

Section 9

Restraints

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Seat Belts

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Anchor Plate Bolts	55 N·m	41 lb ft
Child Restraint Anchor Nut	30 N·m	22 lb ft
Front Seat Belt Anchor Plate Bolts	55 N·m	41 lb ft
Front Seat Belt Buckle Assembly Bolts (Extended Cab)	55 N·m	41 lb ft
Front Seat Belt Buckle Assembly Bolts (Regular Cab)	42 N·m	31 lb ft
Front Seat Belt Retractor Bolts	55 N·m	41 lb ft
Intermediate Seat Belt Buckle Assembly Nuts	42 N·m	31 lb ft
Intermediate Seat Belt Retractor Bolts	55 N·m	41 lb ft
Intermediate Seat Belt Anchor Plate Bolts	55 N·m	41 lb ft
Rear Seat Belt Buckle Assembly Nuts	42 N·m	31 lb ft
Rear Seat Belt Retractor Bolts	55 N·m	41 lb ft

GM SPO Group Numbers

Application	GM SPO Group Number
Child Restraint Belt Tether	16.714
Rear Seat # 2 Belt	16.714
Rear Seat # 2 Latch Side Belt	16.714
Rear Seat Belt Height Adjuster	16.714
Rear Seat Center and Side Outer Buckle	16.714
Rear Seat Center Latch Side Belt	16.714
Rear Seat Center Retractor Side Belt	16.714
Rear Seat Outer Retractor Side Shoulder Belt Guide	16.714
Rear Seat Retractor Side Belt	16.714
Rear Seat Shoulder Belt	16.714

Diagnostic Information and Procedures

Operational and Functional Checks

Seat Belt Check

Caution: To help avoid personal injury from unrepaired crash damage to a restraint system:

- Replace each seat belt system worn during a crash unless the crash was minor.
- Perform the seat belt check for each seat belt system. Replace the seat belt system if there is any doubt about the condition of system components.

Perform the following inspection from the driver seat:

1. Turn the ignition switch to the ON position. Verify proper operation of the seat belt reminder lamp with the belt buckled and with the belt unbuckled.
2. Inspect the shoulder belt guide in order to ensure that the following conditions are met:
 - The shoulder belt guide swivels freely
 - The seat belt webbing is seated flatly in the guide slot
 - The seat belt webbing does not bind
3. Verify that the seat belt buckle faces inboard and is accessible.
4. Verify that the seat belt retractor units are securely attached.
5. Verify that the seat belt anchor bolts are secure.
6. Fully extend the seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
7. Allow the seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor.
8. Snap the seat belt latch plate into the buckle.

9. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
10. Push the button on the buckle.
Verify that the seat belt latch plate releases easily from the buckle.
Verify that the button returns to its original position.

Repeat the inspection procedure (steps 2 through 10) from the front passenger seat.

Perform the following steps in order to inspect the center seat belts:

1. Verify that the center seat belts are accessible.
2. Verify that the center seat belts have no twists or tears in the webbing.
3. Snap the center seat belt latch plate into the buckle.
4. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
5. Push the button on the buckle.
Verify that the seat belt latch plate releases easily from the buckle.
Verify that the button returns to its original position.

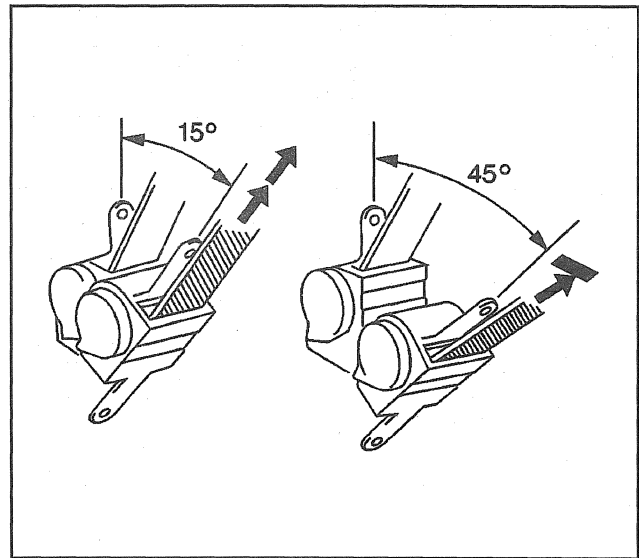
Repeat the inspection procedure (steps 2 through 10) from the rear seats.

Repeat the center seat belt inspection procedure (steps 1 through 5) from the rear seat.

For information on removal of the rear seats cushions refer to *Seat Cushion Cover and Pad Replacement - Rear (Utility)* or *Seat Cushion Cover and Pad Replacement - Rear (Extended Cab)* in Seats.

Caution: Perform this test in an area clear of other vehicles or obstructions. Do not conduct this test on the open road. A large, empty parking lot is suitable. Failure to observe this precaution may result in damage to the vehicle and possible personal injury.

1. Fasten the seat belts, an assistant is needed when the retractor under test is not part of the driver seat belt.
2. Accelerate the vehicle slowly to 16 km/h (10 mph) and apply the brakes firmly.
3. Verify that the seat belt locks when braking firmly.
4. If the belt does not lock, proceed with the following steps.
 - 4.1. Remove the seat belt retractor assembly.
 - 4.2. Tilt the seat belt retractor slowly.



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- 4.3. Ensure that the seat belt webbing can be pulled from the retractor at an inclination of 15 degrees or less and cannot be pulled from the retractor at an inclination of 45 degrees or more.
- 4.4. If the seat belt retractor does not operate as described, replace the retractor assembly.

Seat Belt Service Precautions

- Clean the seat belt webbing with a mild soap and water solution and a soft brush or cloth. Do not bleach or dye the seat belt webbing.
- Keep sharp edges and damaging objects away from the seat belts. Do not bend or damage any part of the seat belt buckle or latch plate. Replace any seat belts that are cut, damaged, frayed or stretched.
- Use only the correct seat belt anchor fasteners. Tighten the anchor fasteners to the correct torque value after you refer to *Fastener Tightening Specifications*. When installing a seat belt anchor bolt, start the bolt by hand to ensure that you do not damage the bolt.
- When replacing seat belts, use only service replacement parts.
- Verify the correct replacement part number. Make sure the part number is correct for that vehicle at that seating position. Do not substitute a seat belt from a different seating position or a different vehicle.
- Some seat belts have an Energy Management Loop. This is an overlap of the seat belt webbing that is stitched together. If any of the enclosed stitching is separated, replace the seat belt. These seat belts also have a label that is hidden in the overlap area, this label states to replace the seat belt if the label is visible. This label will be visible if the energy management loop has performed its function during a collision in which the seat belt was in use.
- If the door is to be left open for an extended period of time, remove the CTSY fuse. Removing the fuse prevents battery drain by the courtesy lamps.

Repair Instructions

Seat Belt Replacement - Front (Regular Cab With Bucket Seat)

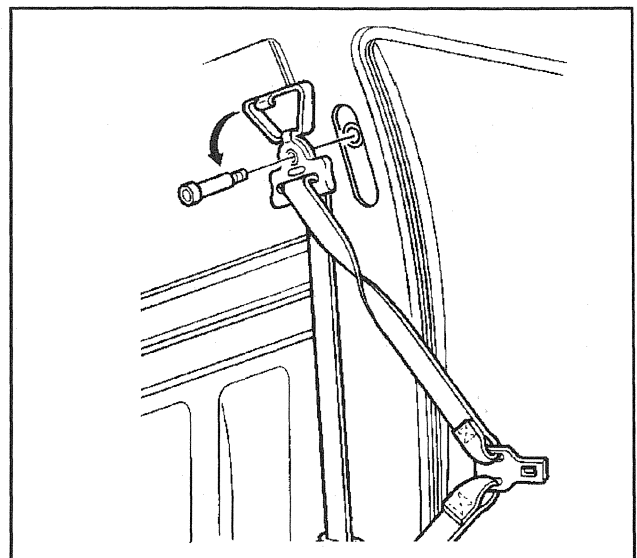
Removal Procedure

Caution: Replace belts, retractors, and hardware in use in all but a minor collision. Also, restraint systems should be replaced and anchorages properly repaired if they were in areas damaged by a collision, whether the belt was in use or not. If there is any question, replace the belt system. Damage, whether visible or not, could result in serious personal injury in the event of an accident.

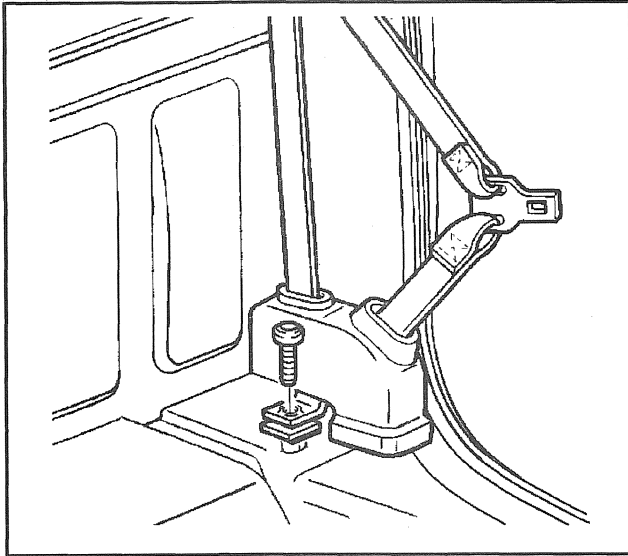
Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

1. Remove the cover from the door pillar anchor plate. Pry up the bottom.
2. Remove the bolt from the door pillar weld nut.

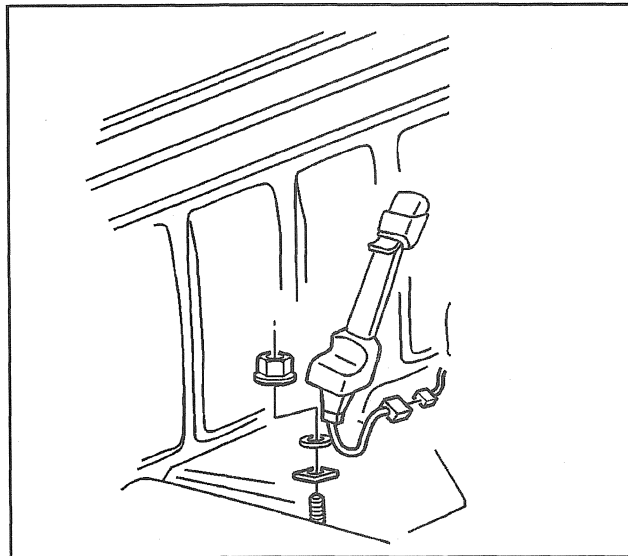


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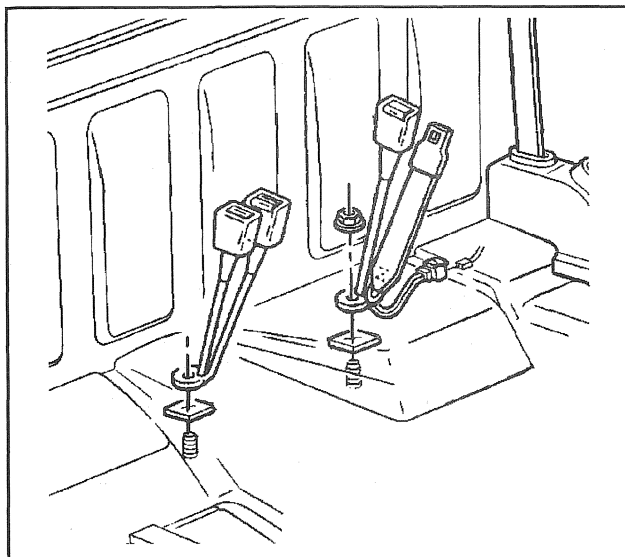
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3. Remove the bolt retaining the retractor to the floor panel.
4. Remove the retractor from the vehicle.
5. Remove the cover from the buckle assembly which conceals the nut.



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6. Remove the nut from the buckle assembly to floor weld stud.
7. Remove the seat belt warning wire from the buckle assembly on the driver's side only.

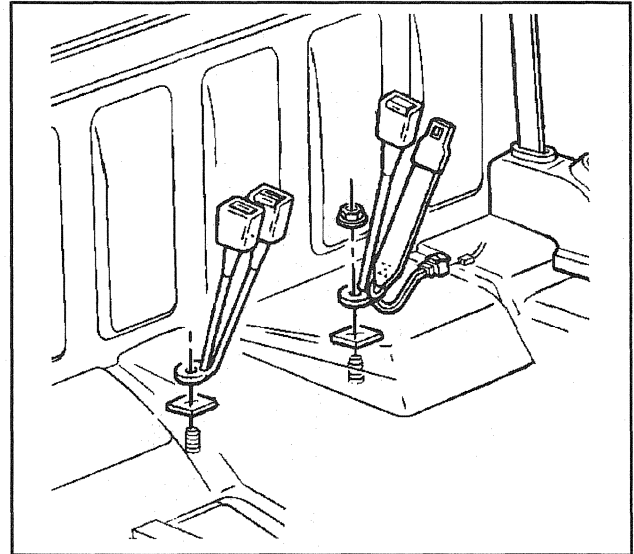


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8. Remove the buckle assembly from the vehicle.

Installation Procedure

1. Install the buckle assembly to the floor panel.
2. Install the seat belt warning wire to the buckle assembly on the driver's side only.



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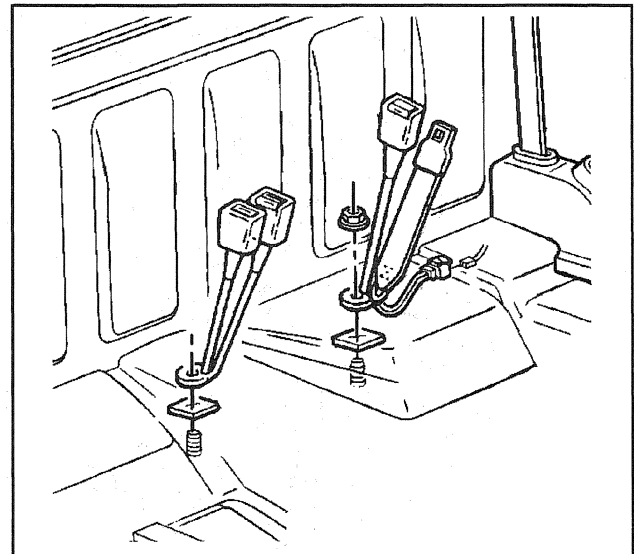
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

Tighten the nut to 42 N·m (31 lb ft).

4. Install the cover assembly over the nut.

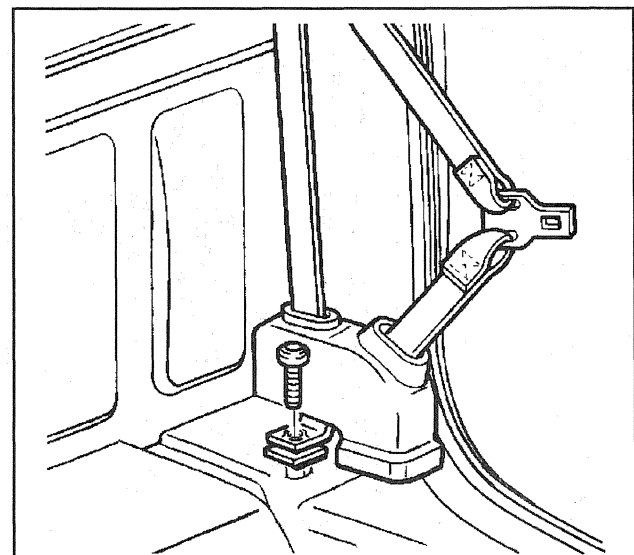


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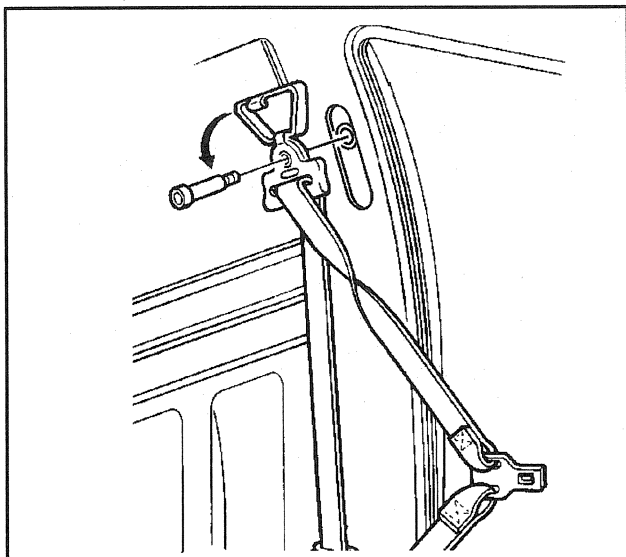
5. Install the retractor and belt to the floor.
6. Install the bolt through the retractor into the floor panel weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).



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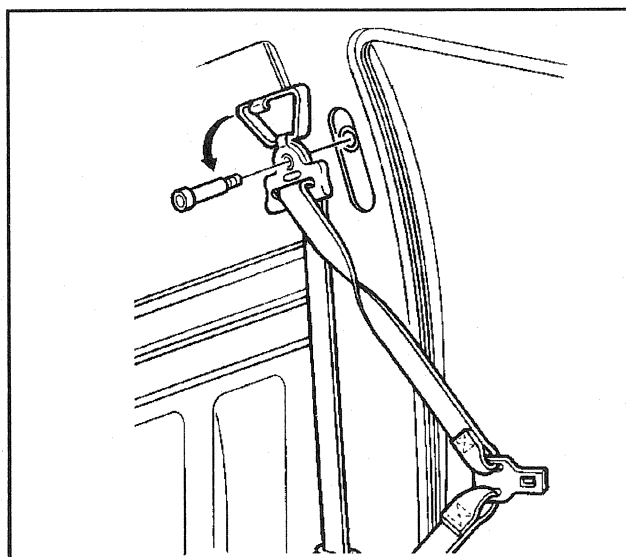
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7. Install the bolt through the anchor plate and washer into the door pillar weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

8. Install the cover over the door pillar anchor plate.



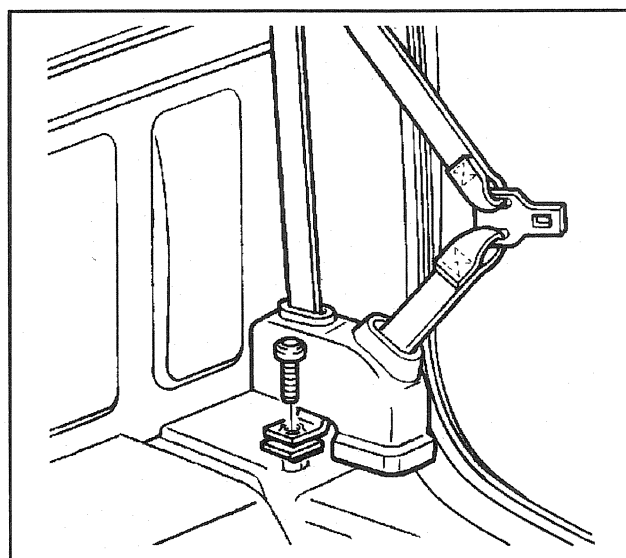
156617

**Seat Belt Replacement - Front
(Regular Cab With Bench Seat)****Removal Procedure**

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

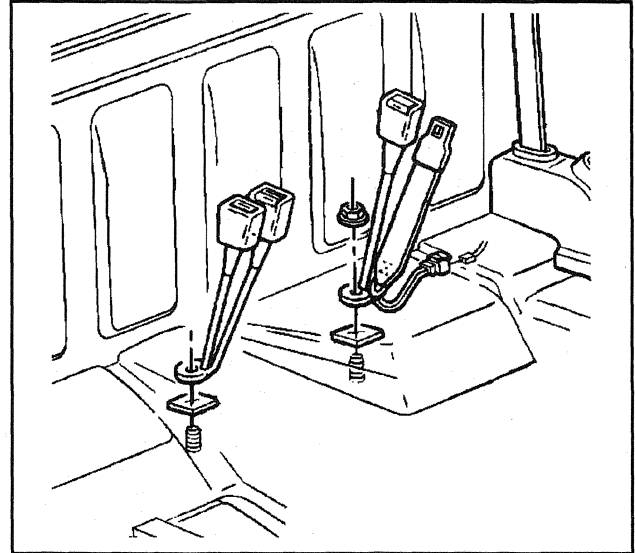
1. Remove the cover from the door pillar anchor plate. Pry up the bottom.
2. Remove the bolt from the door pillar weld nut.



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3. Remove the bolt retaining the retractor to the floor panel.
4. Remove the retractor from the vehicle.

5. Remove the cover from the buckle assembly which conceals the nut.
6. Remove the nut from the buckle assembly to floor weld stud.
7. Remove the seat belt warning wire from the buckle assembly on the driver's side only.
8. Remove the buckle assembly from the vehicle.



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Installation Procedure

1. Install the buckle assembly to the floor panel.
2. Install the seat belt warning wire to the buckle assembly on the driver's side only.

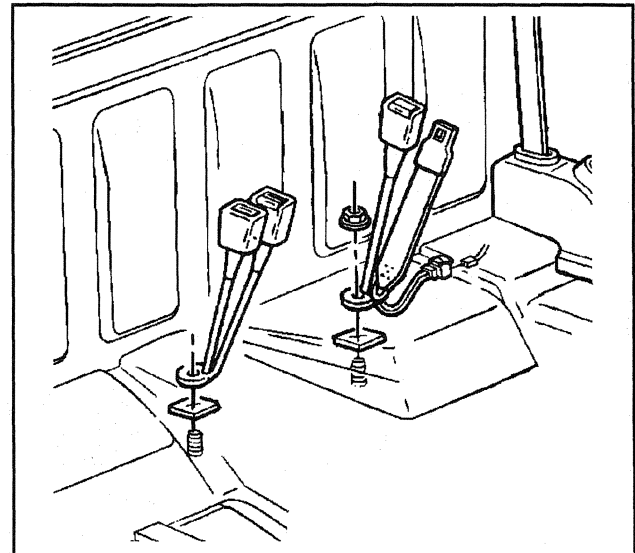
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

Tighten the nut to 42 N·m (31 lb ft).

4. Install the cover assembly over the nut.

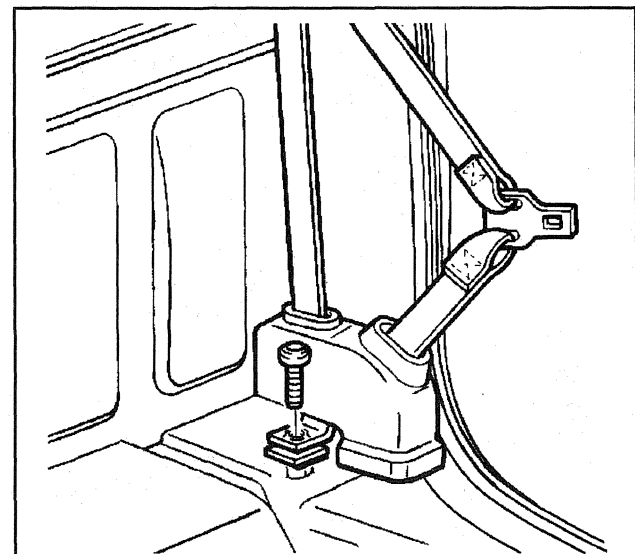


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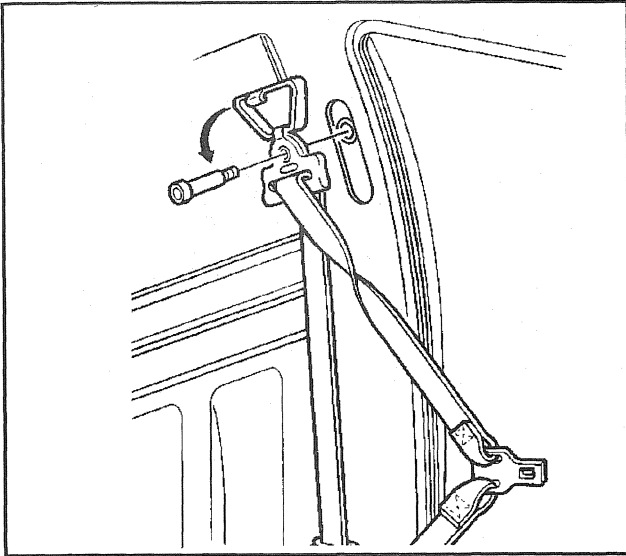
5. Install the retractor and belt to the floor.
6. Install the bolt through the retractor into the floor panel weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).



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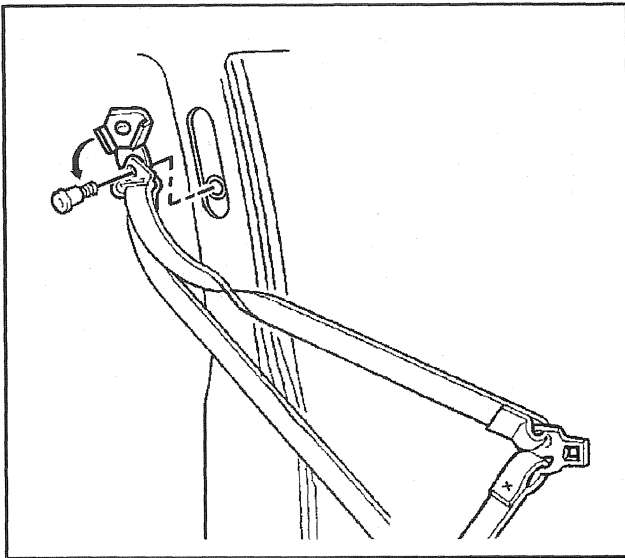
156617

7. Install the bolt through the anchor plate and washer into the door pillar weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

8. Install the cover over the door pillar anchor plate.



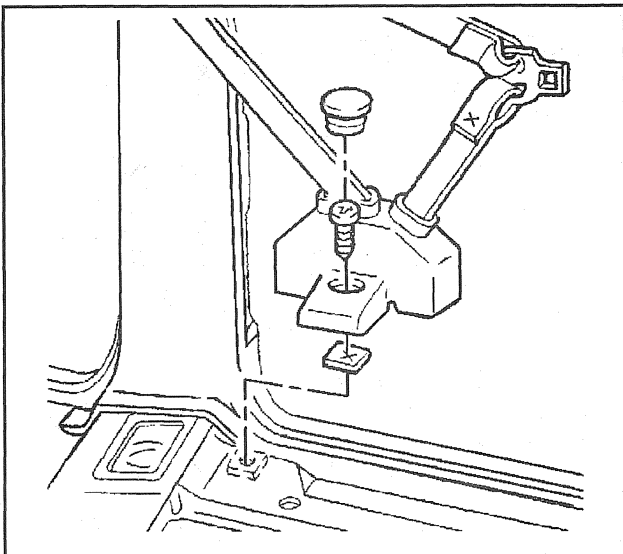
156630

**Seat Belt Replacement - Front
(Suburban And Crew Cab)****Removal Procedure**

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice in Cautions and Notices*.

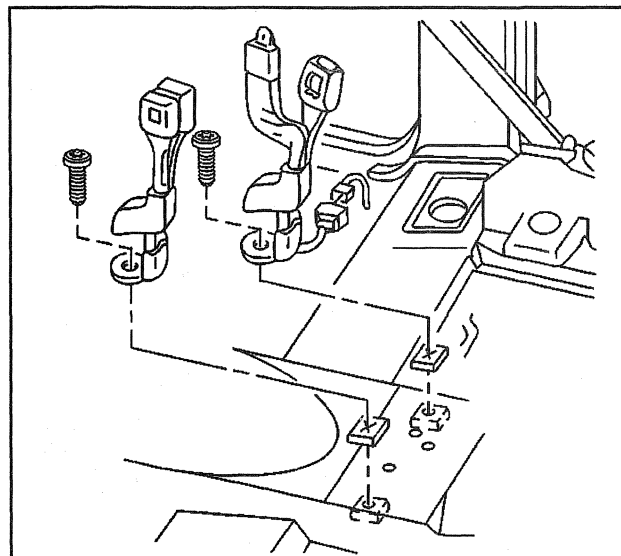
1. Remove the cover from the door pillar anchor plate. Pry up the bottom.
2. Remove the bolt from the door pillar weld nut.



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3. Remove the bolt retaining the retractor to the floor panel.
4. Remove the retractor from the vehicle.

5. Remove the cover from the buckle assembly which conceals the nut.
6. Remove the nut from the buckle assembly to floor weld stud.
7. Remove the seat belt warning wire from the buckle assembly on the driver's side only.
8. Remove the buckle assembly from the vehicle.



156631

Installation Procedure

1. Install the buckle assembly to the floor panel.
2. Install the seat belt warning wire to the buckle assembly on the driver's side only.

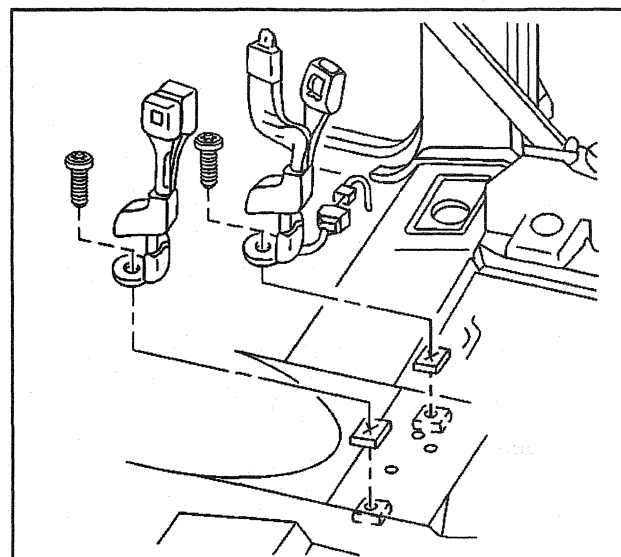
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

Tighten the nut to 42 N-m (31 lb ft).

4. Install the cover assembly over the nut.

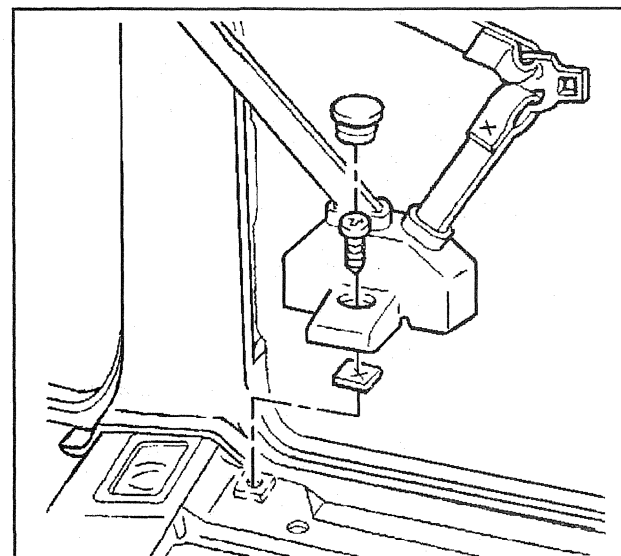


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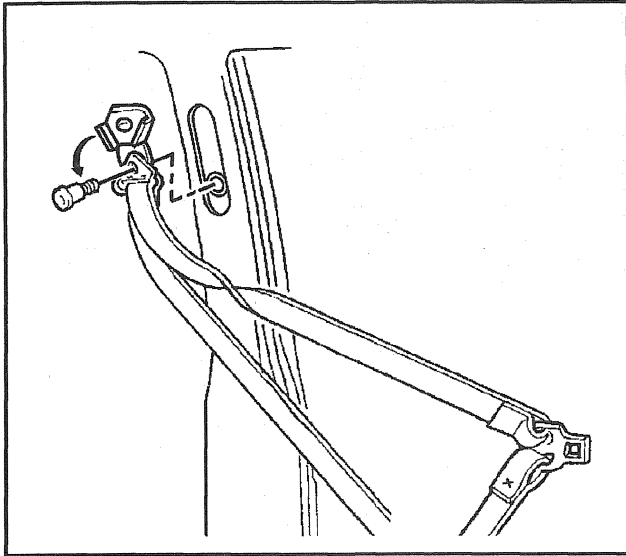
5. Install the retractor and belt to the floor.
6. Install the bolt through the retractor into the floor panel weld nut.

Tighten

Tighten the bolt to 55 N-m (41 lb ft).



157116



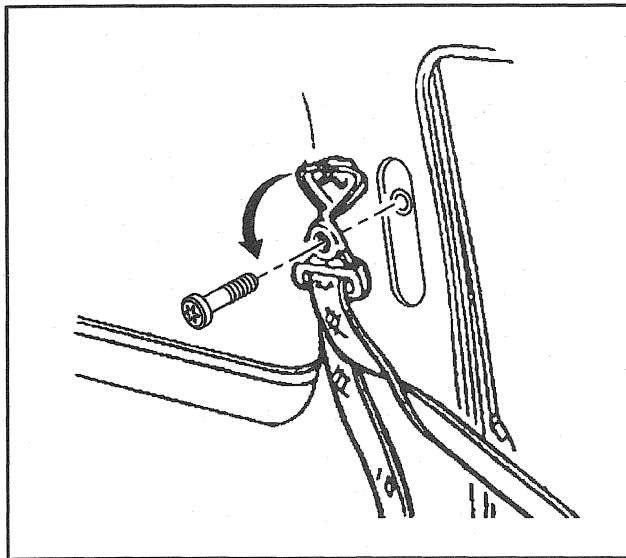
156630

7. Install the bolt through the anchor plate and washer into the door pillar weld nut.

Tighten

Tighten the bolt to 55 N-m (41 lb ft).

8. Install the cover over the door pillar anchor plate.



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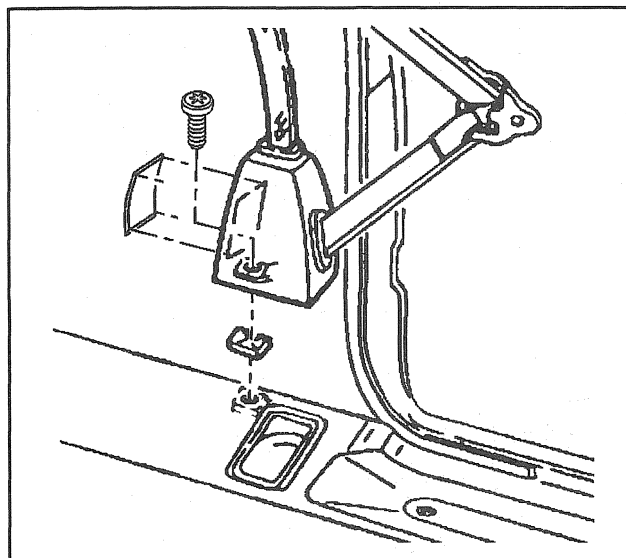
Seat Belt Replacement - Front (Utility Model)

Removal Procedure

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

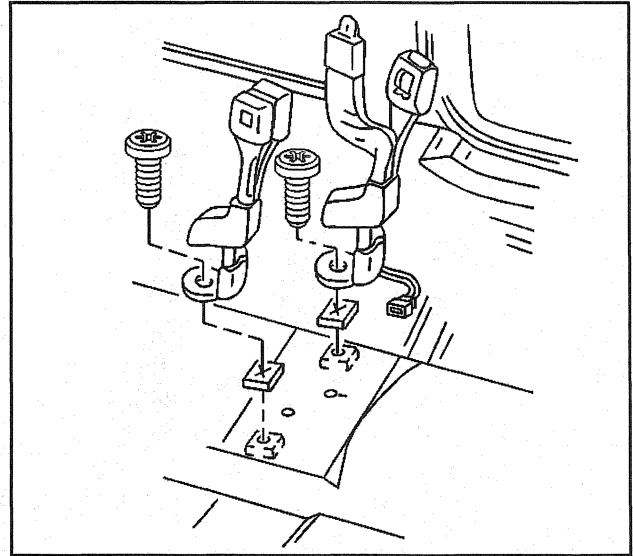
1. Remove the cover from the door pillar anchor plate. Pry up the bottom.
2. Remove the bolt from the door pillar weld nut.



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3. Remove the bolt retaining the retractor to the floor panel.
4. Remove the retractor from the vehicle.

5. Remove the cover from the buckle assembly which conceals the nut.
6. Remove the nut from the buckle assembly to floor weld stud.
7. Remove the seat belt warning wire from the buckle assembly on the driver's side only.
8. Remove the buckle assembly from the vehicle.



156634

Installation Procedure

1. Install the buckle assembly to the floor panel.
2. Install the seat belt warning wire to the buckle assembly on the driver's side only.

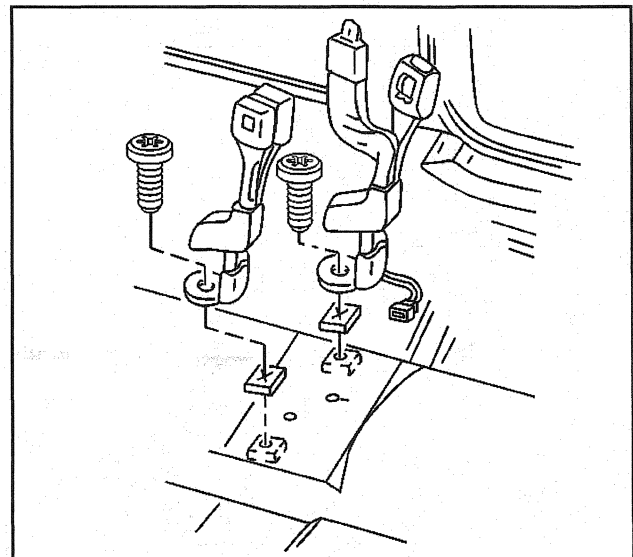
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

Tighten the nut to 42 N·m (31 lb ft).

4. Install the cover assembly over the nut.

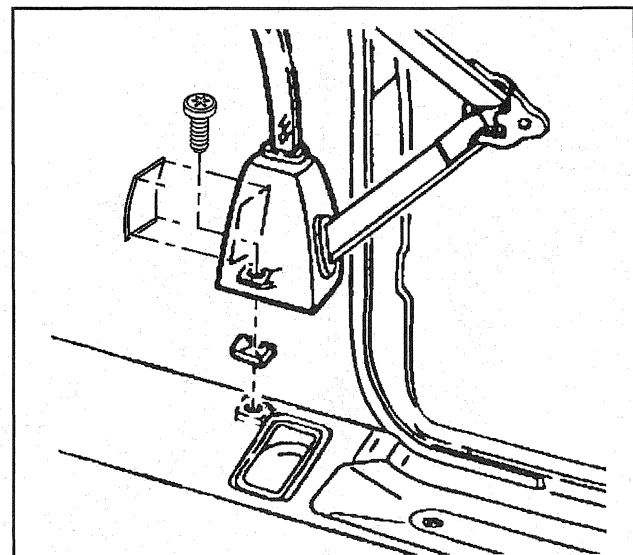


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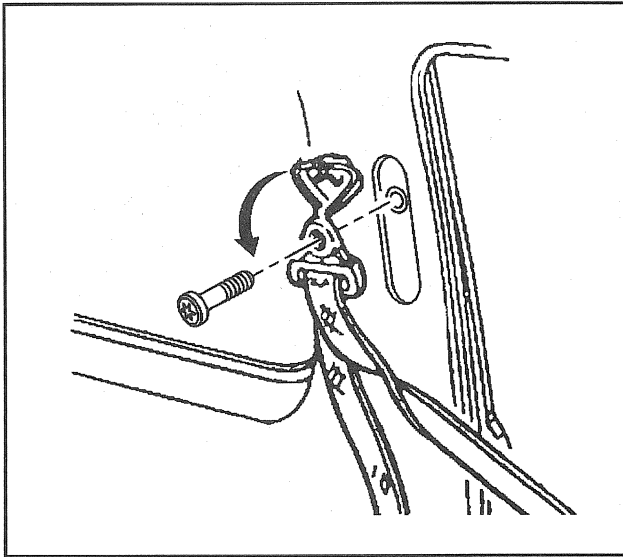
5. Install the retractor and belt to the floor.
6. Install the bolt through the retractor into the floor panel weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).



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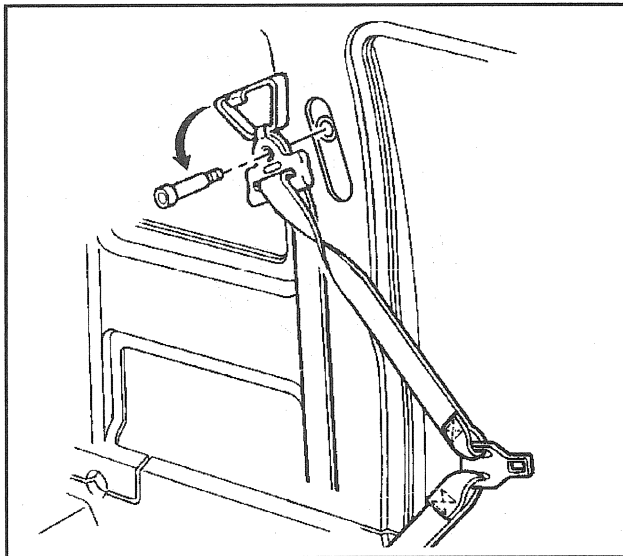
156633

7. Install the bolt through the anchor plate and washer into the door pillar weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

8. Install the cover over the door pillar anchor plate.



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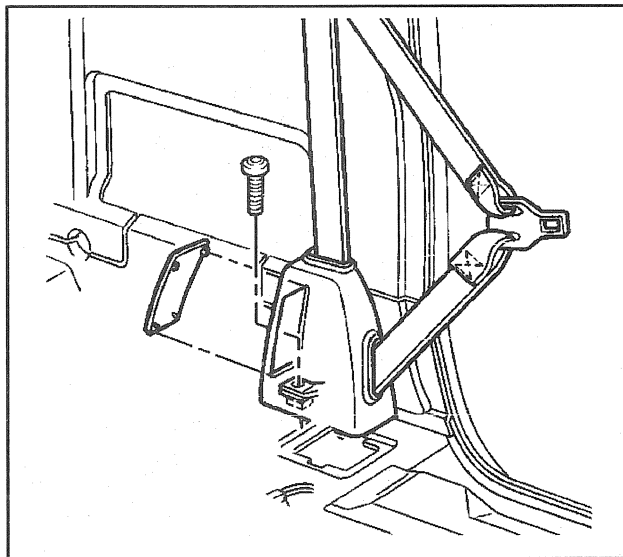
Seat Belt Replacement - Front (Extended Cab with Bucket Seat)

Removal Procedure

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

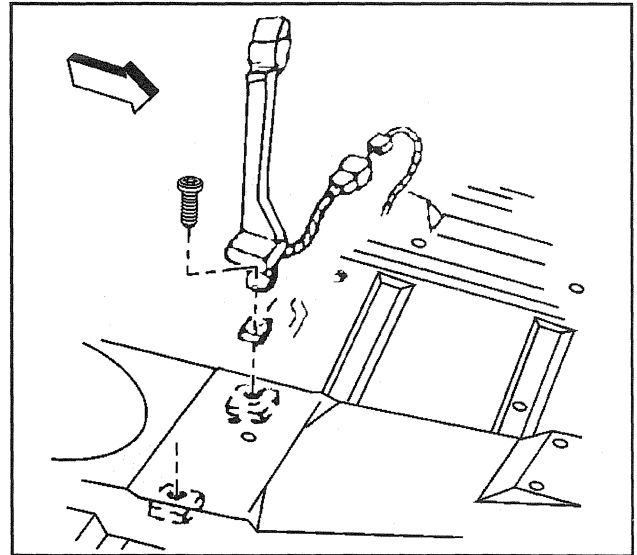
1. Remove the cover from the door pillar anchor plate. Pry up the bottom.
2. Remove the bolt from the door pillar weld nut.



157103

3. Remove the bolt retaining the retractor to the floor panel.
4. Remove the retractor from the vehicle.

5. Remove the cover from the buckle assembly which conceals the nut.
6. Remove the nut from the buckle assembly to floor weld stud.
7. Remove the seat belt warning wire from the buckle assembly on the driver's side only.
8. Remove the buckle assembly from the vehicle.



178563

Installation Procedure

1. Install the buckle assembly to the floor panel.
2. Install the seat belt warning wire to the buckle assembly on the driver's side only.

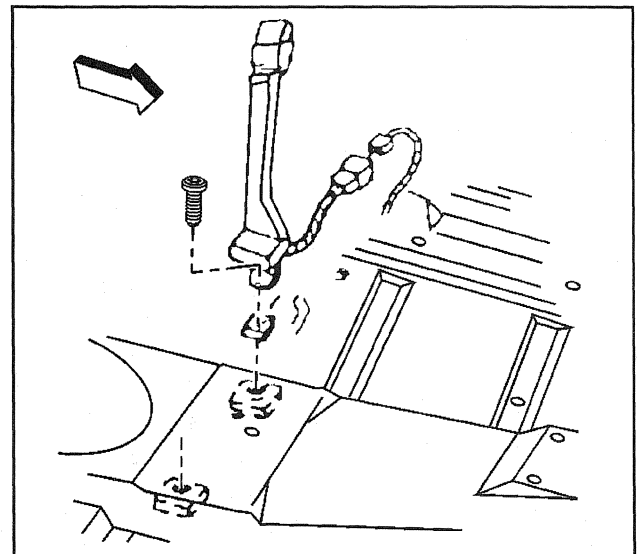
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

Tighten the nut to 42 N·m (31 lb ft).

4. Install the cover assembly over the nut.

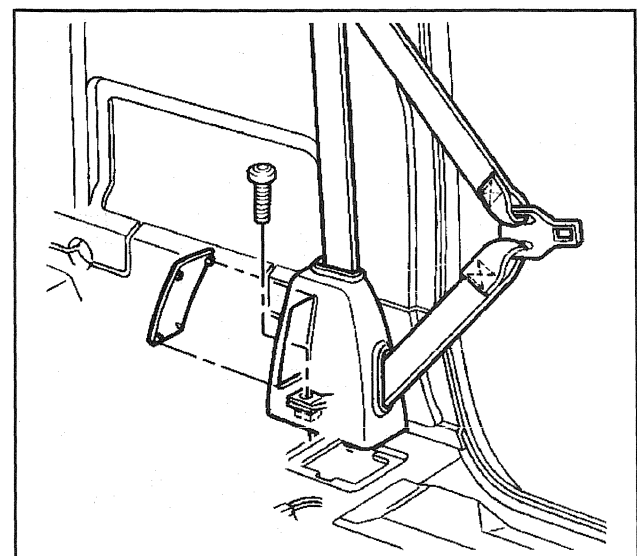


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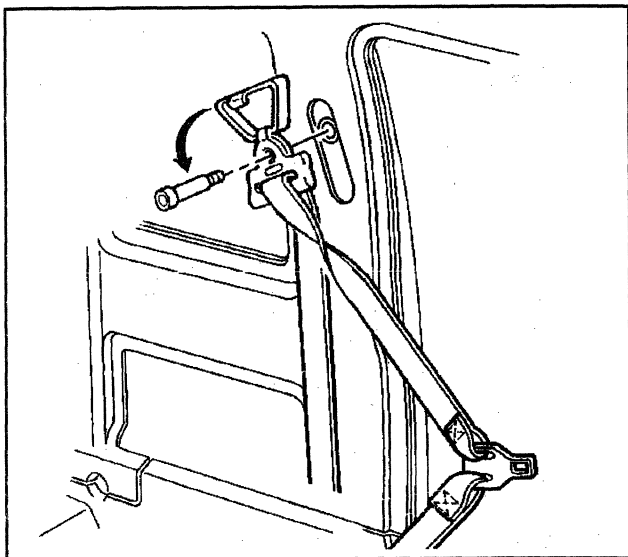
5. Install the retractor and belt to the floor.
6. Install the bolt through the retractor into the floor panel weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).



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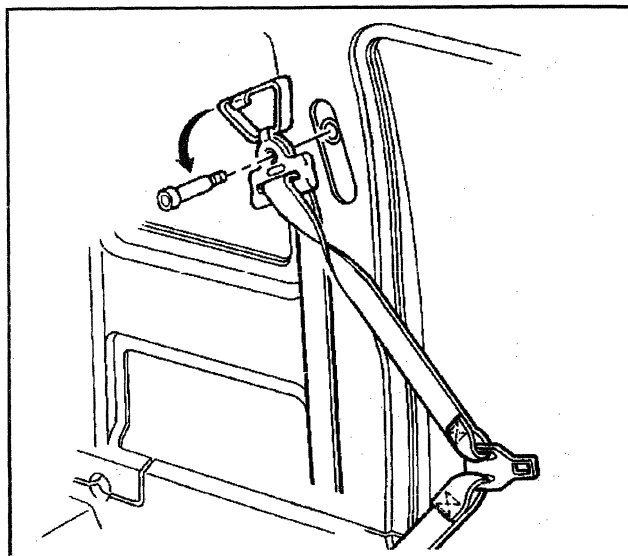
156624

7. Install the bolt through the anchor plate and washer into the door pillar weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

8. Install the cover over the door pillar anchor plate.



156624

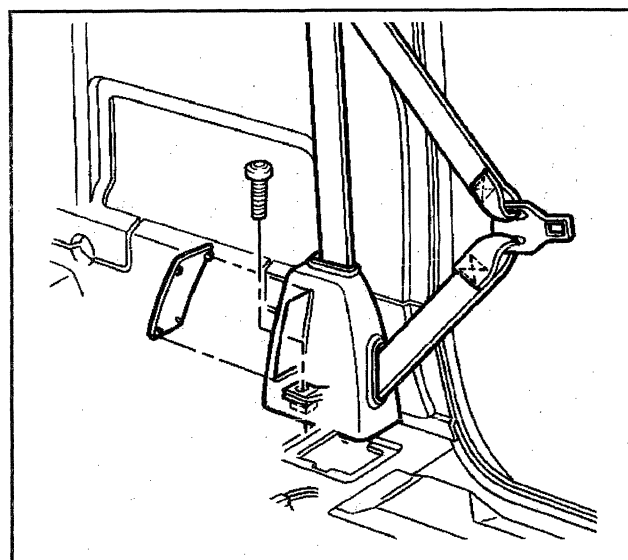
Seat Belt Replacement - Front (Extended Cab with Bench Seat)

Removal Procedure

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

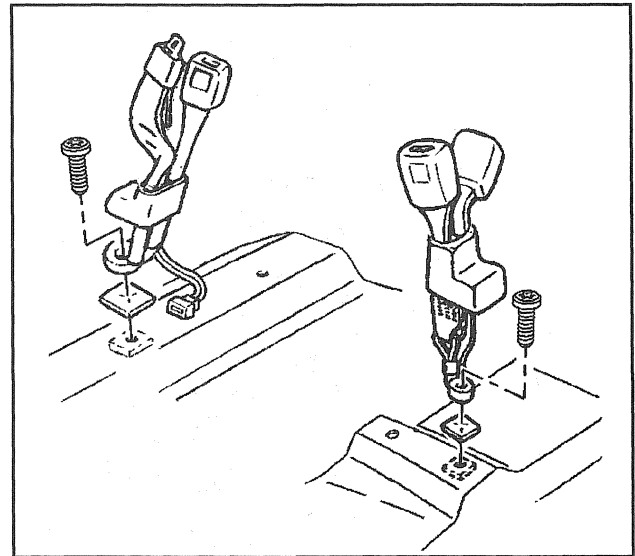
1. Remove the cover from the door pillar anchor plate. Pry up the bottom.
2. Remove the bolt from the door pillar weld nut.



157103

3. Remove the bolt retaining the retractor to the floor panel.
4. Remove the retractor from the vehicle.

5. Remove the cover from the buckle assembly which conceals the nut.
6. Remove the nut from the buckle assembly to floor weld stud.
7. Remove the seat belt warning wire from the buckle assembly on the driver's side only.
8. Remove the buckle assembly from the vehicle.



188238

Installation Procedure

1. Install the buckle assembly to the floor panel.
2. Install the seat belt warning wire to the buckle assembly on the driver's side only.

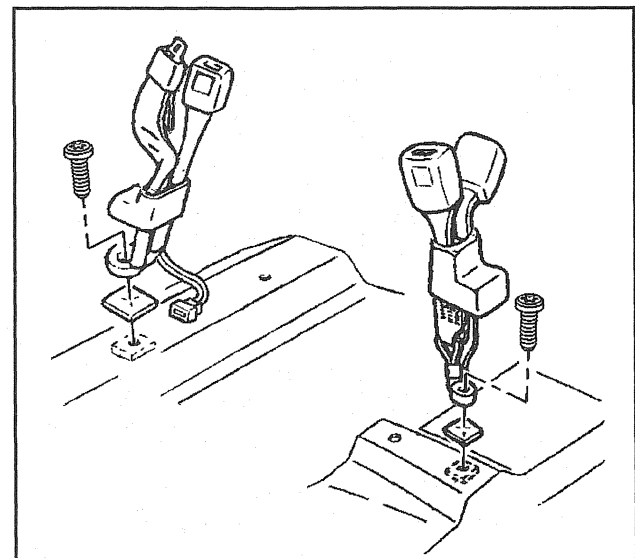
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

Tighten the nut to 42 N·m (31 lb ft).

