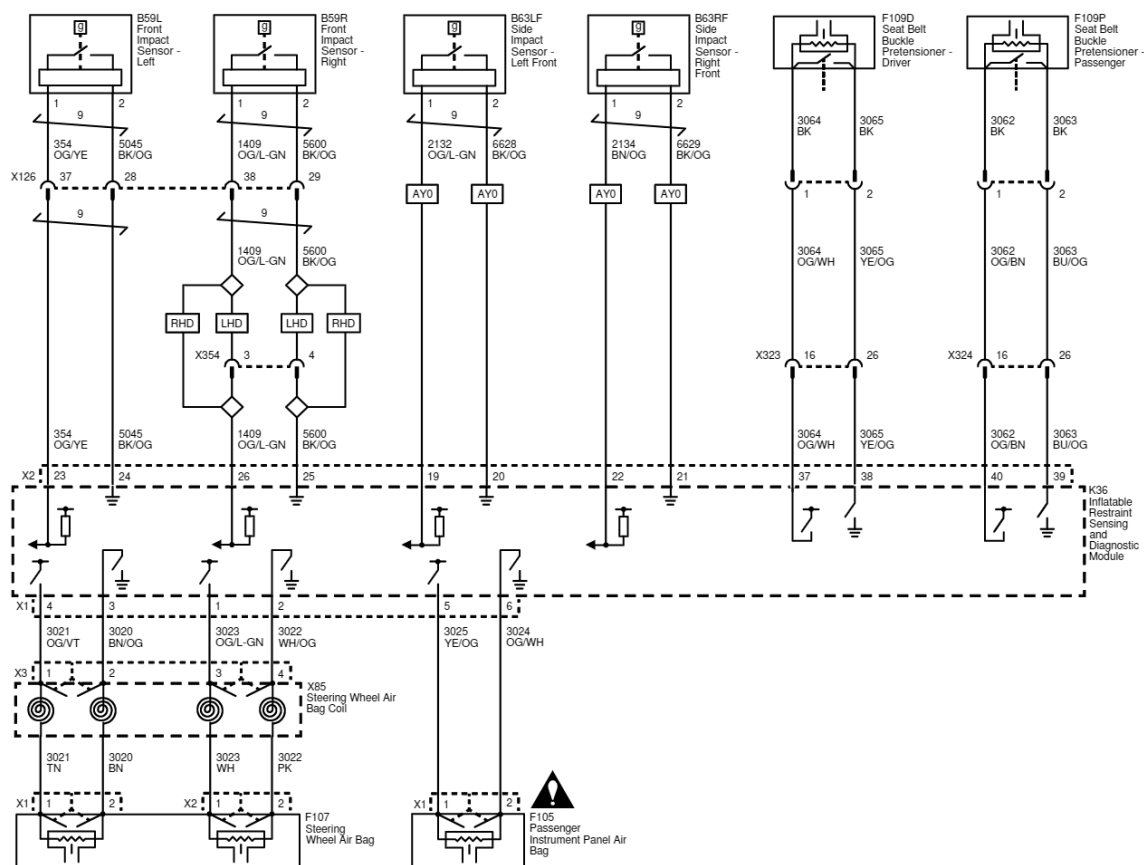
Figure [Driver Air Bag, Front Impact Sensors, Passenger Air Bag, Seat Belt Buckle](#)

3: [Pretensioners, and Side Impact Sensors](#)

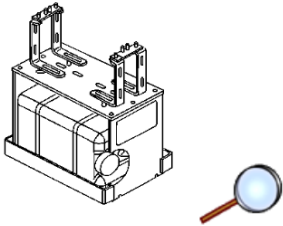
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Special Tools

Illustration	Tool Number/ Description
	EL 38826 J 38826 KM 799-3 SIR Deployment Harness
	EL 39401-B J 39401-B SIR Deployment Fixture

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