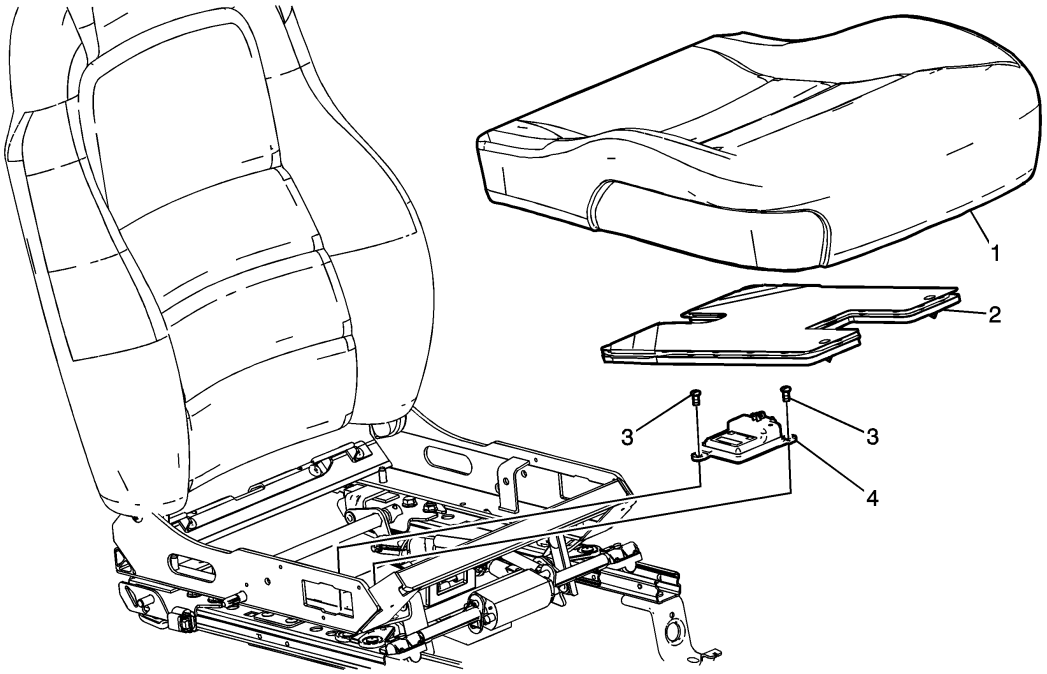
Inflatable Restraint Passenger Presence System Replacement – Front



Callout	Component Name
Caution: Refer to SIR Caution in the Preface section. **Caution:** Replace the passenger presence system as a complete assembly to prevent possible injury to the occupant. All the components in the service kit are assembled and calibrated as a unit. Using only some of the components in the service kit will cause the passenger presence system to operate improperly. **Preliminary Procedure** 1. Disable the SIR system. Refer to SIR Disabling and Enabling . 2. Remove the front passenger seat. Refer to Driver and Passenger Seat Replacement . 3. Re-zero the inflatable restraint passenger presence system whenever the seat cushion or any component of the passenger presence system is removed. Refer to Control Module References for programming and setup information.	
1	Seat Cushion Cover Front Seat Cushion Cover and Pad Replacement **Tip** Remove the seat cushion cover and pad as an assembly.
2	Inflatable Restraint Passenger Presence System Sensor **Tip** Disconnect the electrical connector.
3	Inflatable Restraint Front Passenger Presence Module Screw (Qty: 2) **Notice:** Refer to Fastener Notice in the Preface section. **Tighten** 3 N·m (25 lb in)
4	Inflatable Restraint Front Passenger Presence Module **Tip** Disconnect the electrical connector.

SIR Disabling and Enabling

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

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

Condition	Action

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

SIR Service Precautions

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

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

General Service Instructions

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

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

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

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

Disabling Procedure - Air Bag Fuse

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

   Important: The SDM may have more than one fused power input. To ensure there is no unwanted SIR deployment, personal injury, or unnecessary SIR system repairs, remove all fuses supplying power to the SDM. With all SDM fuses removed and the ignition switch in the ON position, the AIR BAG warning indicator illuminates. This is normal operation, and does not indicate a SIR system malfunction.
6. Locate and remove the fuse(s) supplying power to the SDM. Refer to SIR Schematics or Electrical Center Identification Views .
7. Wait 1 minute before working on the system.