4. Install the cover assembly over the nut.

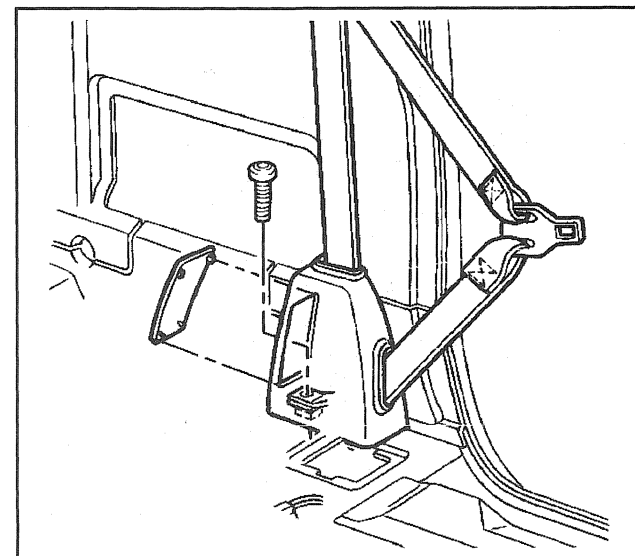


188238

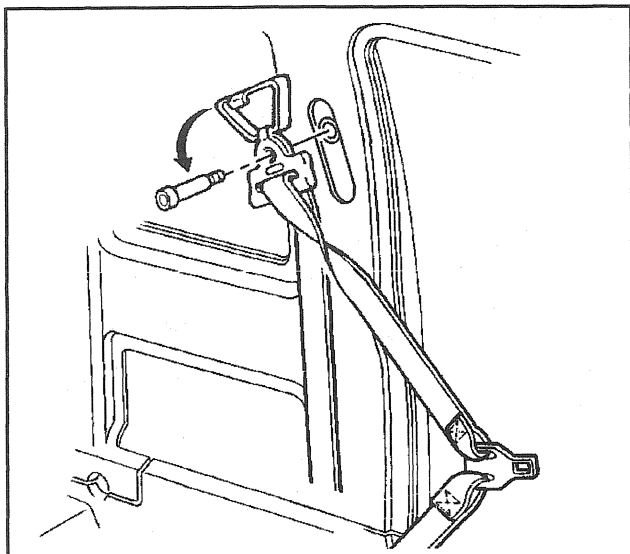
5. Install the retractor and belt to the floor.
6. Install the bolt through the retractor into the floor panel weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).



157103



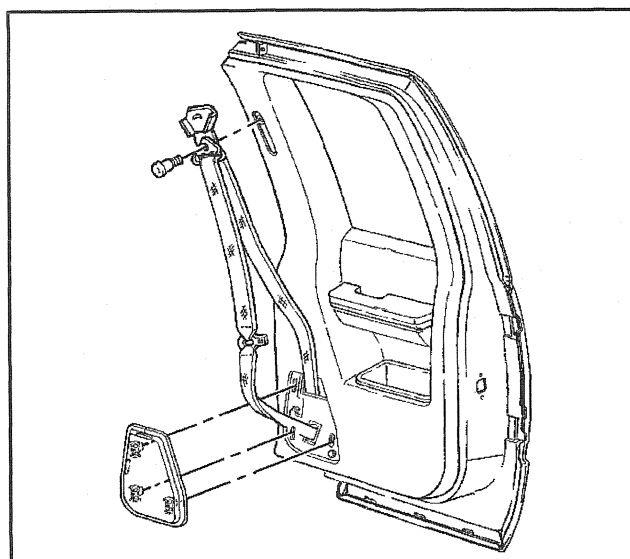
156624

7. Install the bolt through the anchor plate and washer into the door pillar weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

8. Install the cover over the door pillar anchor plate.



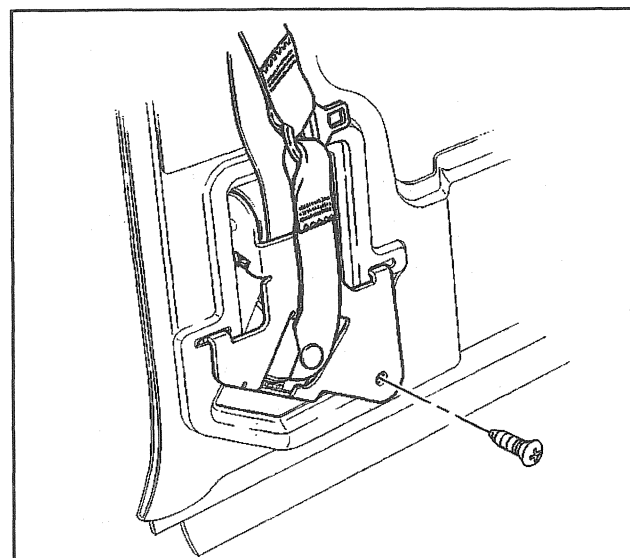
186882

**Seat Belt Replacement - Front
(Extended Cab with 3rd Door)****Removal Procedure**

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice in Cautions and Notices*.

1. Remove the retractor cover from the rear seat access panel.

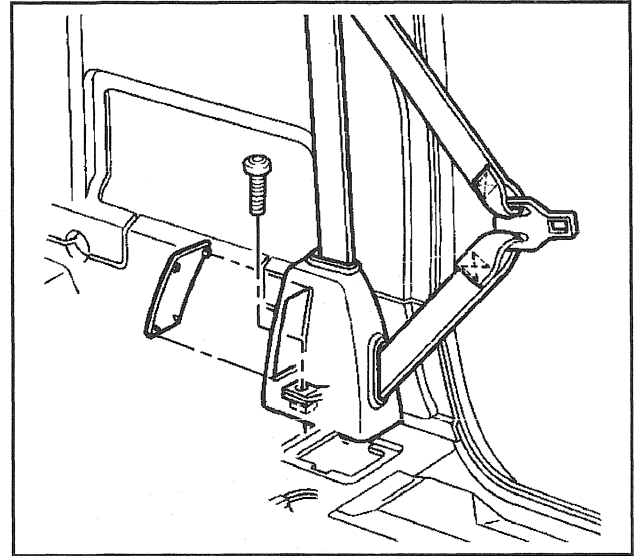


186884

2. Remove the bolt from the retractor in the rear seat access panel.

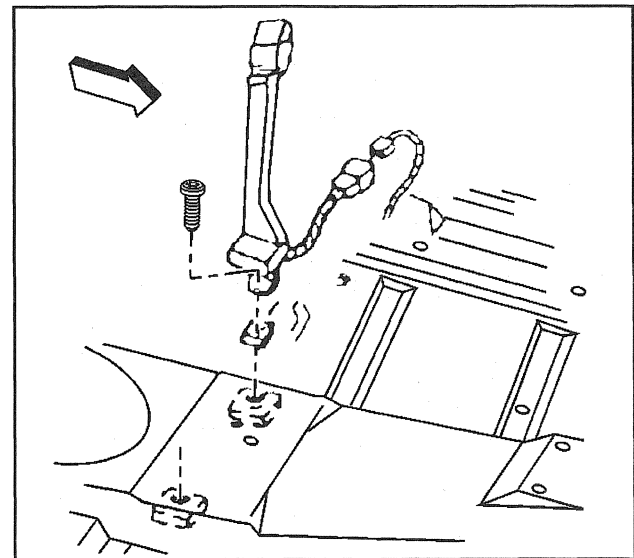
3. Remove the retractor from the vehicle.

4. Remove the cover from the buckle assembly which conceals the nut.
5. Remove the nut from the buckle assembly to floor weld stud.
6. Remove the seat belt warning wire from the buckle assembly on the driver's side only.



157103

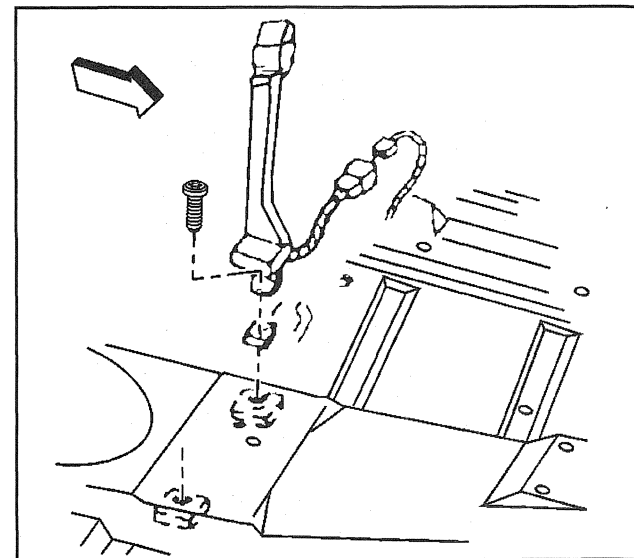
7. Remove the buckle assembly from the vehicle.



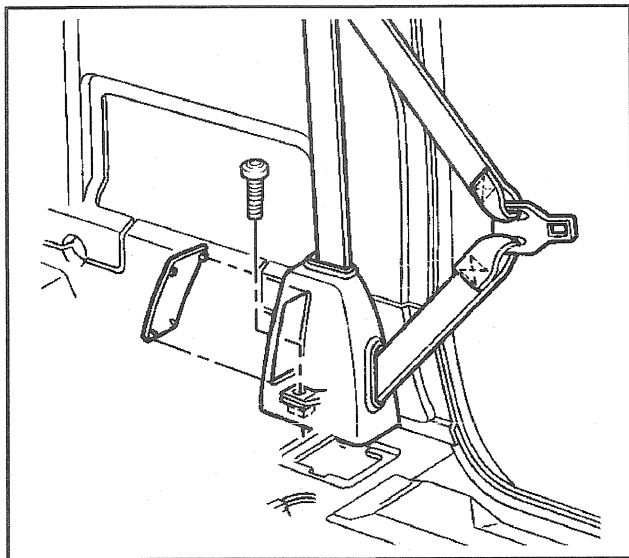
178563

Installation Procedure

1. Install the buckle assembly to the floor panel.



178563



157103

2. Install the seat belt warning wire to the buckle assembly on the driver's side only.

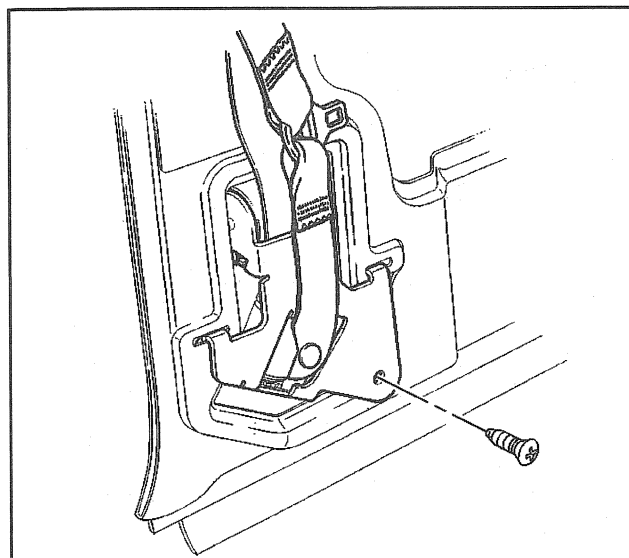
Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

Tighten the nut to 42 N·m (31 lb ft).

4. Install the cover assembly over the nut.



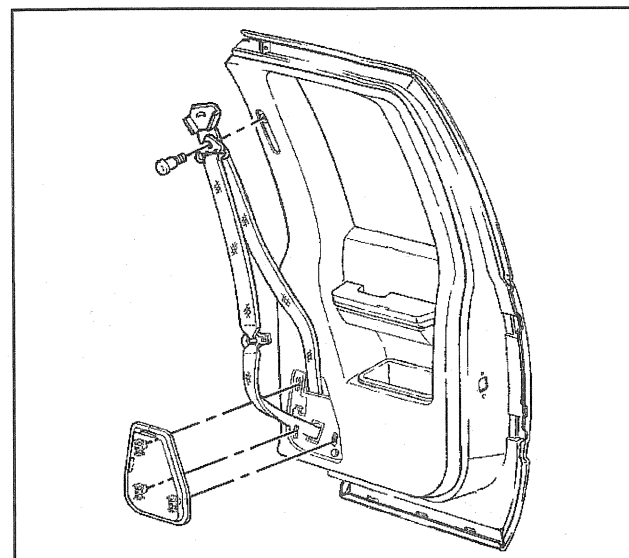
186884

5. Install the retractor and belt to the rear seat access panel.

6. Install the bolt through the retractor into the rear seat access panel.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).



186882

7. Install the bolt through the anchor plate and washer into the rear seat access panel.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

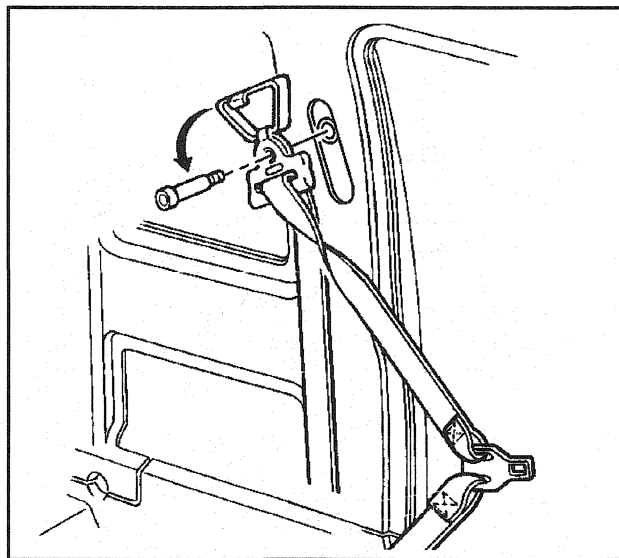
8. Install the cover onto the rear seat access panel.

Seat Belt Replacement - Intermediate**Removal Procedure**

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

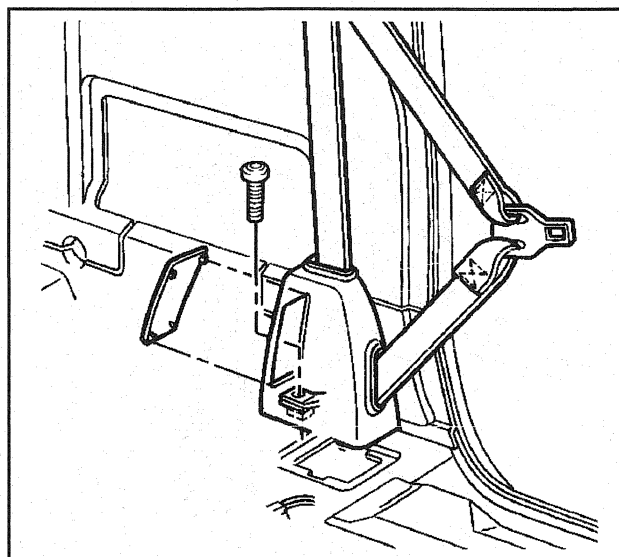
Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

1. Remove the cover from the door pillar anchor plate. Pry up the bottom.
2. Remove the bolt from the door pillar weld nut.



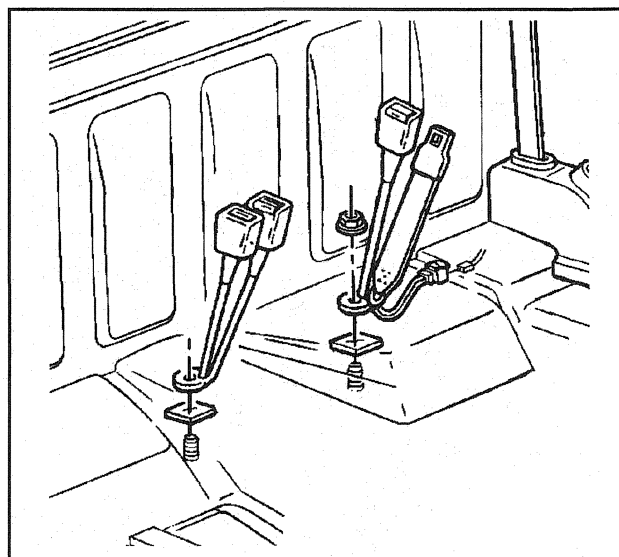
156624

3. Remove the bolt retaining the retractor to the floor panel.
4. Remove the retractor from the vehicle.

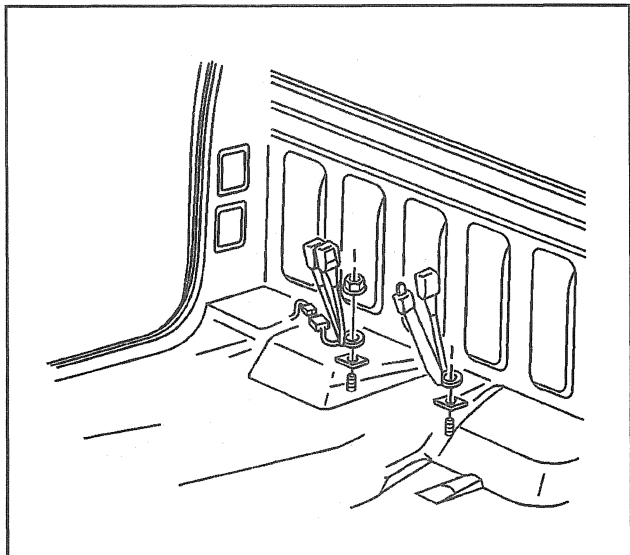


157103

5. Remove the cover from the buckle assembly which conceals the nut.
6. Remove the nut from the buckle assembly to floor weld stud.
7. Remove the seat belt warning wire from the buckle assembly on the driver's side only.

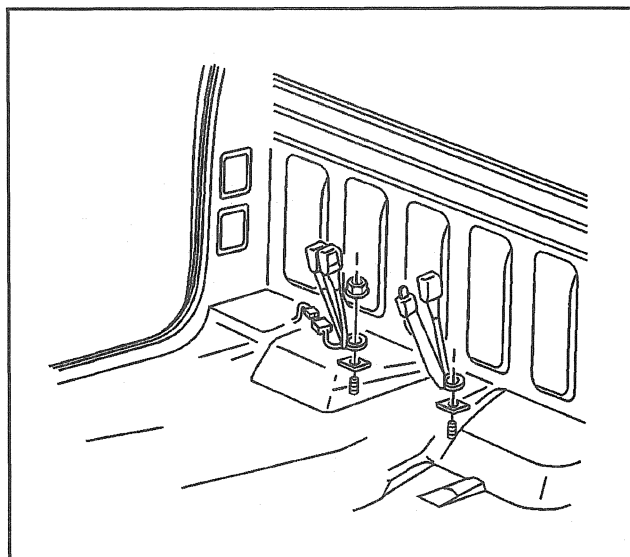


156627



156629

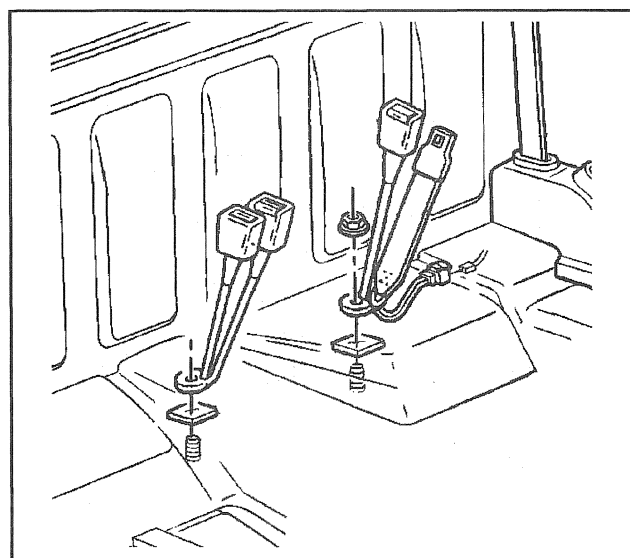
8. Remove the buckle assembly from the vehicle.



156629

Installation Procedure

1. Install the buckle assembly to the floor panel.



156627

2. Install the seat belt warning wire to the buckle assembly on the driver's side only.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

3. Install the nut to the buckle assembly and onto the floor panel weld stud.

Tighten

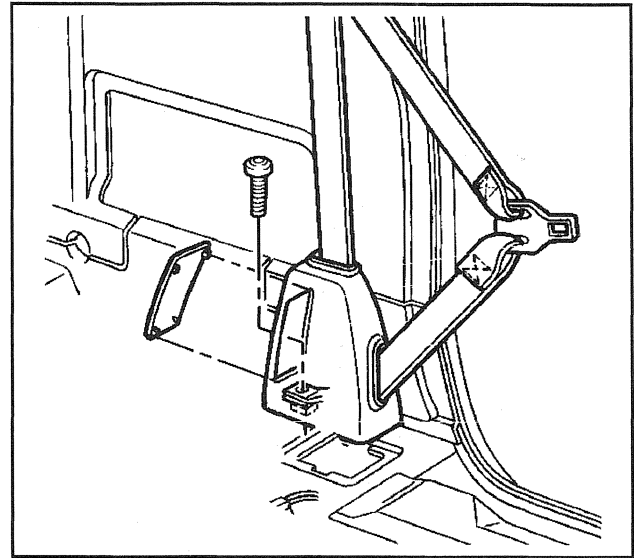
Tighten the nut to 42 N·m (31 lb ft).

4. Install the cover assembly over the nut.

5. Install the retractor and belt to the floor.
6. Install the bolt through the retractor into the floor panel weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).



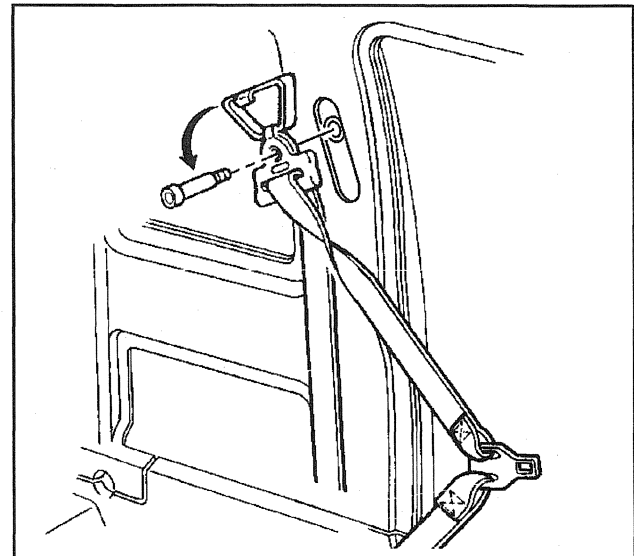
157103

7. Install the bolt through the anchor plate and washer into the door pillar weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

8. Install the cover over the door pillar anchor plate.



156624

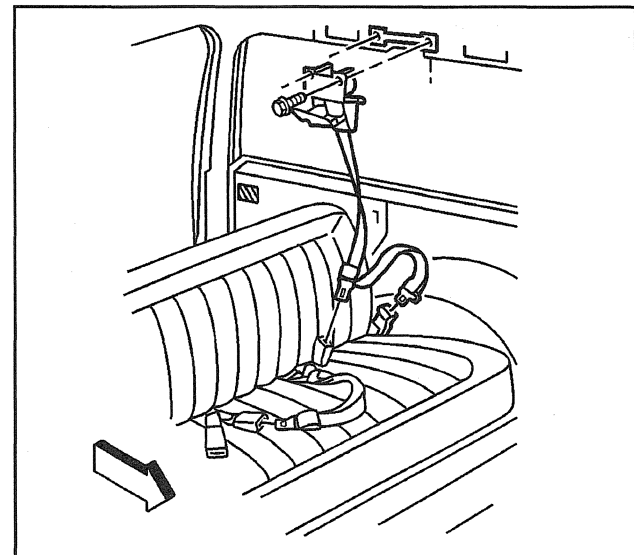
Seat Belt Replacement - Rear (Suburban Removable Rear Seat)

Removal Procedure

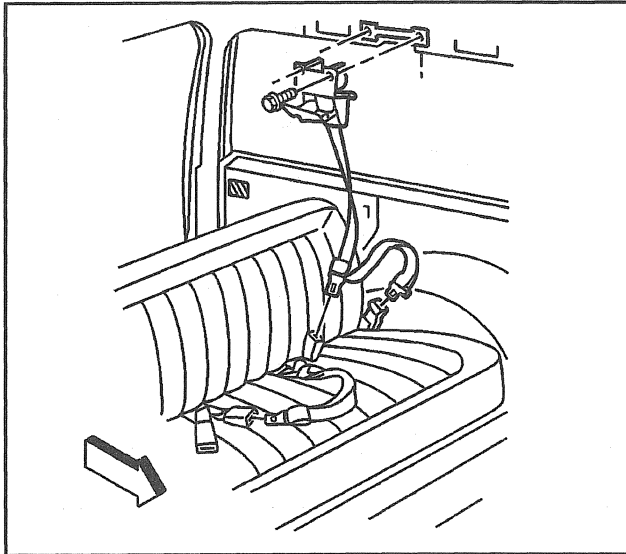
Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice in Cautions and Notices*.

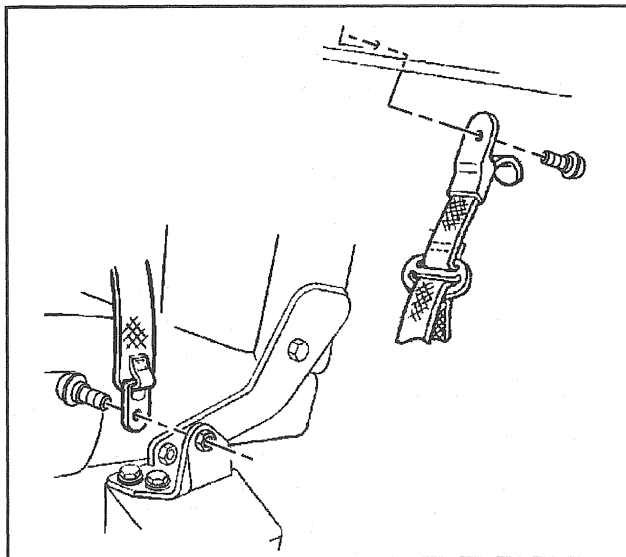
1. Remove the rear seat. Refer to *Seat Replacement - Rear (Suburban)* in Seats.
2. Remove the buckle from the rear seat support assembly.
3. Remove the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Suburban)* in Interior Trim.
4. Remove the bolt holding the retractor to the body.
5. Remove the seat belt and retractor.



156640



156640



186868

6. Remove the nuts holding the buckle assembly to the studs.
7. Remove the buckle assembly.

Installation Procedure

1. Install the buckle assembly to the floor panel stud.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts to the buckle assembly.

Tighten

Tighten the nuts to 42 N·m (31 lb ft).

3. Install the bolt through the seat belt retractor to the weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

4. Install the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Suburban)* in Interior Trim.

5. Install the bolt to the upper anchor plate.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

6. Install the rear seat. Refer to *Seat Replacement - Rear (Suburban)* in Seats.

Seat Belt Replacement - Rear (2 Door Utility)

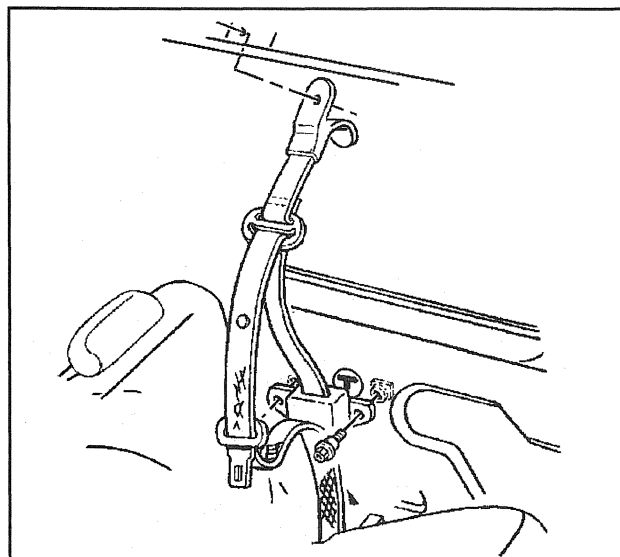
Removal Procedure

Caution: Refer to *Belt Replacement Caution* in Cautions and Notices.

Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

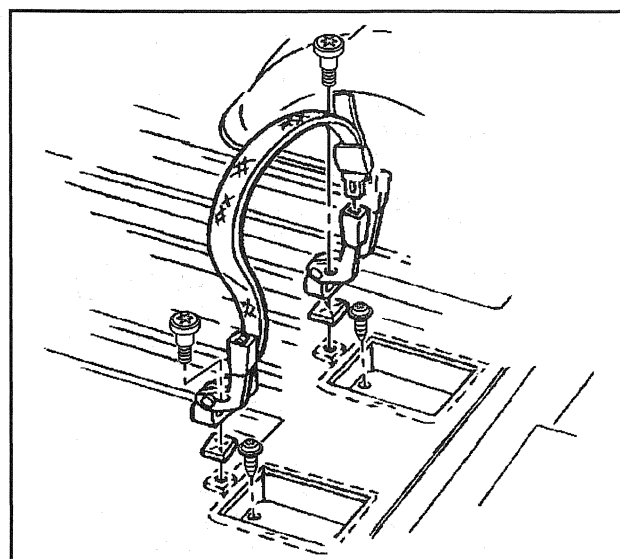
1. Remove the rear seat. Refer to *Seat Replacement - Rear (Utility)* in Seats.
2. Remove the buckle from the rear seat support assembly.
3. Remove the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Base Utility)* in Interior Trim.

4. Remove the bolt holding the retractor to the body.
5. Remove the seat belt and retractor.



186865

6. Remove the nuts holding the buckle assembly to the studs.
7. Remove the buckle assembly.



156645

Installation Procedure

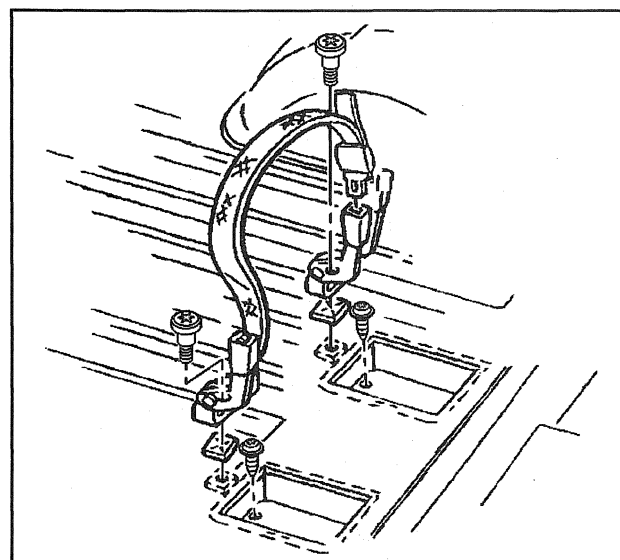
1. Install the buckle assembly to the floor panel stud.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

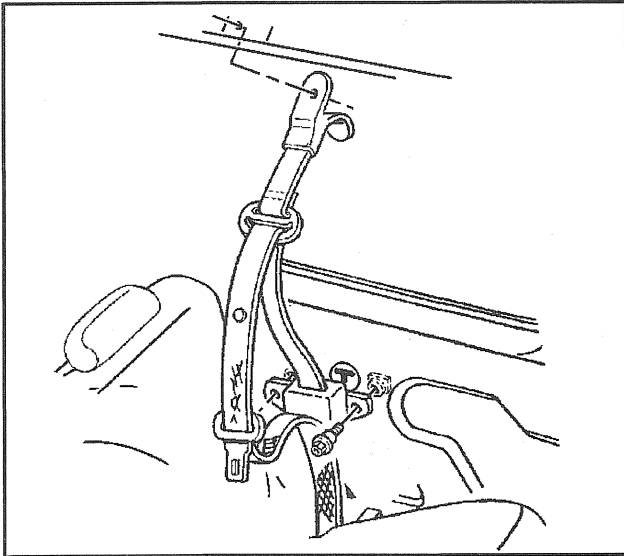
2. Install the nuts to the buckle assembly.

Tighten

Tighten the nuts to 42 N·m (31 lb ft).



156645



186865

3. Install the bolt through the seat belt retractor to the weld nut.

Tighten

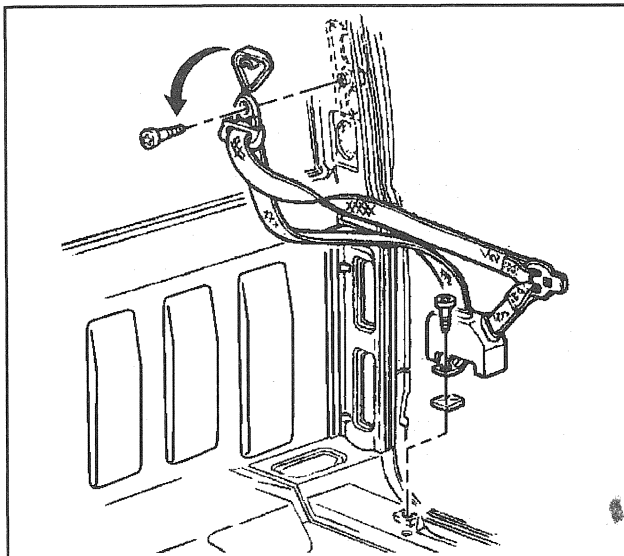
Tighten the bolt to 55 N-m (41 lb ft).

4. Install the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Base Utility)* in Interior Trim.
5. Install the bolt to the upper anchor plate.

Tighten

Tighten the bolt to 55 N-m (41 lb ft).

6. Install the rear seat. Refer to *Seat Replacement - Rear (Utility)* in Seats.



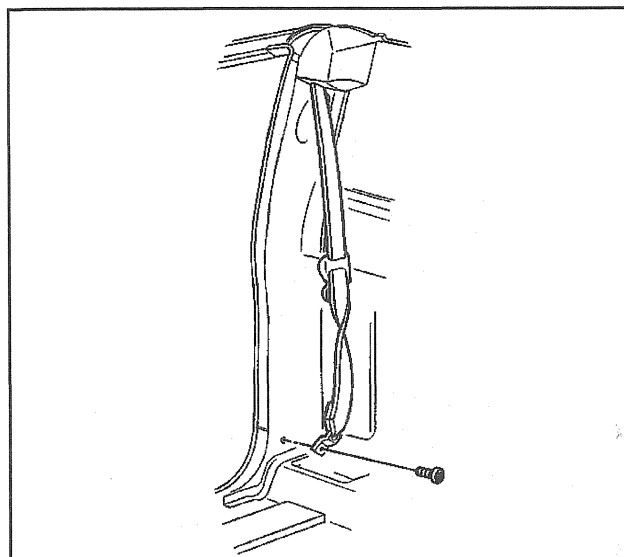
156667

Seat Belt Replacement - Rear (Crew Cab)**Removal Procedure**

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

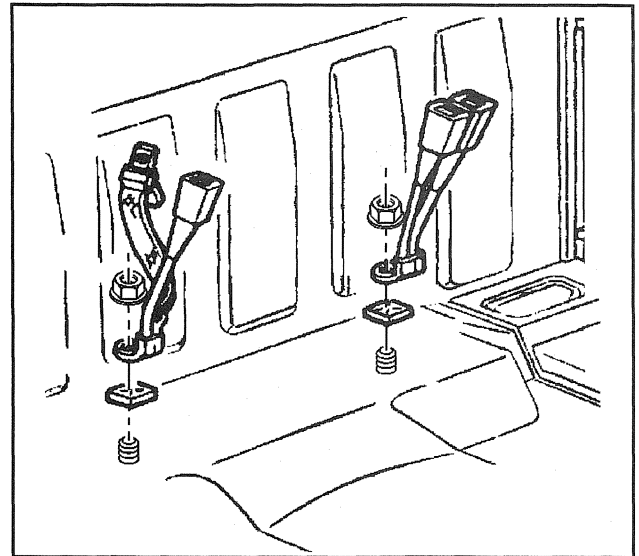
Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

1. Remove the rear seat. Refer to *Seat Replacement - Rear (Crew Cab)* in Seats.
2. Remove the buckle from the rear seat support assembly.
3. Remove the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Crew Cab)* in Interior Trim.
4. Remove the bolt holding the retractor to the body.
5. Remove the seat belt and retractor.



156670

6. Remove the nuts holding the buckle assembly to the studs.
7. Remove the buckle assembly.



186874

Installation Procedure

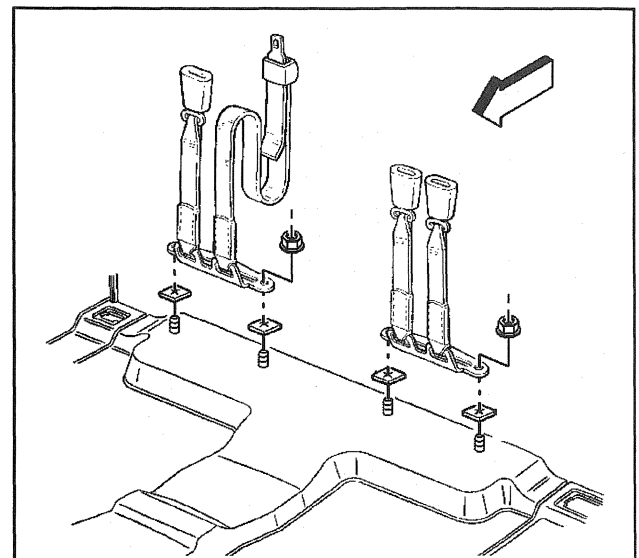
1. Install the buckle assembly to the floor panel stud.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts to the buckle assembly.

Tighten

Tighten the nuts to 42 N·m (31 lb ft).



156658

3. Install the bolt through the seat belt retractor to the weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

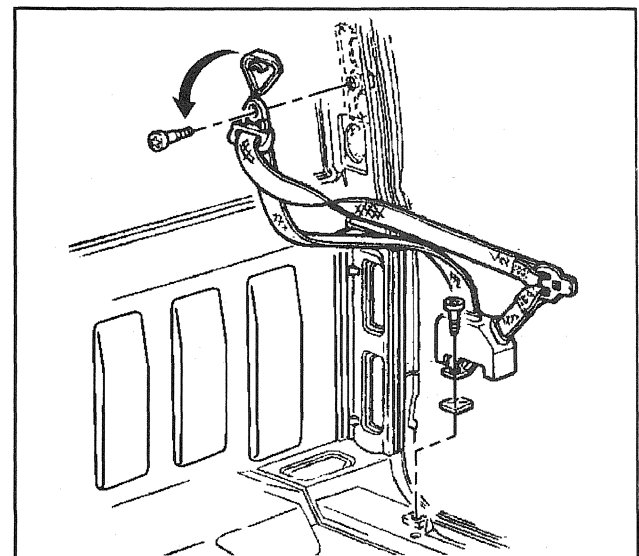
4. Install the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Crew Cab)* in Interior Trim.

5. Install the bolt to the upper anchor plate.

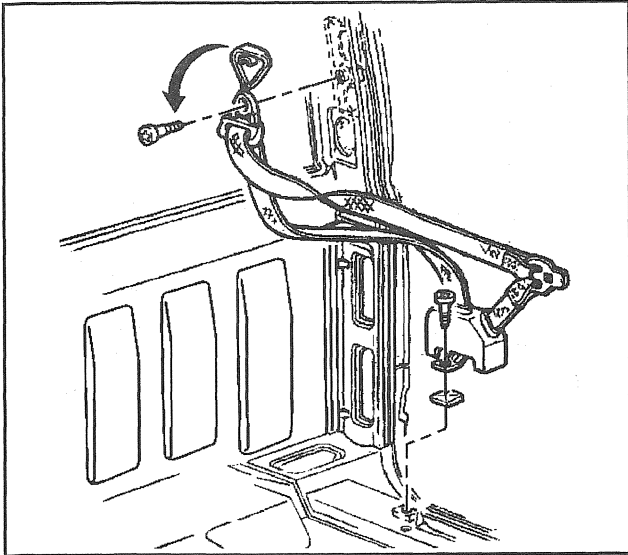
Tighten

Tighten the bolt to 55 N·m (41 lb ft).

6. Install the rear seat. Refer to *Seat Replacement - Rear (Crew Cab)* in Seats.



156667



156667

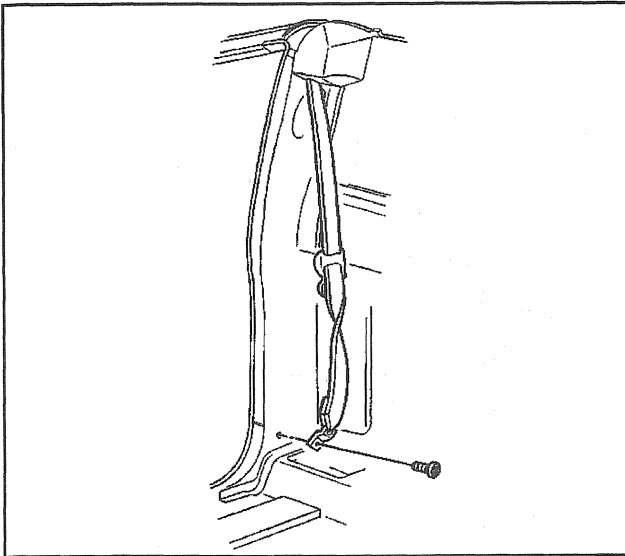
Seat Belt Replacement - Rear (Extended Cab)

Removal Procedure

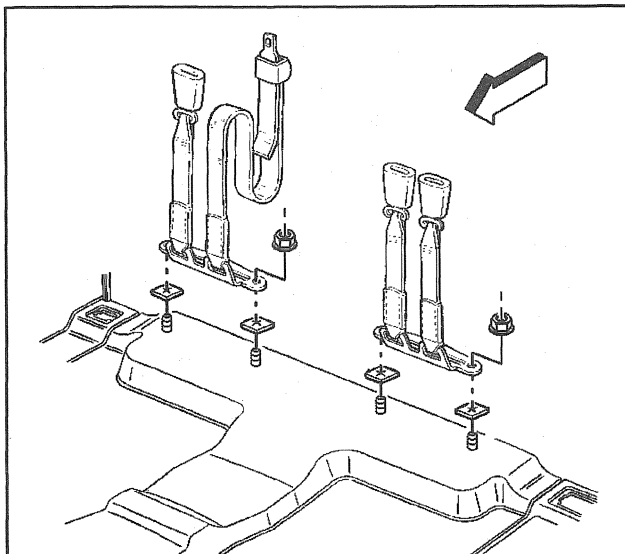
Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

1. Remove the rear seat. Refer to *Seat Replacement - Rear (Crew Cab)* in Seats.
2. Remove the buckle from the rear seat support assembly.
3. Remove the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Extended Cab)* in Interior Trim.
4. Remove the bolt holding the retractor to the body.
5. Remove the seat belt and retractor.



156670



156658

6. Remove the nuts holding the buckle assembly to the studs.
7. Remove the buckle assembly.

Installation Procedure

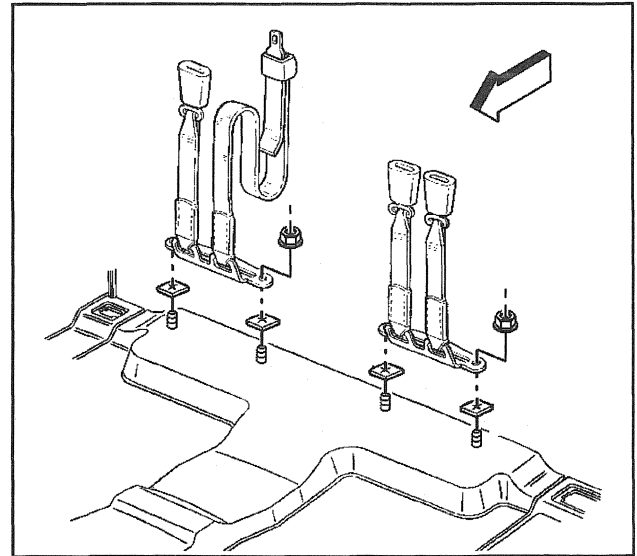
1. Install the buckle assembly to the floor panel stud.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts to the buckle assembly.

Tighten

Tighten the nuts to 42 N·m (31 lb ft).



156658

3. Install the bolt through the seat belt retractor to the weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

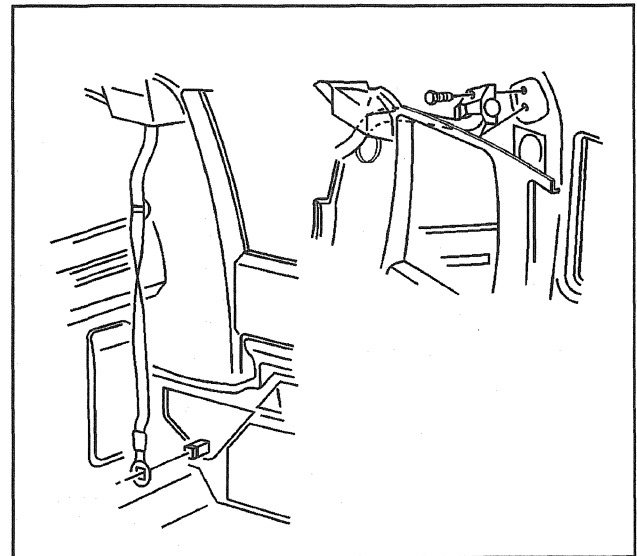
4. Install the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Extended Cab)* in Interior Trim.

5. Install the bolt to the upper anchor plate.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

6. Install the rear seat. Refer to *Seat Replacement - Rear (Crew Cab)* in Seats.



156661

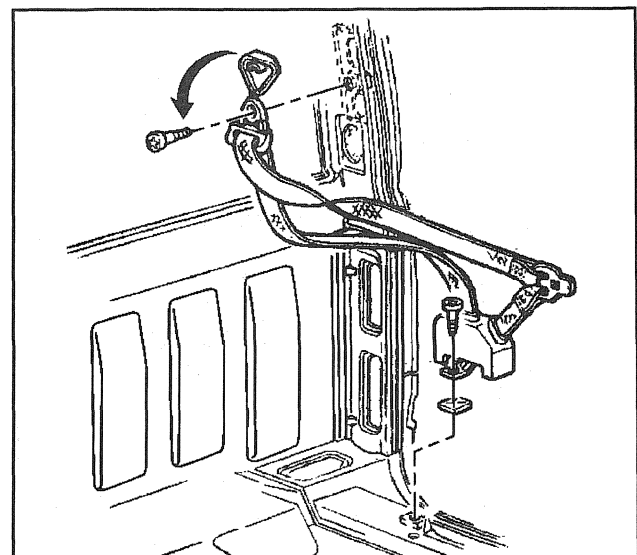
Seat Belt Replacement - Rear (Extended Cab with 3rd Door)

Removal Procedure

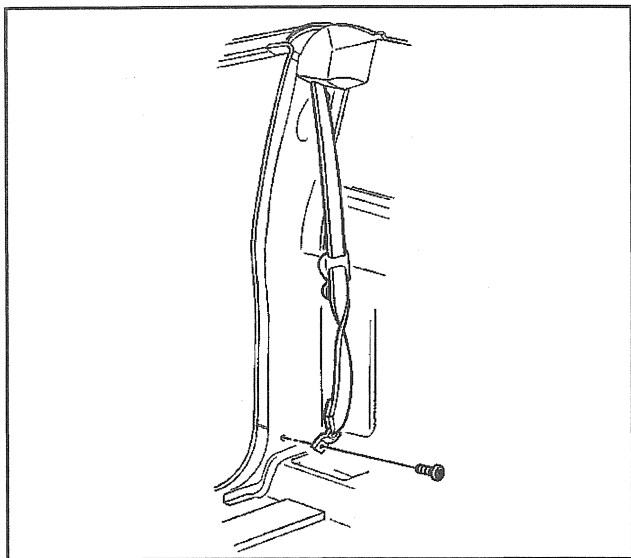
Caution: Refer to *Belt Replacement Caution* in Cautions and Notices.

Notice: Refer to *Servicing and Replacing Seat Belt* Notice in Cautions and Notices.

1. Remove the rear seat. Refer to *Seat Replacement - Rear (Crew Cab)* in Seats.
2. Remove the buckle from the rear seat support assembly.
3. Remove the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Extended Cab)* in Interior Trim.
4. Remove the bolt holding the retractor to the body.

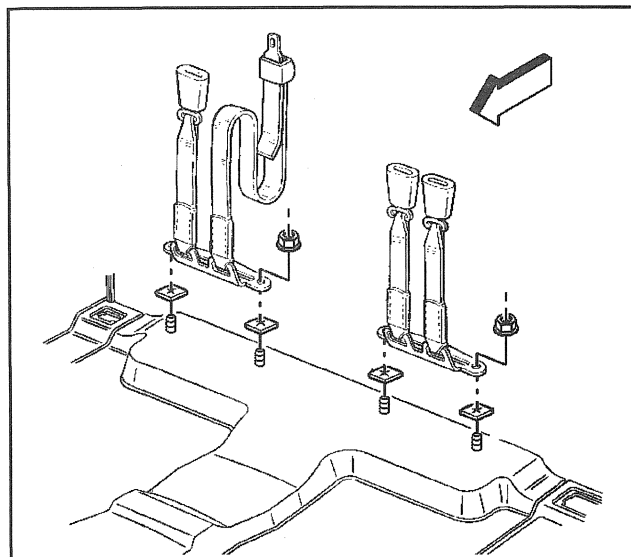


156667



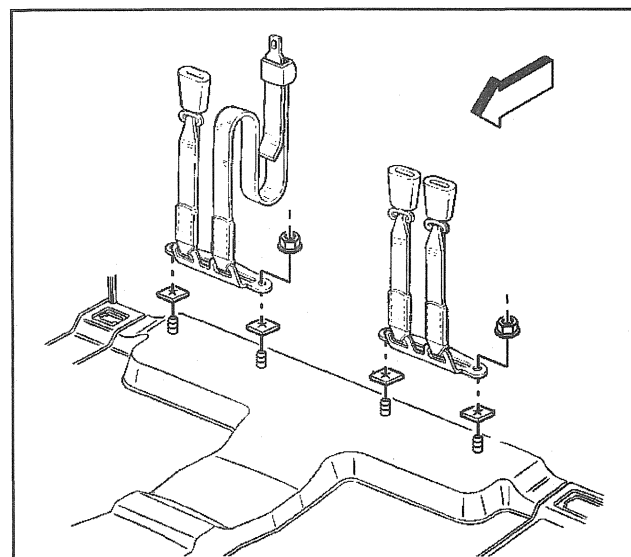
156670

5. Remove the seat belt and retractor.



156658

6. Remove the nuts holding the buckle assembly to the studs.
7. Remove the buckle assembly.



156658

Installation Procedure

1. Install the buckle assembly to the floor panel stud.
Notice: Refer to *Fastener Notice* in Cautions and Notices.
2. Install the nuts to the buckle assembly.
Tighten
Tighten the nuts to 42 N·m (31 lb ft).

3. Install the bolt through the seat belt retractor to the weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

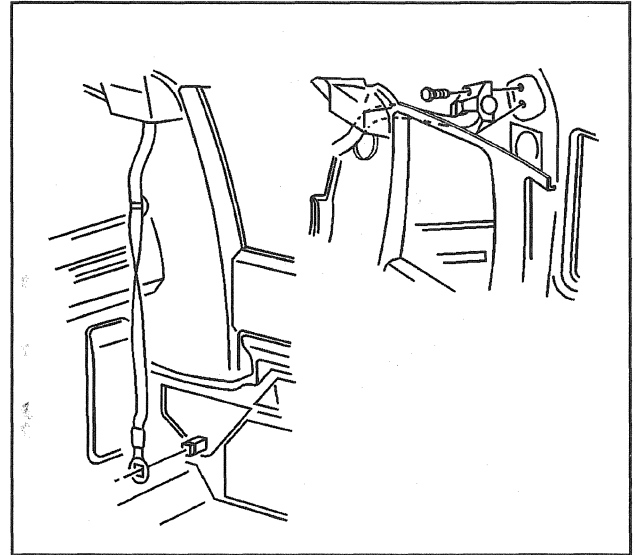
4. Install the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Extended Cab)* in Interior Trim.

5. Install the bolt to the upper anchor plate.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

6. Install the rear seat. Refer to *Seat Replacement - Rear (Crew Cab)* in Seats.



156661

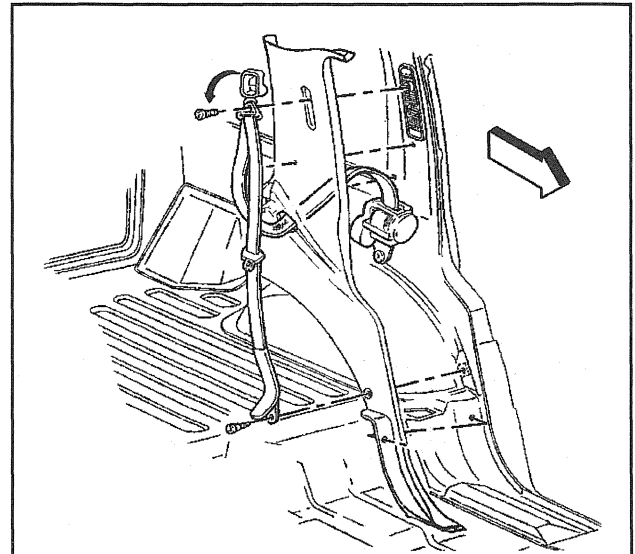
Seat Belt Replacement - Rear (4 Door Utility)

Removal Procedure

Caution: Refer to *Belt Replacement Caution in Cautions and Notices*.

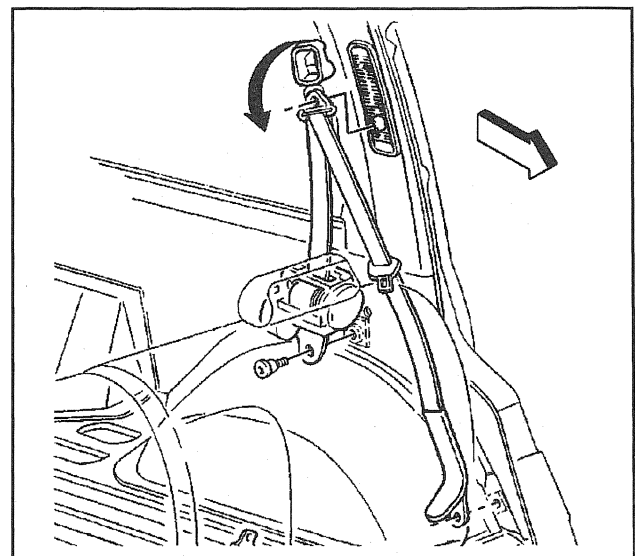
Notice: Refer to *Servicing and Replacing Seat Belt Notice* in Cautions and Notices.

1. Remove the rear seat. Refer to *Seat Replacement - Rear (Luxury)* in Seats.
2. Remove the quarter trim panel.

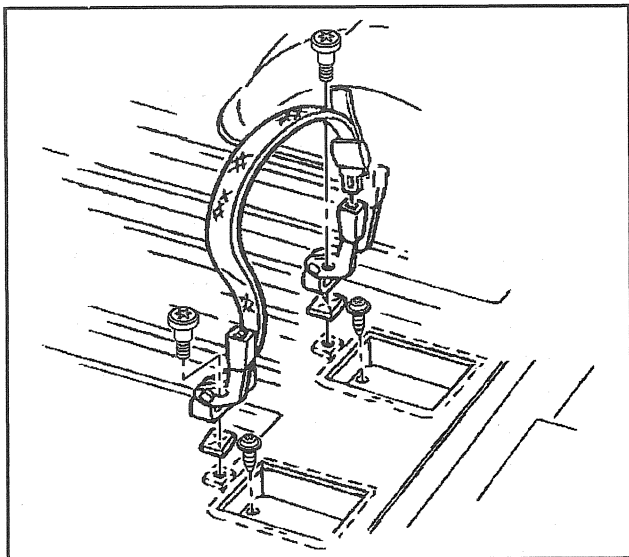


186863

3. Remove the bolt holding the retractor to the body.
4. Remove the seat belt and retractor.

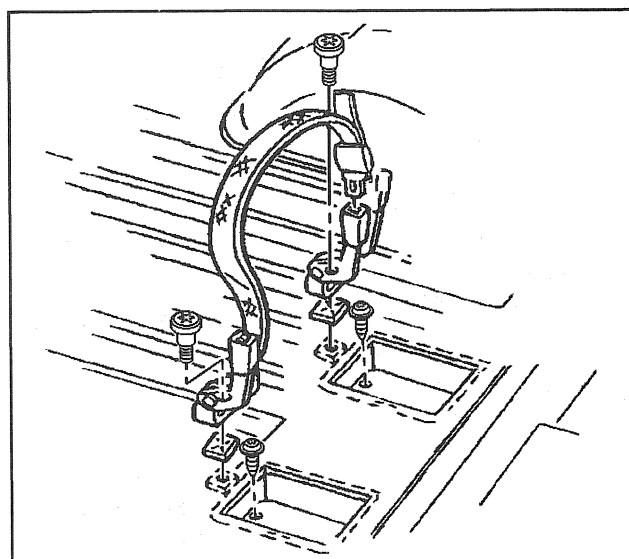


186862



156645

5. Remove the nuts holding the buckle assembly to the studs.
6. Remove the buckle assembly.



156645

Installation Procedure

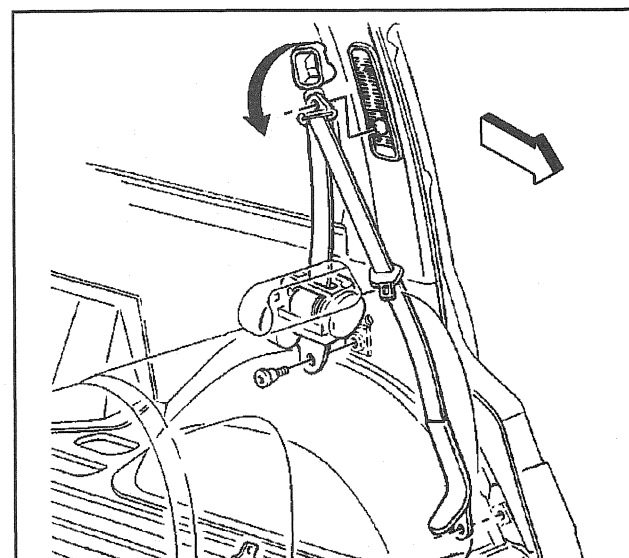
1. Install the buckle assembly to the floor panel stud.

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the nuts to the buckle assembly.

Tighten

Tighten the nuts to 42 N·m (31 lb ft).



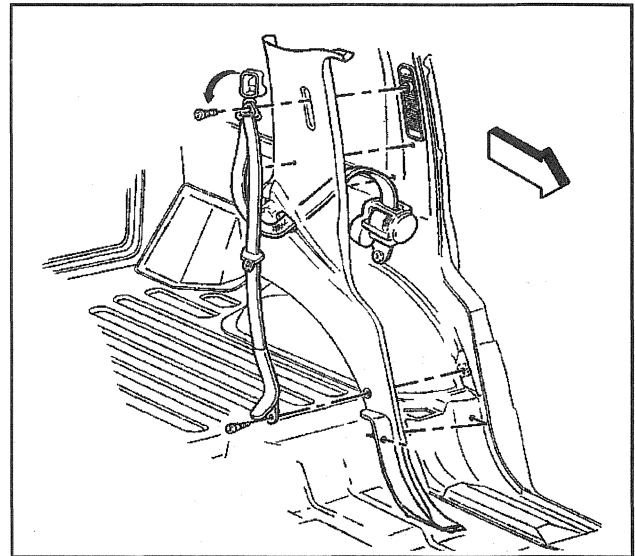
186862

3. Install the bolt through the seat belt retractor to the weld nut.

Tighten

Tighten the bolt to 55 N·m (41 lb ft).

4. Install the quarter trim panel. Refer to *Trim Panel Replacement - Rear Quarter (Luxury)* in Interior Trim.
5. Install the bolt to the upper anchor plate.
Tighten
Tighten the bolt to 55 N·m (41 lb ft).
6. Install the rear seat. Refer to *Seat Replacement - Rear (Luxury)* in Seats.

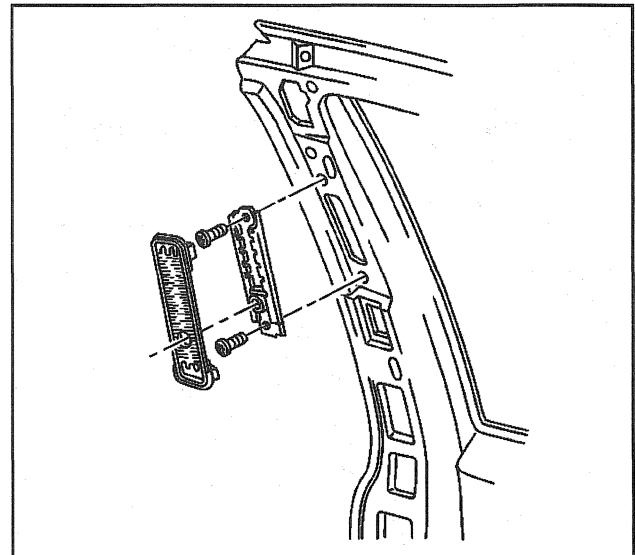


186863

Seat Belt Height Adjuster Replacement - Front

Removal Procedure

1. Remove the bolt retaining the shoulder/seat belt guide to the guide adjuster.
2. Remove the shoulder/seat belt guide from the guide adjuster.
3. Remove the front door upper pillar garnish molding. Refer to *Garnish Molding Replacement - Upper* in Interior Trim.
4. Remove the shoulder/seat belt guide adjuster retaining bolts from the pillar.
5. Remove the shoulder/seat belt guide adjuster from the vehicle.



186879

Installation Procedure

1. Install the shoulder/seat belt guide adjuster to the vehicle.

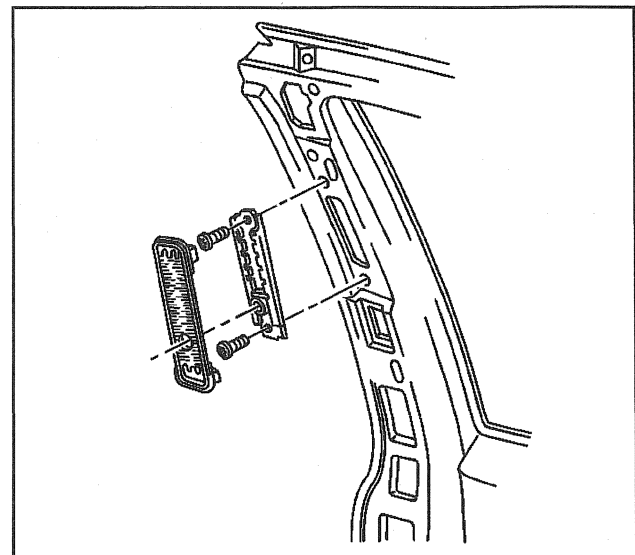
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the shoulder/seat belt guide adjuster retaining bolts to the pillar.

Tighten

Tighten the shoulder/seat belt guide adjuster retaining bolts to 52 N·m (38 lb ft).

3. Install the shoulder/seat belt guide to the guide adjuster.



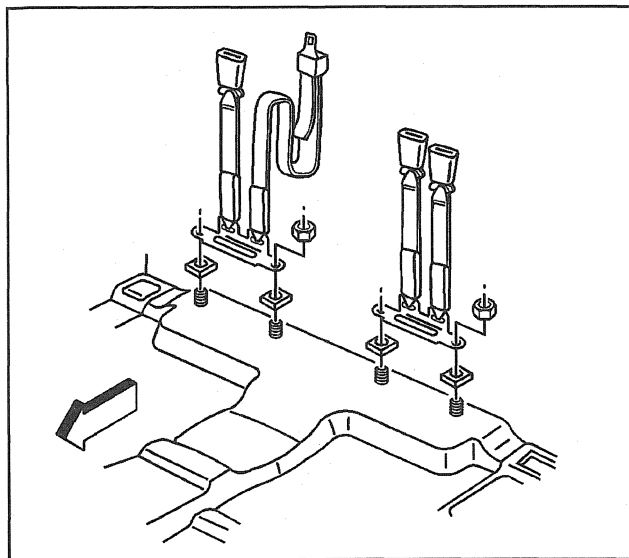
186879

4. Install the shoulder/seat belt guide retaining bolt to the guide adjuster.

Tighten

Tighten the shoulder/seat belt guide retaining bolt to 52 N·m (38 lb ft).

5. Install the front door upper pillar garnish molding. Refer to *Garnish Molding Replacement - Upper* in Interior Trim.

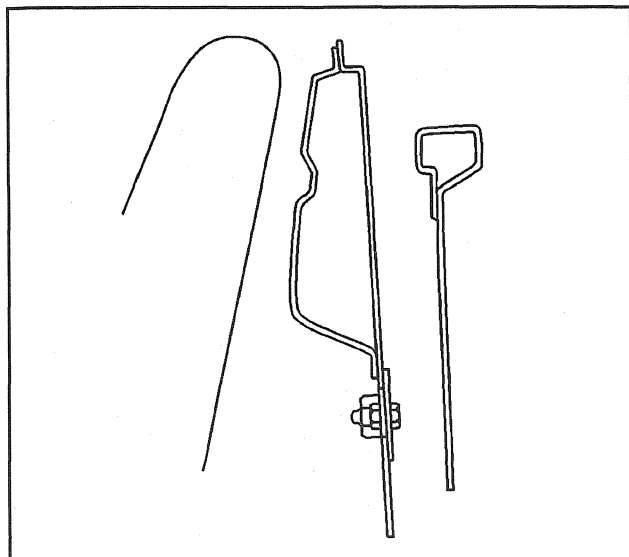


156672

Child Restraint Belt Tether Location

Extended Cabs with a Second Seat (AM7)

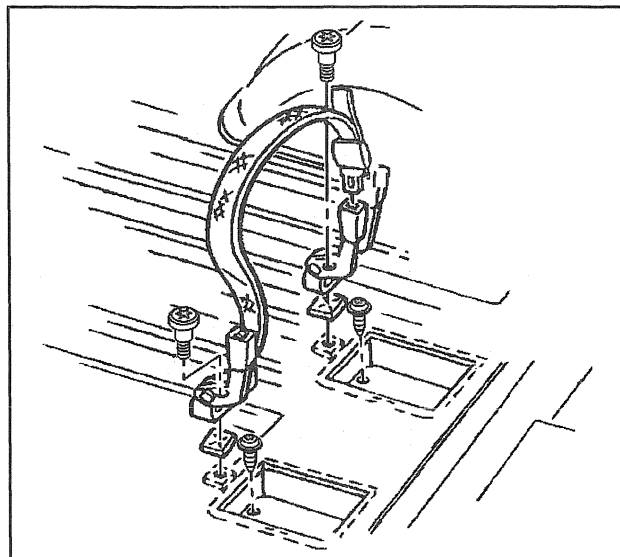
- Position the child seat in the front seat center or the front seat right. Use the 2nd seat center occupant lap belt latch plate if the seat is unoccupied.
- Position the child seat in the 2nd seat left, center, or right. Use pick-up anchorage. Locate the anchor between the scallops from the right or left side of the back panel.
- If all seats are occupied, then place the child seat in a rear seat position that will allow the use of the cargo tie downs.



156703

Utility Model

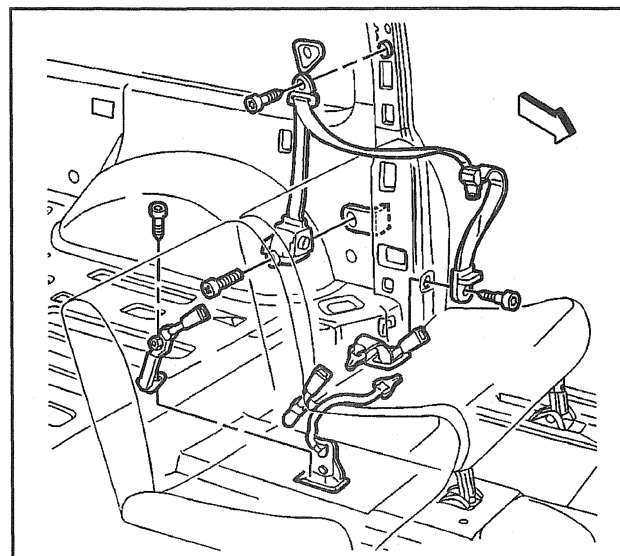
1. Position the child seat in the front seat center or the front seat right. (2 Door)
2. Position the child seat in the front seat center. (4 Door with 2nd folding seat (AM7))
3. Use the 2nd seat center occupant lap belt latch plate if the seat is unoccupied.
4. If all seats are occupied, then place the child seat in a rear seat position that will allow the use of the cargo tie downs.



156645

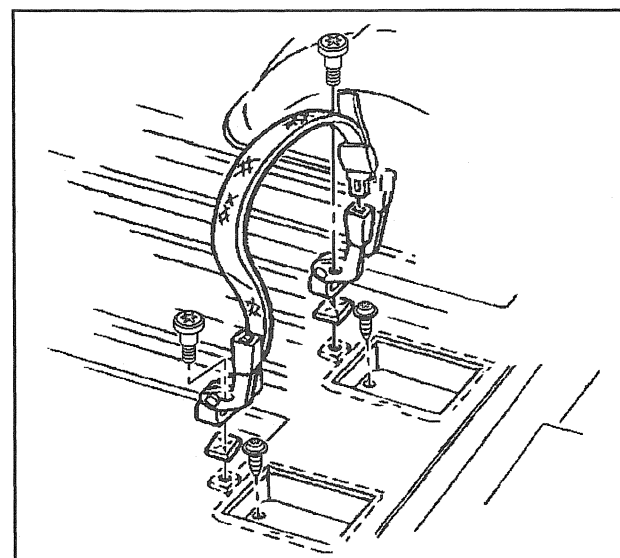
**Suburban with 2nd Folding Seat (AT5),
Utility-4 Door with 2nd Folding Seat (AM7)**

1. Position the child seat in the front seat right. Use GM P/N 15971501 in order to latch the tether to the buckle on the 2nd 40% seat if the seat is unoccupied.

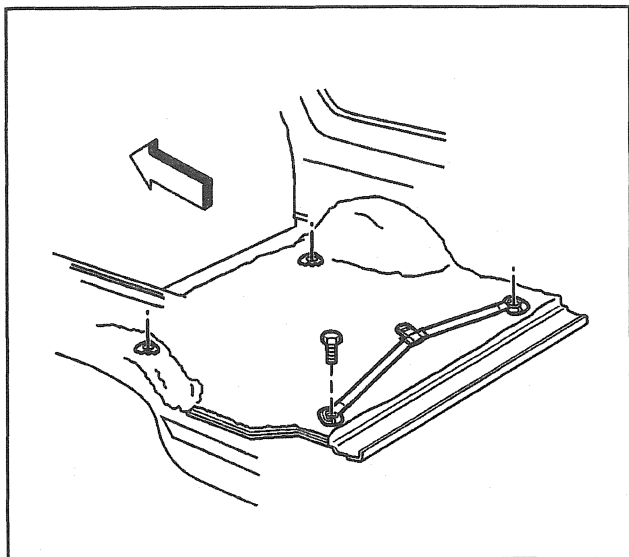


156682

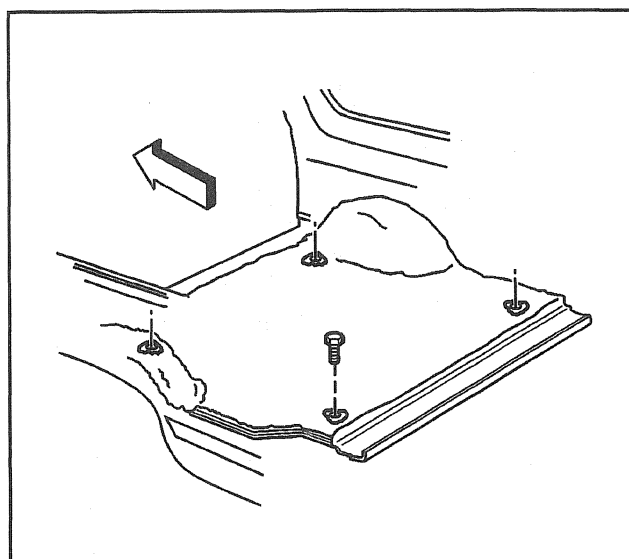
2. Position the child seat in the front seat center. Use 2nd seat center occupant lap belt latch plate if seat is unoccupied.



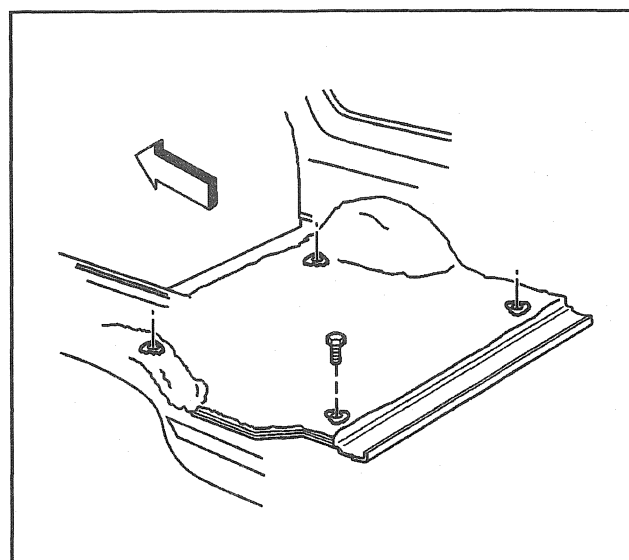
156645



3. Position the child seat in the 2nd seat center. Use GM P/N 15989781 to the rear most set of cargo tie downs. Hook the top tether to the plate at the center of the tether.



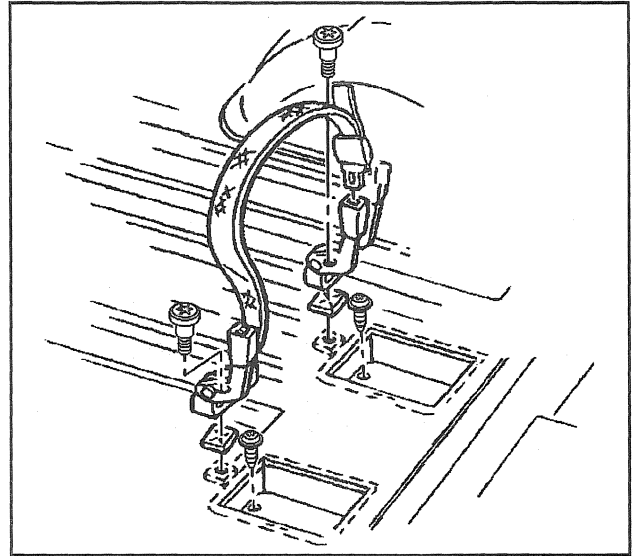
4. Position the child seat in the 2nd seat left. Use the left rear cargo tie down.



5. Position the child seat in the 2nd seat right. Use the right rear cargo tie down.
6. If all seats are occupied, then place the child seat in a rear seat position that will allow the use of the cargo tie downs.

**Suburban with 2nd Folding Seat (AT5),
Crew Cab**

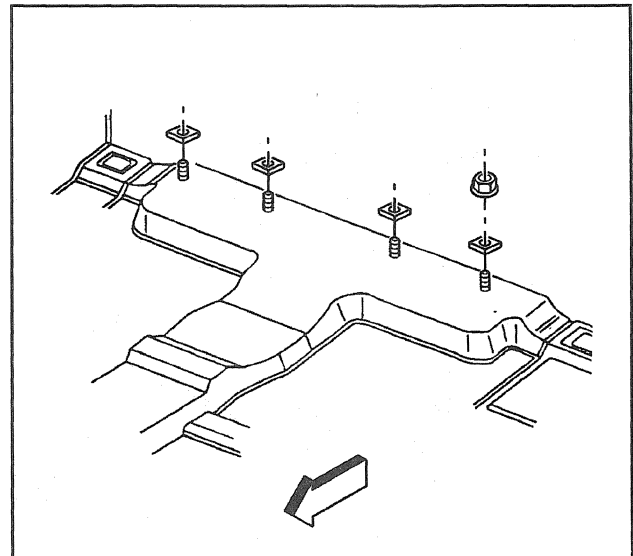
1. Position the child seat in the front seat center or the front seat right. (Crew cab)
2. Position the child seat in the front seat center. (Suburban)
3. Use the 2nd seat center occupant lap belt latch plate if the seat is unoccupied.
4. If all seats are occupied, then place the child seat in a rear seat position that will allow the use of the cargo tie downs.



156645

Extended Cab without 2nd Seat (AM7)

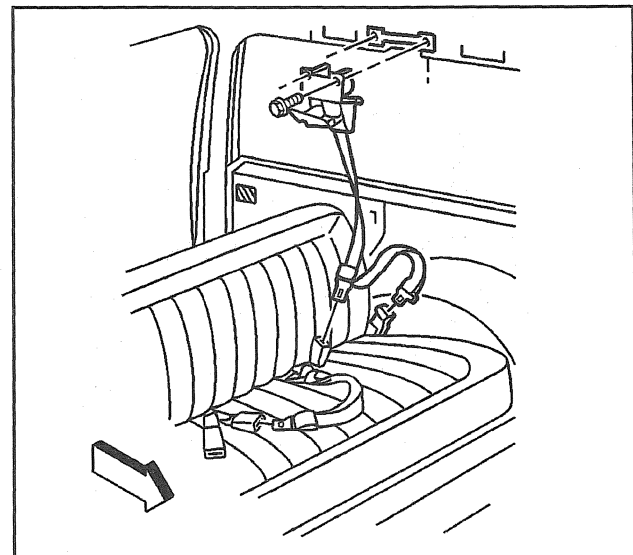
1. If you position the child seat in the front seat center, use the stud in the floor closer to the center of the vehicle.
2. If you position the child seat in the front seat right, use the stud in the floor closer to the side of the vehicle.



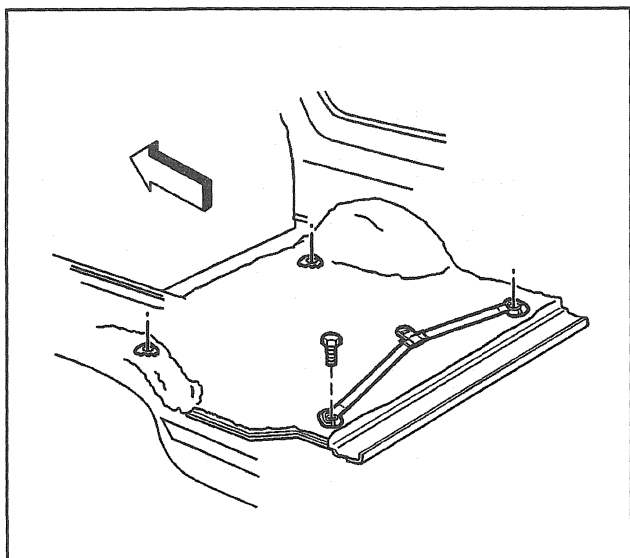
156689

Suburban with 3rd Seat (AS3)

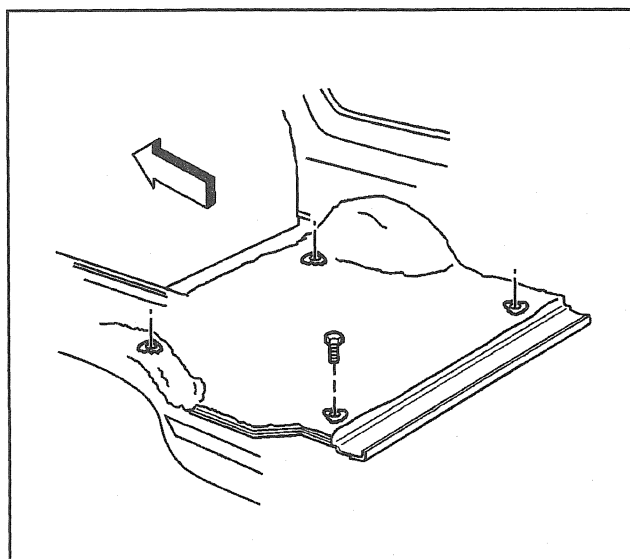
1. If you put the child seat in the 2nd seat center folding position or in the 2nd seat left folding position, use the 3rd seat center occupant lap belt latch plate if the seat is unoccupied.
2. If you put the child seat in the 2nd seat right folding position, use GM P/N 15971501 in order to latch the tether to the 3rd seat buckle directly behind this child seat position if the seat is unoccupied.



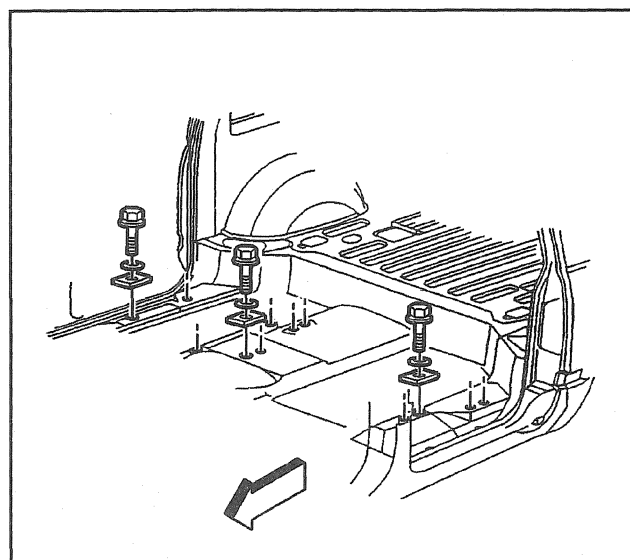
156640



156701



156699



156697

3. If you put the child seat in the 3rd seat center, use GM P/N 15989781 to the rearmost set of the cargo tie downs. Hook the top tether to the plate at the center of the tether.

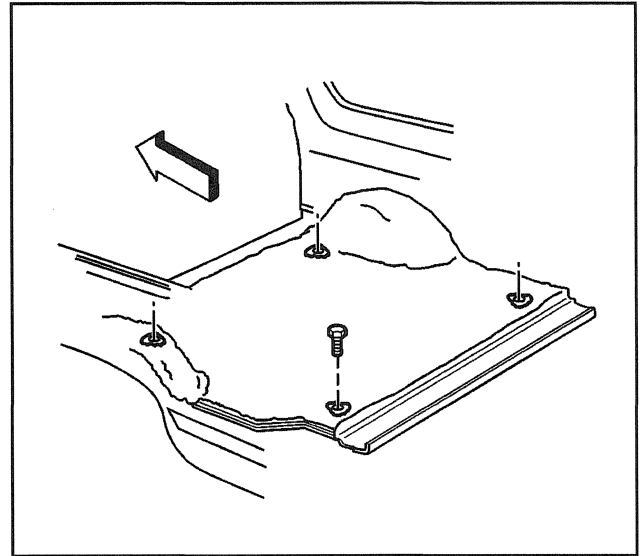
4. If you put the child seat in the 3rd seat left, use the left rear cargo tie down. If you put the child seat in the 3rd seat right, use the right rear cargo tie down.
5. If all seats are occupied, then place the child seat in a rear seat position that will allow the use of the cargo tie downs.

Suburban without 2nd Folding Seat (AT5)

1. Position the child seat in the front seat center or the front seat right.
2. Use the seat anchor.
3. If all seats are occupied, then place the child seat in a rear seat position that will allow the use of the cargo tie downs.

Suburban with and without 3rd Folding Seat (AS3), Utility-2 Door and 4 Door

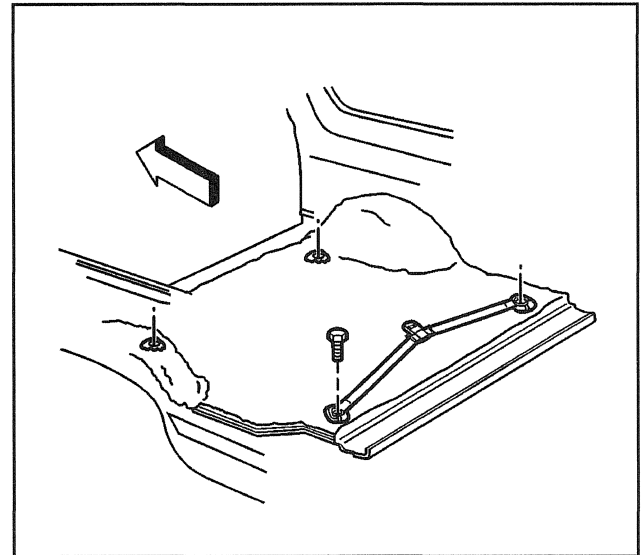
1. If you put the child seat in the 2nd seat left folding position, use the left front cargo tie down. (Suburban without 3rd folding seat)
2. If you put the child seat in the 2nd seat right folding position, use the right front cargo tie down. (Suburban without 3rd folding seat)
3. If you put the child seat in the 3rd seat left (Suburban with 3rd seat) or in the 2nd seat left (Utility), use the left rear cargo tie down.
4. If you put the child seat in the 3rd seat right (Suburban with 3rd seat) or in the 2nd seat right (Utility), use the right rear cargo tie down.



156699

Suburban without 3rd Folding Seat (AS3), Utility-2 Door and 4 Door

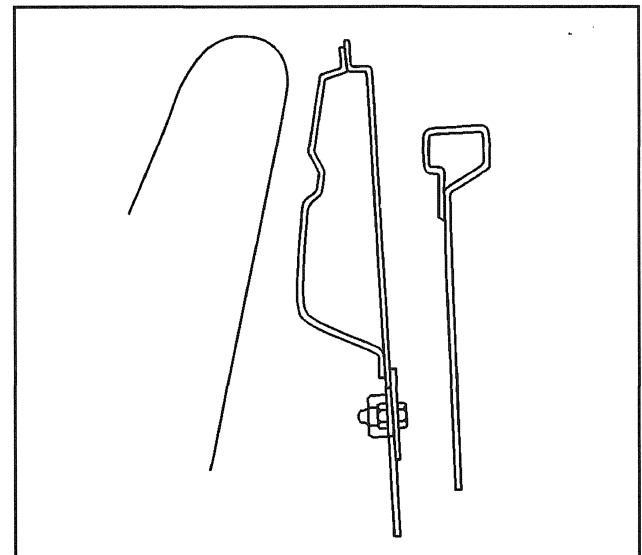
1. If you put the child seat in the 2nd seat center folding position (Suburban) or in the 2nd center seat (Utility), attach GM P/N 15989781 to the rearmost set of cargo tie downs.
2. Hook the top tether to the plate at the center of the tether.



156701

Suburban with 3rd Seat (AS3), Crew Cab, Extended Cab, Regular Pickup

1. If you put the child seat in the 3rd seat center position (Suburban), attach GM P/N 15989781 to the rearmost set of cargo tie downs. Hook the top tether to the plate at the center of the tether.
2. If you put the child seat in the front seat center or front seat right (Regular pickup) or the 2nd seat right (Crew cab or Extended cab), use the pickup anchorage. Locate the anchor between scallops from the right side of the back panel.
3. If you put the child seat in the front seat left (Crew cab or Extended cab), use the pickup anchorage. Locate the anchor between scallops from the left side of the back panel.
4. If you put the child seat in the 2nd center position, use the pickup anchorage. Locate the anchor between scallops from the right or left side of the back panel.



156703

Description and Operation

Seat Belt System Description

Front Seat Belt System

Caution: *A child in a rear-facing child restraint can be seriously injured if the right-front passenger air bag inflates. This is because the back of a rear-facing child restraint would be very close to the inflating air bag. NEVER use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, ALWAYS move the front passenger seat as far back as it will go and then install the child restraint. Be sure the child restraint position does not conflict with any additional requirements provided by the manufacture. For more information, refer to the vehicle owners manual and the instruction that came with the child restraint.*

1. The front seat belt system includes a driver and/or passenger seat belt retractor and buckle. The driver's seat belt system, includes a seat belt switch in the driver seat buckle which controls a reminder lamp and a tone alarm. When the driver seat belt is buckled, the driver's door is closed, and the ignition switch is turned ON, the following events will occur:
 - The tone alarm will not operate.
 - The reminder lamp will not operate.
2. When the driver's seat belt is not buckled, the driver's door is closed, and the ignition switch is in RUN, the following events will occur:
 - The tone alarm will operate for 4 to 8 seconds and then go OFF.
 - The reminder lamp will operate for 20 seconds, until the driver seat belt is buckled.
 - Then the reminder lamp will flash for an additional 55 seconds before going OFF.
 - To diagnose a failure of the reminder lamp or the tone alarm, refer to *A Diagnostic System Check - Audible Warnings* in Instrument Cluster.

Rear Seat Belt System

The rear seat belt system includes the following components:

- The rear seat belt retractor is located under the rear shelf trim panel and is attached to the rear shelf body panel.
- The center rear seat belt buckle and the outer seat belt buckle are located in the center of the seat cushion and they are attached to the rear floor pan.

Police Package Pursuit Performance Safety Belt

A driver side safety belt with a locking lap retractor is available as a dealer option. The purpose of this safety belt is to hold the officer more securely in the seat during maneuvers associated with high speed pursuits. To activate the system, buckle the belt as normal and then pull out all of the lap belt webbing. This activates a mechanism that puts the lap retractor into an automatic locking mode. Once in this mode the belt can be tightened by pulling the belt toward the retractor to return any slack. To deactivate the mechanism unbuckle the safety belt and let all of the lap belt webbing return to the retractor.

The mechanism in this optional belt is similar to that already installed on the passenger side lap belt and in both outboard rear seat safety belts. The feature was added to these other locations to allow a child restraint to be properly secured in the vehicle. See the Owner's Manual for further information.

Child Seat Restraint System

The child seat may only be used in a forward facing seating location. The child seat should be installed and secured according to the manufacturer's directions. If the child seat has a top strap it will need to be anchored. Refer to *Child Restraint Belt Tether Location*. Passengers should not be allowed to sit at locations where the seat belts are being used to secure the child seat.

All vehicles are equipped with a dual-moad type retractor with emergency and automatic locking features. The automatic locking feature is for restraint of a child seat. The child seat can be secured by pulling the seat belt all the way out to lock it. Then, tighten the seat belt around the child seat.

If a child seat is to be used in the second seat position, a special dealer-installed anchor must be used to anchor the child seat top strap. (This only applies to the seats designed with the top strap provision and for the vehicles sold in Canada). In order to assure the correct top strap angle, the child seat is only to be used at the seating position for which the top strap anchor is installed.

SIR

Specifications

Fastener Tightening Specifications

Application	Specification	
	Metric	English
Inflatable Restraint Front End Discriminating Sensor Fastener	8 N·m	71 lb in
Inflatable Restraint IP Module Fasteners	10 N·m	89 lb in
Inflatable Restraint Sensing and Diagnostic Module Fasteners	12 N·m	106 lb in

Scan Tool Data List

The scan tool used provides the following capabilities:

- Reads the data list.
- Reads current and history trouble codes.
- Clears the diagnostic trouble codes after a repair is completed.

Ensure that the scan tool contains the latest diagnostic information before attempting to communicate with the SIR system. In order to use the scan tool, connect the scan tool to the data link connector (DLC) and turn the ignition switch to the RUN position. The scan tool reads the serial data sent from the inflatable restraint sensing and diagnostic module (SDM) serial data output terminal 5 to the DLC terminal 9.

The SIR Scan Tool Data List contains all restraint related parameters that are available on the scan tool. The list is arranged in the order as they appear on the scan tool.

Use the SIR Scan Tool Data List only after the following items are determined:

- The Diagnostic System Check is completed.
- No diagnostic trouble codes (DTCs) are set.
- SIR Diagnostics indicates that the system is functioning properly.

Scan tool values from a properly operating system may be used for comparison with the SIR system you are diagnosing. The SIR Scan Tool Data List represents the typical values seen on a properly operating system.

Important: Ensure that the scan tool that you are using is functioning properly. Use of a malfunctioning scan tool can result in misdiagnosis and unnecessary parts replacement.

Only the parameters listed below are referenced in this service manual for use in diagnosis. If all values are within the typical range described below, refer to *Intermittents and Poor Connections*.

Scan Tool Parameter	Units Displayed	Typical Data Value
Ignition On, Engine Off, Inflatable Restraint IP Module Switch On (if equipped) and Driver Seat Belt Buckled		
Ignition	Volts	12 V
Lamp Driver	Internal/External	Internal
Driver Resistance	Ohms	2.6 Ω
Passenger Resistance	Ohms	2.2 Ω
Driver Senselo	Volts	4.1 V
Passenger Senselo	Volts	4.1 V
Driver VDIF	Millivolts	4–8 mV
Passenger VDIF	Millivolts	4–8 mV
Warning Lamp Control	On/Off	Off
Lamp Driver Feedback	Active/Inactive	Inactive
Warning Lamp ON	Hours	0–182 Hrs
Warning Lamp Cycles	Cycles	0–125 Cycles
Driver Seat Belt	Buckled/Unbuckled	Buckled
Pass Air Bag Enable	High/Low	High
Pass Air Bag Disable	High/Low	Low
Suppression Lamp Driver	On/Off	Off

Scan Tool Data Definitions

The SIR Scan Tool Data Definitions contains a brief description of all SIR related parameters available on the scan tool. The list is in the order that the list appears on the scan tool.

Ignition: The scan tool displays 0–25.5 volts. The Ignition represents the system voltage which is measured by the SDM at the ignition feed.

Lamp Driver: The scan tool displays Internal or External. The warning lamp control method for a hard wired lamp is Internal. The warning lamp control method for a serial data controlled lamp is External.

Driver Resistance: The scan tool displays 0–6.3 ohms. The SDM performs the resistance measurement test once each ignition cycle and verifies the Ignition Positive Voltage and the 23 VLR voltages are within the normal ranges. Then the SDM sources a constant current to the driver deployment loop. The SDM then measures the voltage drop across the deployment loop and converts the measured voltage value to a driver deployment loop resistance value.

Passenger Resistance: The scan tool displays 0–6.3 ohms. The SDM performs the resistance measurement test once each ignition cycle and verifies the Ignition Positive Voltage and 23 VLR voltages are within the normal ranges. Then the SDM sources a constant current to the passenger deployment loop. The SDM then measures the voltage drop across the deployment loop and converts the measured voltage value to a passenger deployment loop resistance value.

Driver Senselo: The scan tool displays 0–20 volts. The SDM measures the voltage of the driver low terminal voltage and displays the voltage as Driver Senselo

Passenger Senselo: The scan tool displays 0–20 volts. The SDM measures the voltage of the passenger low terminal voltage and displays the voltage as Passenger Senselo.

Driver VDIF: The scan tool displays 0–400 millivolts. The SDM measures the voltage difference between driver high and driver low and displays this voltage difference as Driver VDIF.

Passenger VDIF: The scan tool displays 0–400 millivolts. The SDM measures the voltage difference between passenger high and passenger low and displays this voltage difference as Passenger VDIF.

Warning Lamp Control: The scan tool displays ON or OFF. The warning lamp state commanded by the SDM.

Lamp Driver Feedback: The scan tool displays Active or Inactive. The warning lamp state detected by the SDM.

Warning Lamp ON: The scan tool displays 0–182 hours. The SDM measures the continuous warning lamp on time.

Warning Lamp Cycles: The scan tool displays 0–125 cycles. The ignition cycles of the current warning lamp state.

Driver Seatbelt: The scan tool displays Buckled or Unbuckled. The signal from the drivers seatbelt switch that the seatbelt is fastened.

Pass Air Bag Enable: The scan tool displays High or Low. When the inflatable restraint IP module IP enable/disable switch is in the passenger air bag ON position, the voltage should be high. When the IP switch is in the OFF position the voltage should be low.

Pass Air Bag Disable: The scan tool displays High or Low. When the inflatable restraint IP module IP enable/disable switch is in the passenger air bag ON position the voltage should be low. When the IP switch is in the OFF position the voltage should be high for a moment, then it goes low.

Suppression Lamp Driver: The scan tool displays ON or OFF. Based on the input of the PASS AIR BAG ENABLE circuit the SDM will operate the lamp driver in order to illuminate the passenger air bag off lamp in the IP switch assembly. When the IP switch is in the OFF position, and the ignition switch is turned to the RUN position, the scan tool should indicate OFF for a moment and then ON as the SDM operates the air bag off lamp.

GM SPO Group Numbers

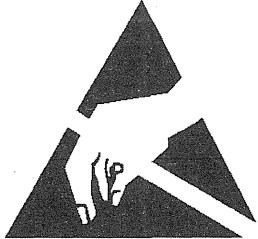

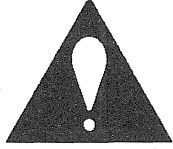
Application	GM SPO Group Number
Air Bag Warning Lamp	9.744
Inflatable Restraint Front End Discriminating Sensor	16.712
Inflatable Restraint IP Module	16.712
Inflatable Restraint IP Module Switch	16.712
Inflatable Restraint Sensing and Diagnostic Module	16.712
Inflatable Restraint Steering Wheel Module	16.712
Inflatable Restraint Steering Wheel Module Coil	16.712

Schematic and Routing Diagrams

SIR Schematic References

Reference on Schematic	Section Number - Subsection Name
Body Control Module - Cell 51	8-Body Control Systems
Ground Distribution - Cell 14	8-Wiring Systems
Instrument Cluster - Cell 81	8-Instrument Panel, Gauges and Console
Interior Lights Dimming - Cell 117	8-Lighting Systems
Onstar - Cell 154	8-Cellular Communications
Power Distribution - Cell 10	8-Wiring Systems

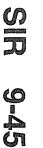
SIR Schematic Icons

Icon	Icon Definition
 19384	Refer to <i>ESD Notice</i> in Caution and Notices.
 19386	Refer to <i>SIR Service Precautions Caution</i> in Caution and Notices.
 296880	To prevent accidental deployment, shorting bars close to short connectors when connectors are separated.