Enabling Procedure - Air Bag Fuse

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

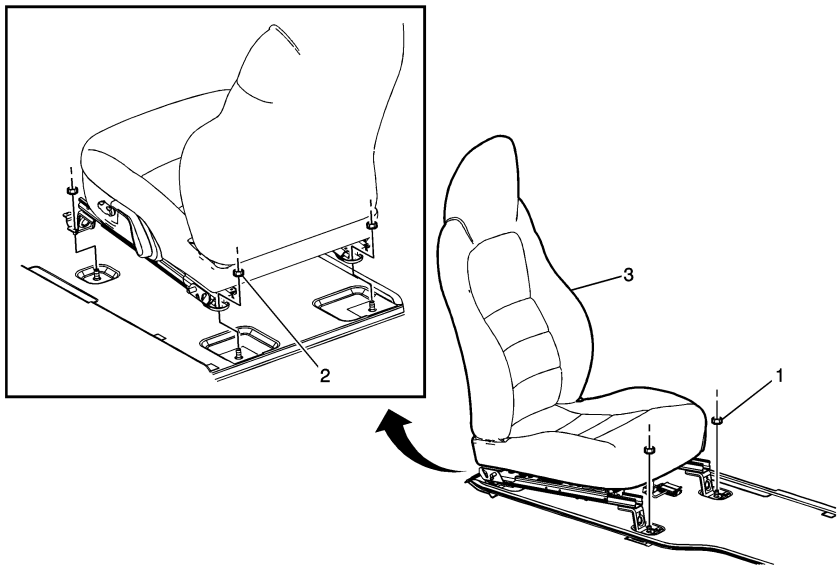
Disabling Procedure - Negative Battery Cable

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

Enabling Procedure - Negative Battery Cable

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

Driver or Passenger Seat Replacement



Callout	Component Name
Preliminary Procedure 8. Enable the SIR system. Refer to SIR Disabling and Enabling. 9. Remove the driver seat adjuster finish cover. Refer to Driver Seat Adjuster Finish Cover Replacement. 10. Remove the seat belt retaining nut and the seat belt from the anchor stud. Refer to Seat Belt Retractor Replacement - Left Front.	
1	Driver and Passenger Seat (Qty: 2) **Notice:** Refer to Fastener Notice in the Preface section. **Tighten** 50 N·m (37 lb ft)
2	Driver and Passenger Seat Nut

	Tighten 50 N·m (37 lb ft)
3	Driver and Passenger Seat **Procedure** 5. Disconnect any electrical connectors. 6. Transfer components as necessary.

Passenger Presence System Programming and Setup

Important: Before rezeroing the passenger presence system (PPS), the front passenger seat must be completely empty of all items. The presence of any items on the front passenger seat will affect the calibration and operation of the PPS. When rezeroing the PPS, the instrument panel cluster (IPC) and dash lights will begin dimming ON and OFF. This is normal operation during the rezeroing procedure and does not indicate additional system faults.

If the PPS is replaced or serviced, perform the rezeroing procedure for the PPS. Refer to Passenger Presence System Rezeroing for the rezeroing procedure.

Passenger Presence System Rezeroing

Introduction

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

Important: The following procedures must be followed:

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

Passenger Presence System (PPS) Rezeroing Procedure

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

Important: When rezeroing the PPS, the instrument panel cluster (IPC) and dash lights will begin dimming ON and FF. This is normal operation during the rezeroing procedure and does not indicate additional system faults.

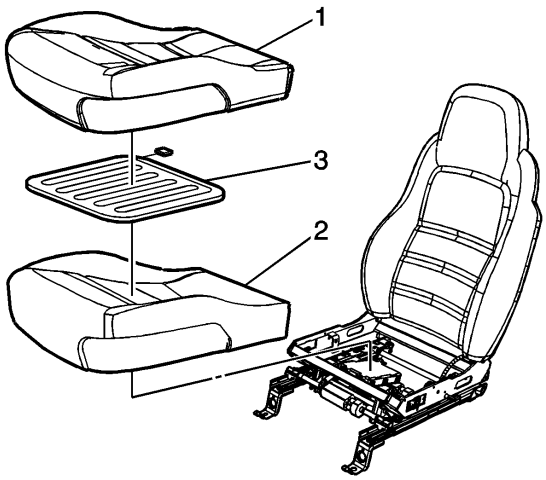
11. Empty the front outboard passenger seat.
12. Verify that all SIR and PPS components, connectors, and connector position assurances (CPAs) are properly connected and mounted.
13. Install a scan tool.
14. Turn ON the ignition, with the engine OFF.