9-44 SIF



Restraints



Component Locator

SIR Components

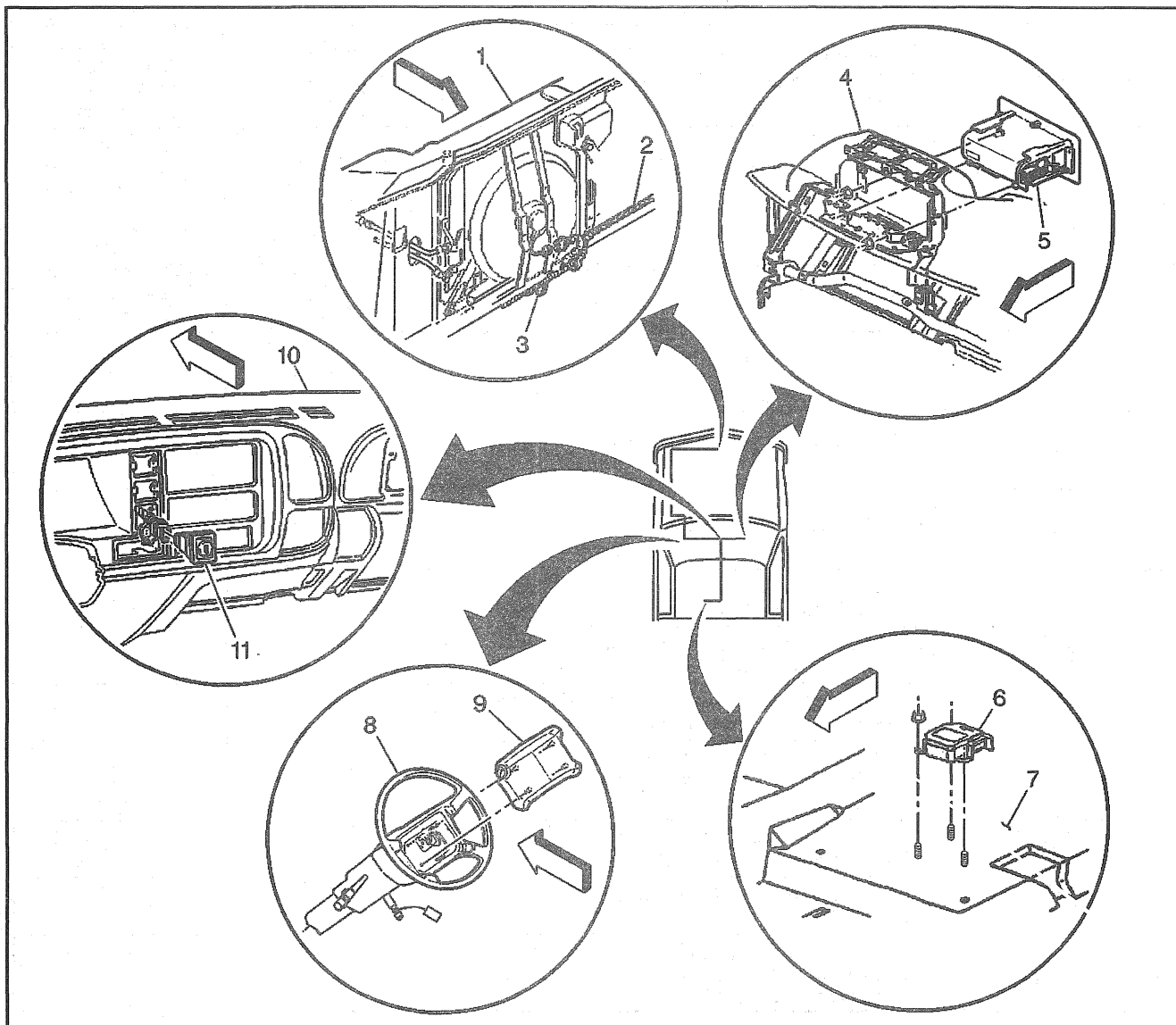
Name	Location	Locator View	Connector End View
Convenience Center	Under the left side of the IP, on the bulkhead	<i>Power and Grounding Component Views in Wiring Systems</i>	<i>Power and Grounding Connector End Views in Wiring Systems</i>
Data Link Connector (DLC)	Under LH side of IP	<i>Data Link Communications Component Views in Data Link Communications</i>	<i>Data Link Communications Connector End Views in Data Link Communications</i>
Headlamp and Panel Dimmer Switch	Lower Left side of the IP	<i>Lighting Systems Component Views in Lighting Systems</i>	<i>Lighting Systems Connector End Views in Lighting Systems</i>
Inflatable Restraint Front End Discriminating Sensor	Front of vehicle	<i>SIR Component Views</i>	<i>SIR Connector End Views</i>
Inflatable Restraint IP Module	RH side of IP	<i>SIR Component Views</i>	<i>SIR Connector End Views</i>
Inflatable Restraint IP Module Switch	Right side of IP on dash panel	<i>SIR Component Views</i>	<i>SIR Connector End Views</i>
Inflatable Restraint Sensing and Diagnostic Module	Under LH front seat	<i>SIR Component Views</i>	<i>SIR Connector End Views</i>
Inflatable Restraint Steering Wheel Module	In steering wheel	<i>SIR Component Views</i>	<i>SIR Connector End Views</i>
Inflatable Restraint Steering Wheel Module Coil	In steering column, behind steering wheel	<i>SIR Component Views</i>	<i>SIR Connector End Views</i>
Instrument Cluster	LH side of IP	<i>Instrument Cluster Component Views in Instrument Panel, Gauges and Console</i>	<i>Instrument Cluster Connector End Views in Instrument Panel, Gauges and Console</i>
IP Fuse Block	LH kick panel	<i>Power and Grounding Component Views in Wiring Systems</i>	<i>Power and Grounding Connector End Views in Wiring Systems</i>
Seat Belt Switch	At driver's stationary belt connector	<i>Instrument Cluster Component Views in Instrument Panel, Gauges and Console</i>	<i>Instrument Cluster Connector End Views in Instrument Panel, Gauges and Console</i>
C110	IP harness to FWA Lamps harness, LR of engine compartment, near C102	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>
C231	IP harness to SIR harness, behind dash panel support bracket	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>
C232	IP harness to SIR harness, behind dash panel support bracket	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>

SIR Components (cont'd)

Name	Location	Locator View	Connector End View
C233	IP harness, approx. 10 cm (4 in) from Auxiliary Power harness breakout, towards HVAC harness breakout	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>
C234	IP harness, approx. 14 cm (5.5 in) from Steering Column harness breakout	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>
C298	IP harness to Cross Body harness, approx. 12 cm (4.5 in)	<i>Harness Routing Views in Wiring Systems</i>	<i>Inline Harness Connector End Views in Wiring Systems</i>
G201	IP harness behind LH kick panel near IP fuse block	<i>Harness Routing Views in Wiring Systems</i>	—
G202	IP harness behind LH kick panel near IP fuse block	<i>Harness Routing Views in Wiring Systems</i>	—
P100	LH rear of engine compartment at bulkhead	<i>Harness Routing Views in Wiring Systems</i>	—
S204	IP harness, approx. 10 cm (4 in) from C100, towards Data Link Connector (DLC)	—	—
S216	IP harness, approx. 16 cm (6 in) after the I/C breakout, toward the radio harness breakout	—	—
S217	IP harness, approx. 16 cm (6 in) from I/C harness breakout, towards the radio harness breakout	—	—
S218	IP harness, approx. 16 cm (6 in) from I/C harness breakout, towards the Cigar Lighter harness breakout	—	—
S259	Crossbody harness, approx. 7 cm (2.5 in) into the seat belt switch, toward C299	—	—
S276	SIR harness, 35 cm (13.5 in) before the Inflation Restraint Module	—	—
S282	SIR harness, 35 cm (13.5 in) before the Mobile Communications System wire breakout, towards the Inflation Restraint Module	—	—

SIR Component Views

SIR Switches, Sensors and Module Views



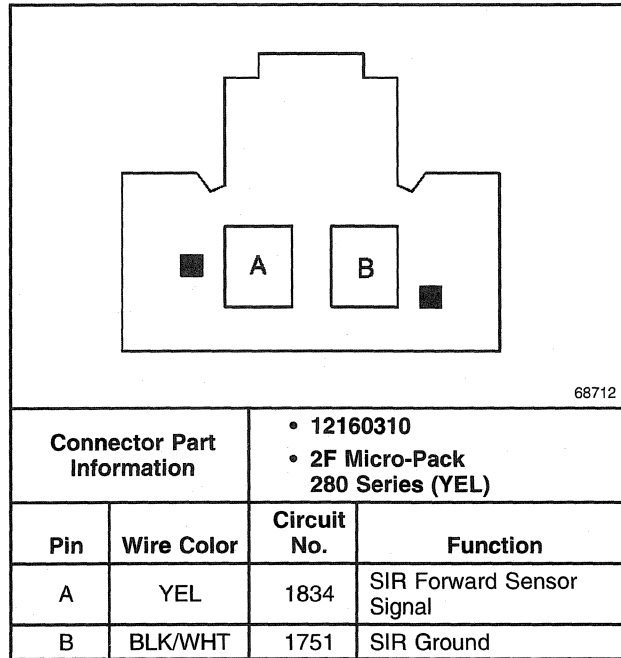
187122

Legend

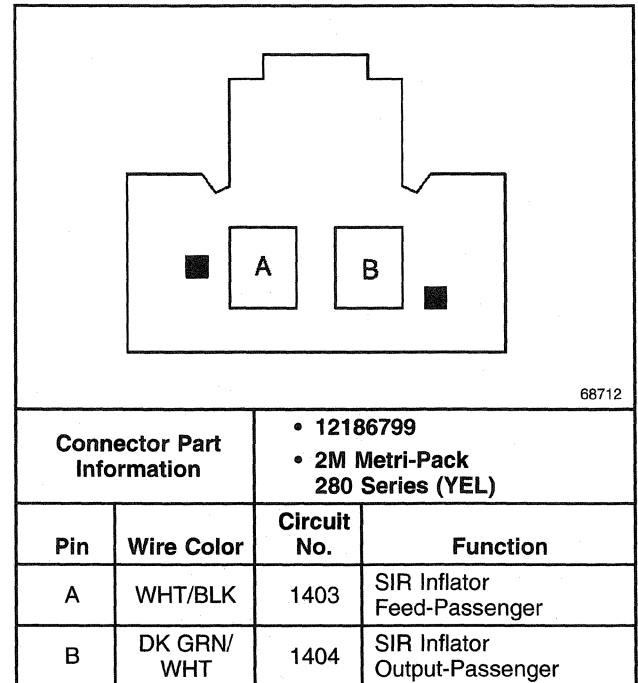
- | | |
|--|--|
| (1) Radiator Support Bracket | (7) Floor Pan |
| (2) Forward Lamp Harness | (8) Steering Wheel |
| (3) Inflatable Restraint Front End Discriminating Sensor | (9) Inflatable Restraint Steering Wheel Module |
| (4) Instrument Panel | (10) Instrument Panel |
| (5) Inflatable Restraint IP Module | (11) Inflatable Restraint IP Module Switch (Pickup Only) |
| (6) Inflatable Restraint Sensing and Diagnostic Module | |

SIR Connector End Views

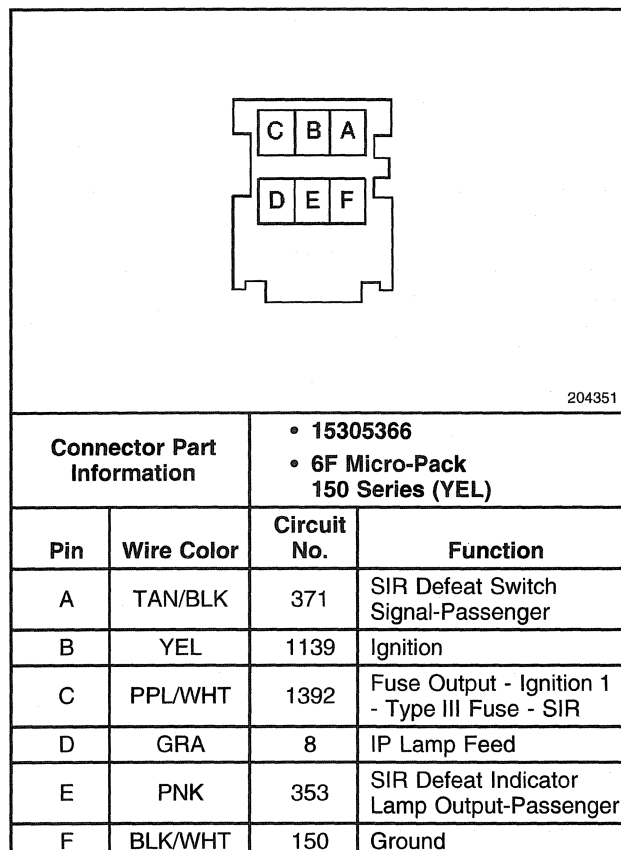
Inflatable Restraint Front End
Discriminating Sensor Connector



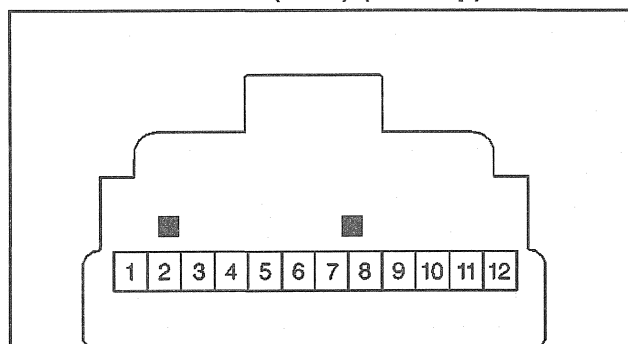
Inflatable Restraint IP Module



Inflatable Restraint IP Module Enable Switch
Connector



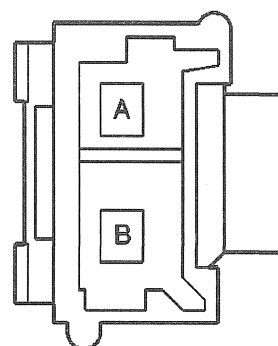
Inflatable Restraint Sensing and Diagnostic Module (SDM) (Pick-Up)



203005

Connector Part Information		<ul style="list-style-type: none"> • 12176325 • 12-Way F Micro-Pack 100 Series (YEL) 	
Pin	Wire Color	Circuit No.	Function
1	WHT/BLK	1403	SIR Inflator Feed-Passenger
2	WHT	347	SIR Inflator Feed-Driver
3	DK GRN	348	SIR Inflator Output-Driver
4	DK GRN/WHT	1404	SIR Inflator Output-Passenger
5	TAN	800	Serial Data (UART)
6	BLK/WHT	1751	SIR Ground
7	BRN	358	SIR Indicator Lamp Output
8	BLK/WHT	238	Seat Belt Switch Signal
9	YEL	1834	SIR Forward Sensor Signal
10	YEL	1139	Ignition 1
11	TAN/BLK	371	SIR Defeat Switch Signal-Passenger
12	PNK	353	SIR Defeat Indicator Lamp Output-Passenger

Inflatable Restraint Steering Wheel Module



130675

Connector Part Information		<ul style="list-style-type: none"> • 12092865 • 2-Way F Metri-Pack 280 Series (YEL) 	
Pin	Wire Color	Circuit No.	Function
A	WHT	347	SIR Inflator Feed-Driver
B	DK GRN	348	SIR Inflator Output-Driver

Diagnostic Information and Procedures

Intermittents and Poor Connections

Faulty electrical connections or wiring may cause most intermittents. Inspect for the following conditions:

- Poor mating of connector halves
- Terminals not fully seated in the connector body (backed out)
- Dirt or corrosion on the terminals
Ensure that the terminals are clean and free of any foreign material that may impede proper terminal contact.
- Damaged connector body - exposing the terminals to moisture and dirt
- Improper terminal orientation with the component or mating connector
- Improperly formed or damaged terminals
Carefully inspect all connector terminals in problem circuits in order to ensure good contact tension. Use a corresponding mating terminal in order to inspect for proper tension.
- Use the *J 35616-A* Connector Test Adapter Kit whenever a diagnostic procedure requests inspecting or probing a terminal. Using the adapter will ensure that no damage to the terminal will occur, and will indicate whether contact tension is sufficient. If contact tension seems incorrect, check the terminal for contact.
- Poor terminal to wire connection
This includes the following conditions:
 - Poor crimps
 - Poor solder joints
 - Crimping over wire insulation rather than the wire itself
 - Corrosion in the wire to terminal contact area
- Wire insulation that is rubbed through
This causes an intermittent short as the bare area touches other wiring or parts of the vehicle.
- Wiring broken inside the insulation
This condition may cause a continuity inspection to show a good circuit. If only 1 or 2 strands of a multi-strand type wire are intact, resistance may be too high.

In order to avoid any of the above conditions when making wiring or terminal repairs, always follow the instructions for wiring and terminal repair in *Wiring Repairs* in *Wiring Systems*.

SIR General Diagnosis

Diagnostic Trouble Codes

Caution: *In order to avoid deploying the air bag when troubleshooting the SIR system, use only the equipment specified in this manual and the instructions given in this manual. Failure to use the specified equipment as instructed could cause air bag deployment, personal injury to you or someone else, or unnecessary SIR system repairs.*

The SIR Diagnostic System Check must always be the starting point of any SIR system diagnosis. The SIR Diagnostic System Check checks for proper AIR BAG warning lamp operation and checks for SIR Diagnostic Trouble Codes (DTC) using the scan tool. The following describes the difference between current and history DTCs:

- Current DTCs – Malfunctions that are presently being detected. Random Access Memory (RAM) stores the current DTCs. Turning the ignition switch to the OFF position erases current DTCs. The presence of a current DTC will cause the inflatable restraint Sensing and Diagnostic Module (SDM) to turn ON the AIR BAG warning lamp.
- History DTCs – All malfunctions detected since last clearing of history memory. Electrically Erasable Programmable Read Only Memory (EEPROM) stores the history DTCs. A scan tool clear codes command will erase history DTCs.

Some DTCs are latched and can not be cleared. Latched DTCs will require replacement of the SDM after proper diagnostics.

Use of Special Tools

Ensure that you are familiar with the tools in this service category listed under the heading Special Tools. You should know how to measure voltage and resistance. Diagnosis requires proper use of the following tools:

- The *Scan Tool*
- The *J 38715-A* SIR Driver/Passenger Load Tool
- The *J 35616-A* Connector Test Adapter Kit
- The *J 39200* Digital Multimeter
- The *J 38715-96* SIR Shorting Bar Tool

SIR Diagnostic System Check

Caution: In order to avoid deploying the air bag when troubleshooting the SIR system, use only the equipment specified in this manual and the instructions given in this manual. Failure to use the specified equipment as instructed could cause air bag deployment, personal injury to you or someone else, or unnecessary SIR system repairs.

Caution: If any water enters the vehicle's interior up to the level of the carpet or higher and soaks the carpet, the sensing and diagnostic module (SDM) and the SDM harness connector may need to be replaced. The SDM could be activated when powered, which could cause deployment of the air bag(s) and result in personal injury. Before attempting these procedures, the SIR system must be disabled. Refer to *Disabling the SIR System* in this section. With the ignition OFF, inspect the SDM mounting area, including the carpet. If any significant soaking or evidence of significant soaking is detected, you must perform the following steps:

- Remove all water.
- Repair the water damage.
- Replace the SDM harness connector.
- Replace the SDM.

Failure to follow these procedures could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

These diagnostic procedures will help you to find and repair SIR system malfunctions. This service category also contains information for repairing SIR system malfunctions. For best results, use the diagnostic tables, and follow the sequence listed below:

1. Perform the SIR Diagnostic System Check. All SIR diagnostics must begin with the SIR Diagnostic System Check. The SIR Diagnostic System Check determines the following results:
 - Proper AIR BAG warning lamp operation
 - Ability of the SDM to communicate through the data link connector (DLC)
 - Existence of SIR diagnostic trouble codes (DTC)

2. Refer to the diagnostic table as directed by the SIR Diagnostic System Check. The diagnostic tables will help enable you to diagnose any SIR system malfunction. Bypassing these procedures may result in the following problems:
 - Extended diagnostic time
 - Incorrect diagnosis
 - Incorrect parts replacement
3. Repeat the SIR Diagnostic System Check after you perform any repair or diagnostic procedures. This will verify that you correctly performed the repair. This will also ensure that no other malfunctions exist.

Circuit Description

The ignition switch supplies Ignition 1 voltage to the inflatable restraint sensing and diagnostic module (SDM) at terminal 10 using the AIR BAG Fuse. When the ignition switch is first turned to the RUN position, the SDM responds by flashing the AIR BAG warning lamp 7 times, then turning the AIR BAG warning lamp OFF, while performing tests on the SIR system.

Diagnostic Aids

You must diagnose the diagnostic trouble codes in the order specified by the SIR Diagnostic System Check. Failure to do so may result in the following problems:

- Extended diagnostic time
- Incorrect diagnosis
- Incorrect parts replacement

Test Description

Refer to step numbers on the diagnostic table.

2. The inflatable restraint IP module switch must be in the ON position to perform the system diagnostic check.
3. The AIR BAG warning lamp should flash 7 times after the ignition switch is first turned to the RUN position.
4. The AIR BAG warning lamp indicates improper operation. This test differentiates a warning lamp stays ON condition from a warning lamp does not come ON condition.
5. The AIR BAG warning lamp should turn OFF after flashing 7 times.
6. This test inspects for the proper operation of the serial data line.
8. This test will identify the stored diagnostic trouble codes and whether they are current or history.
10. This test inspects for the proper operation of the serial data line.
11. This test refers to the appropriate DTC Table Diagnostic Aids for diagnosis of the history DTCs.

SIR Diagnostic System Check

Step	Action	Value(s)	Yes	No
1	Does this vehicle have an inflatable restraint IP module switch?	—	Go to Step 2	Go to Step 3
2	1. Turn the ignition switch to the ON position. 2. Turn the inflatable restraint IP module switch to the OFF position and then back to the ON position. Is the inflatable restraint IP module switch in the ON position?	—	Go to Step 3	—
3	Note the AIR BAG warning lamp while turning the ignition switch to the RUN position. Does the AIR BAG warning lamp flash 7 times?	—	Go to Step 5	Go to Step 4
4	Does the AIR BAG warning lamp come ON steady?	—	Go to AIR BAG Warning Lamp Comes On Steady	Go to AIR BAG Warning Lamp Does Not Come On
5	Note the AIR BAG warning lamp after the warning lamp flashed 7 times. Does the AIR BAG warning lamp go OFF?	—	Go to Step 9	Go to Step 6
6	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the data link connector. 3. Turn the ignition switch to the RUN position. 4. Request the SIR diagnostic trouble code (DTC) display. Is a current DTC displayed?	—	Go to Step 8	Go to Step 7
7	Does the <i>Scan Tool</i> indicate no data received?	—	Go to <i>Scan Tool Does Not Communicate with UART Data Line</i>	Go to <i>SDM Integrity Check</i>
8	1. Turn the ignition switch to the OFF position. 2. Record the displayed DTCs on the repair order, specifying as current or history. • When DTC B1051 is set, refer to <i>DTC B1051 Deployment Commanded</i> . • When DTC B1018 is set, refer to <i>DTC B1018 Passenger Deployment Loop Short to GND</i> . • When DTC B1024 is set, refer to <i>DTC B1024 Driver Deployment Loop Short to Ground</i> . 3. Diagnose the remaining DTCs from lowest to highest. 4. When only history DTCs exist, refer to Diagnostic Aids for that specific DTC. A history DTC indicates the malfunction has been repaired or is intermittent. Has current DTC diagnosis been performed and the current DTCs cleared?	—	Go to Step 3	—
9	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the data link connector. 3. Turn the ignition switch to the RUN position. 4. Request the SIR diagnostic trouble code (DTC) display. Is a history DTC displayed?	—	Go to Step 11	Go to Step 10

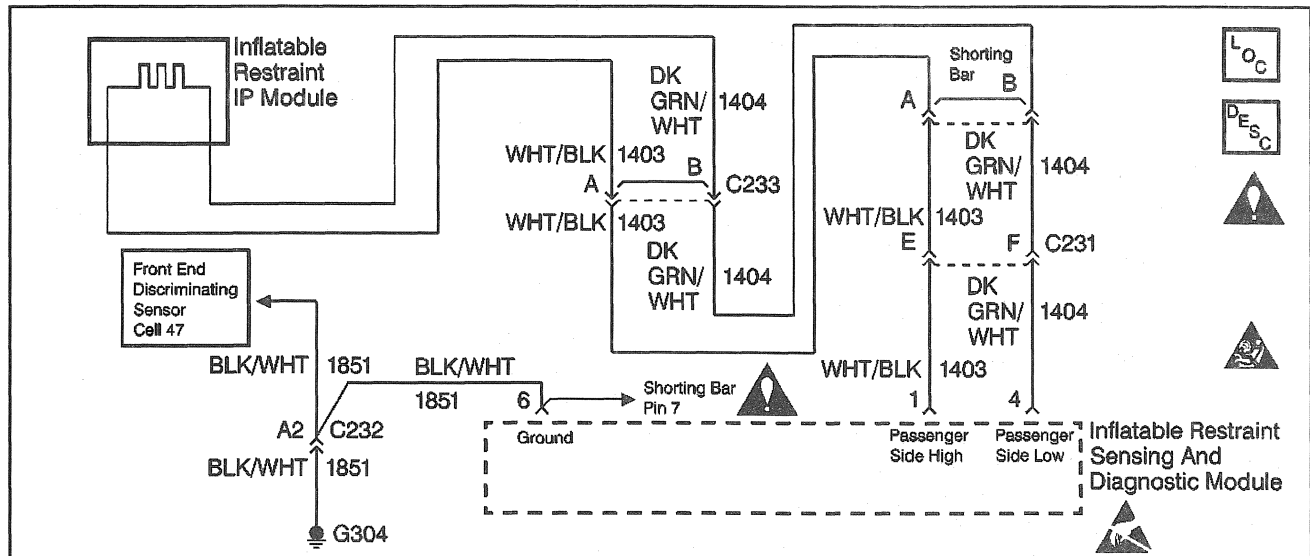
SIR Diagnostic System Check (cont'd)

Step	Action	Value(s)	Yes	No
10	Does the <i>Scan Tool</i> indicate no data received?	—	Go to <i>Scan Tool Does Not Communicate with UART Data Line</i>	System OK
11	1. Turn the ignition switch to the OFF position. 2. Record the displayed DTCs on the repair order specifying as history. 3. When DTC B1071 is set, refer to <i>DTC B1071 Internal SDM Failure</i> . 4. For all other DTCs, Refer to Diagnostic Aids for that specific DTC. A history DTC indicates the malfunction has been repaired or is intermittent. Has the diagnosis been performed and the DTCs cleared?	—	Go to <i>Step 3</i>	—

Diagnostic Trouble Code (DTC) List/Type

DTC	Description
B1015	Passenger Deployment Loop Resistance High
B1016	Passenger Deployment Loop Resistance Low
B1017	Passenger Deployment Loop Open
B1018	Passenger Deployment Loop Short to GND.
B1019	Passenger Deployment Loop Short to Voltage
B1021	Driver Deployment Loop Resistance High
B1022	Driver Deployment Loop Resistance Low
B1024	Driver Deployment Loop Short to Ground
B1025	Driver Deployment Loop Short to Voltage
B1026	Driver Deployment Loop Open
B1035	Disc. Sensor Closed or Short to GND.
B1036	Disc. Sensor Open or Short to Voltage
B1051	Deployment Commanded
B1053	Deployment Commanded w/Loop Malfunction Present
B1054	Infl. Rst. IP Module Switch CKT Failure
B1061	Lamp Circuit Failure
B1071	Internal SDM Failure

DTC B1015 Passenger Deploy. Loop Resistance High



Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. The SDM measures the following circuits in order to ensure that they are within their respective normal voltage ranges:

- IGNITION 1
- Deployment loop voltages

Then the SDM proceeds with the Resistance Measurement test. During one portion of the Resistance Measurement test, the SDM does the following:

- Grounds the PASSENGER SIDE LOW terminal 4 through an internal current sink.
- Connects the PASSENGER SIDE HIGH terminal 1 to an internal constant current source. This current produces proportional voltage drops in the deployment loop.
- Measures the voltage difference between PASSENGER SIDE HIGH and PASSENGER SIDE LOW.
- Calculates the resistance of the passenger deployment loop using the measured voltage.

Conditions for Setting the DTC

- The driver and passenger deployment loops are not open.
- The driver and passenger deployment loops are not shorted to voltage.
- The passenger deployment loop is not shorted to ground.
- The passenger deployment loop resistance is more than 3.0 ohms. The passenger deployment loop consists of the following components:
 - The inflatable restraint IP module
 - The harness wiring of CKT 1403
 - The harness wiring of CKT 1404
 - The connector terminal contact

The Resistance Measurement test inspects for this malfunction. This test only occurs once each ignition cycle when IGNITION 1 is within the normal operating voltage range.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC
The resistance of the passenger deployment loop is less than 3.0 ohms and the ignition switch is cycled.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred

When you issue a scan tool CLEAR CODES command and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

Diagnostic Aids

A poor connection may cause an intermittent condition. Inspect the following for a poor connection:

- The inflatable restraint IP module harness connector terminals A and B
- The SDM terminals 1 and 4
- The wire to terminal connections in CKT 1403
- The wire to terminal connections in CKT 1404

The diagnostic table directs the technician to note the entry value of PASSENGER RESISTANCE.

Comparing the value of PASSENGER RESISTANCE over multiple ignition cycles may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the J 39200 DMM with the correct terminal adapter from the J 35616-A Connector Test Adapter Kit.

When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the J 38125-B Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the deployment loop resistance measured by the inflatable restraint sensing and diagnostic module (SDM).
3. This test inspects for proper contact or corrosion of the yellow 2-way connector.
10. This test isolates the malfunction to one side of the inflatable restraint IP module yellow 2-way connector.
11. This test inspects for proper contact or corrosion of the inflatable restraint IP module jumper connector.
16. This test determines whether the malfunction is due to the inflatable restraint IP module or the module jumper.
19. This test inspects for proper contact or corrosion of the SDM connector.
24. This test determines whether the malfunction is in CKT 1403.
26. This test determines whether the malfunction is in CKT 1404.

DTC B1015 Passenger Deploy. Loop Resistance High

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the passenger deployment loop resistance PASSENGER RESISTANCE. Has the PASSENGER RESISTANCE been read and recorded on the repair order?	—	Go to Step 3	—
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Inspect for proper connection at terminals A and B on the IP harness side of the inflatable restraint IP module yellow 2-way jumper connector. Are the terminals damaged or corroded?	—	Go to Step 4	Go to Step 6
4	Replace the inflatable restraint IP module yellow 2-way IP harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 5	—
5	Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way jumper connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 28
6	Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way jumper connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 8
7	Repair the inflatable restraint IP module jumper harness. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 28	—
8	1. Reconnect the yellow 2-way connectors near the base of the steering column. 2. Turn the ignition switch to the RUN position. 3. Using the <i>Scan Tool</i> , request the SIR data list display. 4. Read the passenger deployment loop resistance PASSENGER RESISTANCE. Is the passenger resistance more than the specified value?	3.0 Ω	Go to Step 10	Go to Step 9
9	1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint IP module yellow 2-way IP harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 28	—

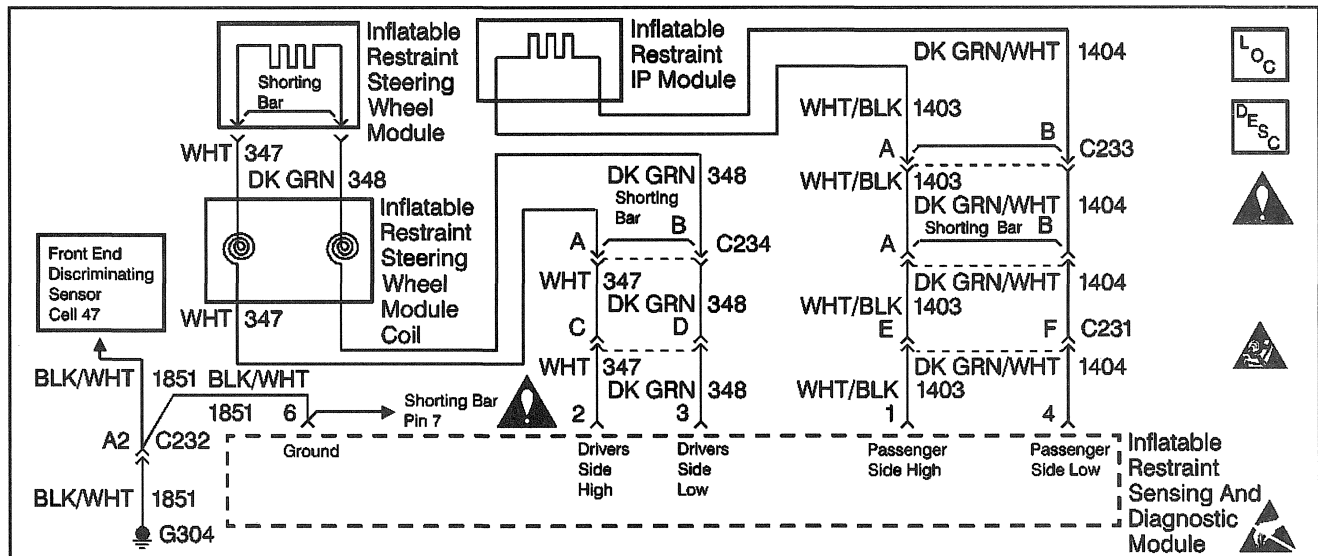
DTC B1015 Passenger Deploy. Loop Resistance High (cont'd)

Step	Action	Value(s)	Yes	No
10	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect the <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i>, request the data list display. 6. Read the passenger deployment loop resistance PASSENGER RESISTANCE. <p>Is the passenger resistance more than the specified value?</p>	3.0 Ω	Go to Step 19	Go to Step 11
11	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint IP module pigtail connector at the module jumper. 3. Inspect for proper connection at terminals A and B of the 2-way jumper connector. <p>Are the terminals damaged or corroded?</p>	—	Go to Step 12	Go to Step 14
12	<p>Repair the inflatable restraint IP module jumper harness. Refer to <i>Wiring Repair</i>.</p> <p>Is the repair complete?</p>	—	Go to Step 13	—
13	<p>Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way pigtail connector.</p> <p>Are the terminals damaged or corroded?</p>	—	Go to Step 15	Go to Step 28
14	<p>Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way pigtail connector.</p> <p>Are the terminals damaged or corroded?</p>	—	Go to Step 15	Go to Step 16
15	<p>Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i>.</p> <p>Is the repair complete?</p>	—	Go to Step 28	—
16	<ol style="list-style-type: none"> 1. Disconnect the inflatable restraint IP module jumper harness connector from the <i>J 38715-A</i>. 2. Connect the connector to the jumper harness. 3. Connect <i>J 38715-A</i> to the inflatable restraint IP module side of the jumper. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i>, request the SIR data list display. 6. Read the passenger deployment loop resistance PASSENGER RESISTANCE. <p>Is the passenger resistance more than the specified value?</p>	3.0 Ω	Go to Step 17	Go to Step 18
17	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Repair the high resistance condition in the inflatable restraint IP module jumper harness. Refer to <i>Wiring Repair</i>. <p>Is the repair complete?</p>	—	Go to Step 28	—
18	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i>. <p>Is the repair complete?</p>	—	Go to Step 28	—

DTC B1015 Passenger Deploy. Loop Resistance High (cont'd)

Step	Action	Value(s)	Yes	No
19	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect the J 38715-A. 4. Inspect for proper connection at terminals 1 and 4 on the SDM harness connector. Is the harness connector damaged or corroded?	—	Go to Step 20	Go to Step 22
20	Replace the SDM harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 21	—
21	Inspect for proper connection at terminals 1 and 4 on the SDM. Are the terminals damaged or corroded?	—	Go to Step 23	Go to Step 28
22	Inspect for proper connection at terminals 1 and 4 on the SDM. Are the terminals damaged or corroded?	—	Go to Step 23	Go to Step 24
23	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to Step 28	—
24	1. Zero the J 39200 Digital Multimeter. 2. Measure the resistance from the SDM harness connector terminal 1 to the inflatable restraint IP module yellow 2-way harness connector terminal A. Is the resistance reading within the specified values?	0–0.5 Ω	Go to Step 26	Go to Step 25
25	Repair the high resistance condition in CKT 1403. Is the repair complete?	—	Go to Step 28	—
26	Measure the resistance from the SDM harness connector terminal 4 to the inflatable restraint IP module yellow 2-way harness connector terminal B. Is the resistance reading within the specified values?	0–0.5 Ω	Go to SDM Integrity Check	Go to Step 27
27	Repair the high resistance condition in CKT 1404. Is the repair complete?	—	Go to Step 28	—
28	1. Reconnect all the SIR components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 29	—
29	Clear all the SIR DTCs. Have all the DTCs been cleared?	—	Go to SIR Diagnostic System Check	—

DTC B1016 Passenger Deployment Loop Resistance Low



397596

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Next the SDM measures IGNITION 1 and the deployment loop voltages to ensure that they are within their respective normal voltage ranges. Then the SDM proceeds with the RESISTANCE MEASUREMENT test. During one portion of the RESISTANCE MEASUREMENT test, the SDM performs the following steps:

- Grounds the PASSENGER SIDE LOW terminal 4 through an internal current sink
- Connects the PASSENGER SIDE HIGH terminal 1 to an internal constant current source
This current produces proportional voltage drops in the deployment loop
- Measures the voltage difference between PASSENGER SIDE HIGH and PASSENGER SIDE LOW
- Calculates the resistance of the passenger deployment loop using the measured voltage

Conditions for Setting the DTC

- The driver and passenger deployment loops are not open.
- The driver and passenger deployment loops are not shorted to voltage.
- The passenger deployment loop is not shorted to ground.
- The passenger deployment loop resistance is less than 1.4 ohms. The passenger deployment loop consists of the following components:
 - The inflatable restraint IP module
 - The harness wiring of CKT 1403
 - The harness wiring of CKT 1404
 - The connector terminal contact

The RESISTANCE MEASUREMENT test inspects for this malfunction. This test only occurs once each ignition cycle when IGNITION 1 is within the normal operating voltage range.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC
The resistance of the passenger deployment loop is more than 1.4 ohm and the ignition switch is cycled.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred

When you issue a scan tool CLEAR CODES command and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

Diagnostic Aids

The following may cause an intermittent condition:

- A short circuit between CKT 1403 and CKT 347
- A short circuit between CKT 1403 and CKT 348
- A short circuit between CKT 1403 and CKT 1404
- A malfunctioning shorting bar on the inflatable restraint IP module connector

The diagnostic table directs the technician to note the entry value of PASSENGER RESISTANCE. Comparing the value of PASSENGER RESISTANCE over multiple ignition cycles may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the deployment loop resistance measured by the SDM.

6. This test isolates the malfunction to one side of the inflatable restraint IP module yellow 2-way connector.
7. This test inspects for proper contact or corrosion of the inflatable restraint IP module jumper connector.
12. This test determines whether the malfunction is due to the inflatable restraint IP module or the module jumper.
15. This test inspects for a short from CKTs 1403 to 1404.
17. This test inspects for a short from CKTs 1403 to 348.

DTC B1016 Passenger Deployment Loop Resistance Low

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the passenger deployment loop resistance PASSENGER RESISTANCE. 6. Request the SIR DTC display. Is DTC B1022 also present?	—	Go to Step 3	Go to Step 4
3	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Repair the short from CKT 347 to CKT 1403. Is the repair complete?	—	Go to Step 20	—
4	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint IP module yellow 2-way connector near the base of the steering column. 3. Reconnect the 2-way connector. 4. Ensure that the CPA is properly installed. 5. Turn the ignition switch to the RUN position. 6. Using a <i>Scan Tool</i>, request the SIR data list display. 7. Read the passenger deployment loop resistance PASSENGER RESISTANCE. Is PASSENGER RESISTANCE less than the specified value?	1.4 Ω	Go to Step 6	Go to Step 5
5	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint IP module yellow 2-way harness connector. Refer to <i>Wiring Repair</i>. Is the repair complete?	—	Go to Step 19	—

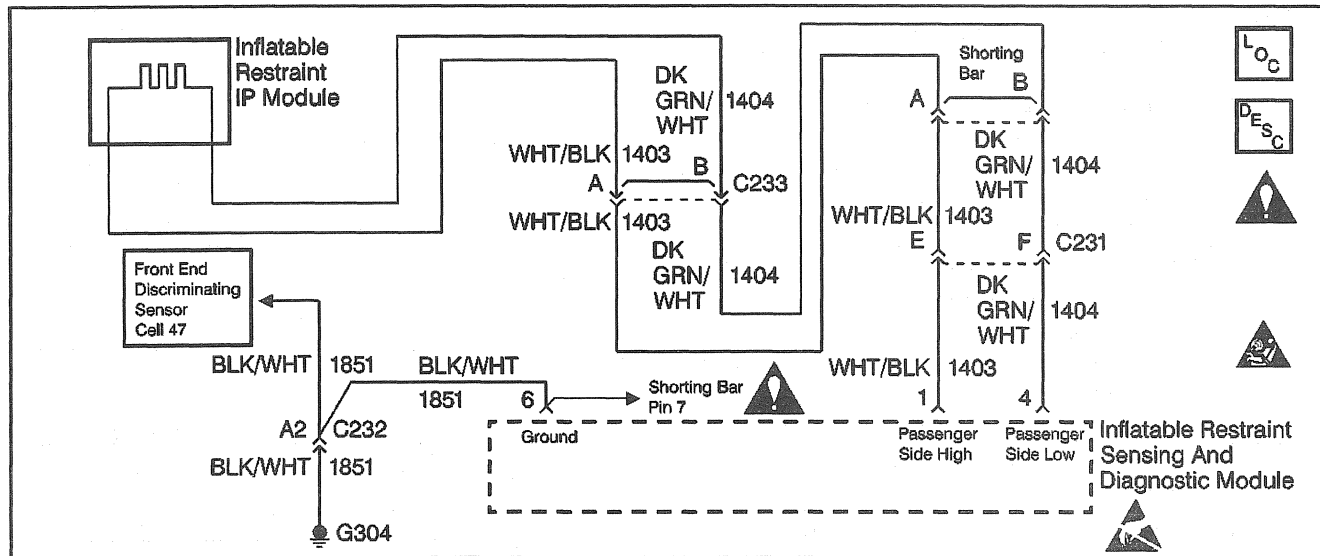
DTC B1016 Passenger Deployment Loop Resistance Low (cont'd)

Step	Action	Value(s)	Yes	No
6	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i> , request the SIR data list display. 6. Read the passenger deployment loop resistance PASSENGER RESISTANCE. Is PASSENGER RESISTANCE less than the specified value?	1.4 Ω	Go to Step 15	Go to Step 7
7	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable IP module pigtail connector from the module jumper. 3. Inspect for proper connection at terminals A and B on the jumper connector. Are the terminals damaged or corroded?	—	Go to Step 8	Go to Step 10
8	Repair the inflatable restraint IP module jumper harness. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 9	—
9	Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way pigtail connector. Are the terminals damaged or corroded?	—	Go to Step 11	Go to Step 19
10	Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way pigtail connector. Are the terminals damaged or corroded?	—	Go to Step 11	Go to Step 12
11	Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i> . Is the repair complete?	—	Go to Step 19	—
12	1. Disconnect the inflatable restraint IP module jumper harness connector from <i>J 38715-A</i> . 2. Connect <i>J 38715-A</i> to the inflatable restraint IP module side of the jumper. 3. Turn the ignition switch to the RUN position. 4. Using the <i>Scan Tool</i> , request the SIR data list display. 5. Read the passenger deployment loop resistance PASSENGER RESISTANCE. Is PASSENGER RESISTANCE less than the specified value?	1.4 Ω	Go to Step 14	Go to Step 13
13	1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i> . Is the repair complete?	—	Go to Step 19	—
14	1. Turn the ignition to the OFF position. 2. Repair the short from CKT 1403 to CKT 1404 in the jumper harness. Is the repair complete?	—	Go to Step 19	—

DTC B1016 Passenger Deployment Loop Resistance Low (cont'd)

Step	Action	Value(s)	Yes	No
15	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect J 38715-A. 4. Measure the resistance from the SDM harness connector terminal 1 to terminal 4. Is the resistance less than the specified value?	OL	Go to Step 16	Go to Step 17
16	1. Turn the ignition switch to the OFF position. 2. Repair the short from CKT 1403 to CKT 1404. Is the repair complete?	—	Go to Step 19	—
17	Measure the resistance from the SDM harness connector terminal 1 to terminal 4 Is the resistance less than the specified value?	OL	Go to Step 18	Go to SDM Integrity Check
18	Repair the short from CKT 1403 to CKT 1404 Is the repair complete?	—	Go to Step 19	—
19	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 20	—
20	Clear the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to SIR Diagnostic System Check	—

DTC B1017 Passenger Deployment Loop Open



397602

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Next the SDM measures IGNITION 1 voltage to ensure that the IGNITION 1 is within the respective normal voltage range for the IGNITION 1. Then the SDM proceeds with the Deployment Loop Continuity test. During the Deployment Loop Continuity test, the SDM measures the voltage difference between PASSENGER SIDE HIGH and PASSENGER SIDE LOW.

Conditions for Setting the DTC

- The voltage difference between PASSENGER SIDE HIGH terminal 1 and PASSENGER SIDE LOW terminal 4 is more than or equal to 400 millivolts.
- The malfunction must be present for at least 500 milliseconds during one of the following tests:
 - Deployment Loop Continuity
 - If the malfunction is detected in this test, the Resistance Measurement test will not be performed.
 - Continuous Monitoring

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC
 - The voltage difference between PASSENGER SIDE HIGH terminal 1 and PASSENGER SIDE LOW terminal 4 is less than 400 millivolts for 500 milliseconds.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred.

Diagnostic Aids

The following may cause an intermittent condition:

- A poor connection at the inflatable restraint IP module harness connector terminals A and B
- A poor connection at the SDM terminals 1 and 4
- An open in CKT 1403
- An open in CKT 1404

When measurements are requested in this table, use the J 39200 DMM with the correct terminal adapter from the J 35616-A Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the J 38125-B Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the deployment loop voltage difference measured by the inflatable restraint sensing and diagnostic module (SDM).
3. This test inspects for proper contact or corrosion of the yellow 2-way connector.
10. This test isolates the malfunction to one side of the inflatable restraint IP module yellow 2-way connector.
11. This test inspects for proper contact or corrosion of the inflatable restraint IP module jumper connector.

16. This test determines whether the malfunction is due to the inflatable restraint IP module or the module jumper.
19. This test inspects for proper contact or corrosion of the SDM harness connector.
24. This test determines whether the malfunction is in CKT 1403.
26. This test determines whether the malfunction is in CKT 1404.

DTC B1017 Passenger Deployment Loop Open

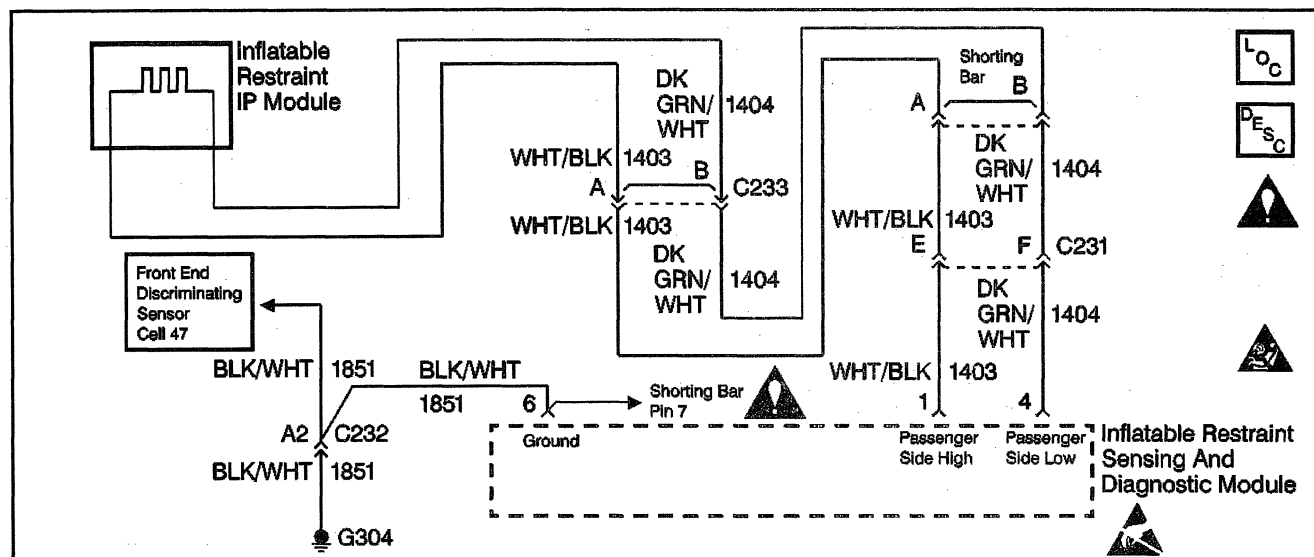
Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the passenger deployment loop voltage difference PASSENGER VDIF. Has the PASSENGER VDIF been read and recorded on the repair order?	—	Go to Step 3	—
3	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Inspect for proper connection at terminals A and B on the IP harness side of the inflatable restraint IP module yellow 2-way jumper connector. Are the terminals damaged or corroded?	—	Go to Step 4	Go to Step 6
4	Replace the inflatable restraint IP module yellow 2-way IP harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 5	—
5	Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way jumper connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 28
6	Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way jumper connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 8
7	Repair the inflatable restraint IP module jumper harness. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 28	—

DTC B1017 Passenger Deployment Loop Open (cont'd)

Step	Action	Value(s)	Yes	No
8	<ol style="list-style-type: none"> 1. Connect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 2. Turn the ignition switch to the RUN position. 3. Using the <i>Scan Tool</i>, request the SIR data list display. 4. Read the passenger deployment loop voltage difference PASSENGER VDIF. <p>Is the PASSENGER VDIF less than the specified value?</p>	400 mV	Go to Step 9	Go to Step 10
9	<ol style="list-style-type: none"> 1. Turn the ignition to the OFF position. 2. Replace the inflatable restraint IP module yellow 2-way IP harness connector. Refer to <i>Wiring Repair</i>. <p>Is the repair complete?</p>	—	Go to Step 28	—
10	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors at the base of the steering column. 3. Connect the <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i>, request the data list display. 6. Read the passenger deployment loop voltage difference PASSENGER VDIF. <p>Is the PASSENGER VDIF less than the specified value?</p>	400 mV	Go to Step 11	Go to Step 19
11	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint IP module pigtail connector from the module jumper. 3. Inspect for proper connection at terminals A and B of the 2-way jumper connector. <p>Are the terminals damaged or corroded?</p>	—	Go to Step 12	Go to Step 14
12	<p>Repair the inflatable restraint IP module jumper harness. Refer to <i>Wiring Repair</i>.</p> <p>Is the repair complete?</p>	—	Go to Step 13	—
13	<p>Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way pigtail connector.</p> <p>Are the terminals damaged or corroded?</p>	—	Go to Step 15	Go to Step 28
14	<p>Inspect for proper connection at terminals A and B on the inflatable restraint IP module yellow 2-way pigtail connector.</p> <p>Are the terminals damaged or corroded?</p>	—	Go to Step 15	Go to Step 16
15	<p>Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i>.</p> <p>Is the repair complete?</p>	—	Go to Step 28	—
16	<ol style="list-style-type: none"> 1. Disconnect the inflatable restraint IP module jumper harness connector from the <i>J 38715-A</i>. 2. Connect the connector to the jumper harness. 3. Connect <i>J 38715-A</i> to the inflatable restraint IP module side of the jumper. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i>, request the SIR data list display. 6. Read the passenger deployment loop voltage difference PASSENGER VDIF. <p>Is PASSENGER VDIF less than the specified value?</p>	400 mV	Go to Step 17	Go to Step 18

DTC B1017 Passenger Deployment Loop Open (cont'd)

Step	Action	Value(s)	Yes	No
17	1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i> . Is the repair complete?	—	Go to Step 28	—
18	1. Turn the ignition switch to the OFF position. 2. Repair the high resistance condition in the inflatable restraint IP module jumper harness. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 28	—
19	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect the J 38715-A. 4. Inspect for proper connection at terminals 1 and 4 on the SDM harness connector. Is the connector damaged or corroded?	—	Go to Step 20	Go to Step 22
20	Replace the SDM harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 21	—
21	Inspect for proper connection at terminals 1 and 4 of the SDM. Are the terminals damaged or corroded?	—	Go to Step 23	Go to Step 28
22	Inspect for proper connection at terminals 1 and 4 of the SDM. Are the terminals damaged or corroded?	—	Go to Step 23	Go to Step 24
23	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to Step 28	—
24	1. Zero the J 39200 Digital Multimeter. 2. Measure the resistance from the SDM harness connector terminal 1 to the inflatable restraint IP module yellow 2-way harness connector terminal A. Is the resistance reading within the specified values?	0–0.5 Ω	Go to Step 26	Go to Step 25
25	Repair the high resistance condition in CKT 1403. Is the repair complete?	—	Go to Step 28	—
26	Measure the resistance from the SDM harness connector terminal 4 to the inflatable restraint IP module yellow 2-way harness connector terminal B. Is the resistance reading within the specified values?	0–0.5 Ω	Go to SDM Integrity Check	Go to Step 27
27	Repair the high resistance condition in CKT 1404. Is the repair complete?	—	Go to Step 28	—
28	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 29	—
29	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to SIR Diagnostic System Check	—

DTC B1018 Passenger Deployment Loop Short to GND

397602

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Upon passing these tests the following circuits are measured to ensure that they are within their respective normal voltage ranges:

- IGNITION 1
- 23 VLR
- Deployment loop voltages

The SDM monitors the voltages at DRIVER SIDE LOW terminal 3 and PASSENGER SIDE LOW terminal 4 to detect shorts to ground in the inflator module circuits. The service wait time is 10 minutes. Refer to *SIR Service Precautions*.

Conditions for Setting the DTC

- The driver and passenger deployment loops are not open.
- The driver deployment loop is not shorted to voltage.
- The voltage at DRIVER SIDE LOW terminal 3 is more than 3.3 volts.
- The voltage at PASSENGER SIDE LOW terminal 4 is less than 3.3 volts for 500 milliseconds.

The following tests inspect for this DTC. These tests occur when IGNITION 1 is within the normal operating voltage range.

- POWER-ON—When the malfunction is detected in this test, the RESISTANCE MEASUREMENT test will not be performed.
- CONTINUOUS MONITORING

Action Taken When the DTC Sets

- The SDM sets DTC B1018 and also DTC B1071.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

DTC B1018 is a latched code. You may not clear a latched code. Repair the malfunction that set this DTC before you replace the SDM.

Diagnostic Aids

A short to ground in the inflatable restraint IP module circuit may cause an intermittent condition. A DTC B1018 would be accompanied by DTC B1071. Inspect CKT 1403 and CKT 1404 carefully for cutting or chafing. Wiring pigtail damage requires replacement of the inflatable restraint IP module. A careful inspection of the circuits and components indicated on the DTC B1018 table is essential in order to prevent damage to the replacement inflatable restraint sensing and diagnostic module (SDM). The diagnostic table directs the technician to note the entry value of PASSENGER SENSELO. Comparing the value of PASSENGER SENSELO may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the passenger side low voltage which is measured by the inflatable restraint sensing and diagnostic module (SDM). A reading of 3.3 V or more indicates that an intermittent condition may exist.
3. This test isolates the malfunction to one side of the inflatable restraint IP module yellow 2-way connector.
4. This test determines whether the malfunction is due to the inflatable restraint IP module or the module jumper.
7. This test determines whether the malfunction is in CKT 1403.
9. This test determines whether the malfunction is in CKT 1404.

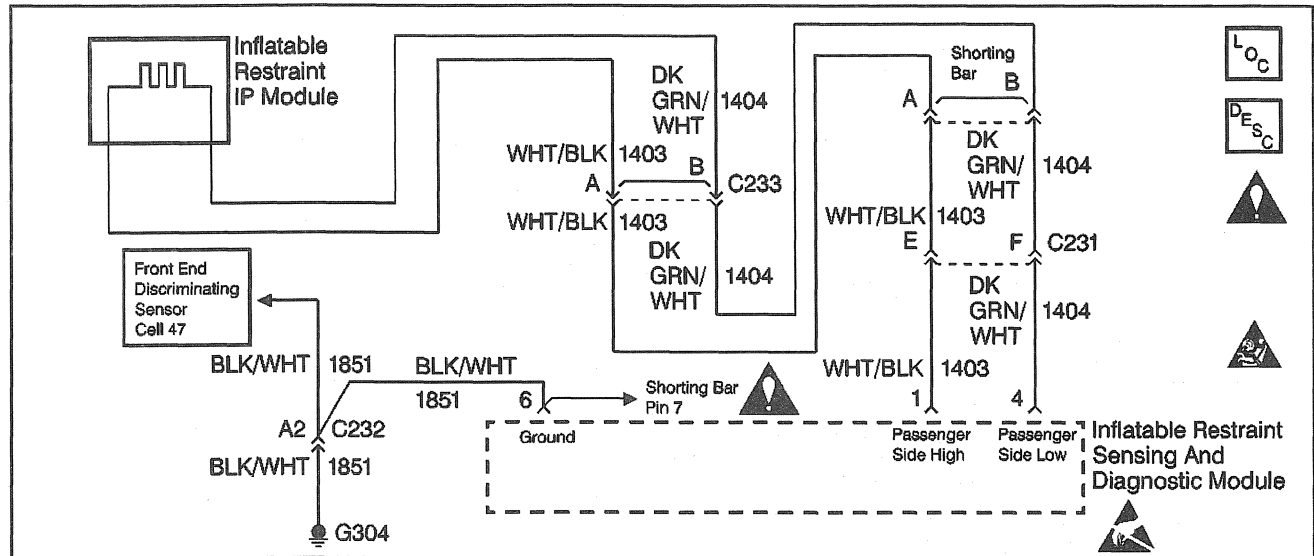
DTC B1018 Passenger Deployment Loop Short to GND

Step	Action	Value(s)	Yes	No
Notice: When DTC B1018 or B1024 has been set it is necessary to replace the inflatable restraint Sensing and Diagnostic Module (SDM). Setting DTC B1018 or B1024 will also cause DTC B1071 to set. When a scan tool clear codes command is issued and the malfunction is no longer present, DTC B1018 or B1024 and DTC B1071 will remain current. Make sure that the short to ground condition is repaired prior to installing a replacement SDM to avoid damaging the SDM.				
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the passenger side low voltage PASSENGER SENSELO. Is the PASSENGER SENSELO less than the specified value?	3.3 V	Go to Step 3	Refer to Diagnostic Aids
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i> , request the SIR data list display. 6. Read the passenger side low voltage PASSENGER SENSELO. Is PASSENGER SENSELO less than the specified value?	3.3 V	Go to Step 7	Go to Step 4
4	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint IP module jumper harness connector from the <i>J 38715-A</i> . 3. Connect the connector to the jumper. 4. Connect <i>J 38715-A</i> to the inflatable restraint IP module side of the jumper. 5. Turn the ignition switch to the RUN position. 6. Using the <i>Scan Tool</i> , request the SIR data list display. 7. Read the passenger side low voltage PASSENGER SENSELO. Is PASSENGER SENSELO less than the specified value?	3.3 V	Go to Step 5	Go to Step 6
5	1. Turn the ignition switch to the OFF position. 2. Repair the short to ground condition in the jumper harness. Is the repair complete?	—	Go to Step 11	—

DTC B1018 Passenger Deployment Loop Short to GND (cont'd)

Step	Action	Value(s)	Yes	No
6	1. Turn the ignition switch to the OFF position. 2. Inspect the inflatable restraint IP module pigtail for damage and proper routing. 3. Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i> . Is the repair complete?	—	Go to Step 11	—
7	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect the J 38715-A. 4. Measure the resistance on the SDM harness connector from terminals 1 to 6 to ground. Is the resistance less than the specified value?	OL	Go to Step 8	Go to Step 9
8	Repair a short to ground condition in CKT 1403. Is the repair complete?	—	Go to Step 11	—
9	Measure the resistance on the SDM harness connector from terminals 4 to 6 to ground. Is the resistance less than the specified value?	OL	Go to Step 10	Go to SDM Integrity Check
10	Repair a short to ground condition in CKT 1404. Is the repair complete?	—	Go to Step 11	—
11	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. 3. Turn the ignition switch to the RUN position. 4. Ensure PASSENGER SENSELO is more than the specified value. 5. Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Have all the SIR components been reconnected and properly mounted?	3.3 V	Go to SIR Diagnostic System Check	—

DTC B1019 Passenger Deploy. Loop Short to Voltage



397602

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Upon passing these tests the following items are measured to ensure that they are within their respective normal voltage ranges:

- IGNITION 1
- 23 VLR
- Deployment loop voltages

The SDM monitors the voltages at DRIVER SIDE LOW terminal 3 and PASSENGER SIDE LOW terminal 4 to detect shorts to B+ in the inflator module circuits.

Conditions for Setting the DTC

- The voltage at DRIVER SIDE LOW terminal 3 is less than 4.8 volts.
- The voltage at PASSENGER SIDE LOW terminal 4 is more than 4.8 volts for 500 milliseconds.

The CONTINUOUS MONITORING test inspects for this DTC. This test occurs when IGNITION 1 is within the normal operating voltage range.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC—The voltage at PASSENGER SIDE LOW terminal 4 is less than 4.8 volts for 500 milliseconds.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred

Diagnostic Aids

A short to B+ in the inflatable restraint IP module circuit may cause an intermittent condition. Inspect CKT 1403 and CKT 1404 carefully for cutting or chafing. Wiring pigtail damage requires replacement of the inflatable restraint IP module. The diagnostic table directs the technician to note the entry value of PASSENGER SENSELO. Comparing the value of PASSENGER SENSELO may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the passenger side low voltage which is measured by the inflatable restraint sensing and diagnostic module (SDM).
3. This test isolates the malfunction to one side of the inflatable restraint IP module yellow 2-way connector.
4. This test determines whether the malfunction is due to the inflatable restraint IP module or the module jumper.
7. This test determines whether the malfunction is in CKT 1403.
9. This test determines whether the malfunction is in CKT 1404.

DTC B1019 Passenger Deploy. Loop Short to Voltage

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the passenger side low voltage PASSENGER SENSELO. Has the PASSENGER SENSELO been read and recorded on the repair order?	—	Go to Step 3	—
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i> , request the SIR data list display. 6. Read the passenger side low voltage PASSENGER SENSELO. Is PASSENGER SENSELO more than the specified value?	4.8 V	Go to Step 7	Go to Step 4
4	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint IP module jumper harness connector from the <i>J 38715-A</i> . 3. Connect the connector to the jumper. 4. Connect <i>J 38715-A</i> to the inflatable restraint IP module side of the jumper. 5. Turn the ignition switch to the RUN position. 6. Using the <i>Scan Tool</i> , request the SIR data list display. 7. Read the passenger side low voltage PASSENGER SENSELO. Is PASSENGER SENSELO more than the specified value?	4.8 V	Go to Step 5	Go to Step 6
5	1. Turn the ignition switch to the OFF position. 2. Repair the short to B+ condition in the inflatable restraint IP module jumper harness. Is the repair complete?	—	Go to Step 11	—
6	1. Turn the ignition switch to the OFF position. 2. Inspect the inflatable restraint IP module pigtail for damage and proper routing. 3. Replace the inflatable restraint IP module. Refer to <i>Inflatable Restraint Instrument Panel Module Replacement</i> . Is the repair complete?	—	Go to Step 11	—

DTC B1019 Passenger Deploy. Loop Short to Voltage (cont'd)

Step	Action	Value(s)	Yes	No
7	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect the J 38715-A. 4. Turn the ignition switch to the RUN position. 5. Measure the voltage on the SDM harness connector from terminal 1 to terminal 6 to ground using J 39200 Digital Multimeter. Is the measured voltage less than the specified value?	1.0 V	Go to Step 9	Go to Step 8
8	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 1403. Is the repair complete?	—	Go to Step 11	—
9	Measure the voltage on the SDM harness connector from terminal 4 to terminal 6 to ground. Is the measured voltage less than the specified value?	1.0 V	Go to <i>SDM Integrity Check</i>	Go to Step 10
10	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 1404. Is the repair complete?	—	Go to Step 11	—
11	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 12	—
12	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

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397605

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Next the SDM measures IGNITION 1 and the deployment loop voltages to ensure that they are within their respective normal voltage ranges. Then the SDM proceeds with the RESISTANCE MEASUREMENT test. During one portion of the RESISTANCE MEASUREMENT test, the SDM performs the following steps:

- Grounds the DRIVER SIDE LOW terminal 3 through an internal current sink.
- Connects the DRIVER SIDE HIGH terminal 2 to an internal constant current source. This current produces proportional voltage drops in the deployment loop.
- Measures the voltage difference between DRIVER SIDE HIGH and DRIVER SIDE LOW.
- Calculates the resistance of the driver deployment loop using the measured voltage.

- The driver and passenger deployment loops are not open.
- The driver and passenger deployment loops are not shorted to voltage.
- The driver deployment loop is not shorted to ground.
- The driver deployment loop resistance is more than 3.8 ohms. The driver deployment loop consists of the following components:
 - The inflatable restraint steering wheel module
 - The inflatable restraint steering wheel module coil
 - The harness wiring of CKT 347

- The harness wiring of CKT 348
- The connector terminal contact

The RESISTANCE MEASUREMENT test inspects for this malfunction. This test only occurs once each ignition cycle when IGNITION 1 is within the normal operating voltage range.

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

The DTC will clear when one of the following conditions is met:

- Current DTC
The resistance of the driver deployment loop is less than 3.8 ohms and the ignition switch is cycled.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred

When you issue a scan tool CLEAR CODES command and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

A poor connection may cause an intermittent condition. Inspect the following for a poor connection:

- The inflatable restraint steering wheel module steering column connector terminals A and B
- The upper inflatable restraint steering wheel module coil connector terminals A and B
- The SDM terminals 2 and 3
- The wire to terminal connections in CKT 347
- The wire to terminal connections in CKT 348

The diagnostic table directs the technician to note the entry value of DRIVER RESISTANCE. Comparing the value of DRIVER RESISTANCE over multiple ignition cycles may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the deployment loop resistance measured by the inflatable restraint sensing and diagnostic module (SDM).

3. This test inspects for proper contact or corrosion of the yellow 2-way connector.
10. This test isolates the malfunction to one side of the inflatable restraint steering wheel module yellow 2-way connector.
11. This test determines whether the malfunction is due to the inflatable restraint steering wheel module or the module coil.
14. This test inspects for proper contact or corrosion of the SDM connector.
19. This test determines whether the malfunction is in CKT 347.
21. This test determines whether the malfunction is in CKT 348.

DTC B1021 Driver Deployment Loop Resistance High

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the driver deployment loop resistance DRIVER RESISTANCE. Has the DRIVER RESISTANCE been read and recorded on the repair order?	—	Go to Step 3	—
3	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Inspect for proper connection at terminals A and B on the harness side of the inflatable restraint steering wheel module yellow 2-way connector at the base of the steering column. Are the terminals damaged or corroded?	—	Go to Step 4	Go to Step 6
4	Replace the yellow 2-way harness connector at the base of the steering column. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 5	—
5	Inspect for proper connection at terminals A and B of the inflatable restraint steering wheel module coil side of the connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 23
6	Inspect for proper connection at terminals A and B of the inflatable restraint steering wheel module coil side of the connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 8
7	Replace the inflatable restraint IP module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i> . Is the repair complete?	—	Go to Step 23	—

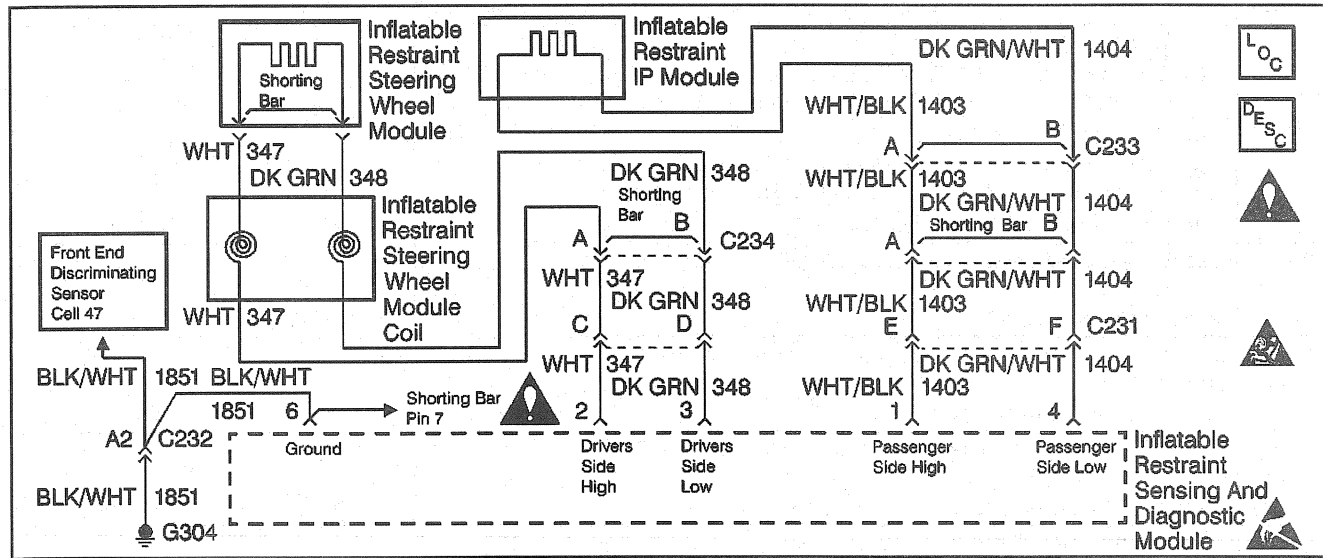
DTC B1021 Driver Deployment Loop Resistance High (cont'd)

Step	Action	Value(s)	Yes	No
8	<ol style="list-style-type: none"> 1. Connect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 2. Turn the ignition switch to the RUN position. 3. Using the <i>Scan Tool</i>, request the SIR data list display. 4. Read the driver deployment loop resistance DRIVER RESISTANCE. <p>Is DRIVER RESISTANCE more than the specified value?</p>	3.8 Ω	Go to Step 10	Go to Step 9
9	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the yellow 2-way harness connector at the base of the steering column. Refer to <i>Wiring Repair</i>. <p>Is the repair complete?</p>	—	Go to Step 23	—
10	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the harness connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i>, request the data list display. 6. Read the driver deployment loop resistance DRIVER RESISTANCE. <p>Is DRIVER RESISTANCE more than the specified value?</p>	3.8 Ω	Go to Step 14	Go to Step 11
11	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Remove the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i>. 3. Disconnect <i>J 38715-A</i> from the driver 2-way connector. 4. Connect the 2-way connector. 5. Connect <i>J 38715-A</i> to the upper inflatable restraint steering wheel module coil connector on the steering column. 6. Turn the ignition switch to the RUN position. 7. Using the <i>Scan Tool</i>, request the SIR data list display. 8. Read the driver deployment loop resistance DRIVER RESISTANCE. <p>Is DRIVER RESISTANCE more than the specified value?</p>	3.8 Ω	Go to Step 13	Go to Step 12
12	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i>. <p>Is the repair complete?</p>	—	Go to Step 23	—
13	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i>. <p>Is the repair complete?</p>	—	Go to Step 23	—

DTC B1021 Driver Deployment Loop Resistance High (cont'd)

Step	Action	Value(s)	Yes	No
14	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect <i>J 38715-A</i> . 4. Inspect for proper connection at terminal 2 and terminal 3 on the harness side of the SDM connector. Is the connector damaged or corroded?	—	Go to Step 15	Go to Step 17
15	Replace the SDM harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 16	—
16	Inspect for proper connection at terminal 2 and terminal 3 on the SDM. Are the terminals damaged or corroded?	—	Go to Step 18	Go to Step 23
17	Inspect for proper connection at terminal 2 and terminal 3 on the SDM. Are the terminals damaged or corroded?	—	Go to Step 18	Go to Step 19
18	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to Step 23	—
19	1. Zero the <i>J 39200</i> Digital Multimeter. 2. Measure the resistance from the SDM harness connector terminal 2 to the inflatable restraint steering wheel module yellow 2-way harness connector terminal A. Is the resistance reading within the specified values?	0–0.5 Ω	Go to Step 21	Go to Step 20
20	Repair the high resistance condition in CKT 347. Is the repair complete?	—	Go to Step 23	—
21	Measure the resistance from the SDM harness connector terminal 3 to the inflatable restraint steering wheel module yellow 2-way harness connector terminal B. Is the resistance reading within the specified values?	0–0.5 Ω	Go to <i>SDM Integrity Check</i>	Go to Step 22
22	Repair the high resistance condition in CKT 348. Is the repair complete?	—	Go to Step 23	—
23	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 24	—
24	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

DTC B1022 Driver Deployment Loop Resistance Low



397596

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Next the SDM measures IGNITION 1 and the deployment loop voltages to ensure that they are within their respective normal voltage ranges. Then the SDM proceeds with the RESISTANCE MEASUREMENT test. During one portion of the RESISTANCE MEASUREMENT test, the SDM does the following:

- Grounds the DRIVER SIDE LOW terminal 3 through an internal current sink.
- Connects the DRIVER SIDE HIGH terminal 2 to an internal constant current source. This current produces proportional voltage drops in the deployment loop.
- Measures the voltage difference between DRIVER SIDE HIGH and DRIVER SIDE LOW.
- Calculates the resistance of the driver deployment loop using the measured voltage.

Conditions for Setting the DTC

- The driver and passenger deployment loops are not open.
- The driver and passenger deployment loops are not shorted to voltage.
- The driver deployment loop is not shorted to ground.
- The driver deployment loop resistance is less than 1.7 ohm. The driver deployment loop consists of the following components:
 - The inflatable restraint steering wheel module
 - The inflatable restraint steering wheel module coil
 - The harness wiring of CKT 347
 - The harness wiring of CKT 348
 - The connector terminal contact

The RESISTANCE MEASUREMENT test inspects for this malfunction. This test only occurs once each ignition cycle when IGNITION 1 is within the normal operating voltage range.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC—The resistance of the driver deployment loop is more than 1.7 ohm and the ignition switch is cycled.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred.

When you issue a scan tool CLEAR CODES command and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

Diagnostic Aids

The following may cause an intermittent condition:

- A short circuit between CKT 347 and CKT 348
- A short circuit between CKT 347 and CKT 1403
- A short circuit between CKT 347 and CKT 1404
- A malfunctioning shorting bar on the inflatable restraint steering wheel module connector
- A malfunctioning shorting bar on the inflatable restraint steering wheel module coil steering column connector

The diagnostic table directs the technician to note the entry value of DRIVER RESISTANCE. Comparing the value of DRIVER RESISTANCE over multiple ignition cycles may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

- This test determines the deployment loop resistance measured by the inflatable restraint sensing and diagnostic module (SDM).
- This test isolates the malfunction to one side of the inflatable restraint steering wheel module coil yellow 2-way connector.
- This test determines whether the malfunction is due to the inflatable restraint steering wheel module or the module coil.
- This test inspects for a short from CKT 347 to CKT 348.
- This test inspects for a short from CKT 347 to CKT 1404.

DTC B1022 Driver Deployment Loop Resistance Low

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to SIR Diagnostic System Check
2	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the driver deployment loop resistance DRIVER RESISTANCE. 6. Request the SIR DTC display. Is DTC B1016 also present?	—	Go to Step 3	Go to Step 4
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Repair the short from CKT 347 to CKT 1403. Is the repair complete?	—	Go to Step 14	—
4	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel module yellow 2-way connector near the base of the steering column. 3. Reconnect the 2-way connector. 4. Inspect that the CPA is properly installed. 5. Turn the ignition switch to the RUN position. 6. Using a <i>Scan Tool</i> , request the SIR data list display. 7. Read the driver deployment loop resistance DRIVER RESISTANCE. Is DRIVER RESISTANCE less than the specified value?	1.7 Ω	Go to Step 6	Go to Step 5

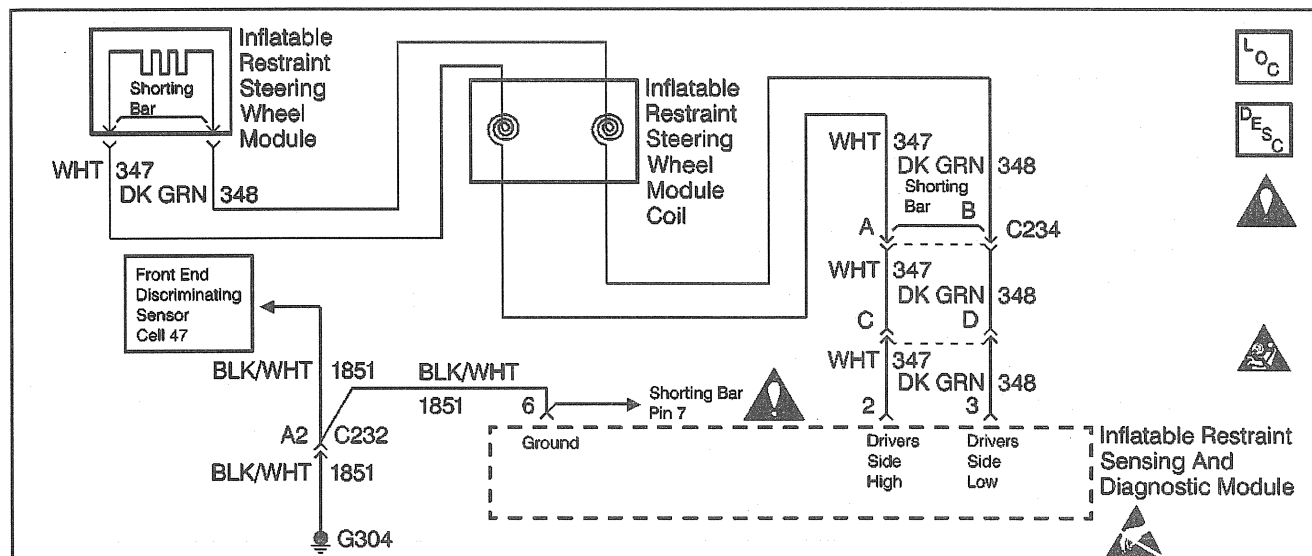
DTC B1022 Driver Deployment Loop Resistance Low (cont'd)

Step	Action	Value(s)	Yes	No
5	1. Turn the ignition switch to the OFF position. 2. Replace the yellow 2-way harness connector near the base of the steering column. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 14	—
6	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the harness connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i> , request the SIR data list display. 6. Read the driver deployment loop resistance DRIVER RESISTANCE. Is DRIVER RESISTANCE less than the specified value?	1.7 Ω	Go to Step 10	Go to Step 7
7	1. Turn the ignition switch to the OFF position. 2. Remove the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i> . 3. Disconnect <i>J 38715-A</i> from the driver 2-way connector. 4. Connect the 2-way connector at the base of the steering column. 5. Connect <i>J 38715-A</i> to the upper inflatable restraint steering wheel module coil connector on the steering column. 6. Turn the ignition switch to the RUN position. 7. Using the <i>Scan Tool</i> , request the SIR data list display. 8. Read the driver deployment loop resistance DRIVER RESISTANCE. Is DRIVER RESISTANCE less than the specified value?	1.7 Ω	Go to Step 9	Go to Step 8
8	1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i> . Is the repair complete?	—	Go to Step 14	—
9	1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i> . Is the repair complete?	—	Go to Step 14	—

DTC B1022 Driver Deployment Loop Resistance Low (cont'd)

Step	Action	Value(s)	Yes	No
10	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect J 38715-A. 4. Measure the resistance from the SDM harness connector terminal 2 to terminal 3. Is the resistance reading less than the specified value?	OL	Go to Step 11	Go to Step 12
11	Repair a short from CKT 347 to CKT 348. Is the repair complete?	—	Go to Step 14	—
12	Measure the resistance from the SDM harness connector terminal 2 to terminal 4. Is the resistance reading less than the specified value?	OL	Go to Step 13	Go to <i>SDM Integrity Check</i>
13	Repair a short from CKT 347 to CKT 1404. Is the repair complete?	—	Go to Step 14	—
14	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 15	—
15	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

DTC B1024 Driver Deployment Loop Short to Ground



397605

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Upon passing these tests the following items are measured to ensure that they are within their respective normal voltage ranges:

- IGNITION 1
- 23 VLR
- Deployment loop voltages

The SDM monitors the voltages at DRIVER SIDE LOW terminal 3 and PASSENGER SIDE LOW terminal 4 to detect shorts to ground in the inflator module circuits. The service wait time is 10 minutes. Refer to *SIR Service Precautions*.

Conditions for Setting the DTC

- The driver and passenger deployment loops are not open.
- The passenger deployment loop is not shorted to voltage.
- The voltage at PASSENGER SIDE LOW terminal 4 is more than 3.3 volts.
- The voltage at DRIVER SIDE LOW terminal 3 is less than 3.3 volts for 500 milliseconds.

The following tests inspect for this DTC. These tests occur when IGNITION 1 is within the normal operating voltage range.

- POWER-ON
When the malfunction is detected in this test, the RESISTANCE MEASUREMENT test will not be performed.
- CONTINUOUS MONITORING

Action Taken When the DTC Sets

- The SDM sets DTC B1024.
- The SDM sets DTC B1071.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

DTC B1024 is a latched code. You may not clear a latched code. Repair the malfunction that set this DTC before you replace the SDM.

Diagnostic Aids

A short to ground in the inflatable restraint steering wheel module circuit may cause an intermittent condition. A DTC B1024 would be accompanied by DTC B1071. Inspect CKT 347 and CKT 348 carefully for cutting or chafing. A careful inspection of the circuits and components indicated on the DTC B1024 table is essential in order to prevent damage to the replacement inflatable restraint sensing and diagnostic module (SDM). The diagnostic table directs the technician to note the entry value of DRIVER SENSELO. Comparing the value of DRIVER SENSELO may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the driver side low voltage which is measured by the inflatable restraint sensing and diagnostic module (SDM). A reading of 3.3 V or more indicates that an intermittent condition may exist.
3. This test isolates the malfunction to one side of the inflatable restraint steering wheel module coil yellow 2-way connector.

4. This test determines whether the malfunction is due to the inflatable restraint steering wheel module or the module coil.
7. This test determines whether the malfunction is in CKT 347.
9. This test determines whether the malfunction is in CKT 348.

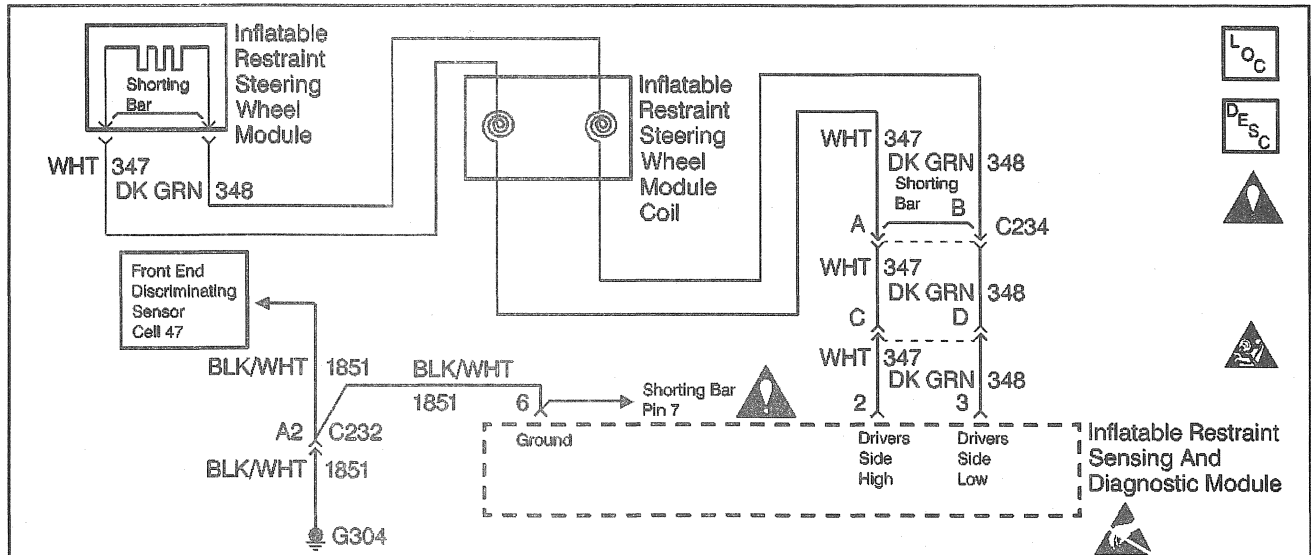
DTC B1024 Driver Deployment Loop Short to Ground

Step	Action	Value(s)	Yes	No
Notice: When DTC B1018 or B1024 has been set it is necessary to replace the inflatable restraint Sensing and Diagnostic Module (SDM). Setting DTC B1018 or B1024 will also cause DTC B1071 to set. When a scan tool clear codes command is issued and the malfunction is no longer present, DTC B1018 or B1024 and DTC B1071 will remain current. Make sure that the short to ground condition is repaired prior to installing a replacement SDM to avoid damaging the SDM.				
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the driver side low voltage DRIVER SENSELO. Is the DRIVER SENSELO less than the specified value?	3.3 V	Go to Step 3	Refer to Diagnostic Aids
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the harness connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i> , request the SIR data list display. 6. Read the driver side low voltage DRIVER SENSELO. Is DRIVER SENSELO less than the specified value?	3.3 V	Go to Step 7	Go to Step 4
4	1. Turn the ignition switch to the OFF position. 2. Remove the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i> . 3. Disconnect <i>J 38715-A</i> from the driver 2-way harness connector. 4. Connect the driver 2-way connector. 5. Connect <i>J 38715-A</i> to the upper inflatable restraint steering wheel module connector. 6. Turn the ignition switch to the RUN position. 7. Using the <i>Scan Tool</i> , request the SIR data list display. 8. Read the driver side low voltage DRIVER SENSELO. Is DRIVER SENSELO less than the specified value?	3.3 V	Go to Step 6	Go to Step 5
5	1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i> . Is the repair complete?	—	Go to Step 11	—

DTC B1024 Driver Deployment Loop Short to Ground (cont'd)

Step	Action	Value(s)	Yes	No
6	1. Turn the ignition switch to the OFF position. 2. Remove the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i> . 3. Inspect the coil and the wires for damage. 4. Replace the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i> . Is the repair complete?	—	Go to Step 11	—
7	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect the J 38715-A. 4. Measure the resistance on the SDM harness connector from terminal 2 to terminal 6 to ground. Is the resistance reading less than the specified value?	OL	Go to Step 8	Go to Step 9
8	Repair a short to ground condition in CKT 347. Is the repair complete?	—	Go to Step 11	—
9	Measure the resistance on the SDM harness connector from terminal 3 to terminal 6 to ground. Is the resistance reading less than the specified value?	OL	Go to Step 10	Go to SDM Integrity Check
10	Repair a short to ground condition in CKT 348. Is the repair complete?	—	Go to Step 11	—
11	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. 3. Turn the ignition switch to the RUN position. 4. Ensure that DRIVER SENSELO is more than the specified value. 5. Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Have all the SIR components been reconnected and properly mounted?	3.3 V	Go to SIR Diagnostic System Check	—

DTC B1025 Driver Deployment Loop Short to Voltage



397605

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Upon passing these tests the following circuits are measured to ensure that they are within their respective normal voltage ranges:

- IGNITION 1
- 23 VLR
- Deployment loop voltages

The SDM monitors the voltages at DRIVER SIDE LOW terminal 3 and PASSENGER SIDE LOW terminal 4 to detect shorts to B+ in the inflator module circuits.

Conditions for Setting the DTC

- The voltage at PASSENGER SIDE LOW terminal 4 is less than 4.8 volts.
- The voltage at DRIVER SIDE LOW terminal 3 is more than 4.8 volts for 500 milliseconds.

The CONTINUOUS MONITORING test inspects for this DTC. This test occurs when IGNITION 1 is within the normal operating voltage range.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC—The voltage at DRIVER SIDE LOW terminal 3 is less than 4.8 volts for 500 milliseconds.
- History DTC
 - You issue a scan tool CLEAR CODES command
 - After 250 malfunction free ignition cycles have occurred

Diagnostic Aids

A short to B+ in the inflatable restraint steering wheel module circuit may cause an intermittent condition. Inspect CKT 347 and CKT 348 carefully for cutting or chafing. The diagnostic table directs the technician to note the entry value of DRIVER SENSELO. Comparing the value of DRIVER SENSELO may be helpful in determining if an intermittent condition exists.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the driver side low voltage which is measured by the inflatable restraint sensing and diagnostic module (SDM).
3. This test isolates the malfunction to one side of the inflatable restraint steering wheel module coil yellow 2-way connector.
4. This test determines whether the malfunction is due to the inflatable restraint steering wheel module or the module coil.
7. This test determines whether the malfunction is in CKT 347.
9. This test determines whether the malfunction is in CKT 348.

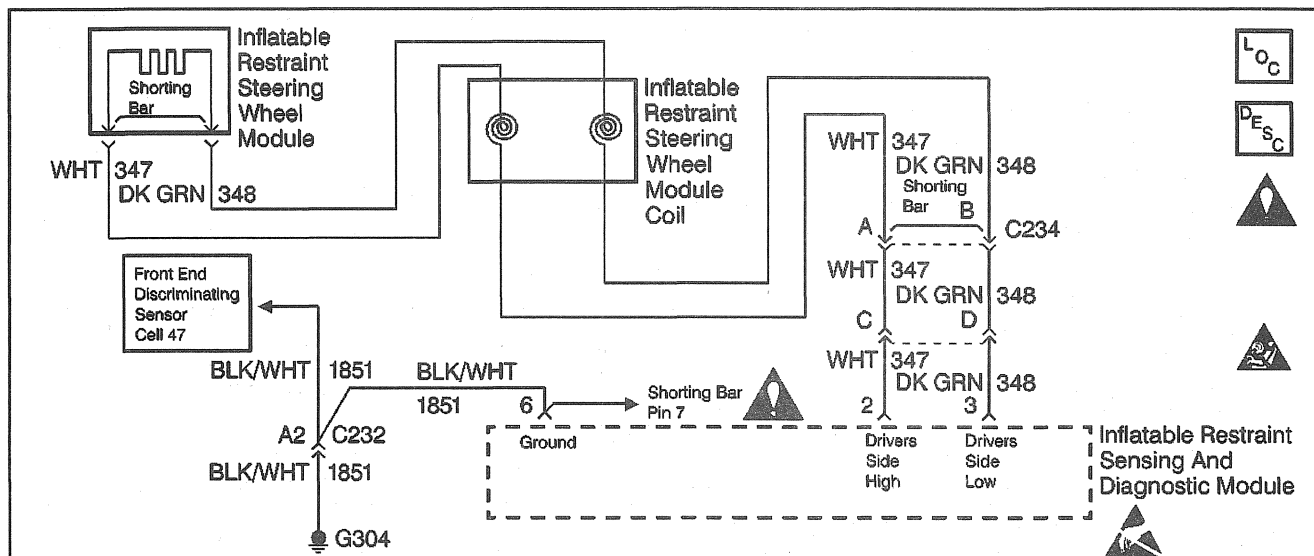
DTC B1025 Driver Deployment Loop Short to Voltage

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the driver side low voltage DRIVER SENSELO. Has the DRIVER SENSELO been read and recorded on the repair order?	—	Go to Step 3	—
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Connect <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the harness connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i> , request the SIR data list display. 6. Read the driver side low voltage DRIVER SENSELO. Is DRIVER SENSELO more than or equal to the specified value?	4.8 V	Go to Step 7	Go to Step 4
4	1. Turn the ignition switch to the OFF position. 2. Remove the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i> . 3. Disconnect <i>J 38715-A</i> from the driver 2-way harness connector. 4. Connect the driver 2-way connector. 5. Connect <i>J 38715-A</i> to the upper inflatable restraint steering wheel module connector. 6. Turn the ignition switch to the RUN position. 7. Using the <i>Scan Tool</i> , request the SIR data list display. 8. Read the driver side low voltage DRIVER SENSELO. Is DRIVER SENSELO more than or equal to the specified value?	4.8 V	Go to Step 6	Go to Step 5
5	1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i> . Is the repair complete?	—	Go to Step 11	—
6	1. Turn the ignition switch to the OFF position. 2. Remove the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i> . 3. Inspect the coil and the wires for damage. 4. Replace the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i> . Is the repair complete?	—	Go to Step 11	—

DTC B1025 Driver Deployment Loop Short to Voltage (cont'd)

Step	Action	Value(s)	Yes	No
7	1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Disconnect the <i>J 38715-A</i> . 4. Turn the ignition switch to the RUN position. 5. Measure the voltage on the SDM harness connector from terminal 2 to terminal 6 to ground using <i>J 39200</i> Digital Multimeter. Is the measured voltage less than the specified value?	1.0 V	Go to Step 9	Go to Step 8
8	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 347. Is the repair complete?	—	Go to Step 11	—
9	Measure the voltage on the SDM harness connector from terminal 3 to terminal 6 to ground. Is the measured voltage less than the specified value?	1.0 V	Go to <i>SDM Integrity Check</i>	Go to Step 10
10	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 348. Is the repair complete?	—	Go to Step 11	—
11	1. Reconnect all the SIR components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 12	—
12	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

DTC B1026 Driver Deployment Loop Open



397605

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Next the SDM measures IGNITION 1 voltage to ensure that the IGNITION 1 is within respective normal voltage range. Then the SDM proceeds with the DEPLOYMENT LOOP CONTINUITY test. During the DEPLOYMENT LOOP CONTINUITY test, the SDM measures the voltage difference between DRIVER SIDE HIGH and DRIVER SIDE LOW.

Conditions for Setting the DTC

- The voltage difference between DRIVER SIDE HIGH terminal 2 and DRIVER SIDE LOW terminal 3 is more than or equal to 400 millivolts.
- The malfunction must be present for at least 500 milliseconds during one of the following tests:
 - DEPLOYMENT LOOP CONTINUITY

If the malfunction is detected in this test, the RESISTANCE MEASUREMENT test will not be performed.
 - CONTINUOUS MONITORING

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC

The voltage difference between DRIVER SIDE HIGH terminal 2 and DRIVER SIDE LOW terminal 3 is less than 400 millivolts for 500 milliseconds.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred

Diagnostic Aids

The following may cause an intermittent condition:

- A poor connection at the inflatable restraint steering wheel module column connector terminals A and B
- A poor connection at the upper inflatable restraint steering wheel coil connector terminals A and B
- A poor connection at the SDM terminals 2 and 3
- An open in CKT 347
- An open in CKT 348

An intermittent open in the inflatable restraint steering wheel module coil could also set this DTC. To test for a bad inflatable restraint steering wheel module coil, clear the DTCs, then turn the steering wheel back and forth with the ignition switch in the RUN position. If the AIR BAG warning lamp comes ON and DTC B1026 has set again, the cause is likely the inflatable restraint steering wheel module coil is malfunctioning.

When measurements are requested in this table, use the J 39200 DMM with the correct terminal adapter from the J 35616-A Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the J 38125-B Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines the deployment loop voltage difference measured by the inflatable restraint sensing and diagnostic module.
3. This test inspects for proper contact or corrosion of the yellow 2-way connector.
10. This test isolates the malfunction to one side of the inflatable restraint steering wheel module coil yellow 2-way connector.
11. This test determines whether the malfunction is due to the inflatable restraint steering wheel module or the module coil.
14. This test inspects for proper contact or corrosion of the inflatable restraint sensing and diagnostic module connector.
19. This test determines whether the malfunction is in CKT 347.
21. This test determines whether the malfunction is in CKT 348.

DTC B1026 Driver Deployment Loop Open

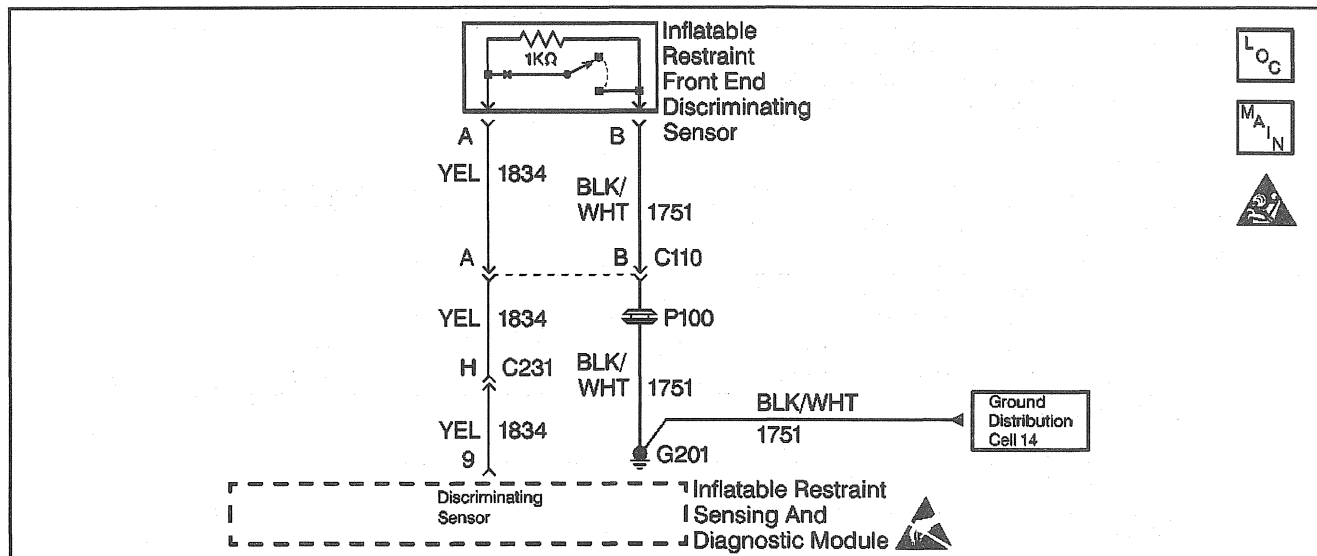
Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the DLC. 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. 5. Read and record on the repair order the driver deployment loop voltage difference DRIVER VDIF. Has the DRIVER VDIF been read and recorded on the repair order?	—	Go to Step 3	—
3	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 3. Inspect for proper connection at terminals A and B on the harness side of the inflatable restraint steering wheel module yellow 2-way connector. Are the terminals damaged or corroded?	—	Go to Step 4	Go to Step 6
4	Replace the inflatable restraint steering wheel module yellow 2-way harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 5	—
5	Inspect for proper connection at terminals A and B on the coil side of the connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 23
6	Inspect for proper connection at terminals A and B on the coil side of the connector. Are the terminals damaged or corroded?	—	Go to Step 7	Go to Step 8
7	Replace the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i> . Is the repair complete?	—	Go to Step 23	—
8	<ol style="list-style-type: none"> 1. Connect the 2-way harness connectors. 2. Turn the ignition switch to the RUN position. 3. Using the <i>Scan Tool</i>, request the SIR data list display. 4. Read the driver deployment loop voltage difference DRIVER VDIF. Is the DRIVER VDIF less than the specified value?	400 mV	Go to Step 9	Go to Step 10
9	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module yellow 2-way harness connector. Refer to <i>Wiring Repair</i>. Is the repair complete?	—	Go to Step 23	—

DTC B1026 Driver Deployment Loop Open (cont'd)

Step	Action	Value(s)	Yes	No
10	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors at the base of the steering column. 3. Connect the <i>J 38715-A</i> SIR Driver/Passenger Load Tool to the harness connectors. 4. Turn the ignition switch to the RUN position. 5. Using the <i>Scan Tool</i>, request the SIR data list display. 6. Read the driver deployment loop voltage difference DRIVER VDIF. <p>Is the DRIVER VDIF less than the specified value?</p>	400 mV	Go to Step 11	Go to Step 14
11	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Remove the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i>. 3. Disconnect the <i>J 38715-A</i> from the driver yellow 2-way harness connector. 4. Reconnect the driver yellow 2-way connector. 5. Connect the <i>J 38715-A</i> to the upper inflatable restraint steering wheel module coil. 6. Turn the ignition switch to the RUN position. 7. Using the <i>Scan Tool</i>, request the SIR data list display. 8. Read the driver deployment loop voltage difference VDIF. <p>Is the DRIVER VDIF less than the specified value?</p>	400 mV	Go to Step 12	Go to Step 13
12	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module. Refer to <i>Infl Rst Steering Wheel Module Replacement</i>. <p>Is the repair complete?</p>	—	Go to Step 23	—
13	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Replace the inflatable restraint steering wheel module coil. Refer to <i>Inflatable Restraint Steering Wheel Module Coil Replacement</i>. <p>Is the repair complete?</p>	—	Go to Step 23	—
14	<ol style="list-style-type: none"> 1. Turn the ignition switch to the OFF position. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i>. 3. Disconnect the <i>J 38715-A</i>. 4. Inspect for proper connection at terminals 2 and 3 on the harness side of the SDM connector. <p>Is the connector damaged or corroded?</p>	—	Go to Step 15	Go to Step 17
15	<p>Replace the SDM harness connector. Refer to <i>Wiring Repair</i>.</p> <p>Is the repair complete?</p>	—	Go to Step 16	—
16	<p>Inspect for proper connection at terminals 2 and 3 of the SDM.</p> <p>Are the terminals damaged or corroded?</p>	—	Go to Step 18	Go to Step 23
17	<p>Inspect for proper connection at terminals 2 and 3 of the SDM.</p> <p>Are the terminals damaged or corroded?</p>	—	Go to Step 18	Go to Step 19
18	<p>Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i>.</p> <p>Is the repair complete?</p>	—	Go to Step 23	—

DTC B1026 Driver Deployment Loop Open (cont'd)

Step	Action	Value(s)	Yes	No
19	1. Zero the <i>J 39200</i> Digital Multimeter. 2. Measure the resistance from the SDM harness connector terminal 2 to the inflatable restraint steering wheel module yellow 2-way harness connector terminal A. Is the resistance reading within the specified values?	0–0.5 Ω	Go to <i>Step 21</i>	Go to <i>Step 20</i>
20	Repair the high resistance condition in CKT 347. Is the repair complete?	—	Go to <i>Step 23</i>	—
21	Measure the resistance from the SDM harness connector terminal 3 to the inflatable restraint steering wheel module yellow 2-way harness connector terminal. Is the resistance reading within the specified values?	0–0.5 Ω	Go to <i>SDM Integrity Check</i>	Go to <i>Step 22</i>
22	Repair the high resistance condition in CKT 348. Is the repair complete?	—	Go to <i>Step 23</i>	—
23	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to <i>Step 24</i>	—
24	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

DTC B1035 Discr. Sensor Closed or Short to GND

388324

Circuit Description

When you first turn the ignition switch to the RUN position, the inflatable restraint sensing and diagnostic module (SDM) performs tests to diagnose critical malfunctions within the SDM. Upon passing these tests the following circuits are measured to ensure that they are within their respective normal voltage ranges:

- IGNITION 1
- 23 VLR
- Deployment loop voltages

Then the SDM proceeds to Continuous Monitoring. The SDM contains a resistor network connected to 5 volts, ground, and to the SDM front end discriminating sensor signal terminal 9. The 1.0 K ohm resistor in the inflatable restraint front end discriminating sensor parallel to the normally open switch provides a parallel path to ground. This causes a specified percentage of voltage to appear at the SDM front end discriminating sensor signal input. The SDM monitors this voltage to detect shorts to ground or a closed discriminating sensor.

Conditions for Setting the DTC

- The SDM is configured for an inflatable restraint front end discriminating sensor
- The voltage at front end discriminating sensor signal terminal 9 is less than 0.5 volts for 500 milliseconds.

The Continuous Monitoring test inspects for this DTC. This test occurs when IGNITION 1 is within the normal operating voltage range.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC—The voltage at front end discriminating sensor signal terminal 9 is more than 2.4 volts for 500 milliseconds.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred.

Diagnostic Aids

A short to ground in the inflatable restraint front end discriminating sensor circuit may cause an intermittent condition. Inspect CKT 1834 carefully for cutting or chafing.

When measurements are requested in this table, use the *J 39200* DMM with the correct terminal adapter from the *J 35616-A* Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

- This test inspects for a malfunctioning discriminating sensor.
- This test inspects for a short to ground in CKT 1834.
- This test isolates the short to ground in CKT 1834 to one side of C110.

DTC B1035 Discr. Sensor Closed or Short to GND

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint front end discriminating sensor. Refer to <i>Inflatable Restraint Front End Discriminating Sensor Replacement</i> . 3. Measure the resistance between the sensor terminals A and B. Is the resistance reading more than the specified value?	950 Ω	Go to Step 4	Go to Step 3
3	Replace the inflatable restraint front end discriminating sensor. Refer to <i>Inflatable Restraint Front End Discriminating Sensor Replacement</i> . Is the repair complete?	—	Go to Step 8	—
4	1. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 2. Measure the resistance from the sensor harness connector terminal A to ground. Is the resistance reading less than the specified value?	OL	Go to Step 5	Go to <i>SDM Integrity Check</i>
5	1. Disconnect C110. Refer to <i>SIR Components</i> . 2. Measure the resistance from the sensor harness connector terminal A to ground. Is the resistance reading less than the specified value?	OL	Go to Step 6	Go to Step 7
6	Repair a short to ground condition in CKT 1834 between C 110 and the sensor harness connector. Is the repair complete?	—	Go to Step 8	—
7	Repair a short to ground condition in CKT 1834 between C 110 and the SDM harness connector. Is the repair complete?	—	Go to Step 8	—
8	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 9	—
9	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

11. This test isolates the open in CKT 1751 to one side of C 110.
14. This test inspects for proper contact or corrosion of the inflatable restraint sensing and diagnostic module (SDM) connector.
19. This test inspects for an open in CKT 1834.
22. This test isolates the open in CKT 1834 to one side of C 110.
25. This test inspects for a short to voltage in CKT 1834.

DTC B1036 Discr. Sensor Open or Short to Voltage

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint front end discriminating sensor. Refer to <i>Inflatable Restraint Front End Discriminating Sensor Replacement</i> . 3. Inspect for proper connection at the sensor harness connector terminals A and B. Are the terminals damaged or corroded?	—	Go to Step 3	Go to Step 5
3	Replace the sensor harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 4	—
4	Inspect for proper connection at the sensor connector terminals A and B. Are the terminals damaged or corroded?	—	Go to Step 6	Go to Step 27
5	Inspect for proper connection at the sensor connector terminals A and B. Are the terminals damaged or corroded?	—	Go to Step 6	Go to Step 7
6	Replace the inflatable restraint front end discriminating sensor. Refer to <i>Inflatable Restraint Front End Discriminating Sensor Replacement</i> . Is the repair complete?	—	Go to Step 27	—
7	Measure the resistance between the sensor connector terminals A and B. Is the resistance reading more than the specified value?	1050 Ω	Go to Step 6	Go to Step 8
8	Measure the resistance from the sensor harness connector terminal B to ground. Is the resistance reading within the specified values?	0–5 Ω	Go to Step 14	Go to Step 9
9	1. Disconnect C 110. Refer to <i>SIR Components</i> . 2. Inspect for proper connection at C 110 terminal B. Is the terminal damaged or corroded?	—	Go to Step 10	Go to Step 11
10	Replace C 110. Refer to <i>Connector Repairs</i> in Wiring Systems. Is the repair complete?	—	Go to Step 27	—
11	Measure the resistance between the sensor harness connector terminal B and C 110 terminal B. Is the resistance reading within the specified values?	0–5 Ω	Go to Step 12	Go to Step 13
12	Repair an open condition in CKT 1751 between C 110 and G 201. Is the repair complete?	—	Go to Step 27	—
13	Repair an open condition in CKT 1751 between C 110 and the inflatable restraint front end discriminator sensor harness connector. Is the repair complete?	—	Go to Step 27	—
14	1. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 2. Inspect for proper connection at terminal 9 on the harness side of the SDM connector. Is the connector damaged or corroded?	—	Go to Step 15	Go to Step 17

DTC B1036 Discr. Sensor Open or Short to Voltage (cont'd)

Step	Action	Value(s)	Yes	No
15	Replace the SDM harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 16	—
16	Inspect for proper connection at terminal 9 of the SDM. Is the terminal damaged or corroded?	—	Go to Step 18	Go to Step 27
17	Inspect for proper connection at terminal 9 of the SDM. Is the terminal damaged or corroded?	—	Go to Step 18	Go to Step 19
18	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to Step 27	—
19	1. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors near the base of the steering column. 2. Measure the resistance between the sensor harness connector terminal A and the SDM harness connector terminal 9. Is the resistance reading within the specified values?	0–5 Ω	Go to Step 25	Go to Step 20
20	1. Disconnect C 110. Refer to <i>SIR Components</i> . 2. Inspect for proper connection at C 110 terminal A. Is the terminal damaged or corroded?	—	Go to Step 21	Go to Step 22
21	Replace C 110. Refer to <i>Connector Repairs</i> in <i>Wiring Systems</i> . Is the repair complete?	—	Go to Step 27	—
22	Measure the resistance between the sensor harness connector terminal A and the C 110 terminal A. Is the resistance reading within the specified values?	0–5 Ω	Go to Step 23	Go to Step 24
23	Repair an open condition in CKT 1834 between C 110 and the SDM harness connector. Is the repair complete?	—	Go to Step 27	—
24	Repair an open condition in CKT 1834 between C 110 and the sensor harness connector. Is the repair complete?	—	Go to Step 27	—
25	1. Turn the ignition switch to the RUN position. 2. Measure the voltage on the sensor harness connector from terminal A to ground. Is the measured voltage less than the specified value?	1.0 V	Go to <i>SDM Integrity Check</i>	Go to Step 26
26	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 1834. Is the repair complete?	—	Go to Step 27	—
27	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 28	—
28	Clear all the SIR DTCs. Have all the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

DTC B1051 Deployment Commanded

Circuit Description

The inflatable restraint sensing and diagnostic module (SDM) contains a sensing device that converts vehicle velocity changes to an electrical signal. The SDM processes the generated electrical signal and compares the generated electrical signal to a value stored in memory. When the generated signal exceeds the stored value, the SDM performs additional signal processing and compares the generated signals to signals stored in memory. When 2 of the generated signals exceed the stored values, the SDM will cause current to flow through the inflator modules, deploying the air bags and causing DTC B1051 to set.

Conditions for Setting the DTC

The SDM detects a frontal crash, up to 30 degrees off the centerline of the vehicle, of sufficient force to warrant deployment of the air bags.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.
- The SDM records crash data.

Conditions for Clearing the DTC

DTC B1051 is a latched code. You may not clear a latched code. Replace the SDM after following the instructions in the diagnostic table.

Test Description

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

2. If the inflator module(s) has not deployed, DTC B1051 may have set falsely.
3. If DTC B1051 has set with no signs of frontal impact, the DTC has set falsely.