    Important: All SIR and PPS DTCs must be cleared before rezeroing the PPS. The presence of current or history DTCs will prevent the PPS from rezeroing and may set additional DTCs.
15. Use the scan tool in order to clear the SIR and PPS DTCs.
16. With a scan tool, request the PPS rezeroing procedure.
17. Initiate the PPS rezeroing procedure. The PPS will illuminate both PASSENGER AIR BAG ON and OFF indicators until the rezeroing procedure has been completed.

- When the rezeroing procedure has been successfully completed, the PPS will display the current system status by using either the PASSENGER AIR BAG ON or OFF indicator.
- If the rezeroing procedure was unsuccessful, both PASSENGER AIR BAG ON and OFF indicators will alternate from no illumination to full illumination in 1 second intervals for 5 seconds. The PPS will treat an unsuccessful rezero attempt as a system fault.

18. If the rezeroing procedure was unsuccessful, repeat this procedure. Due to the communication status between the SDM and the PPS module, this procedure may have to be repeated until a successful rezero attempt has been achieved.
19. After the PPS has been successfully rezeroed, perform the Diagnostic System Check - Vehicle.

Front Seat Cushion Cover and Pad Replacement



Callout	Component Name
1	Seat Cushion Cover Assembly **Tip** 4. Remove the hog rings attaching the cover to the frame. 5. Untie the draw string releasing the cover from the frame.
2	Seat Cushion Pad Assembly
3	Seat Cushion Heater **Tip** Disconnect the electrical connector and peel away from seat cushion pad assembly, if equipped.

Passenger Presence System Indicator Circuit Malfunction

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	High Resistance	Open	Short to Voltage
Ignition 1 Voltage	1	1*	1	--
Passenger Air Bag OFF Indicator Control	4	2*	2	--

Passenger Air Bag ON Indicator Control	5	3*	3	--

1. No indicators will illuminate.
2. The OFF indicator will not illuminate.
3. The ON indicator will not illuminate.
4. The OFF indictor will illuminate any time the ignition is ON.
5. The ON indictor will illuminate any time the ignition is ON.

* High resistance may cause any or all indicators to illuminate less bright than normal.

Circuit/System Description

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

Circuit/System Verification

With the passenger seat occupied and unoccupied the inside rearview mirror air bag on/off indicator should switch states within 5 seconds.

Circuit/System Testing

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

- Inflatable restraint passenger air bag on/off indicator.
- Inflatable restraint passenger air bag on/off indicator wiring harness.

6. Ignition OFF, disconnect the harness connector at the inside rearview mirror
7. Ignition ON, verify a test lamp illuminates between the ignition circuit terminal 13 and ground.

   ⇒If the test lamp does not illuminate, test the ignition circuit for a short to ground or an open/high resistance. If the circuit tests normal and the ignition circuit fuse is open, test or replace the inside rearview mirror.

8. Connect a test lamp between the control circuit terminal 3 and the ignition circuit terminal 13.
9. With the passenger seat occupied and unoccupied the test lamp should switch states within 5 seconds.

   ⇒If the test lamp is always on, test the control circuit for a short to ground. If all circuits test normal replace the PPS module.

   ⇒If the test lamp is always off, test the control circuit for a short to voltage or an open/high resistance. If all circuits test normal replace the PPS module.

10. Connect a test lamp between the control circuit terminal 4 and the ignition circuit terminal 13.
11. With the passenger seat occupied and unoccupied the test lamp should switch states within 5 seconds.

    ⇒If the test lamp is always on, test the control circuit for a short to ground. If all circuits test normal replace the PPS module.

    ⇒If the test lamp is always off, test the control circuit for a short to voltage or an open/high resistance. If all circuits test normal replace the PPS module.

12. If all circuits test normal, replace the inside rearview mirror.