DTC B1051 Deployment Commanded

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	Turn the ignition switch to the OFF position. Has the inflator module(s) deployed?	—	Go to Step 5	Go to Step 3
3	Inspect the front of the vehicle and the undercarriage for signs of impact. Are there signs of impact?	—	Go to Step 5	Go to Step 4
4	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to Step 6	—
5	Replace components and perform inspections as required following an accident. Refer to <i>Repairs and Inspections Required After an Accident</i> . Have the appropriate inspections and repairs been made?	—	Go to Step 6	—
6	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to <i>SIR Diagnostic System Check</i>	—

DTC B1053 Deployment Commanded w/Loop Malfunction**Circuit Description**

The inflatable restraint sensing and diagnostic module (SDM) contains a sensing device that converts vehicle velocity changes to an electrical signal. The SDM processes the generated electrical signal and compares the generated electrical signal to a value stored in memory. When the generated signal exceeds the stored value, the SDM performs additional signal processing and compares the generated signals to signals stored in memory. When 2 of the generated signals exceed the stored values, the SDM will cause current to flow through the inflator modules, deploying the air bags. DTC B1053 will set instead of a DTC B1051 when a deployment occurs while an inflator circuit fault is present that could possibly result in a non-deployment situation in one or both inflator modules.

Conditions for Setting the DTC

The SDM detects a frontal crash, up to 30 degrees off the centerline of the vehicle, of sufficient force to warrant deployment of the air bags.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.
- The SDM records crash data.

Conditions for Clearing the DTC

DTC B1053 is a latched code. You may not clear a latched code. Replace the SDM after following the instructions in the diagnostic table.

Diagnostic Aids

DTC B1053 will be accompanied by another DTC (other than DTC B1071). Repair the malfunction causing the other DTCs before installing a new SDM.

Test Description

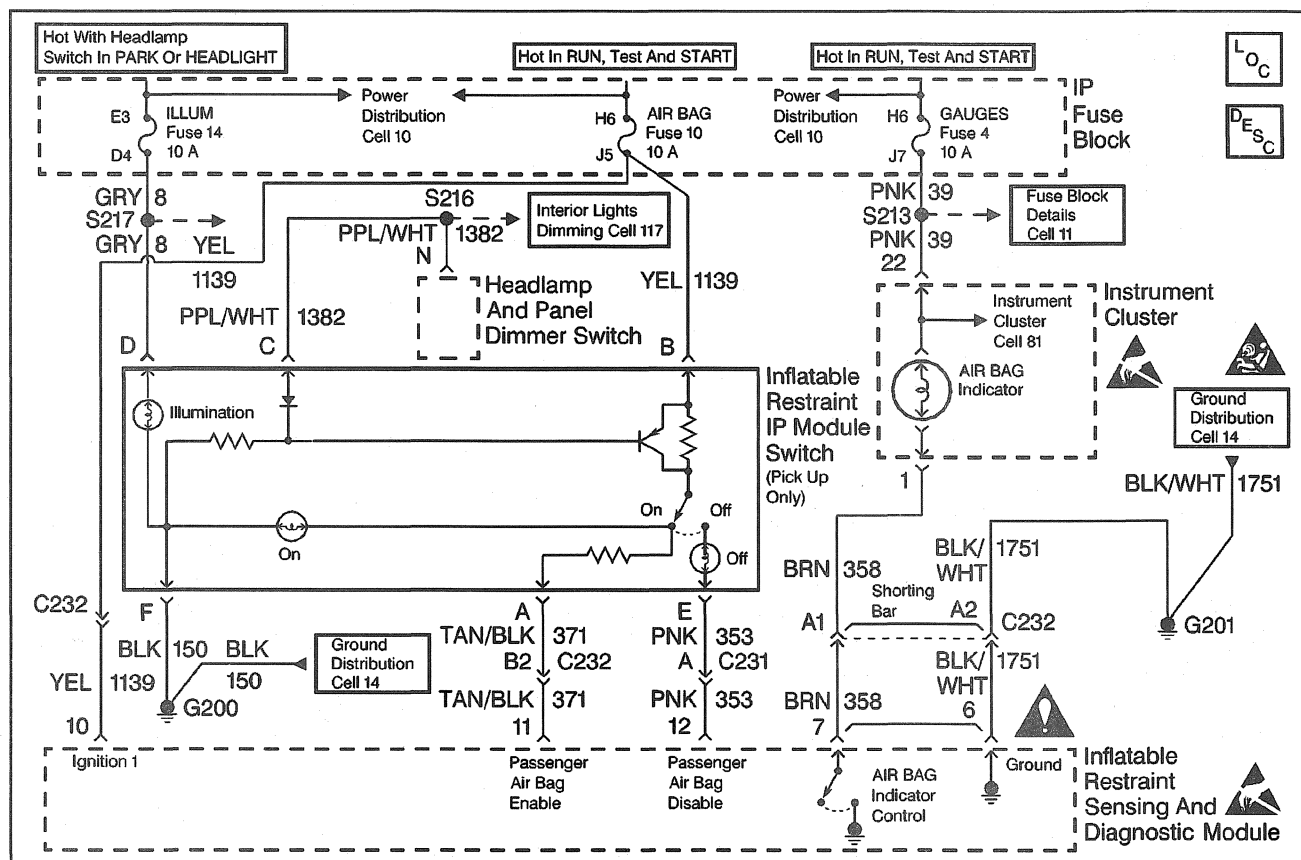
The numbers below refer to the step numbers on the diagnostic table:

2. If the inflator module(s) has not deployed, DTC B1053 may have set falsely.
3. If DTC B1053 has set with no signs of frontal impact, the DTC has set falsely.

DTC B1053 Deployment Commanded w/Loop Malfunction

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	Turn the ignition switch to the OFF position. Has the inflator modules deployed?	—	Go to Step 5	Go to Step 3
3	Inspect the front of the vehicle and the undercarriage for signs of impact. Are there signs of impact?	—	Go to Step 5	Go to Step 4
4	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to Step 6	—
5	Replace components and perform inspections as required following an accident. Refer to <i>Repairs and Inspections Required After an Accident</i> . Have the appropriate inspections and repairs been made?	—	Go to Step 6	—
6	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to <i>SIR Diagnostic System Check</i>	—

DTC B1054 Infl Rst IP Module Switch CKT Failure



389891

Circuit Description

In the RUN position, the ignition switch applies battery voltage to the AIR BAG warning lamp and to the IGNITION 1 input terminal 10. The inflatable restraint sensing and diagnostic module responds by flashing the AIR BAG warning lamp 7 times. The inflatable restraint sensing and diagnostic module monitors the voltage levels at the PASSENGER AIR BAG ENABLE terminal 11 and PASSENGER AIR BAG DISABLE terminal 12 of the inflatable restraint sensing and diagnostic module to determine the position of the inflatable restraint IP module switch.

Conditions for Setting the DTC

- The voltage detected at PASSENGER AIR BAG ENABLE terminal 11 and PASSENGER AIR BAG DISABLE terminal 12 are less than 1.0 volt when the AIR BAG ON lamp is commanded on.
- The voltage detected at PASSENGER AIR BAG ENABLE terminal 11 and PASSENGER AIR BAG DISABLE terminal 12 are greater than 4.0 volts when the AIR BAG ON lamp is commanded OFF.
- The voltage detected at PASSENGER AIR BAG ENABLE terminal 11 and PASSENGER AIR BAG DISABLE terminal 12 are greater than 1.0 volt when the AIR BAG OFF lamp is commanded ON.

Action Taken When the DTC Sets

- The inflatable restraint sensing and diagnostic module (SDM) attempts to illuminate the AIR BAG OFF lamp.
- The inflatable restraint IP module switch is defaulted to the disabled state.
- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC: The voltage at PASSENGER AIR BAG ENABLE terminal 11 is greater than 4.0 volts for 500 milliseconds and the voltage at PASSENGER AIR BAG DISABLE terminal 12 is less than 1.0 volts for 500 milliseconds when the AIR BAG ON lamp is commanded ON.
- History DTC:
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred

Diagnostic Aids

Refer to *AIR BAG Warning Lamp Comes On Steady* and *AIR BAG Warning Lamp Does Not Come On* to diagnose warning lamp circuit malfunctions. When measurements are requested in this table, use the J 39200 DMM with the correct terminal adapter from the J 35616-A Connector Test Adapter Kit.

When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the *J 38125-B* Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test determines if the AIR BAG ON lamp illuminates when the IP module switch is in the ON position.
3. This test inspects for a poor connection at the yellow 6-way IP module switch harness connector.
8. This test determines whether the malfunction is in CKT 150.
10. This test determines whether the malfunction is in CKT 1139 between the fuse block and the IP module switch.
13. This test determines if the state of terminal 11 of the SDM (Pass Air Bag Enable) is correct when the IP module switch is in the ON position.
14. This test inspects for proper contact or corrosion of the SDM harness connector.
16. This test inspects for an open circuit in CKT 371.
18. This test inspects for a short to ground in CKT 371.
21. This test determines if the state of terminal 12 of the SDM (Pass Air Bag Disable) is correct when the IP module switch is in the ON position.
24. This test inspects for a short to voltage in CKT 353.
26. This test inspects for a short circuit between CKT 353 and 371.
28. This test determines if the AIR BAG OFF lamp illuminates when the IP module switch is in the OFF position.
39. This test inspects for a short to voltage in CKT 353.
41. This test inspects for a short to voltage in CKT 371.
43. This test inspects for an open circuit in CKT 353.
46. This test determines if the state of terminal 11 of the SDM (Pass Air Bag Enable) is correct when the IP module switch is in the OFF position.
47. This test determines if the state of terminal 12 of the SDM (Pass Air Bag Disable) is correct when the IP module switch is in the OFF position.
48. This test determines if the state of the internal SDM suppression lamp driver is correct when the IP module switch is in the OFF position.
49. This test inspects for a short to ground in CKT 353.

DTC B1054 Infl Rst IP Module Switch CKT Failure

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Turn the inflatable restraint IP module switch to the ON position. 3. Turn the ignition switch to the RUN position. Does the AIR BAG ON lamp illuminate in the IP module switch?	—	Go to Step 13	Go to Step 3
3	1. Turn the ignition switch to the OFF position. 2. Remove the IP module switch from the instrument panel. Refer to <i>Inflatable Restraint IP Module Switch Replacement</i> . 3. Inspect the connection of the yellow 6-way IP module switch harness connector to the IP module switch. Is the yellow 6-way IP module switch harness connector properly connected to the IP module switch?	—	Go to Step 5	Go to Step 4
4	Connect the yellow 6-way IP module switch harness connector securely to the IP module switch. Is the yellow 6-way IP module switch harness connector securely connected to the IP module switch?	—	Go to <i>SIR Diagnostic System Check</i>	—
5	1. Disconnect the yellow 6-way IP module switch harness connector from the IP module switch. 2. Inspect the terminals of the yellow 6-way IP module switch harness connector. Are the terminals damaged or corroded?	—	Go to Step 6	Go to Step 7

DTC B1054 Infl Rst IP Module Switch CKT Failure (cont'd)

Step	Action	Value(s)	Yes	No
6	Repair the yellow 6-way IP module switch harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 52	—
7	Carefully inspect the IP module switch terminals for damage or corrosion. Are the terminals damaged or corroded?	—	Go to Step 51	Go to Step 8
8	1. Disconnect the inflatable restraint steering wheel module and inflatable restraint IP module yellow 2-way connectors located near the base of the steering column. 2. Measure the resistance from the yellow 6-way IP module switch harness connector terminal F to ground (G200) or a known good ground. Is the resistance reading greater than the specified values?	5 Ω	Go to Step 9	Go to Step 10
9	Repair a high resistance or open circuit in CKT 150 between the yellow 6-way IP module switch harness connector terminal F and ground (G200). Is the repair complete?	—	Go to Step 52	—
10	1. Turn the ignition switch to the RUN position. 2. Using the J 39200 measure the voltage from the yellow 6-way IP module switch harness connector terminal B to terminal F to ground. Is the voltage reading greater than the specified values?	1 V	Go to Step 12	Go to Step 11
11	1. Turn the ignition switch to the OFF position. 2. Repair a high resistance or open circuit condition in CKT 1139 between the yellow 6-way IP module switch harness connector terminal B and the Fuse Block. Is the repair complete?	—	Go to Step 52	—
12	1. Turn the ignition switch to the OFF position. 2. Reconnect the IP module switch to the yellow 6-way IP module switch harness connector. Has the IP module switch been reconnected?	—	Go to Step 13	—
13	1. Connect the <i>Scan Tool</i> to the data link connector. 2. Turn the ignition switch to the RUN position. 3. Request the SIR data list display. Does Pass Air Bag IP module show the specified level?	High	Go to Step 21	Go to Step 1
14	1. Turn the ignition switch to the OFF position. 2. Disconnect the yellow 6-way IP module switch harness connector from the IP module switch. 3. Disconnect the inflatable restraint steering wheel module and inflatable restraint IP module yellow 2-way connectors located near the base of the steering column. 4. Disconnect the SDM harness connector. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 5. Inspect for proper connection at terminals 11 and 12 on the harness side of the SDM harness connector. Is the SDM harness connector damaged or corroded?	—	Go to Step 35	Go to Step 15
15	Inspect for proper connection at terminals 11 and 12 on the SDM. Are the SDM terminals damaged or corroded?	—	Go to Step 38	Go to Step 16
16	Measure the resistance from the yellow 6-way IP module switch harness connector terminal A to terminal 11 on the SDM harness connector. Is the resistance reading greater than the specified values?	5 Ω	Go to Step 17	Go to Step 18

DTC B1054 Infl Rst IP Module Switch CKT Failure (cont'd)

Step	Action	Value(s)	Yes	No
17	Repair a high resistance or open circuit condition in CKT 371. Is the repair complete?	—	Go to Step 52	—
18	Measure the resistance from the yellow 6-way IP module switch harness connector terminal A to terminal F to ground. Is the resistance reading less than the specified values?	OL	Go to Step 19	Go to Step 20
19	Repair a short to ground condition in CKT 371. Is the repair complete?	—	Go to Step 52	—
20	1. Turn the ignition switch to the OFF position. 2. Reconnect the SIR components. Have the SIR components been reconnected?	—	Go to Step 21	—
21	1. Connect the <i>Scan Tool</i> to the data link connector (DLC). 2. Turn the ignition switch to the RUN position. 3. Request the SIR data list display. Does Pass Air Bag Disable show the specified level?	Low	Go to Step 28	Go to Step 22
22	1. Turn the ignition switch to the OFF position. 2. Disconnect the yellow 6-way IP module switch harness connector from the IP module switch. Refer to <i>Inflatable Restraint IP Module Switch Replacement</i> . 3. Disconnect the inflatable restraint steering wheel module and inflatable restraint IP module yellow 2-way connectors located near the base of the steering column. 4. Disconnect the SDM harness connector. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 5. Inspect for proper connection at terminals 11 and 12 on the harness side of the SDM harness connector. Is the SDM harness connector damaged or corroded?	—	Go to Step 35	Go to Step 23
23	Inspect for proper connection at terminals 11 and 12 on the SDM. Are the SDM terminals damaged or corroded?	—	Go to Step 38	Go to Step 24
24	1. Turn the ignition switch to the RUN position. 2. Measure the voltage from the yellow 6-way IP module switch harness connector terminal E to terminal F to ground. Is the voltage reading greater than the specified values?	1 V	Go to Step 25	Go to Step 26
25	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 353. Is the repair complete?	—	Go to Step 52	—
26	1. Turn the ignition switch to the OFF position. 2. Measure the resistance from the yellow 6-way IP module switch harness connector terminal A to terminal E. Is the resistance reading less than the specified values?	OL	Go to Step 27	Go to Step 51
27	Repair a short circuit between CKT 353 and CKT 371. Is the repair complete?	—	Go to Step 52	—
28	1. Turn the ignition switch to the OFF position. 2. Turn the inflatable restraint IP module switch to the OFF position. 3. Turn the ignition switch to the RUN position. Does the AIR BAG OFF lamp illuminate in the IP module switch?	—	Go to Step 46	Go to Step 29

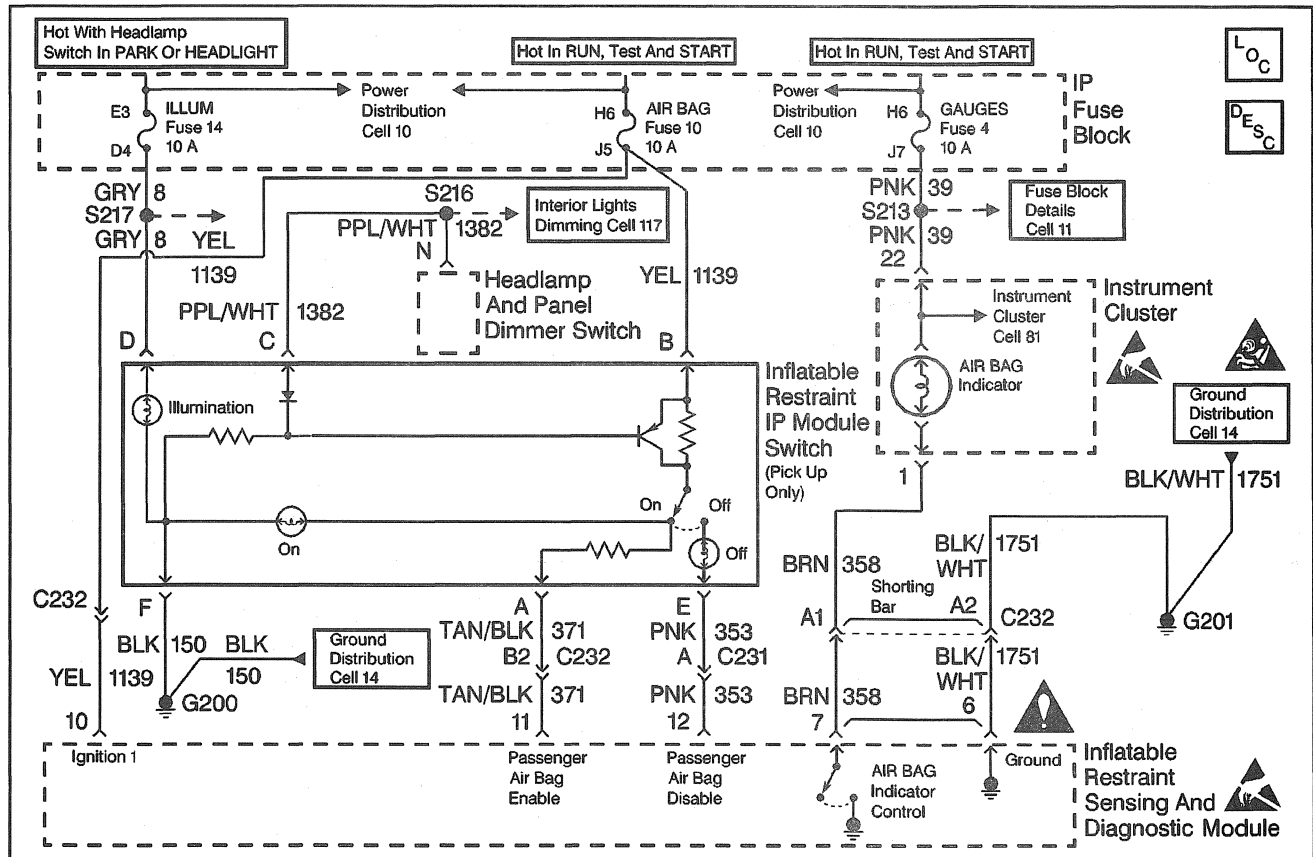
DTC B1054 Infl Rst IP Module Switch CKT Failure (cont'd)

Step	Action	Value(s)	Yes	No
29	1. Turn the ignition switch to the OFF position. 2. Remove the IP module switch from the instrument panel. Refer to <i>Inflatable Restraint IP Module Switch Replacement</i> . 3. Inspect the connection of the yellow 6-way IP module switch harness connector to the IP module switch. Is the yellow 6-way IP module switch harness connector properly connected to the IP module switch?	—	Go to Step 31	Go to Step 30
30	Connect the yellow 6-way IP module switch harness connector securely to the IP module switch. Is the yellow 6-way IP module switch harness connector securely connected to the IP module switch?	—	Go to SIR Diagnostic System Check	—
31	1. Disconnect the yellow 6-way IP module switch harness connector from the IP module switch. Refer to <i>Inflatable Restraint IP Module Switch Replacement</i> . 2. Inspect the terminals of the yellow 6-way IP module switch harness connector. Are the terminals damaged or corroded?	—	Go to Step 32	Go to Step 33
32	Repair the yellow 6-way IP module switch harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 52	—
33	Carefully inspect the IP module switch terminals for damage or corrosion. Are the terminals damaged or corroded?	—	Go to Step 51	Go to Step 34
34	1. Disconnect the inflatable restraint steering wheel module and inflatable restraint IP module yellow 2-way connectors located near the base of the steering column. 2. Disconnect the SDM harness connector. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Inspect for proper connection at terminals 11 and 12 on the SDM harness connector. Is the SDM harness connector damaged or corroded?	—	Go to Step 35	Go to Step 37
35	Replace the SDM harness connector Refer to <i>Wiring Repair</i> . Has the SDM harness connector been replaced?	—	Go to Step 36	—
36	Inspect for proper connection at terminals 11 and 12 on the SDM. Are the SDM terminals damaged or corroded?	—	Go to Step 38	Go to Step 52
37	Inspect for proper connection at terminals 11 and 12 on the SDM. Are the SDM terminals damaged or corroded?	—	Go to Step 38	Go to Step 39
38	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Has the SDM been replaced?	—	Go to Step 52	—
39	1. Turn the ignition switch to the RUN position. 2. Measure the voltage from the yellow 6-way IP module switch harness connector terminal E to terminal F to ground. Is the voltage reading greater than the specified values?	1 V	Go to Step 40	Go to Step 41
40	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 353. Is the repair complete?	—	Go to Step 52	—

DTC B1054 Infl Rst IP Module Switch CKT Failure (cont'd)

Step	Action	Value(s)	Yes	No
41	Measure the voltage from the yellow 6-way IP module switch harness connector terminal A to terminal F to ground. Is the voltage reading greater than the specified values?	1 V	Go to Step 42	Go to Step 43
42	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 371. Is the repair complete?	—	Go to Step 52	—
43	1. Turn the ignition switch to the OFF position. 2. Measure the resistance from the yellow 6-way IP module switch harness connector terminal E to terminal 12 on the SDM harness connector. Is the resistance reading greater than the specified values?	5 Ω	Go to Step 44	Go to Step 45
44	Repair a high resistance or open circuit condition in CKT 353. Is the repair complete?	—	Go to Step 52	—
45	1. Turn the ignition switch to the OFF position. 2. Reconnect the SIR system components. Have the SIR system components been reconnected?	—	Go to Step 46	—
46	1. Connect the <i>Scan Tool</i> to the data link connector. 2. Turn the ignition switch to the RUN position. 3. Request the SIR data list display. Does Pass Air Bag IP module show the specified level?	Low	Go to Step 47	Go to SDM Integrity Check
47	Does Pass Air Bag Disable show the specified level?	Low	Go to Step 48	Go to SDM Integrity Check
48	Does SUPPRESSION LAMP DRIVER show the specified level?	On	Go to Step 49	Go to SDM Integrity Check
49	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel module and inflatable restraint IP module yellow 2-way connectors located near the base of the steering column. 3. Disconnect the SDM harness connector. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 4. Measure the resistance from the yellow 6-way IP module switch harness connector terminal E to terminal F to ground. Is the resistance reading less than the specified values?	OL	Go to Step 50	Go to Step 51
50	Repair a short to ground condition in CKT 353. Is the repair complete?	—	Go to Step 52	—
51	Replace the inflatable restraint IP module switch. Refer to <i>Inflatable Restraint IP Module Switch Replacement</i> . Is the repair complete?	—	Go to Step 52	—
52	1. Reconnect all the SIR system components. 2. Ensure that all of the SIR system components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 53	—
53	Clear the SIR diagnostic trouble codes. Have all the SIR diagnostic trouble codes been cleared?	—	Go to SIR Diagnostic System Check	—

DTC B1061 Lamp Circuit Failure



389891

Circuit Description

In the RUN position, the ignition switch applies battery voltage to the AIR BAG warning lamp and to the IGNITION 1 input terminal 10. The inflatable restraint sensing and diagnostic module (SDM) responds by flashing the AIR BAG warning lamp 7 times. The SDM monitors the lamp driver output by comparing the output state at the Air Bag Indicator Control terminal 7 to the microprocessor commanded state.

Conditions for Setting the DTC

The output state at the Air Bag Indicator Control terminal 7 does not match the commanded state of the lamp driver for 400 milliseconds.

The CONTINUOUS MONITORING test inspects for this DTC. This test occurs when IGNITION 1 is within the normal operating voltage range.

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM attempts to turn ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC— The output state at the Air Bag Indicator Control terminal 7 matches the commanded state of the lamp driver for 400 milliseconds.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred.

Diagnostic Aids

Refer to *AIR BAG Warning Lamp Comes On Steady* and *AIR BAG Warning Lamp Does Not Come On* to diagnose warning lamp circuit malfunctions.

Test Description

The number below refers to the step number on the diagnostic table:

2. The inflatable restraint sensing and diagnostic module checks the air bag warning lamp circuitry.

DTC B1061 Lamp Circuit Failure

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	<p>1. Malfunctions within the AIR BAG warning lamp circuitry may set this DTC. These malfunctions are addressed via the SIR Diagnostic System Check. Failure to properly perform the SIR Diagnostic System Check may result in misdiagnosis.</p> <ul style="list-style-type: none"> • When the AIR BAG warning Lamp comes on steady, refer to <i>AIR BAG Warning Lamp Comes On Steady</i>. • When the AIR BAG warning Lamp does not come on, refer to <i>AIR BAG Warning Lamp Does Not Come On</i>. <p>2. Turn the ignition switch to the RUN position.</p> <p>3. Clear the SIR DTC codes.</p> <p>4. Request the SIR DTC display.</p> <p>Is DTC B1061 set?</p>	—	Go to <i>SDM Integrity Check</i>	Go to <i>SIR Diagnostic System Check</i>

DTC B1071 Internal SDM Failure**Circuit Description**

DTC B1071 is an indication of a potential internal inflatable restraint sensing and diagnostic module (SDM) malfunction. DTC B1071 will set upon detection of any condition in the table below.

Conditions for Setting the DTC

Malfunction	Detection Test
23 VLR voltage out of normal operating range.	Power-On, Continuous monitoring
Crash data recording reserve voltage discharge time failure for three consecutive ignition cycles.	Power-On
The calculated checksum for internal memory does not match the stored value.	Power-On
The driver or passenger deployment loop is shorted to ground.	Continuous monitoring
The Accelerometer is malfunctioning.	Power-On, Continuous monitoring
The driver or passenger current source is malfunctioning.	Resistance measurement
The temporary memory storage area is malfunctioning.	Power-On
The inflatable restraint sensing and diagnostic module (SDM) is unable to read from or write to EEPROM.	Power-On
The arming sensor inside the inflatable restraint sensing and diagnostic module (SDM) is not closed during a deployment event.	Asynchronously
The voltage measured at DRIVER SIDE LOW and PASSENGER SIDE LOW is too low.	Power-On, Continuous monitoring
The device inside the inflatable restraint sensing and diagnostic module that arms the system for deployment is malfunctioning.	Power-On, Continuous monitoring
The permanent memory storage area is malfunctioning.	Power-On

Action Taken When the DTC Sets

- The SDM sets a diagnostic trouble code.
- The SDM turns ON the AIR BAG warning lamp.

Conditions for Clearing the DTC

- Current DTC— The malfunction has not been detected for 500 milliseconds.
- History DTC
 - You issue a scan tool CLEAR CODES command.
 - After 250 malfunction free ignition cycles have occurred.

Diagnostic Aids

When you issue a scan tool CLEAR CODES command, some of the indicated malfunctions will only allow the AIR BAG warning lamp to go out briefly then come back ON.

DTC B1071 Internal SDM Failure

Step	Action	Value(s)	Yes	No
Notice: When DTC B1018 or B1024 has been set it is necessary to replace the inflatable restraint Sensing and Diagnostic Module (SDM). Setting DTC B1018 or B1024 will also cause DTC B1071 to set. When a scan tool clear codes command is issued and the malfunction is no longer present, DTC B1018 or B1024 and DTC B1071 will remain current. Make sure that the short to ground condition is repaired prior to installing a replacement SDM to avoid damaging the SDM.				
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to SIR Diagnostic System Check
2	Is DTC B1018 set?	—	Go to DTC B1018 Passenger Deployment Loop Short to GND	Go to Step 3
3	Is DTC B1024 set?	—	Go to DTC B1024 Driver Deployment Loop Short to Ground	Go to Step 4
4	1. Turn the ignition switch to the OFF position. 2. Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to SIR Diagnostic System Check	—

SDM Integrity Check

Circuit Description

When the inflatable restraint sensing and diagnostic module (SDM) recognizes IGNITION 1 voltage, applied to terminal 10, is greater than 8.2 volts, the SDM flashes the AIR BAG warning lamp 7 times to verify operation. At this time the SDM performs POWER-ON tests followed by the RESISTANCE MEASUREMENT test and the CONTINUOUS MONITORING tests.

Upon detection of a malfunction, the SDM sets a current diagnostic trouble code (DTC) and illuminates the AIR BAG warning lamp. The SDM will clear current DTCs and preserve them in a history file when the following items are true:

- The malfunction is no longer detected.
- The ignition switch is cycled.

Important: Repair the malfunction that set the DTC before you replace the SDM.

This does not include the following latched codes:

- DTC B1018
- DTC B1024
- DTC B1051
- DTC B1053
- DTC B1071

You may not clear a latched code.

Test Description

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

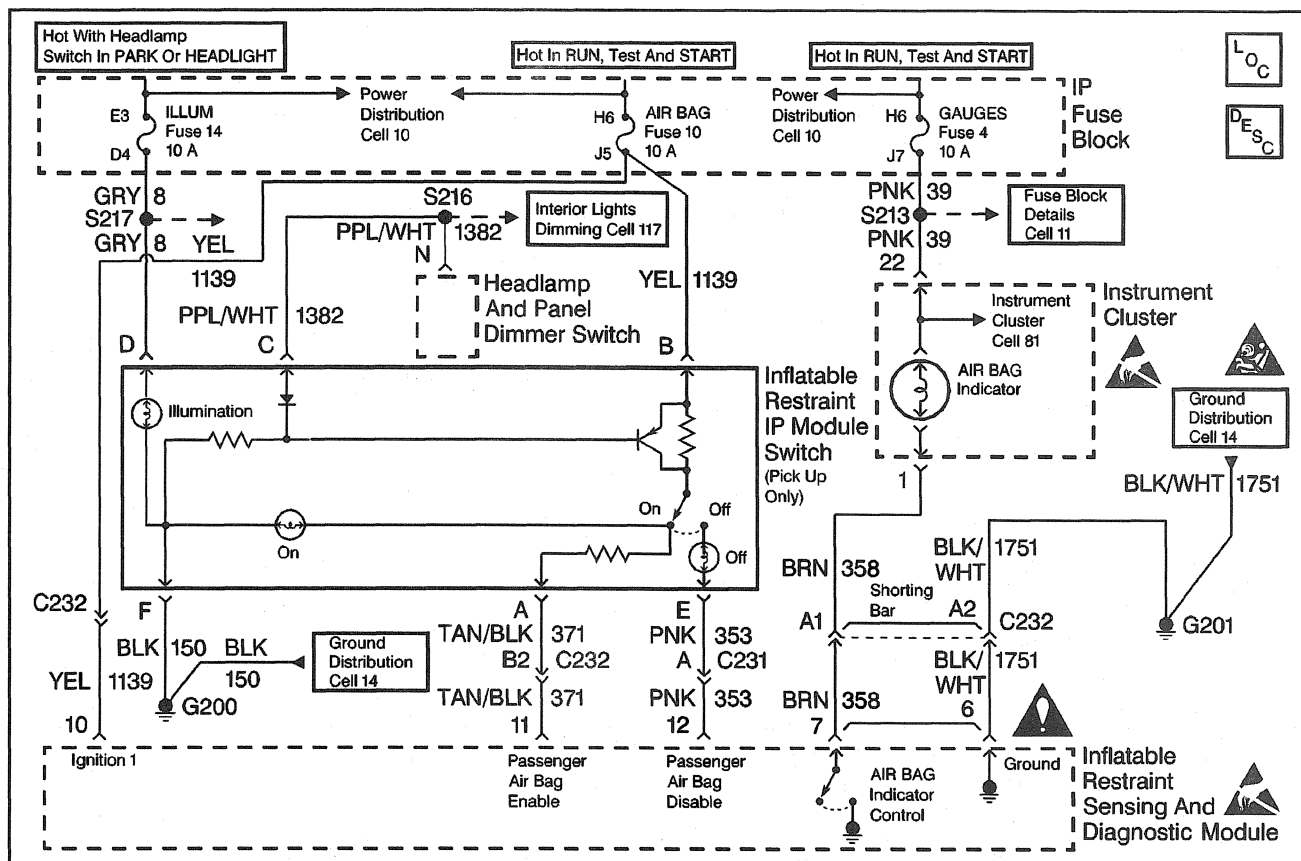
2. This test confirms a circuit malfunction. If no current malfunction is occurring (history DTC set), refer to the Diagnostic Aids for the appropriate DTC table as indicated through the *Scan Tool*. Do not replace the inflatable restraint sensing and diagnostic module (SDM) for a history DTC other than DTC B1071.
3. This test inspects for a malfunction introduced into the SIR system during the diagnostic process. A malfunctioning SDM would unlikely cause a new malfunction to occur during this process.
4. When you have found all circuitry outside the SDM to operate properly, as indicated by the appropriate diagnostic table, replace the SDM.

This table assumes that the SIR Diagnostic System Check and either a symptom table or a diagnostic trouble code table diagnosis has been performed. When all circuitry outside the SDM has been found to operate properly, as indicated by the appropriate diagnostic table, and the symptom or DTC remains current, the following diagnostic procedures must be performed to verify the need for SDM replacement.

SDM Integrity Check

Step	Action	Value(s)	Yes	No
1	Were you sent here from a symptom table or a diagnostic trouble code (DTC) table?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Reconnect all the SIR components. 3. Ensure that all the components are properly mounted. 4. Ensure that the ignition switch has been turned to the OFF position for at least 30 seconds. 5. Note the AIR BAG warning lamp while you turn the ignition switch to the RUN position. Does the AIR BAG warning lamp flash 7 times then go OFF?	—	Go to Step 7	Go to Step 3
3	Using the <i>Scan Tool</i> , request the SIR DTC display. Is the same symptom or DTC occurring as when the SIR Diagnostic System Check was first performed?	—	Go to Step 4	Go to the appropriate DTC table
4	1. Clear the SIR DTCs. 2. Turn the ignition switch to the OFF position for at least 30 seconds. 3. Note the AIR BAG warning lamp while turning the ignition switch to the RUN position. Does the AIR BAG warning lamp flash 7 times then go OFF?	—	System OK	Go to Step 5
5	1. Turn the ignition switch to the OFF position. 2. Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Has the SDM been replaced?	—	Go to Step 6	—
6	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to Step 7	—
7	Clear the SIR DTCs. Have the SIR DTCs been cleared?	—	Go to <i>SIR Diagnostic System Check</i>	—

AIR BAG Warning Lamp Comes On Steady



389891

Circuit Description

When the ignition switch is first turned to RUN, the GAUGES Fuse applies battery voltage to the AIR BAG warning lamp that is connected to Air Bag Indicator Control, terminal 7. The AIR BAG Fuse applies battery voltage to the IGNITION 1 input, terminal 10. The inflatable restraint sensing and diagnostic module (SDM) responds by flashing the AIR BAG warning lamp 7 times. If IGNITION 1 is outside of the normal operating voltage range (8.2 volts - 17.1 volts), the AIR BAG warning lamp will come ON solid with no DTCs set.

Diagnostic Aids

In order to disable the shorting bar from terminal 6 to terminal 7 inside the inflatable restraint sensing and diagnostic module (SDM) harness connector, the following 2 conditions must be met:

- The SDM harness connector must be properly connected to the SDM.
- The connector position assurance (CPA) must be properly installed in the SDM harness connector.

When measurements are requested in this table, use the J 39200 DMM with the correct terminal adapter from the J 35616-A Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the J 38125-B Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

2. This test inspects for sufficient IGNITION 1 voltage applied to the SDM.
3. This test inspects for excessive IGNITION 1 voltage applied to the SDM.
4. This test inspects for a properly installed CPA.
6. This test determines if the SDM is turning on the AIR BAG warning lamp.
7. This test inspects for a damaged shorting bar.
15. This test determines whether the malfunction is a short to ground in CKT 358.
16. This test inspects for a short between CKTs 358 and 1751.

20. An open AIR BAG Fuse would cause the AIR BAG warning lamp to come on steady.
21. This test inspects whether a short to ground caused the AIR BAG Fuse to open.
22. This test determines whether the short to ground is due to a short in the wiring or internal to the SDM.

24. This test determines whether the short to ground is due to a short in the wiring or internal to the inflatable restraint IP module switch.
29. This test inspects for a disconnected SDM.
35. This test inspects for an open in the IGNITION 1 circuit.

AIR BAG Warning Lamp Comes On Steady

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Turn the ignition switch to the OFF position. 2. Connect the <i>Scan Tool</i> to the data link connector (DLC). 3. Turn the ignition switch to the RUN position. 4. Request the SIR data list display. Is IGNITION more than the specified value?	8.2 V	Go to Step 3	Go to Step 20
3	1. Set the parking brake. 2. Start the engine. 3. Using the <i>Scan Tool</i> , read the SIR data list. Is IGNITION more than the specified value?	17.1 V	Go to <i>Charging System Check</i> in Engine Electrical	Go to Step 4
4	1. Turn the ignition switch to the OFF position. 2. Inspect the SDM harness connector CPA. Is the CPA properly installed?	—	Go to Step 6	Go to Step 5
5	Properly install the CPA. Is the repair complete?	—	Go to <i>SIR Diagnostic System Check</i>	—
6	1. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors located near the base of the steering column. 2. Disconnect the SDM harness connector. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Install <i>J 38715-96</i> SIR shorting bar tool within the SDM harness connector. 4. Install the CPA. 5. Turn the ignition switch to the RUN position. Does the AIR BAG warning lamp come ON steady?	—	Go to Step 7	Go to <i>SDM Integrity Check</i>
7	1. Turn the ignition switch to the OFF position. 2. Remove <i>J 38715-96</i> from the SDM harness connector. 3. Inspect the shorting bar within the SDM harness connector. Is the shorting bar damaged or corroded?	—	Go to Step 8	Go to Step 9
8	Replace the SDM harness connector. Refer to <i>Connector Repairs</i> . Is the repair complete?	—	Go to Step 36	—

AIR BAG Warning Lamp Comes On Steady (cont'd)

Step	Action	Value(s)	Yes	No
9	1. Install <i>J 38715-96</i> within the SDM harness connector. 2. Install the CPA. 3. Disconnect the IP harness connector C 232. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 4. Inspect the shorting bar within the IP harness side of connector C 232. Is the shorting bar damaged or corroded?	—	Go to Step 10	Go to Step 11
10	Replace the IP harness side of connector C 232. Refer to <i>Connector Repairs</i> . Has the IP harness side of connector C 232 been replaced?	—	Go to Step 11	—
11	Inspect for proper connection at terminals A1 and A2 on the IP harness side of connector C 232. Are the terminals damaged or corroded?	—	Go to Step 12	Go to Step 13
12	Replace the IP harness side of connector C 232. Refer to <i>Connector Repairs</i> in Wiring Systems. Has the IP harness side of connector been replaced?	—	Go to Step 13	—
13	Inspect for proper connection at terminals A1 and A2 on the harness side of connector C 232. Are the terminals damaged or corroded?	—	Go to Step 14	Go to Step 15
14	Replace the harness side of connector C 232. Refer to <i>Connector Repairs</i> in Wiring Systems. Has the harness side of connector C 232 been replaced?	—	Go to Step 36	—
15	1. Disconnect the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. 2. Measure the resistance from the SDM harness connector terminal 7 to ground. Is the resistance reading less than the specified value?	OL	Go to Step 16	Go to Step 19
16	1. Disconnect CKT 1751 from ground. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 2. Measure the resistance from the SDM harness connector terminal 7 to terminal 6. Is the resistance reading less than the specified value?	OL	Go to Step 18	Go to Step 17
17	Repair a short to ground condition in CKT 358. Is the repair complete?	—	Go to Step 37	—
18	1. Repair the short between CKTs 358 and 1751. 2. Inspect CKT 1751 for any cutting or chaffing. Is the repair complete?	—	Go to Step 37	—
19	Service the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. Is the repair complete?	—	Go to Step 37	—
20	1. Turn the ignition switch to the OFF position. 2. Remove the AIR BAG Fuse. 3. Inspect the AIR BAG Fuse. Is the AIR BAG Fuse good?	—	Go to Step 29	Go to Step 21

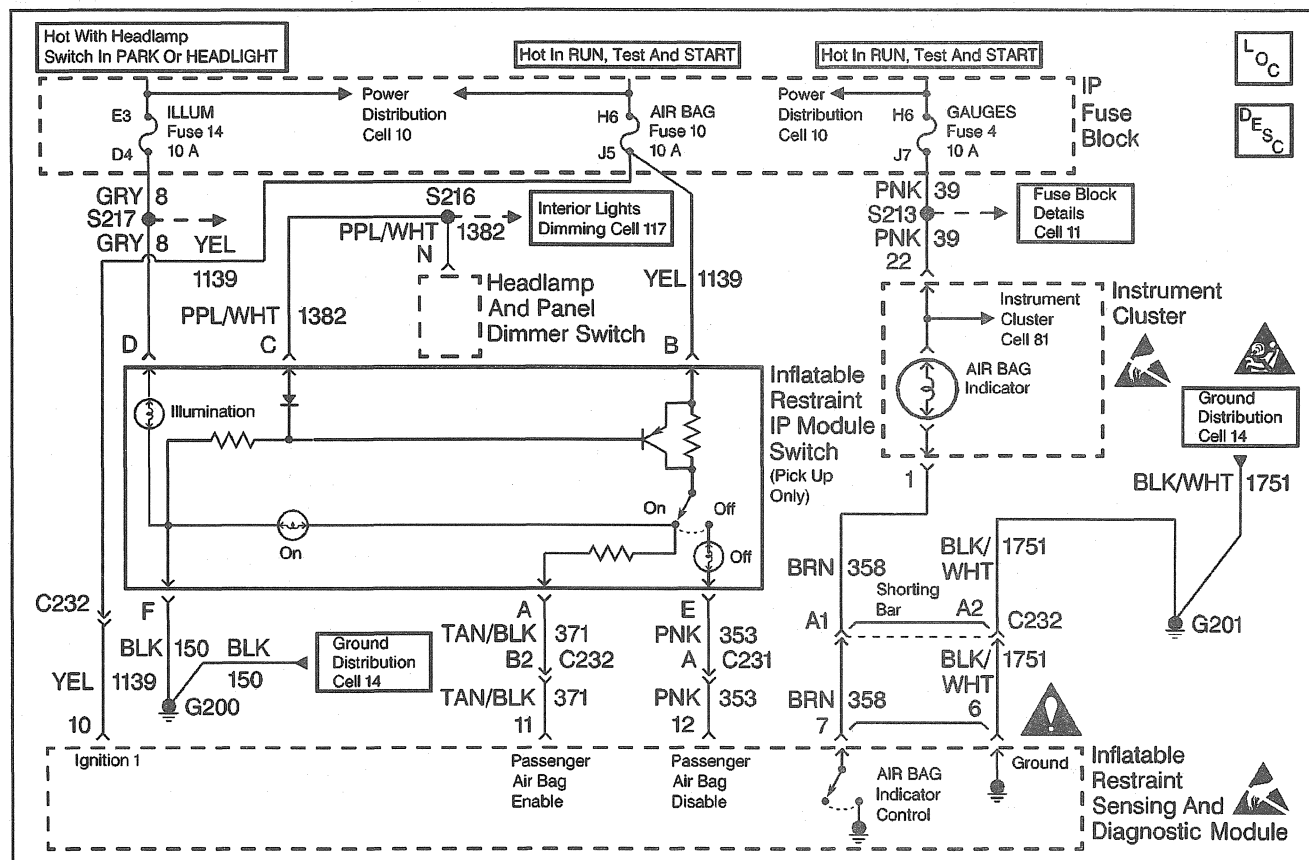
AIR BAG Warning Lamp Comes On Steady (cont'd)

Step	Action	Value(s)	Yes	No
21	1. Replace the AIR BAG Fuse. 2. Turn the ignition switch to the RUN position for 10 seconds. 3. Turn the ignition switch to the OFF position. 4. Remove the AIR BAG Fuse. 5. Inspect the AIR BAG Fuse. Is the AIR BAG Fuse good?	—	Go to Step 28	Go to Step 22
22	1. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 2. Replace the AIR BAG Fuse. 3. Turn the ignition switch to the RUN position for 10 seconds. 4. Turn the ignition switch to the OFF position. 5. Remove the AIR BAG Fuse. 6. Inspect the AIR BAG Fuse. Is the AIR BAG Fuse good?	—	Go to Step 27	Go to Step 23
23	Does this vehicle have an inflatable restraint IP module switch?	—	Go to Step 24	Go to Step 26
24	1. Disconnect the inflatable restraint IP module switch. Refer to <i>Inflatable Restraint IP Module Switch Replacement</i> . 2. Replace the AIR BAG Fuse. 3. Turn the ignition switch to the RUN position, wait 10 seconds, then turn the ignition switch OFF. 4. Remove and inspect the AIR BAG Fuse. Is the AIR BAG Fuse good?	—	Go to Step 25	Go to Step 26
25	1. Replace the inflatable restraint IP module switch. Refer to <i>Inflatable Restraint IP Module Switch Replacement</i> . 2. Install the AIR BAG Fuse. Has the inflatable restraint IP module switch been replaced and the AIR BAG Fuse installed?	—	Go to Step 37	—
26	1. Repair a short to ground condition in CKT 1139. 2. Connect the SDM. 3. Replace the AIR BAG Fuse. Is the repair complete?	—	Go to Step 37	—
27	1. Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 2. Install the AIR BAG Fuse. Is the repair complete?	—	Go to Step 37	—
28	Install the AIR BAG Fuse. Is the repair complete?	—	Go to Step 37	—
29	Inspect the SDM harness connector. Is the connector securely connected to the SDM?	—	Go to Step 31	Go to Step 30
30	1. Properly connect the SDM harness connector. 2. Install the CPA. Is the repair complete?	—	Go to Step 37	—

AIR BAG Warning Lamp Comes On Steady (cont'd)

Step	Action	Value(s)	Yes	No
31	1. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors located near the base of the steering column. 2. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 3. Inspect for proper connection to the SDM at terminal 10. Is the SDM harness connector terminal damaged or corroded?	—	Go to Step 32	Go to Step 33
32	Replace the SDM harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 37	—
33	Inspect the SDM terminals for damage or corrosion. Are any terminals damaged or corroded?	—	Go to Step 34	Go to Step 35
34	Replace the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . Is the repair complete?	—	Go to Step 30	—
35	Measure the resistance from the SDM harness connector terminal 10 to each terminal of the AIR BAG Fuse fuse holder. Is either resistance reading within the specified values?	0–5 Ω	Go to <i>SDM Integrity Check</i>	Go to Step 36
36	Repair an open condition in CKT 1139. Is the repair complete?	—	Go to Step 37	—
37	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to <i>SIR Diagnostic System Check</i>	—

AIR BAG Warning Lamp Does Not Come On



389891

Circuit Description

When the ignition switch is first turned to the RUN position, the GAUGES Fuse applies battery voltage to the AIR BAG warning lamp that is connected to the Air Bag Indicator Control, terminal 7. The AIR BAG Fuse applies battery voltage to the IGNITION 1 input, terminal 10. The inflatable restraint sensing and diagnostic module (SDM) responds by flashing the AIR BAG warning lamp 7 times.

When measurements are requested in this table, use the J 39200 DMM with the correct terminal adapter from the J 35616-A Connector Test Adapter Kit. When an inspection for proper connection is requested, refer to *Testing for Electrical Intermittents* in Wiring Systems. When a wire, connector or terminal repair is requested, use the J 38125-B Terminal Repair Kit and refer to *Wiring Repairs* in Wiring Systems.

Test Description

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

- This test determines whether the malfunction is in the inflatable restraint sensing and diagnostic module (SDM) circuitry or in the instrument cluster power feed circuitry.
- This test determines whether voltage is present in the warning lamp circuit.
- This test isolates CKT 358 and inspects for a short in CKT 358 to B+.
- This test determines if the malfunction is in the instrument cluster connector.
- This test determines if the open is due to a bad bulb.
- This test isolates an open in the warning lamp circuitry.
- This test inspects whether power is available to the instrument cluster power feed circuit.
- This test inspects for a short from the instrument cluster power feed circuit to ground.
- This test determines whether the short to ground is due to a short in the wiring or internal to the instrument cluster.
- This test determines if the malfunction is in the instrument cluster connector.
- This test determines whether the malfunction is due to an open power feed circuit from the GAUGES Fuse.

AIR BAG Warning Lamp Does Not Come On

Step	Action	Value(s)	Yes	No
1	Was the SIR Diagnostic System Check performed?	—	Go to Step 2	Go to <i>SIR Diagnostic System Check</i>
2	1. Set the parking brake. 2. Turn the ignition switch to the RUN position. Does the BRAKE indicator light?	—	Go to Step 3	Go to Step 13
3	1. Turn the ignition switch to the OFF position. 2. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors located near the base of the steering column. 3. Disconnect the SDM. Refer to <i>Inflatable Restraint Sensing and Diagnostic Module Replacement</i> . 4. Install <i>J 38715-96</i> SIR shorting bar tool to the SDM harness connector. 5. Install the CPA. 6. Turn the ignition switch to the RUN position. 7. Measure the voltage on the SDM harness connector from terminal 7 to ground using <i>J 39200</i> Digital Multimeter. Is the voltage more than the specified value?	10.0 V	Go to Step 4	Go to Step 6
4	1. Turn the ignition switch to the OFF position. 2. Disconnect the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. 3. Turn the ignition switch to the RUN position. 4. Measure the voltage on the SDM harness connector from terminal 7 to ground using <i>J 39200</i> Digital Multimeter. Is the voltage less than the specified value?	1.0 V	Go to <i>SDM Integrity Check</i>	Go to Step 5
5	1. Turn the ignition switch to the OFF position. 2. Repair a short to B+ condition in CKT 358. 3. Reconnect the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. Is the repair complete?	—	Go to Step 24	—
6	1. Turn the ignition switch to the OFF position. 2. Remove the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. 3. Inspect for proper connection to the instrument cluster at terminal 1. Is the connector damaged or corroded?	—	Go to Step 7	Go to Step 8
7	Repair the instrument cluster harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to Step 24	—
8	1. Remove the AIR BAG warning lamp bulb. Refer to <i>AIR BAG Warning Lamp Replacement</i> . 2. Inspect the bulb. Is the bulb good?	—	Go to Step 10	Go to Step 9
9	1. Replace the AIR BAG warning lamp bulb refer to <i>AIR BAG Warning Lamp Replacement</i> . 2. Install the instrument cluster. Is the repair complete?	—	Go to Step 24	—

AIR BAG Warning Lamp Does Not Come On (cont'd)

Step	Action	Value(s)	Yes	No
10	1. Install the AIR BAG warning lamp bulb. 2. Measure the resistance from the instrument cluster harness connector terminal 1 to the SDM harness connector terminal 7. Is the resistance within the specified values?	0–5 Ω	Go to Step 12	Go to Step 11
11	1. Repair an open condition in CKT 358. 2. Install the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. Is the repair complete?	—	Go to Step 24	—
12	Service the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. Is the repair complete?	—	Go to Step 24	—
13	1. Turn the ignition switch to the OFF position. 2. Remove the GAUGES Fuse. 3. Inspect the fuse. Is the fuse good?	—	Go to Step 19	Go to Step 14
14	1. Replace the GAUGES Fuse. 2. Turn the ignition switch to the RUN position for 10 seconds. 3. Turn the ignition switch to the OFF position. 4. Remove the GAUGES Fuse. 5. Inspect the fuse. Is the fuse good?	—	Go to Step 18	Go to Step 15
15	1. Disconnect the inflatable restraint steering wheel and IP module yellow 2-way connectors located near the base of the steering column. 2. Disconnect the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. 3. Replace the GAUGES Fuse. 4. Turn the ignition switch to the RUN position for 10 seconds. 5. Turn the ignition switch to the OFF position. 6. Remove the GAUGES Fuse. 7. Inspect the fuse. Is the fuse good?	—	Go to Step 17	Go to Step 16
16	1. Repair a short to ground condition in CKT 39. 2. Replace the GAUGES Fuse. Is the repair complete?	—	Go to Step 24	—
17	1. Service the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. 2. Install the GAUGES Fuse. Is the repair complete?	—	Go to Step 24	—
18	Install the GAUGES Fuse. Is the repair complete?	—	Go to Step 24	—
19	1. Remove the instrument cluster. Refer to <i>IP Cluster Replacement</i> in Instrument Panel, Gauges and Console. 2. Inspect for proper connection to the instrument cluster at terminal 22. Is the connector damaged or corroded?	—	Go to Step 20	Go to Step 21

AIR BAG Warning Lamp Does Not Come On (cont'd)

Step	Action	Value(s)	Yes	No
20	Repair the instrument cluster harness connector. Refer to <i>Wiring Repair</i> . Is the repair complete?	—	Go to <i>Step 24</i>	—
21	Measure the resistance between the instrument cluster harness connector terminal 22 to each terminal of the GAUGES Fuse fuseholder. Is either resistance reading within the specified values?	0–5 Ω	Go to <i>Step 23</i>	Go to <i>Step 22</i>
22	1. Repair an open condition in CKT 39. 2. Install the GAUGES Fuse. Is the repair complete?	—	Go to <i>Step 24</i>	—
23	1. Repair an open condition in the power feed to the GAUGES Fuse. 2. Install the GAUGES Fuse. Is the repair complete?	—	Go to <i>Step 24</i>	—
24	1. Reconnect all the SIR system components. 2. Ensure that all of the components are properly mounted. Have all the SIR components been reconnected and properly mounted?	—	Go to <i>SIR Diagnostic System Check</i>	—

Repair Instructions

SIR Service Precautions

Caution: When you are performing service on or near the SIR components or the SIR wiring, you must disable the SIR system. Refer to *Disabling the SIR System*. Failure to follow the correct procedure could cause air bag deployment, personal injury, or unnecessary SIR system repairs.

The inflatable restraint sensing and diagnostic module (SDM) maintains a reserve energy supply. Ignition voltage may provide deployment energy if the 23 volt loop reserve malfunction. Deployment power is available for as much as 10 minutes after disconnecting the vehicle power by any of the following methods:

- You turn the ignition switch to the OFF position.
- You remove the fuse that provides power to the SDM.
- You disconnect the vehicle battery from the vehicle electrical system.

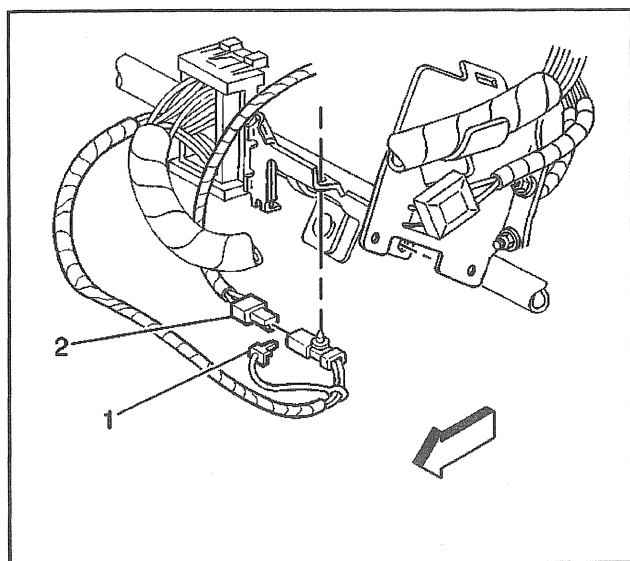
Performing the following procedure prevents deploying of the air bags from the reserve energy supply power.

Disabling the SIR System

1. Turn the steering wheel so that the vehicle's wheels are pointing straight ahead.
2. Turn OFF the ignition.
3. Remove the key from the ignition switch.

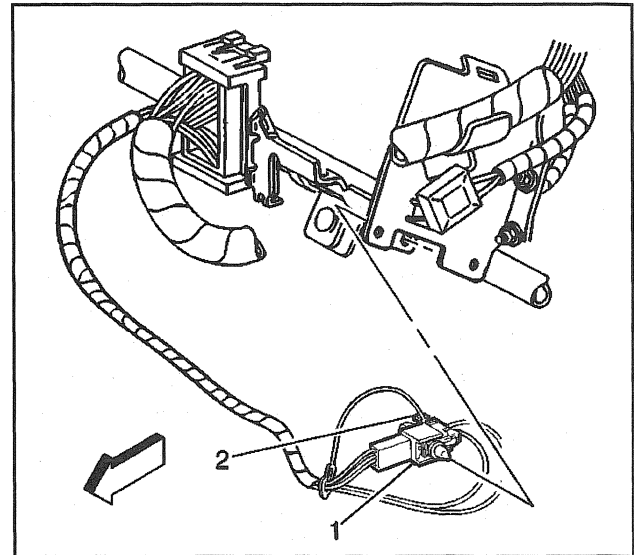
Important: With the AIR BAG Fuse removed and the ignition switch in the RUN position, The AIR BAG warning lamp illuminates. This is normal operation, and does not indicate an SIR system malfunction.

4. Remove the AIR BAG Fuse from the IP fuse block.
5. Remove the Connector Position Assurance (CPA) (1) from the driver yellow 2-way connector located at the base of the steering column.
6. Disconnect the driver yellow 2-way connector (2) located at the base of the steering column.



190000

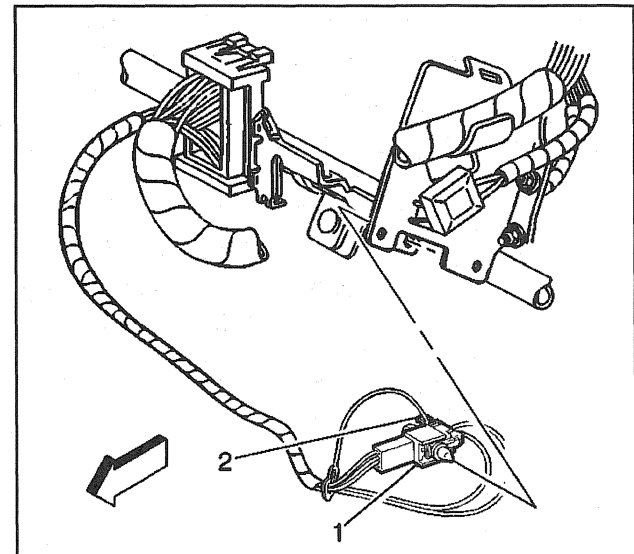
7. Remove the Connector Position Assurance (CPA) (2) from the passenger yellow 2-way connector located near the base of the steering column.
8. Disconnect the passenger yellow 2-way connector (1) located near the base of the steering column.



190002

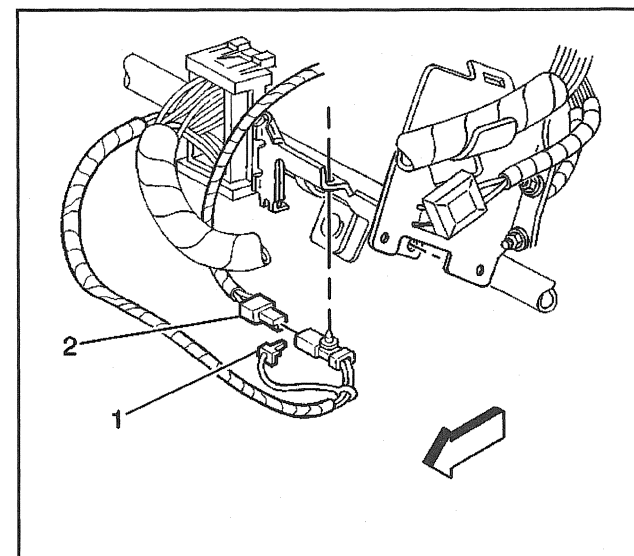
Enabling the SIR System

1. Remove the key from the ignition switch.
2. Connect the passenger yellow 2-way connector (1) located near the base of the steering column.
3. Install the Connector Position Assurance (CPA) (2) to the passenger yellow 2-way connector located near the base of the steering column.



190002

4. Connect the driver yellow 2-way connector (2) located at the base of the steering column.
5. Install the Connector Position Assurance (CPA) (1) to the driver yellow 2-way connector located at the base of the steering column.
6. Install the AIR BAG Fuse to the IP fuse block.
7. Staying well away from the air bags, turn ON the ignition.
 - 7.1. The AIR BAG warning lamp will flash 7 times.
 - 7.2. The AIR BAG warning lamp will then turn OFF.
8. Perform the SIR Diagnostic System Check if the AIR BAG warning lamp does not operate as described. Refer to *SIR Diagnostic System Check*



190000

General Service Instructions

- Do not expose the inflator modules to temperatures above 65°C (150°F).
- Verify the correct replacement part number. Do not substitute a component from a different vehicle.
- Service these components by replacement only.
- Do not repair any of the following components:
 - The inflatable restraint sensing and diagnostic module (SDM)
 - The inflatable restraint IP module
 - The inflatable restraint IP module switch
 - The inflatable restraint steering wheel module
 - The inflatable restraint steering wheel module coil
 - The inflatable restraint front end discriminating sensor
- 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 the components have been dropped from a height of 91 centimeters (3 ft) or greater.
 - The inflatable restraint sensing and diagnostic module (SDM)
 - The Inflatable restraint IP module
 - The Inflatable restraint IP module switch
 - The inflatable restraint steering wheel module
 - The inflatable restraint steering wheel module coil
 - The Inflatable restraint front end discriminating sensor
- When you replace the SDM, verify that the following conditions are met:
 - The mounting surface is clean.
 - The arrow on the module points toward the front of the vehicle.
 - The module is flat on the mounting surface, parallel to the vehicle datum line.
 - The module fasteners are installed and tightened as specified.
- In order to avoid setting false diagnostic trouble codes, only apply power to the SIR system when one of the following two conditions is met:
 - All SIR system components are properly mounted and electrically connected.
 - A diagnostic procedure directs you to apply power.
- Begin diagnosis of malfunctions with the SIR Diagnostic System Check. Perform the SIR Diagnostic System Check in order to verify the following:
 - The proper operation of the AIR BAG warning lamp.
 - Communication with the SDM through the serial data line.
 - The presence or absence of diagnostic trouble codes.
 - Whether additional diagnosis is required and where the information resides.

Not beginning with the SIR Diagnostic System Check could cause the following:

- Extended diagnostic time
- Incorrect diagnosis
- Unneeded parts replacement

Inflatable Restraint Sensing and Diagnostic Module Replacement

Caution: Be careful when you handle a sensing and diagnostic module (SDM). Do not strike or jolt the SDM. Before applying power to the SDM:

- Remove any dirt, grease, etc. from the mounting surface
- Position the SDM horizontally on the mounting surface
- Point the arrow on the SDM toward the front of the vehicle
- Tighten all of the SDM fasteners and SDM bracket fasteners to the specified torque value

Failure to follow the correct procedure could cause air bag deployment, personal injury, or unnecessary SIR system repairs.

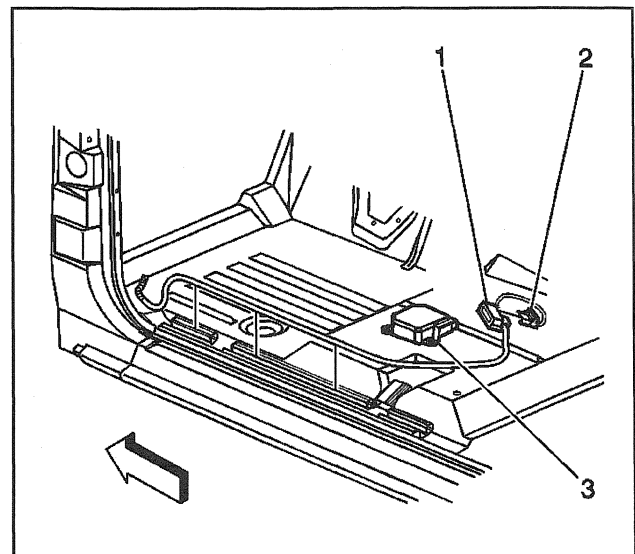
Caution: If any water enters the vehicle's interior up to the level of the carpet or higher and soaks the carpet, the sensing and diagnostic module (SDM) and the SDM harness connector may need to be replaced. The SDM could be activated when powered, which could cause deployment of the air bag(s) and result in personal injury. Before attempting these procedures, the SIR system must be disabled. Refer to *Disabling the SIR System* in this section. With the ignition OFF, inspect the SDM mounting area, including the carpet. If any significant soaking or evidence of significant soaking is detected, you must perform the following steps:

- Remove all water.
- Repair the water damage.
- Replace the SDM harness connector.
- Replace the SDM.

Failure to follow these procedures could result in possible air bag deployment, personal injury, or otherwise unneeded SIR system repairs.

Removal Procedure

1. Disable the SIR system. Refer to *Disabling the SIR System*.
2. Remove the drivers seat. Refer to *Seat Replacement - Bench* or *Seat Replacement - Split Bench* or *Seat Replacement - Front Bucket (Base) in Seats*.
3. Remove the carpet retaining sill trim molding — LH, Refer to *Door Sill Plate Replacement in Interior Trim*.
4. Fold back the carpet to access the inflatable restraint sensing and diagnostic module (SDM).
5. Remove the connector position assurance (2) from the inflatable restraint sensing and diagnostic module (SDM) harness connector.
6. Disconnect the SDM harness connector (1) from the SDM (3).
7. Remove the SDM mounting fasteners.
8. Remove the SDM (3) from the vehicle.



Important: The following repair procedures should only be used in the event that the inflatable restraint sensing and diagnostic module (SDM) mounting studs and/or fasteners are damaged to the extent that the SDM may no longer be properly mounted.

Repair the fasteners using the following procedure:

- 8.1. Remove the stripped nut and discard the nut.
- 8.2. Drill out the weld spots to the weld stud from the floor pan side, then remove and discard the stud.
- 8.3. Condition the floor panel attaching surface where the new stud is to be installed.
- 8.4. Install new weld stud GM P/N 115115602 and clamp the weld stud.
- 8.5. Migweld the stud at the drilled holes from above or below the floor pan (as required).
- 8.6. Apply body sealer GM P/N 9984248 around any exposed openings.
- 8.7. Install a new fastener GM P/N 11515933.

Installation Procedure

1. Install the SDM (3) to the vehicle.

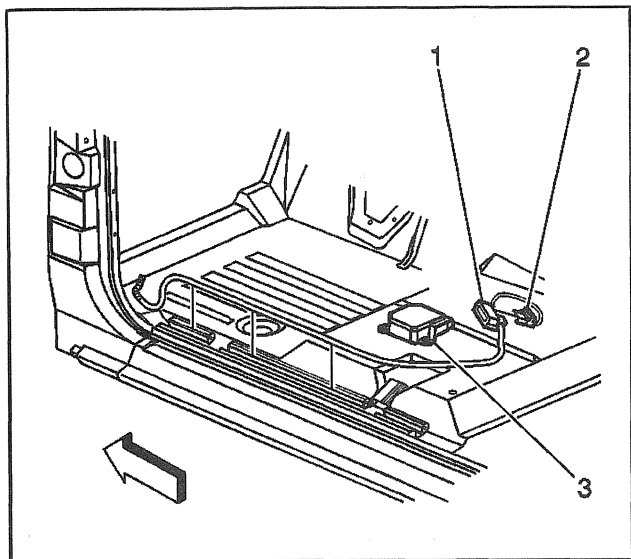
Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the SDM mounting fasteners.

Tighten

Tighten fasteners to 12 N·m(106 lb in).

3. Install the SDM harness connector (1) to the SDM.
4. Install the connector position assurance (2) to the SDM harness connector.
5. Position the carpet to cover the inflatable restraint sensing and diagnostic module (SDM).
6. Install the carpet retaining sill trim molding — LH, Refer to *Door Sill Plate Replacement* in Interior Trim.
7. Install the driver seat, Refer to *Seat Replacement - Bench* or *Seat Replacement - Split Bench* or *Seat Replacement - Front Bucket (Base)* in Seats.
8. Enable the SIR system. Refer to *Enabling the SIR System*.

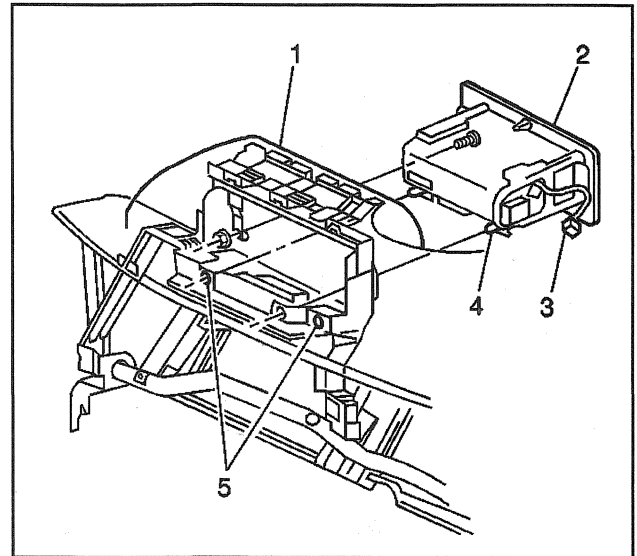


388339

Inflatable Restraint Instrument Panel Module Replacement

Removal Procedure

1. Disable the SIR system. Refer to *Disabling the SIR System*.
2. Roll the instrument panel forward. Refer to *IP Assembly - Rotating*.
3. Remove the fasteners (5) from the studs (4) attaching the inflatable restraint IP module to the mounting bracket.
4. Remove the inflatable restraint IP module (2) from the front of the instrument panel. Ensure that you keep a firm hold of the module.
5. Remove the yellow 2-way electrical harness connector at the left side of the mounting bracket.
6. Remove the connector position assurance (CPA) from the yellow 2-way electrical harness connector.
7. Remove the inflatable restraint IP module yellow pigtail connector (3) from the yellow 2-way electrical harness connector.
8. Remove the inflatable restraint IP module from the instrument panel (1).



388322

Installation Procedure

1. Install the inflatable restraint IP module to the instrument panel (1).
2. Install the inflatable restraint IP module yellow pigtail connector (3) to the yellow 2-way electrical harness connector.
3. Install the connector position assurance.
4. Install the yellow 2-way electrical harness connector to the mounting on the left side of the mounting bracket.
5. Install the 2 new retainer J-clips to the mounting bracket.
6. Install the inflatable restraint IP module (2) to the mounting bracket through the front of the instrument panel (1). Use the 2 retainer J-clips in order to hold the inflatable restraint IP module in position.

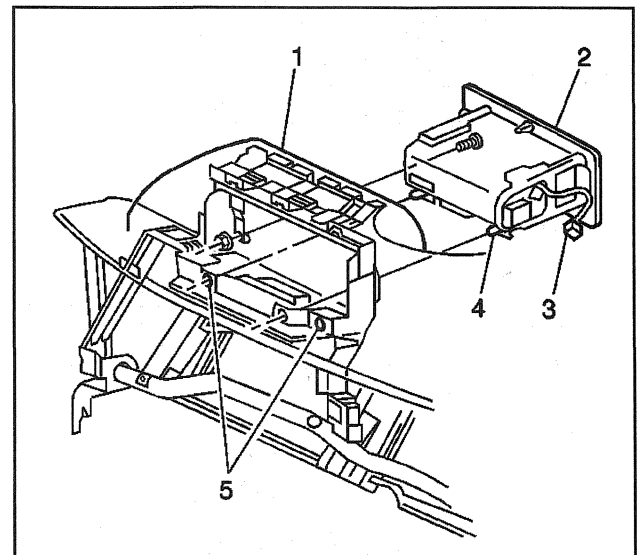
Notice: Refer to *Fastener Notice* in Cautions and Notices.

7. Install the fasteners (5) to the studs (4) of the inflatable restraint IP module.

Tighten

Tighten the fasteners to 10 N·m(89 lb in).

8. Roll the instrument panel forward. Refer to *IP Assembly - Rotating*.
9. Enable the SIR system. Refer to *Enabling the SIR System*.



388322

Inflatable Restraint Front End Discriminating Sensor Replacement

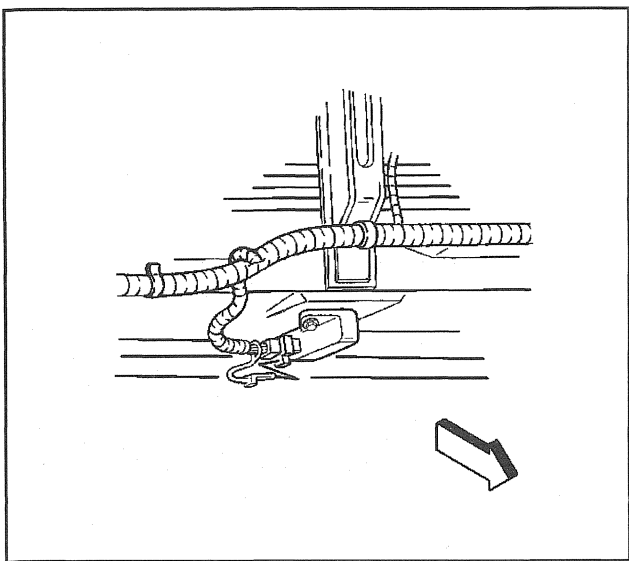
Caution: Be careful when you handle a sensor. Do not strike or jolt a sensor. Before applying power to a sensor:

- Remove any dirt, grease, etc. from the mounting surface.
- Position the sensor horizontally on the mounting surface.
- Point the arrow on the sensor toward the front of the vehicle.
- Tighten all of the sensor fasteners and sensor bracket fasteners to the specified torque value.

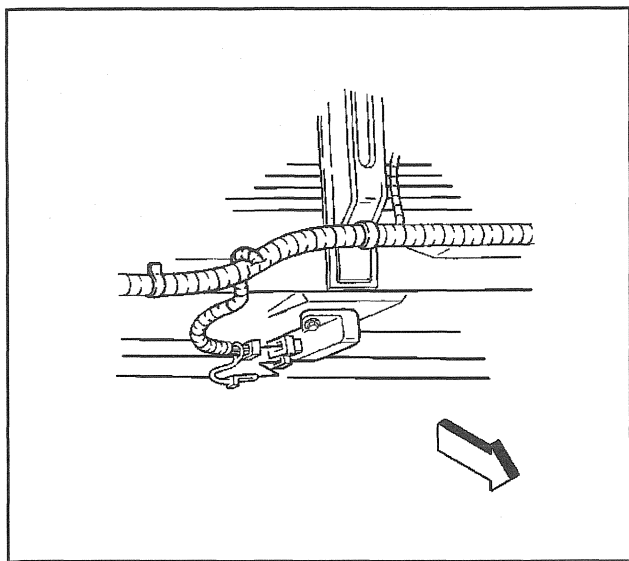
Failure to follow the correct procedure could cause air bag deployment, personal injury, or unnecessary SIR system repairs.

Removal Procedure

1. Disable the SIR system. Refer to *Disabling the SIR System*.
2. Remove the off road skid plate (if equipped). Refer to *Engine Protection Shield Replacement* in Frame and Underbody.
3. Remove the connector position assurance (CPA) from the inflatable restraint front end discriminating sensor harness connector.
4. Disconnect the inflatable restraint front end discriminating sensor harness connector from the sensor.

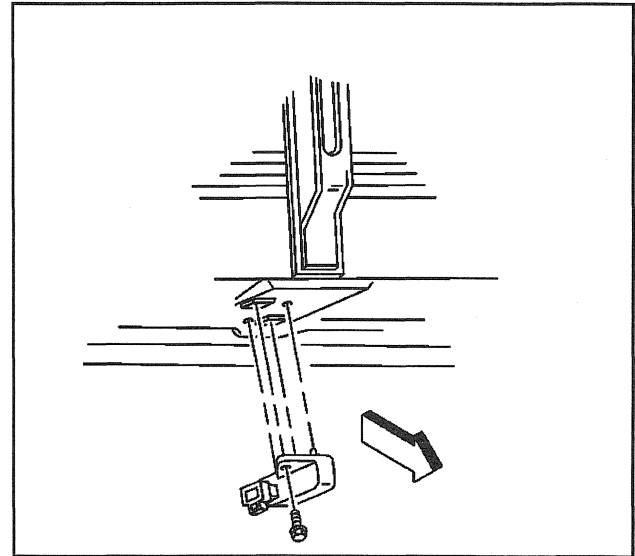


189976



189982

5. Remove the mounting fasteners.



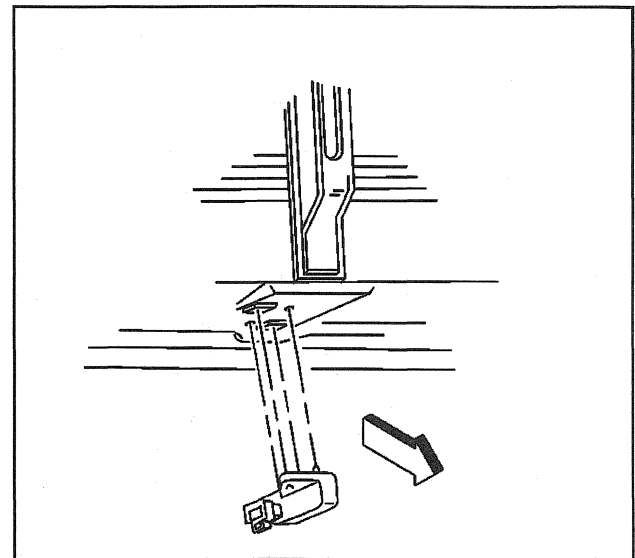
189984

6. Remove the inflatable restraint front end discriminating sensor from the vehicle.

Important: The following procedures should be utilized in the event that sensor mounting holes or fasteners are damaged to the extent that the sensor may no longer be properly mounted.

Use the following procedure to repair fasteners:

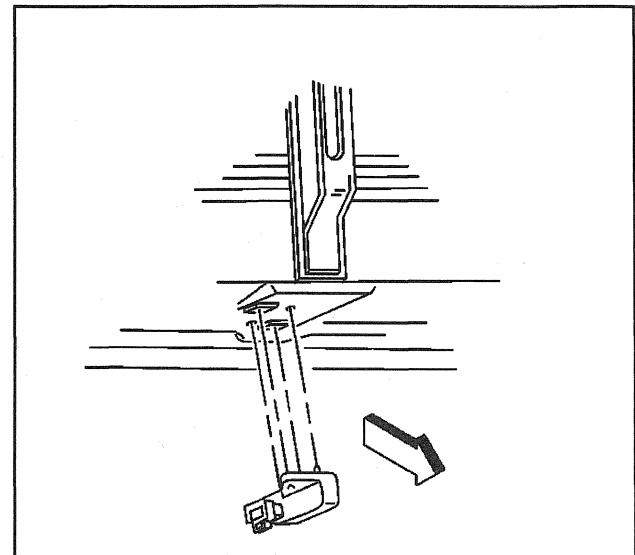
- 6.1. Remove and discard the fastener.
- 6.2. Chisel off the damaged weld nut.
- 6.3. Condition the front end lower tie surface where the new weld nut is to be installed.
- 6.4. Install the new weld nut (part #11514034) or equivalent into position.
- 6.5. Migweld the new weld nut to the front end lower tie surface in the correct location.
- 6.6. Use the new fastener (part #11515926) or equivalent.



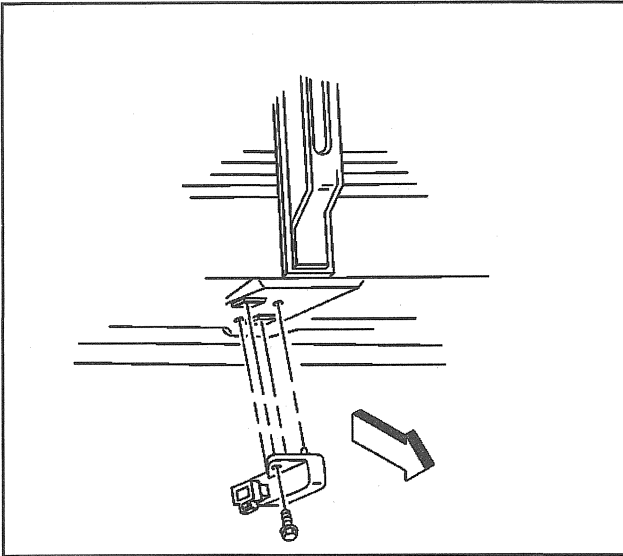
189986

Installation Procedure

1. Install the inflatable restraint front end discriminating sensor to the front end lower tie surface and ensure that the arrow is pointing toward the front of the vehicle.



189986



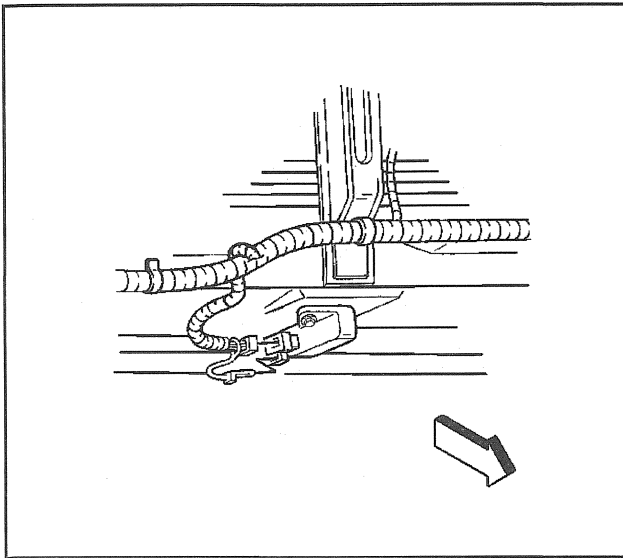
189984

Notice: Refer to *Fastener Notice* in Cautions and Notices.

2. Install the inflatable restraint front end discriminating sensor mounting fasteners.

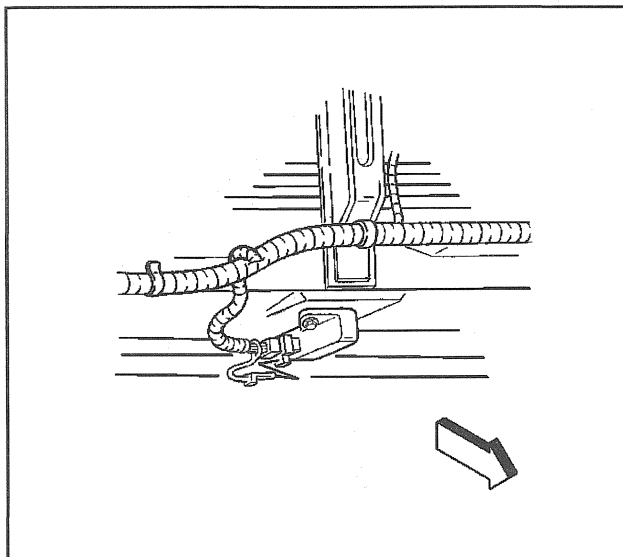
Tighten

Tighten fasteners to 8 N·m (71 lb in).



189982

3. Connect the inflatable restraint front end discriminating sensor harness connector to the sensor.



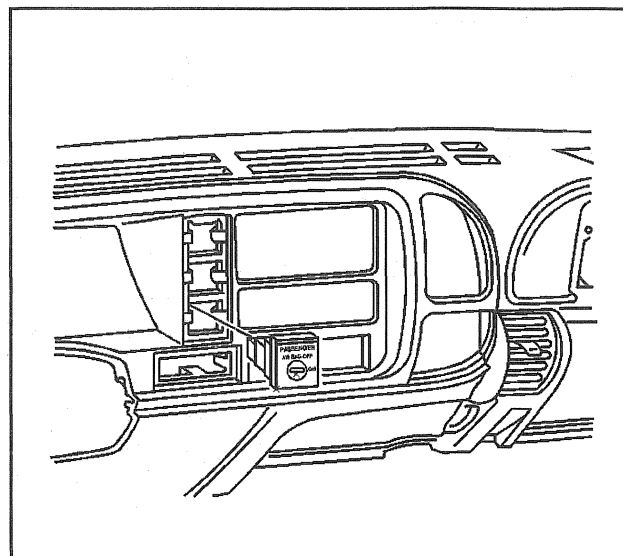
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4. Install the connector position assurance (CPA) to the inflatable restraint front end discriminating sensor harness connector.
5. Install the off road skid plate (if equipped). Refer to *Engine Protection Shield Replacement* in Frame and Underbody.
6. Enable the SIR system. Refer to *Enabling the SIR System*.

Inflatable Restraint IP Module Switch Replacement

Removal Procedure

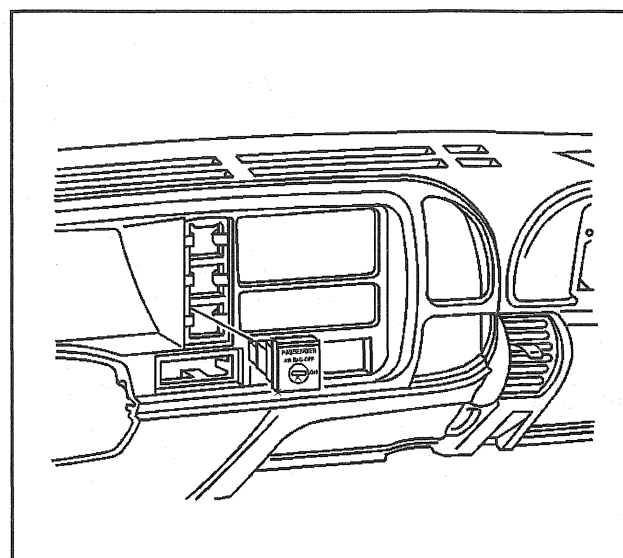
1. Remove the instrument panel trim bezel. Refer to *IP Cluster Replacement* in Instrument Panel, Gauges and Console.
2. Remove the switch from the lower opening of the switch plate panel.
3. Disconnect the electrical connector.



388320

Installation Procedure

1. Connect the electrical connector.
2. Install the switch into the lower opening of the switch plate panel.
3. Install the instrument panel trim bezel. Refer to *IP Cluster Replacement* in Instrument Panel, Gauges and Console.



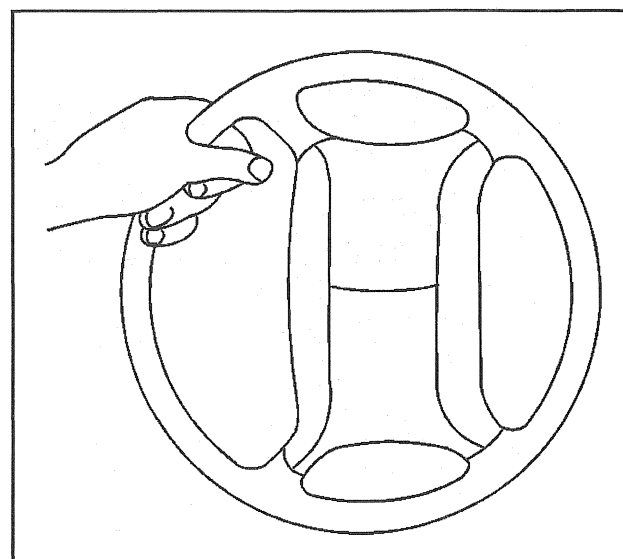
388320

Infl Rst Steering Wheel Module Replacement

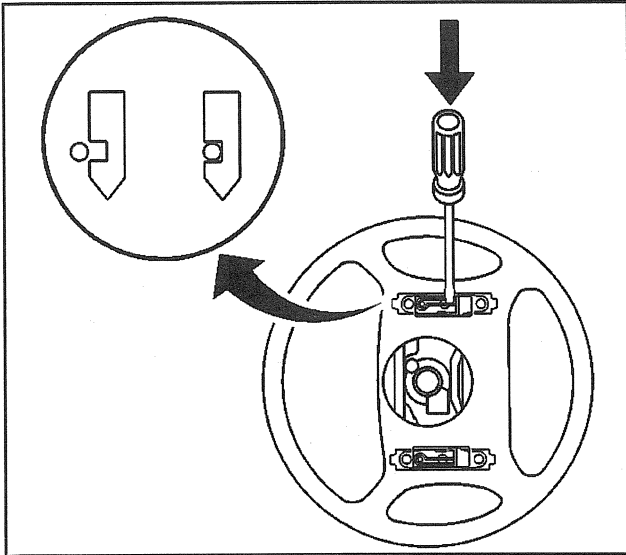
Removal Procedure

Caution: Refer to *Servicing the SIR System Caution in Cautions and Notices.*

1. Disable the SIR system. Refer to *Disabling the SIR System.*
2. Turn the ignition switch to the ON position to unlock the steering wheel.
3. Turn the steering wheel 90 degrees so the side of the SIR module is at the 12 o'clock position in order to gain access to the access holes behind the steering wheel.

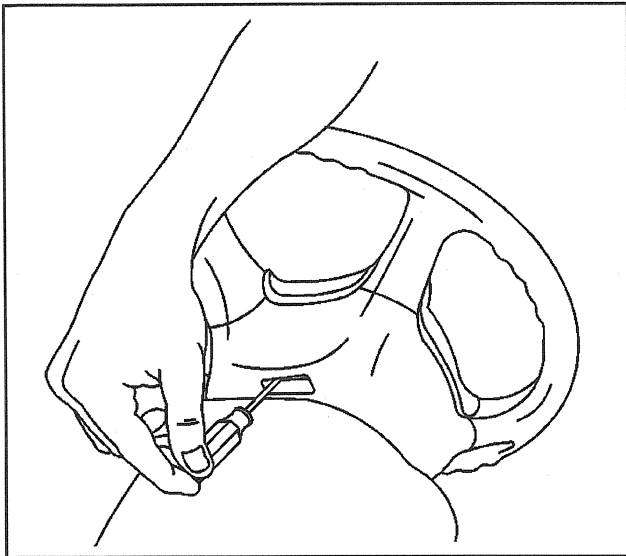


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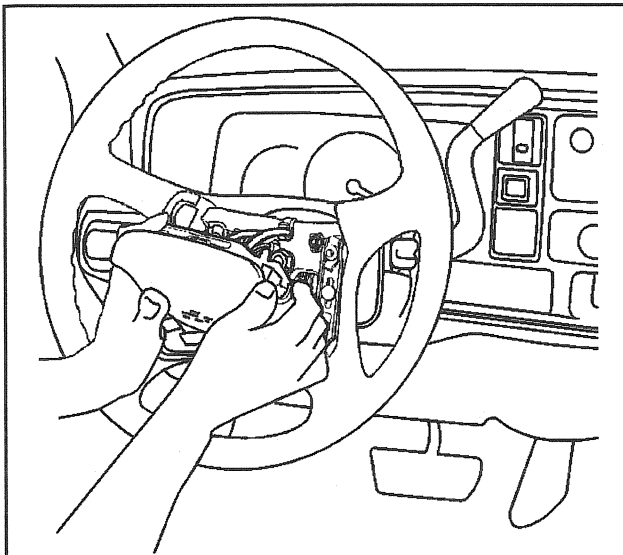
245788

4. Insert a screwdriver into each access hole and push the leaf spring to release the pin that retains the inflator module.



288763

5. Turn the steering wheel 180 degrees to gain access to the remaining access holes.
6. Insert a screwdriver into each access hole and push the leaf spring to release the pin that retains the inflator module.



245799

7. Tilt the top of the inflator module rearward to gain access to the SIR wiring.
8. Disconnect the SIR lead wire from the clip on the inflator module.
9. Disconnect the SIR lead wire from the clip on the steering wheel.

10. Disconnect the connector position assurance retainer.
11. Disconnect the electrical connector.

Caution: When carrying a live inflator module, make sure the bag opening is pointed away from you. This minimizes the chance of injury in the case of an accidental deployment. Never carry the inflator module by the wires. Never carry the inflator module by the connector on the underside of the module.

Make sure that the bag and trim cover are facing up whenever you place a live inflator module on any surface. This is necessary to provide a free space for the bag to expand in the unlikely event of accidental deployment.

Never rest the steering column assembly on the steering wheel with the inflator module face down, and the column vertical. This may result in personal injury.

12. Remove the inflator module from the vehicle.

Installation Procedure

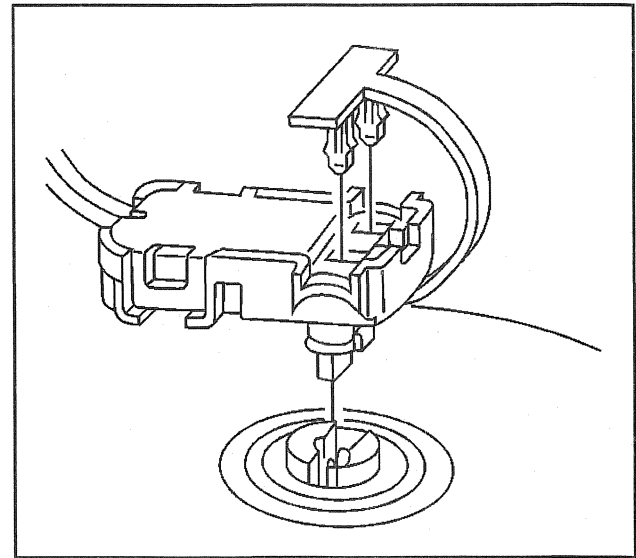
Caution: When carrying a live inflator module, make sure the bag opening is pointed away from you. This minimizes the chance of injury in the case of an accidental deployment. Never carry the inflator module by the wires. Never carry the inflator module by the connector on the underside of the module.

Make sure that the bag and trim cover are facing up whenever you place a live inflator module on any surface. This is necessary to provide a free space for the bag to expand in the unlikely event of accidental deployment.

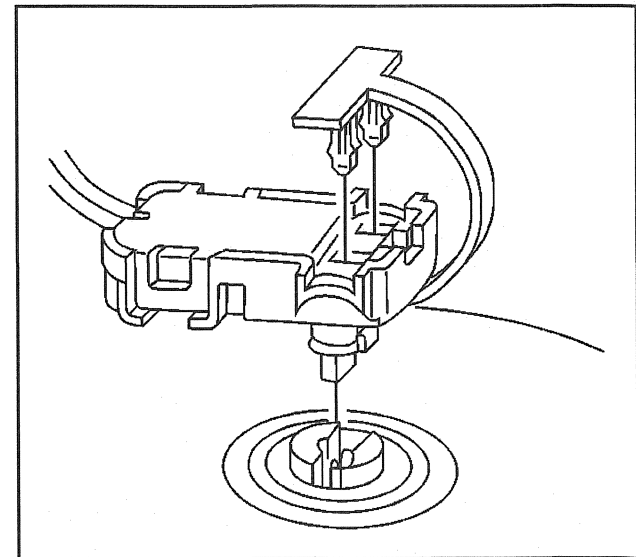
Never rest the steering column assembly on the steering wheel with the inflator module face down, and the column vertical. This may result in personal injury.

1. Connect the SIR electrical connector.
2. Connect the CPA retainer to the SIR connector.
3. Install the SIR lead wire to the clip on the steering wheel.
4. Install the SIR lead wire to the clip on the inflator module.

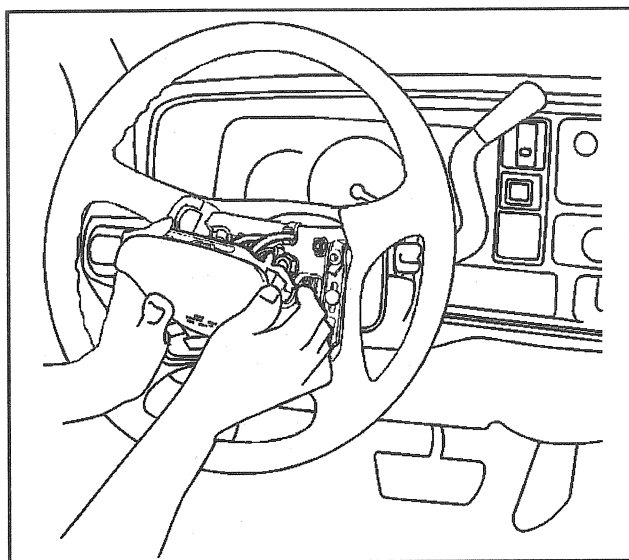
Important: Ensure that the wiring is not exposed or trapped between the inflatable restraint steering wheel module and the steering wheel.



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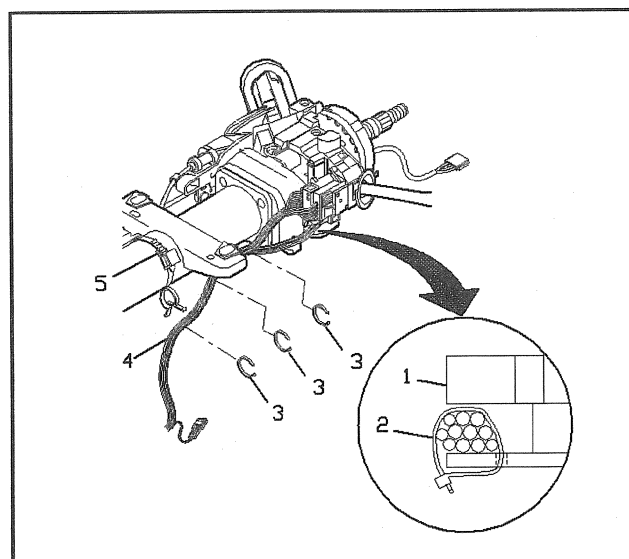


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5. Press the inflator module into the steering wheel firmly enough that the module engages and latches the notched pins in the leaf springs.
6. Rotate the steering wheel back into the straight position.
7. Enable the SIR system. Refer to *Enabling the SIR System*.



360577

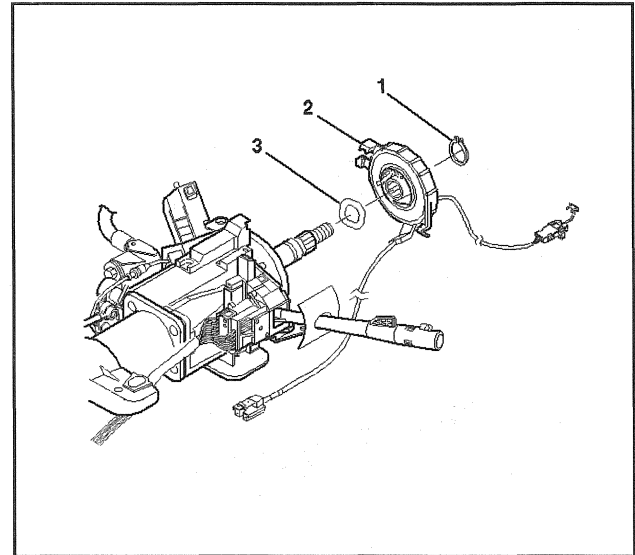
Inflatable Restraint Steering Wheel Module Coil Replacement

Removal Procedure

Important: Disable the SIR system. Refer to *Disabling the SIR System*.

1. Remove the steering wheel assembly. Refer to *Steering Wheel Replacement* in Steering Wheel and Column — Standard or *Steering Wheel Replacement* in Steering Wheel and Column — Tilt.
2. Remove the tilt lever, if equipped. Refer to *Tilt Lever Replacement - On Vehicle* in Steering Wheel and Column — Tilt.
3. Remove the multi-function lever. Refer to *Multifunction, Turn Signal and Hazard Switch Replacement - On Vehicle* in Steering Wheel and Column — Tilt.
4. Remove the upper and lower shrouds. Refer to *Steering Column Trim Covers - Disassemble - Off Vehicle (Column Shift)* or *Steering Column Trim Covers - Disassemble - Off Vehicle (Floor Shift)* in Steering Wheel and Column — Tilt.
5. Pop the wire harness assembly (4) out of the wire harness strap (5).
6. Remove the 3 wire harness straps (3) from the wire harness assembly.
7. Remove the wire harness strap (2) from the upper tilt head assembly (1).

8. Remove the coil assembly retaining clip (1).
9. Remove the coil assembly (2).
10. Remove the wave washer (3).



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Installation Procedure

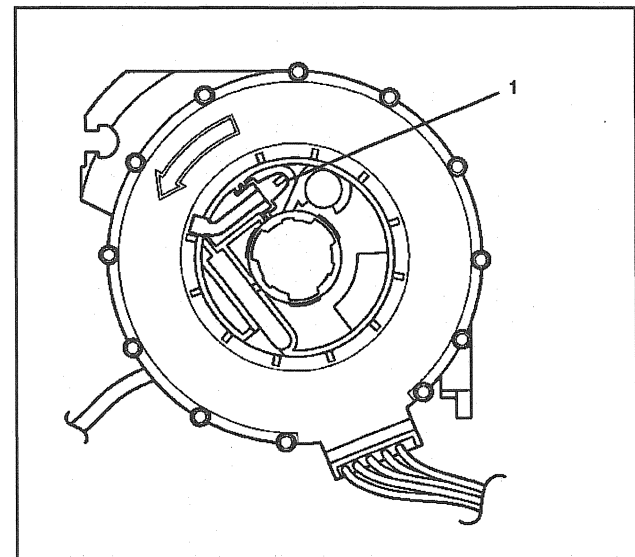
Notice: Ensure all fasteners are securely seated before applying needed torque. Failure to do so may result in component damage or malfunctioning of steering column.

1. Install the wave washer.

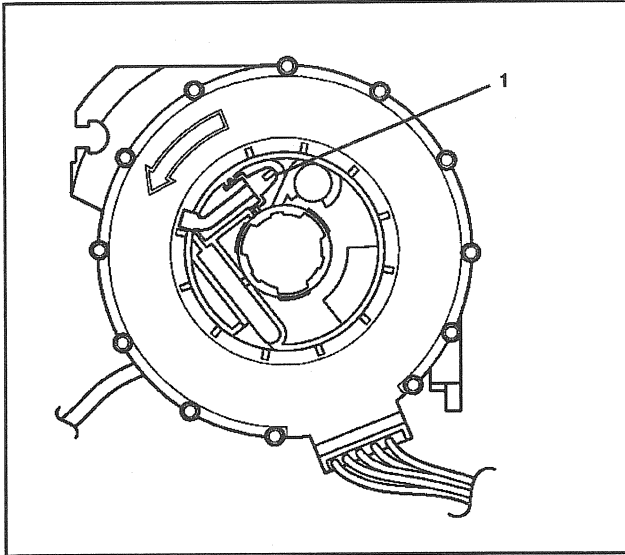
Important:

- Ensure that the coil assembly is centered.
- The coil assembly becomes un-centered under the following conditions:
 - The steering column is separated from the steering gear and allowed to rotate.
 - The centering spring is pushed down (1), letting the hub rotate while the coil is removed from the steering column. In the event this occurs, refer to *Inflatable Restraint Coil Centering - Off Vehicle (Column Shift And Floor Shift)* in steering wheel and column.

2. To install the SIR coil assembly, align the block tooth on the race and upper shaft assembly to the 12 o'clock position.



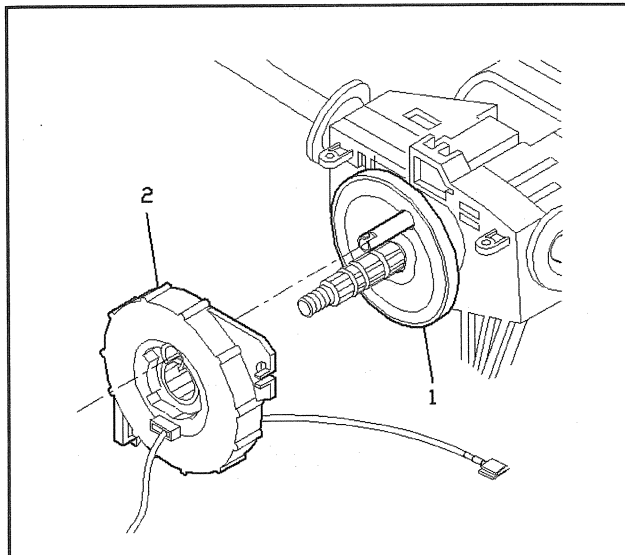
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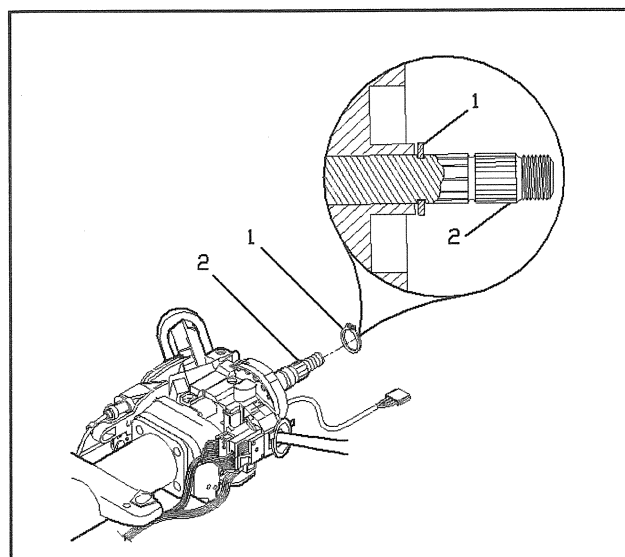
3. Install the pre-centered coil assembly to the steering column. Remove the centering tab (1) and discard.

Important: Gently pull on the lower coil assembly wire in order to remove any wire kinks inside of the column assembly. Ensure that there are NO kinks or bends in the SIR coil assembly wire. If a kink or bend is present, interference may occur with the shaft lock mechanism. Turning the steering wheel may cut or damage the wire.



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4. Install the coil assembly (2) using the following components for alignment:
 - The horn tower (1) on the canceling cam assembly inner ring
 - The projections on the outer ring



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5. Install the coil assembly retaining ring. Ensure that the ring (1) is firmly seated in the groove on the upper shaft assembly (2).
6. Pop the wire harness assembly (4) into the wire strap (5).
7. Install the wire harness strap (2) into the upper tilt head assembly (1).
8. Install 3 wire harness straps (3) from the wire harness assembly.
9. Install the multi-function switch lever assembly and the bolt. Refer to *Multifunction, Turn Signal and Hazard Switch Replacement - On Vehicle* in Steering Wheel and Column — Tilt.
10. Install the upper and lower shrouds. Refer to *Steering Column Trim Covers - Assemble - Off Vehicle (Column Shift)* or *Steering Column Trim Covers - Assemble - Off Vehicle (Floor Shift)* in Steering Wheel and Column — Tilt.

11. Install the tilt lever, if equipped. Refer to *Tilt Lever Replacement - On Vehicle* in Steering Wheel and Column — Tilt.
12. Install the steering wheel assembly. Refer to *Steering Wheel Replacement* in Steering Wheel and Column — Standard or *Steering Wheel Replacement* in Steering Wheel and Column — Tilt.
13. Enable the SIR system. Refer to *Enabling the SIR System*.

AIR BAG Warning Lamp Replacement

Refer to *Instrument Cluster Lamp Replacement* in Instrument Panel, Gauges and Console.

Wiring Repair

The supplemental inflatable restraint (SIR) system requires special wiring repair procedures due to the sensitive nature of the circuitry. Follow the specific procedures and instructions when working with the SIR system wiring, and the wiring components (such as connectors and terminals).

Important: Do not use the terminals in the kit in order to replace damaged SIR system terminals unless specifically indicated by the terminal package.

Tools Required

J 38125-B Terminal Repair Kit

The tool kit *J 38125-B* contains the following items:

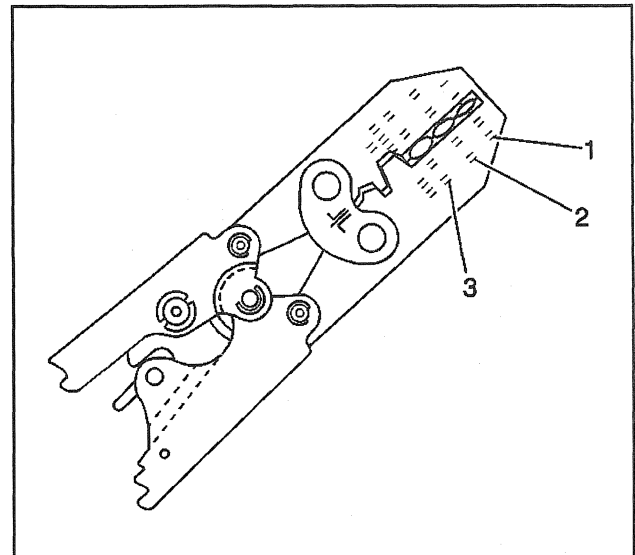
- Special sealed splices - in order to repair the SIR system wiring
- A wire stripping tool
- A special crimping tool
- A heat torch
- An instruction manual

The sealed splices has the following 2 critical features:

- A special heat shrink sleeve environmentally seals the splice. The heat shrink sleeve contains a sealing adhesive inside.
- A cross hatched (knurled) core crimp provides necessary contact integrity for the sensitive, low energy circuits.

The *J 38125-B* also serves as a generic terminal repair kit. The kit contains the following items:

- A large sampling of common GM electrical terminals
- The correct tools in order to attach the terminals to wires
- The correct tools in order to remove the terminals from connectors



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SIR Connector (Plastic Body and Terminal Metal Pin) Repair

Use the connector repair assembly packs in order to repair the damaged SIR wire harness connectors and the terminals. Do not use the connector repair assembly pack in order to repair the pigtails. These kits include an instruction sheet and the sealed splices. Use the sealed splices in order to splice the new wires, connectors, and terminals to the harness. The splice crimping tool is color keyed in order to match the splices from the *J 38125-B*. You must use the splice crimping tool in order to apply these splices.

The terminals in the SIR system are made of a special metal. This metal provides the necessary contact integrity for the sensitive, low energy circuits. These terminals are only available in the connector repair assembly packs. Do not substitute any other terminals for those in the assembly packs.

If the individual terminals are damaged on the sensing and diagnostic module (SDM) harness connector, use 1 of the following 2 components in order to replace the SDM harness connector:

- The SDM harness connector pigtail assembly
- The SDM harness connector replacement kit

If the individual terminals are damaged on any other SIR connection, use the appropriate connector repair assembly pack in order to replace the entire connection. Replace the entire SIR wiring harness, if needed, in order to maintain SIR circuit integrity.

SIR Wire Pigtail Repair

Important: Do not make wire, connector, or terminal repairs on components with wire pigtails.

A wire pigtail is a wire or wires attached directly to the device (not by a connector). If a wiring pigtail is damaged, you must replace the entire component (with pigtail). The inflatable restraint steering wheel module coil is an example of a pigtail component.

SIR Wire Repair

Tools Required

J 38125-B Terminal Repair Kit

Important: Refer to *Wiring Repairs* in *Wiring Systems* in order to determine the correct wire size for the circuit you are repairing. You must obtain this information in order to ensure circuit integrity.

If any wire except the pigtail is damaged, repair the wire by splicing in a new section of wire of the same gauge size (0.5 mm, 0.8 mm, 1.0 mm etc.). Use the sealed splices and splice crimping tool from the *J 38125-B*. Use the following wiring repair procedures in order to ensure the integrity of the sealed splice.

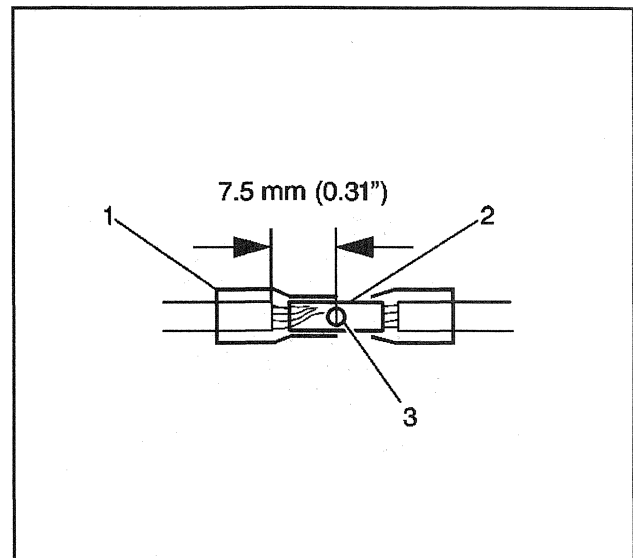
Important: You must perform the following procedures in the listed order. Repeat the procedure if any wire strands are damaged. You must obtain a clean strip with all of the wire strands intact.

1. Open the harness by removing any tape:
 - Use a sewing seam ripper (available from sewing supply stores) in order to cut open the harness in order to avoid wire insulation damage.
 - Use the crimp and sealed splice sleeves on all types of insulation except tefzel and coaxial.
 - Do not use the crimp and sealed splice sleeve to form a splice with more than 2 wires coming together.
2. Cut as little wire off the harness as possible. You may need the extra length of wire in order to change the location of a splice. Adjust splice locations so that each splice is at least 40 mm (1.5 in) away from the other splices, harness branches, or connectors.
3. Strip the insulation:
 - When adding a length of wire to the existing harness, use the same size wire as the original wire.
 - Perform one of the following items in order to find the correct wire size:
 - Find the wire on the schematic and convert the metric size to the equivalent AWG size.
 - Use an AWG wire gauge.
 - If you are unsure of the wire size, begin with the largest opening in the wire stripper and work down until achieving a clean strip of the insulation.
 - Strip approximately 7.5 mm (0.313 in) of insulation from each wire to be spliced.
 - Do not nick or cut any of the strands. Inspect the stripped wire for nicks or cut strands.
 - If the wire is damaged, repeat this procedure after removing the damaged section.
4. Select the proper sealed splice sleeve according to wire size. Refer to the following table for color coding of the splice sleeves, and the crimp tool nests.
5. Use the Splice Crimp Tool from the *J 38125-B* in order to position the splice sleeve in the proper color nest of the Splice Crimp Tool.

Crimp and Seal Splice Table

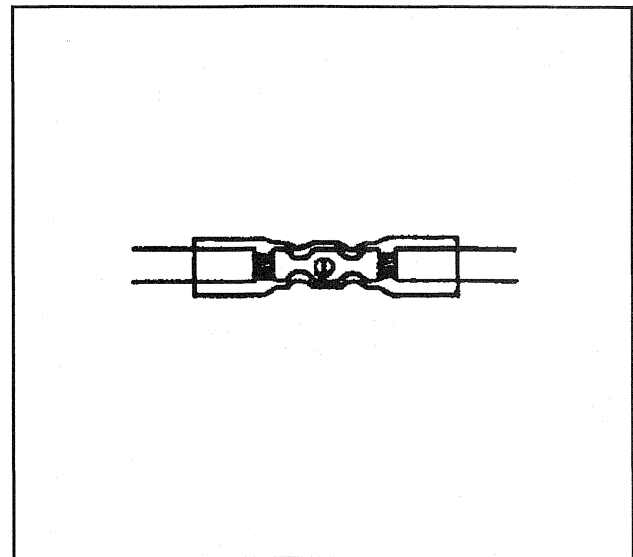
Splice Sleeve Color	Crimp Tool Nest Color	Wire Gauge mm ² / (AWG)
Salmon (yellow-pink)	Red (1)	0.5–0.8 / (18–20)
Blue	Blue (2)	1.0–2.0 / (14–16)
Yellow	Yellow (3)	3.0–5.0 / (10–12)

6. Place the splice sleeve in the nest. Ensure that the crimp falls midway between the end of the barrel and the stop. The sleeve has a stop (3) in the middle of the barrel (2) in order to prevent the wire (1) from going further. Close the hand crimper handles slightly in order to firmly hold the splice sleeve in the proper nest.

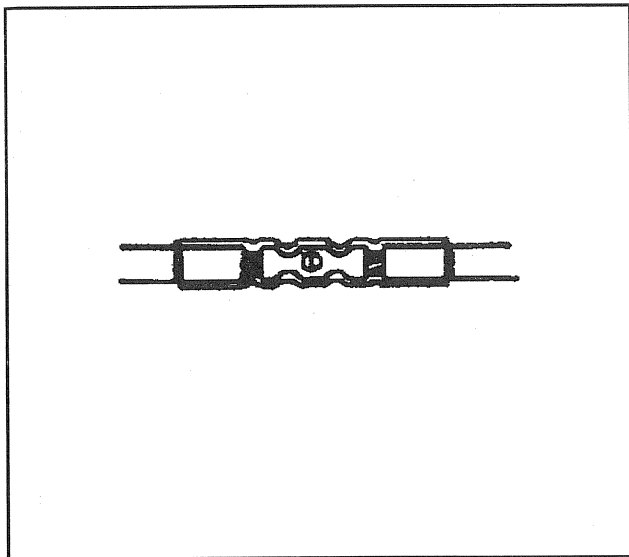


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7. Insert the wire into the splice sleeve barrel until the wire hits the barrel stop.
8. Tightly close the handles of the crimper tool until the crimper handles open when released. The crimper handles will not open until you apply the proper amount of pressure to the splice sleeve. Repeat steps 4 and 5 for the opposite end of the splice.



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9. Using the heat torch, apply heat to the crimped area of the barrel.
10. Gradually move the heat barrel to the open end of the tubing:
 - The tubing will shrink completely as the heat is moved along the insulation.
 - A small amount of sealant will come out of the end of the tubing when sufficient shrinkage is achieved.

SIR System Wire Splice Repair

Apply a new splice (not sealed) from the *J 38125-B* if damage occurs to any of the original equipment splices (3 wires or more) in the SIR wiring harness. Carefully follow the instructions included in the kit for proper splice clip application.

Connector Position Assurance (CPA)

The connector position assurance (CPA) is a small plastic insert that fits through the locking tabs of all the SIR system electrical connectors. The CPA ensures that the connector halves cannot vibrate apart. You must have the CPA in place in order to ensure good contact between the SIR mating terminals.

Terminal Position Assurance (TPA)

The terminal position assurance (TPA) insert resembles the plastic combs used in the control module connectors. The TPA keeps the terminal securely seated in the connector body. Do not remove the TPA from the connector body unless you remove a terminal for replacement.

Repairs and Inspections Required After an Accident

Accident With or Without Air Bag Deployment — Component Inspections

Caution: *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.

- Steering column—Perform the steering column accident damage inspecting procedures. Refer to *Steering Column Accident Damage Inspection - Off Vehicle* in *Steering Wheel and Column*.
- IP Knee Bolsters—Inspect the knee bolsters for bending, twisting, buckling, or any other type of damage.
- IP brackets, braces, etc.—Inspect for bending, twisting, buckling, or any other type of damage.
- Seat Belts—Perform the seat belt operational and functional inspections.

Accident With Air Bag Deployment — Component Replacement and Inspections

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

- Inflatable restraint IP (inflator) module
- Inflatable restraint steering wheel (inflator) module
- Inflatable restraint sensing and diagnostic module (SDM)
- The inflatable restraint front end discriminating sensor.

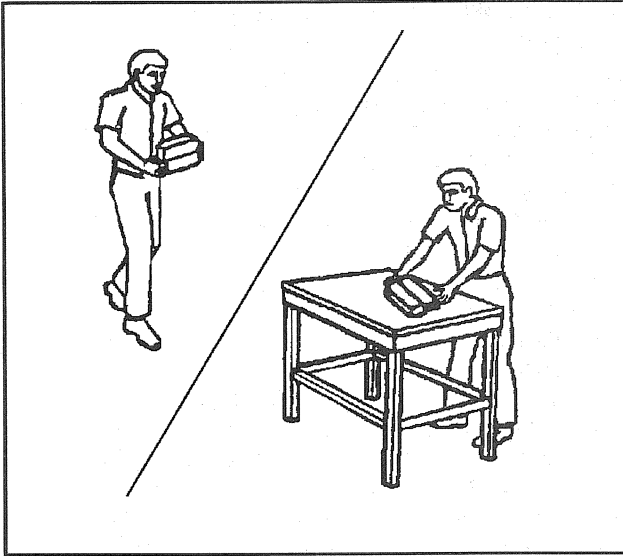
After a collision involving air bag deployment, inspect the Inflatable restraint steering wheel module coil and the coil wiring pigtail for melting, scorching, or other damage due to excessive heat. Perform this component inspection in addition to the inspections indicated above in *Accident With or Without Air Bag Deployment*. 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.

Sensor Replacement Guidelines

The SIR sensor replacement policy requires replacing sensors in the area of accident damage. The area of accident damage is defined as the portion of the vehicle which is crushed, bent, or damaged due to a collision. For example, a moderate collision where the front of the vehicle impacts a tree. If the vehicle has a SIR sensor mounted forward of the radiator, the sensor must be replaced.

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

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



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Inflator Module Handling, Shipping, and Scrapping

Caution: When you are carrying an undeployed inflator module:

- Do not carry the inflator module by the wires or connector on the inflator module
- Make sure the bag opening points away from you

When you are storing an undeployed inflator module, make sure the bag opening points away from the surface on which the inflator module rests. When you are storing a steering column, do not rest the column with the bag opening facing down and the column vertical. Provide free space for the air bag to expand in case of an accidental deployment. Otherwise, personal injury may result.

Important: Dealers should refer to the latest General Motors Service Bulletins for live (undeployed) inflatable restraint IP module scrapping and disposal procedures. All others should contact a local General Motors dealer for these procedures. Dispose of deployed IP modules through normal refuse channels.

Live (Undeployed) Inflator Module

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

Shipping Procedures

Refer to the latest service bulletins for proper SIR inflator module shipping procedures.

Scrapping Procedure

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

Caution: In order to prevent accidental deployment of the air bag which could cause personal injury, do not dispose of an undeployed inflator module as normal shop waste. The undeployed inflator module 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 inflator module. Failure to dispose of an inflator module as instructed may be a violation of federal, state, province, or local laws.

Do not deploy an air bag in the following situations:

- After replacement of an inflator module under warranty. The module may need to be returned undeployed to the Delphi Interior & Lighting Group. Refer to the latest service bulletin regarding SIR shipping procedures.
- 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. Refer to the latest service bulletin on SIR shipping procedures.
- If the vehicle is involved in a campaign affecting the inflator modules. Follow the instructions in the Campaign Service Bulletin for proper SIR handling and shipping procedures.

Deployment Procedures

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

Deployment Outside Vehicle (Inflatable Restraint Steering Wheel Module)

Tools Required

- J 38826 SIR Deployment Harness
- An appropriate pigtail adapter

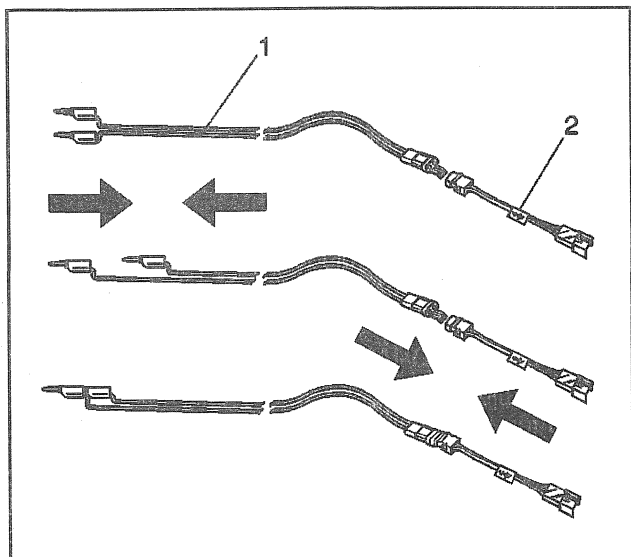
Caution: *In order to prevent accidental deployment of the air bag which could cause personal injury, do not dispose of an undeployed inflator module as normal shop waste. The undeployed inflator module contains substances that could cause severe illness or personal injury if the sealed container is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

Caution: *When you are deploying an inflator module for disposal, perform the deployment procedures in the order listed. Failure to follow the procedures in the order listed may result in personal injury.*

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

- Using the SIR diagnostics, you determine that the inflator module does not function properly.
- The inflator module is scratched or ripped on the cover.
- The inflator module pigtail, if equipped, is damaged.
- The inflator module connector is damaged.
- An inflator module connector terminal is damaged.

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



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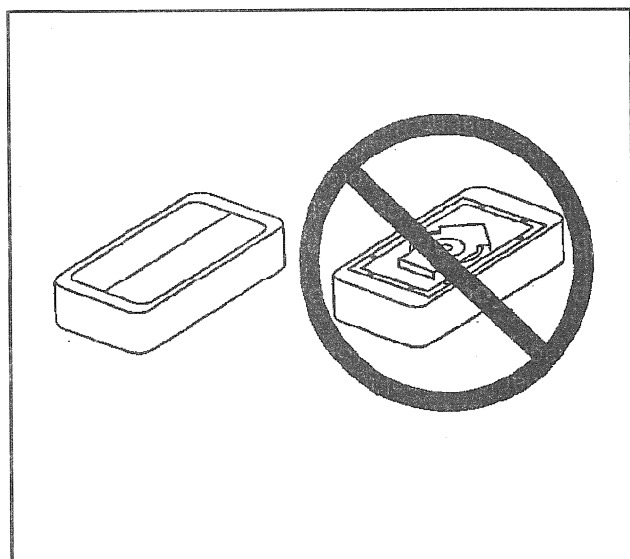
1. Turn the ignition switch to the OFF position.
2. Remove the ignition key.
3. Put on safety glasses.
4. Inspect the J 38826 and the appropriate pigtail adapter for damage. Replace as needed.
5. Short the 2 SIR deployment harness (1) leads together using one banana plug seated into the other.
6. Connect the appropriate pigtail adapter (2) to the SIR deployment harness (1).
7. Remove the inflatable restraint steering wheel module. Refer to *Infl Rst Steering Wheel Module Replacement* in Steering Wheel And Column.
8. Remove the horn lead from the back of the module, if equipped.
9. Remove the redundant steering wheel control leads from the back of the module, if equipped.
10. Remove all horn/steering wheel control buttons from the module, if equipped.

Caution: When you are carrying an undeployed inflator module:

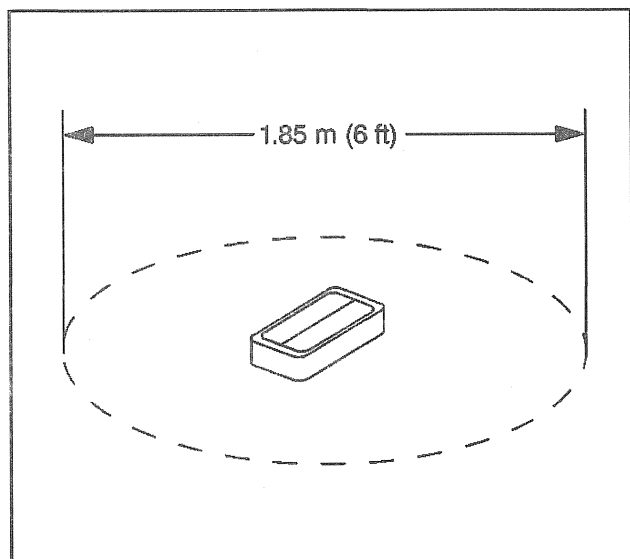
- Do not carry the inflator module by the wires or connector on the inflator module
- Make sure the bag opening points away from you

When you are storing an undeployed inflator module, make sure the bag opening points away from the surface on which the inflator module rests. When you are storing a steering column, do not rest the column with the bag opening facing down and the column vertical. Provide free space for the air bag to expand in case of an accidental deployment. Otherwise, personal injury may result.

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



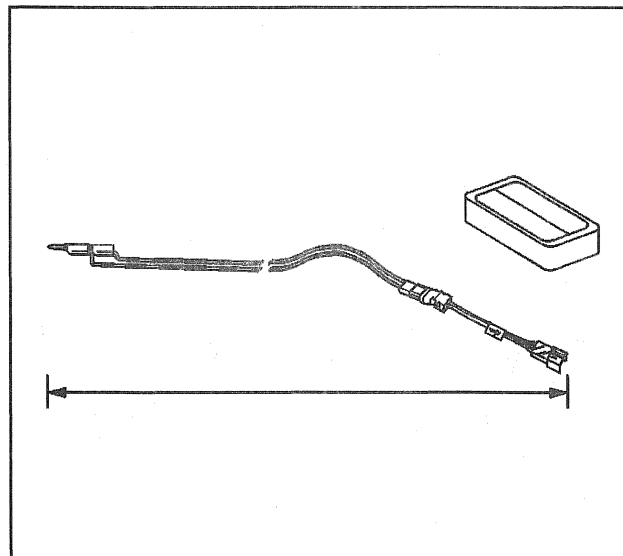
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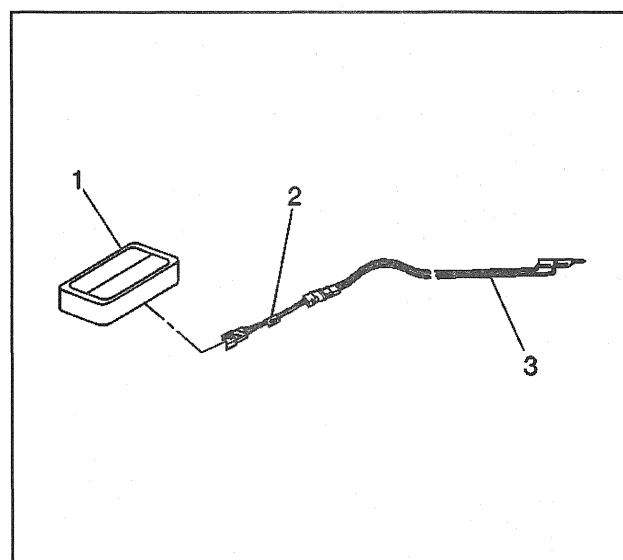
12. Clear a space on the ground about 1.85 meter (6 ft) in diameter for deployment of the module. If possible, use a paved, outdoor location free of activity. Otherwise, use a space free of activity on the shop floor. Ensure that you have sufficient ventilation.
13. Ensure no loose or flammable objects are in the area.
14. Place the module in the space with the vinyl trim cover facing up.

15. Extend the SIR deployment harness and adapter to full length from the module.
16. Place a 12 volt minimum/2A minimum power source (i.e., vehicle battery) near the shorted end of the harness.



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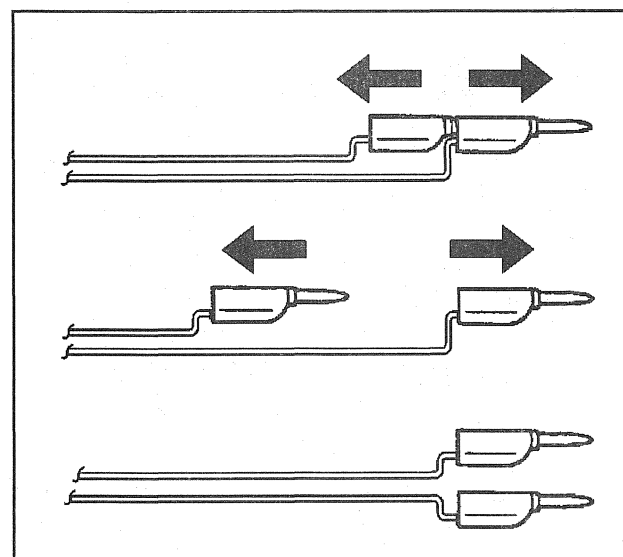
17. Connect the module (1) to the adapter (2) on the SIR deployment harness (3).
18. Firmly seat the adapter into the module connector.
19. Clear the area of people.



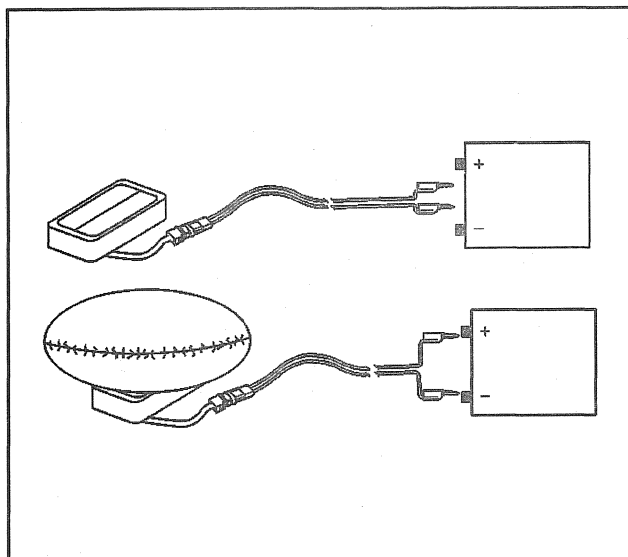
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Caution: When you are deploying an inflator module for disposal, perform the deployment procedures in the order listed. Failure to follow the procedures in the order listed may result in personal injury.

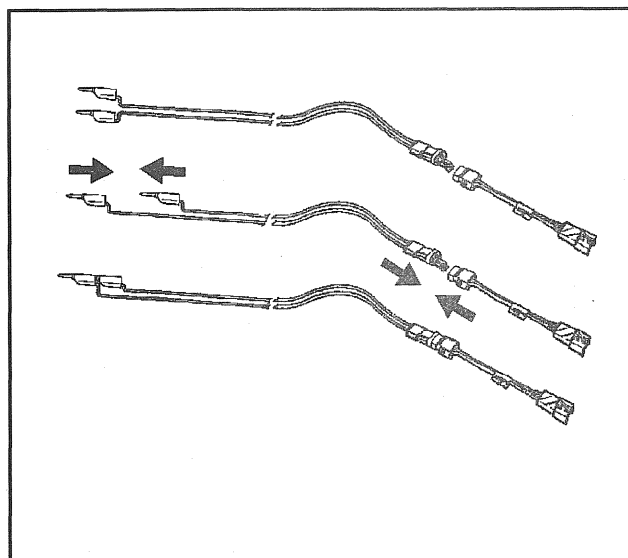
20. Separate the 2 banana plugs on the SIR deployment harness.



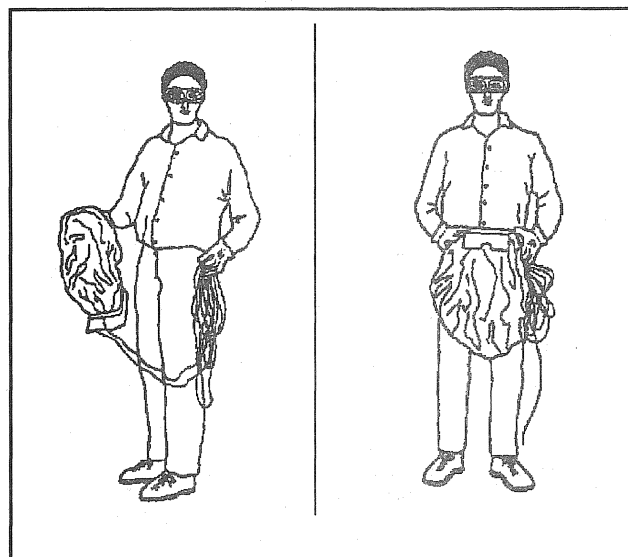
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Important: The rapid gas expansion involved with deploying an air bag is very loud. Notify all the people in the immediate area that you intend to deploy the inflator module.

Important: When the air bag deploys, the inflator module may jump vertically. This is a normal reaction of the inflator module to the force of the rapid gas expansion inside the air bag.

21. Connect the SIR deployment harness wires to the power source.

22. Disconnect the SIR deployment harness from the power source after the air bag deploys.

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

24. If the air bag did not deploy, disconnect the adapter and discontinue the procedure. Contact the Technical Assistance Group. Otherwise, proceed to the following steps:

Caution: After an air bag deploys, the metal surfaces of the inflator module are very hot. To help avoid a fire or personal injury:

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

25. Put on a pair of shop gloves.

26. Disconnect the pigtail adapter from the inflator module as soon as possible.

27. Inspect the pigtail adapter and the SIR deployment harness. Replace as needed.

28. Dispose of the deployed module through normal refuse channels.

29. Wash hands with a mild soap.

Deployment Outside Vehicle (Inflatable Restraint IP Module)

Dealers should refer to the latest General Motors Service Bulletins for live (undeployed) inflatable restraint IP module scrapping and disposal procedures. All others should contact a local General Motors dealer for these procedures. Dispose of deployed IP modules through normal refuse channels.

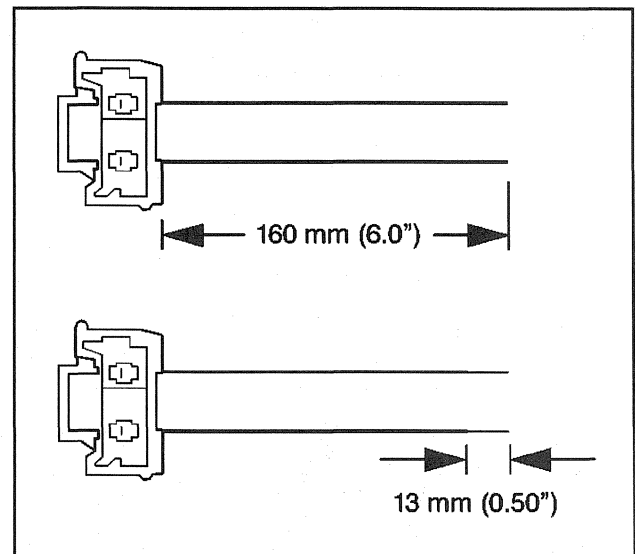
Deployment Inside Vehicle (Vehicle Scrapping Procedure)

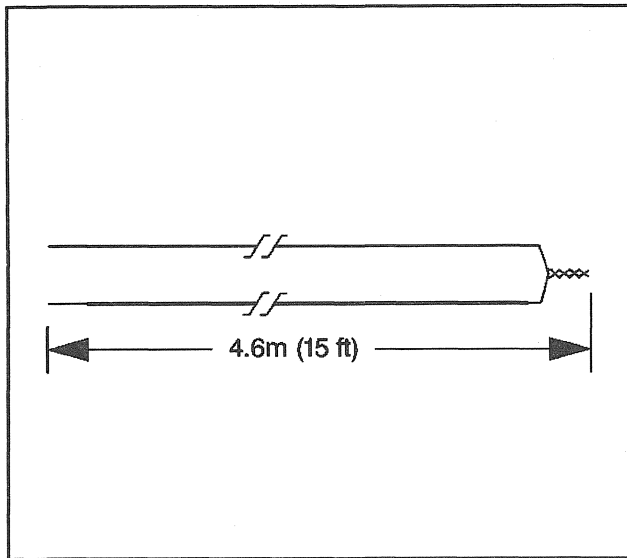
Deploy the inflator modules inside of the vehicle when destroying the vehicle or when salvaging the vehicle for parts. This includes but is not limited to the following situations:

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

Caution: When you are deploying an inflator module for disposal, perform the deployment procedures in the order listed. Failure to follow the procedures in the order listed may result in personal injury.

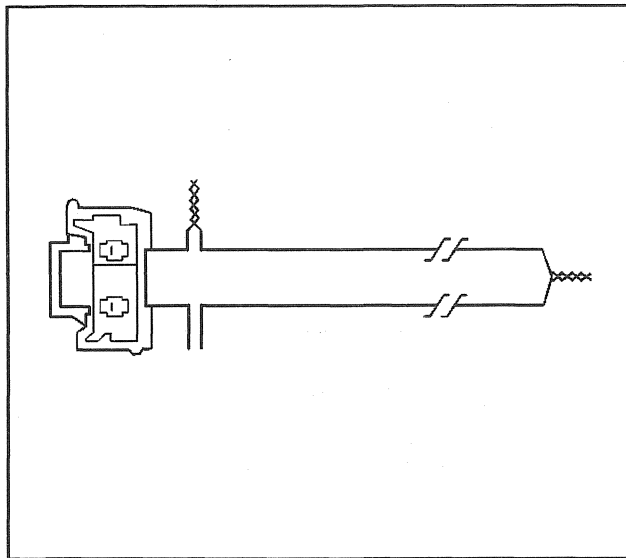
1. Turn the ignition switch to the OFF position.
2. Remove the ignition key.
3. Put on safety glasses.
4. Remove all loose objects from the front seats.
5. Disconnect the inflatable restraint steering wheel module yellow 2-way connector.
6. Cut the yellow 2-way harness connector out of the vehicle, leaving at least 160 mm (6 in) of wire at the connector.
7. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.





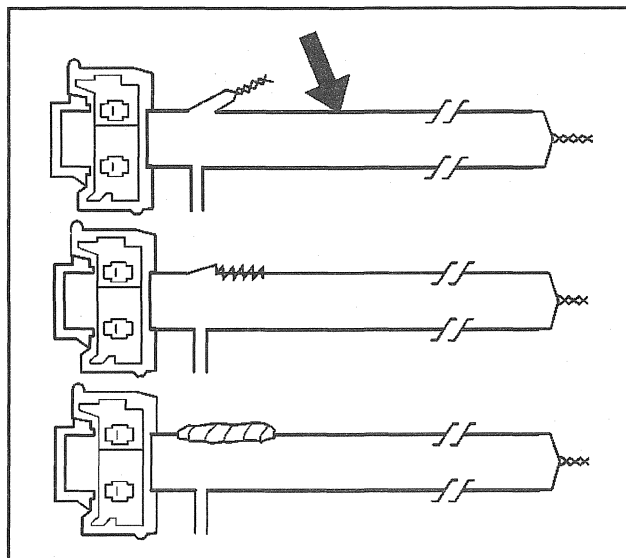
39390

8. Cut two 4.6 meter (15 ft) deployment wires from a 0.8 mm (18 gage) 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 cut in the previous step.
10. Twist together one end from each of the wires in order to short the wires. Deployment wires shall remain shorted, and not connected to a power source until you are ready to deploy the air bag.



39393

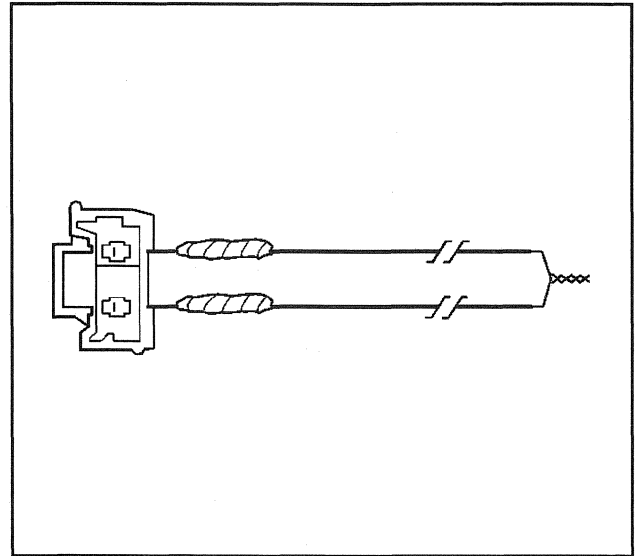
11. Twist together one connector wire lead to one deployment wire.
12. Inspect that the previous connection is secure.



39408

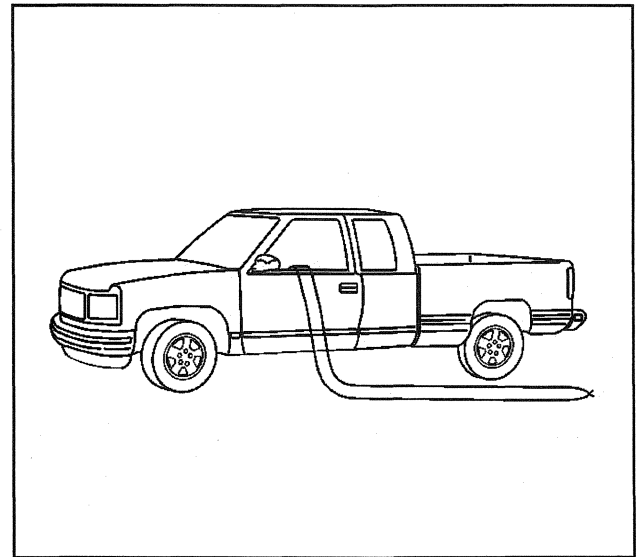
13. Bend flat the twisted connection.
14. Secure and insulate the connection using electrical tape.

15. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.
16. Connect the deployment harness to the inflatable restraint steering wheel module yellow 2-way connector.



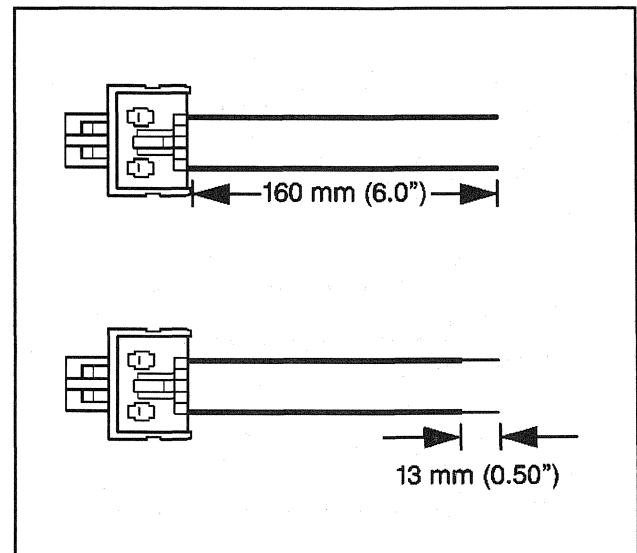
39414

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

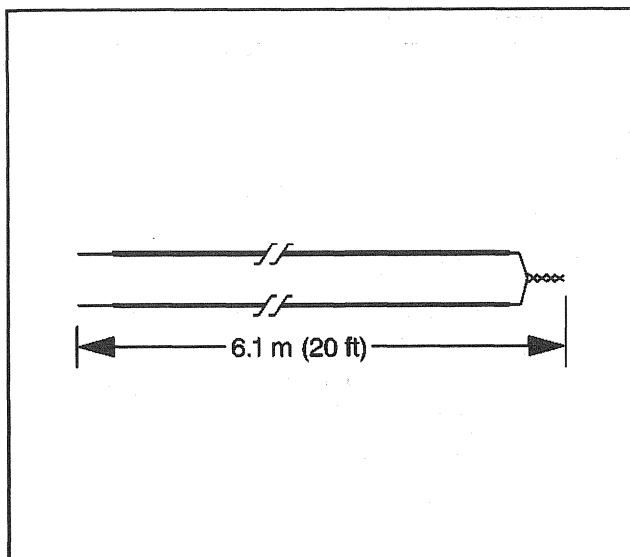


188444

18. Disconnect the inflatable restraint IP module yellow 2-way harness connector.
19. Cut the harness connector out of the vehicle, leaving at least 160 mm (6 in) of wire at the connector.
20. Strip 13 mm (0.5 in) of insulation from each of the connector wire leads.

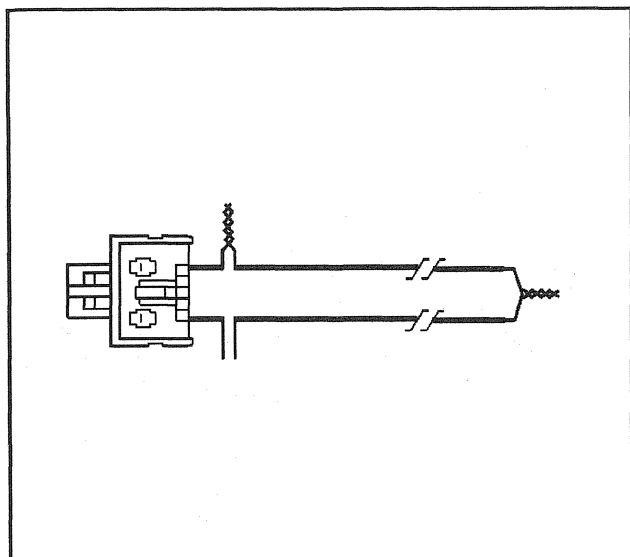


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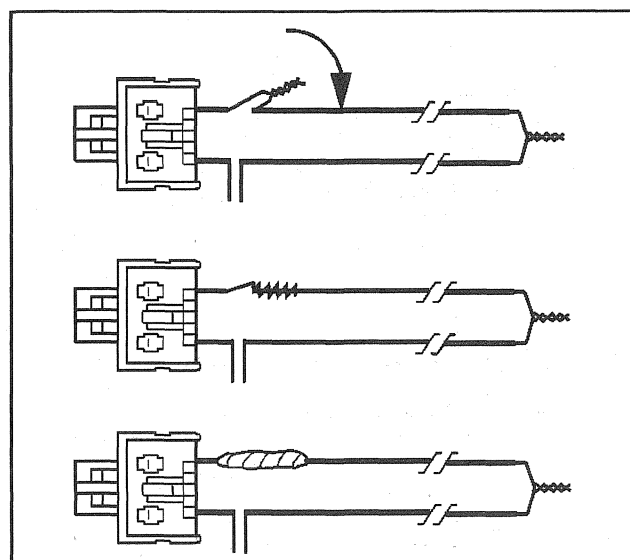
68651

21. Cut two 6.1 meter (20 ft) deployment wires from a 0.8 mm (18 gage) or thicker multi-strand wire. These wires will be used to fabricate the passenger deployment harness.
22. Strip 13 mm (0.5 in) of insulation from both ends of the wires cut in the previous step.
23. Twist together one end from each of the wires in order to short the wires.



68652

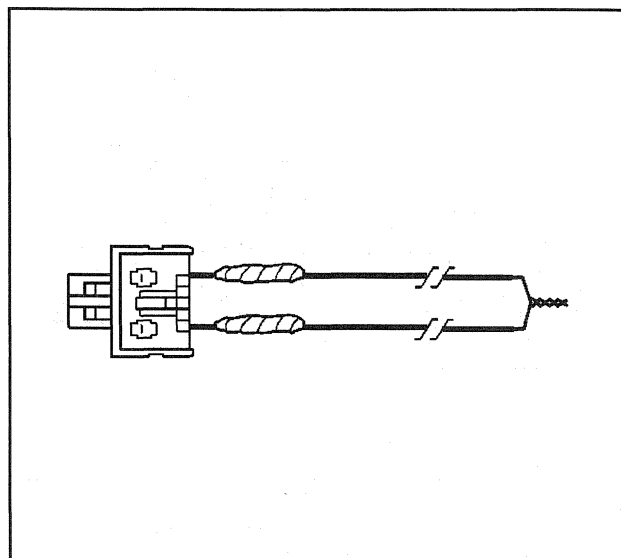
24. Twist together one connector wire lead to one deployment wire.



68660

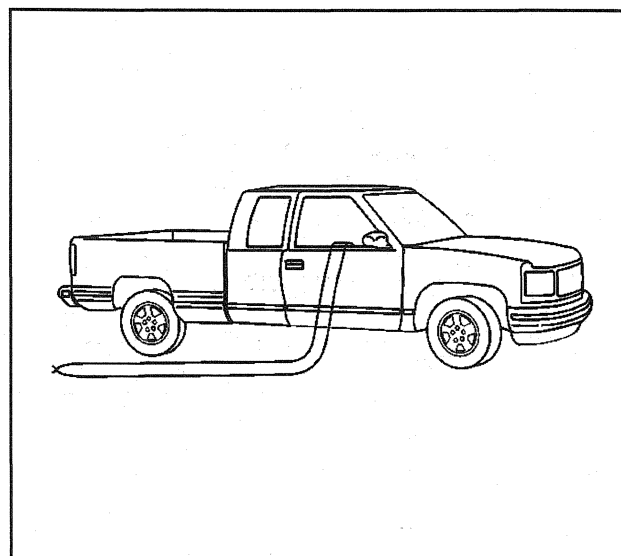
25. Bend flat the twisted connection.
26. Secure and insulate the connection using electrical tape.

27. Twist together, bend, and tape the remaining connector wire lead to the remaining deployment wire.
28. Connect the deployment harness to the inflatable restraint IP module yellow 2-way connector.



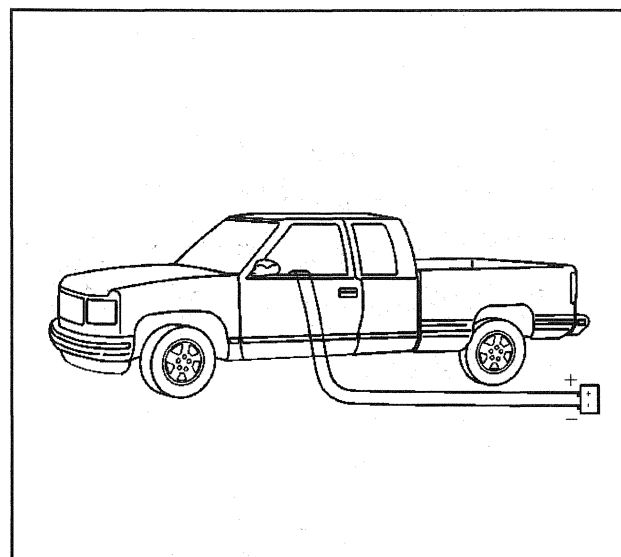
68662

29. Route the deployment harness out of the passenger side of the vehicle.
30. Clear the inside and outside of the vehicle of any people or loose and flammable objects.
31. Stretch the driver harness to full length.
32. Stretch the passenger harness to full length.
33. Completely cover the windshield and front door window openings with a drop cloth.

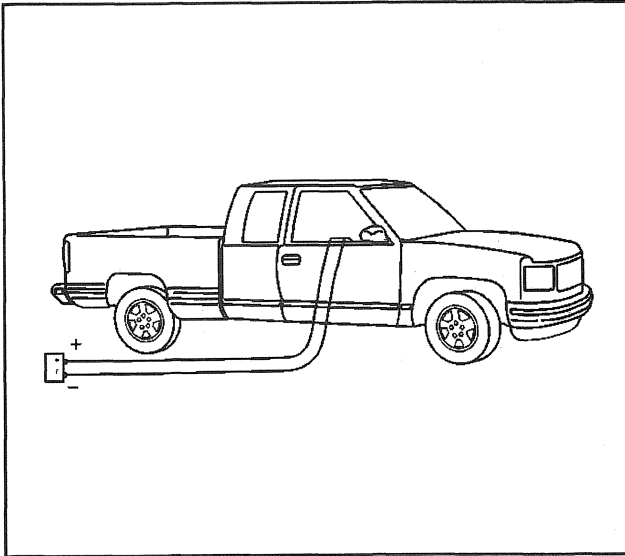


188440

34. Place a power source, 12 volt minimum 2 A minimum (i.e., a vehicle battery) near the shorted end of the harness.
35. Separate the two ends of the driver deployment harness wires.
36. Connect the driver deployment harness wires to the power source in order to deploy the inflatable restraint steering wheel module.
37. Disconnect the driver deployment harness wires from the power source.

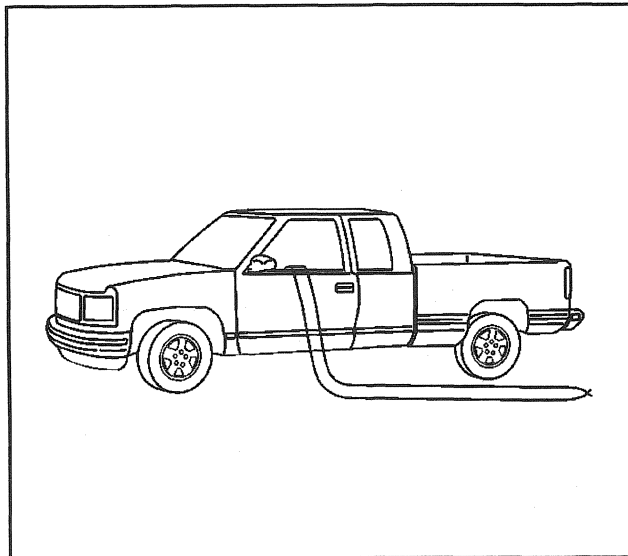


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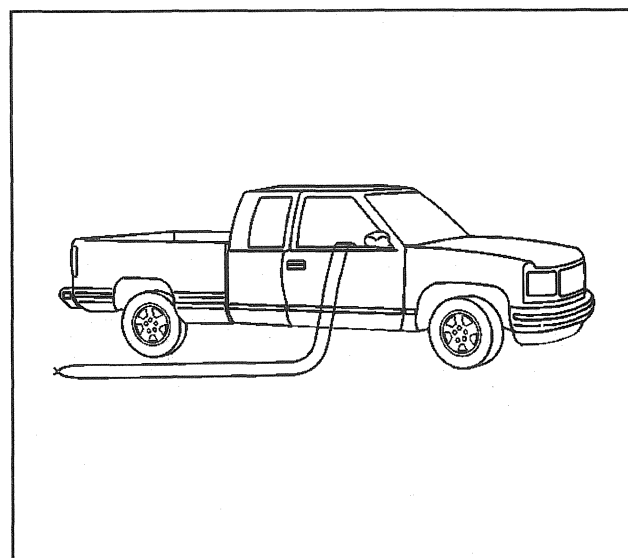
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38. Separate the two ends of the passenger deployment harness wires.
39. Connect the passenger deployment harness wires to the power source in order to deploy the inflatable restraint IP module.
40. Disconnect the passenger deployment harness wires from the power source.



188444

41. Twist together one end of each wire on the driver deployment harness in order to short the wires.



188440

42. Twist together one end of each wire on the passenger deployment harness in order to short the wires.
43. Remove the drop cloth from the vehicle.
44. Disconnect both harnesses from the vehicle.
45. Discard the harnesses.
46. Scrap the vehicle in the same manner as a non-SIR equipped vehicle.
47. If one or both of the modules did not deploy, perform the following steps:
 - 47.1. Remove the undeployed module(s) from the vehicle. Refer to *Infl Rst Steering Wheel Module Replacement* and *Inflatable Restraint Instrument Panel Module Replacement*.
 - 47.2. Temporarily store the module(s).
 - 47.3. Call the Technical Assistance Group for further assistance.

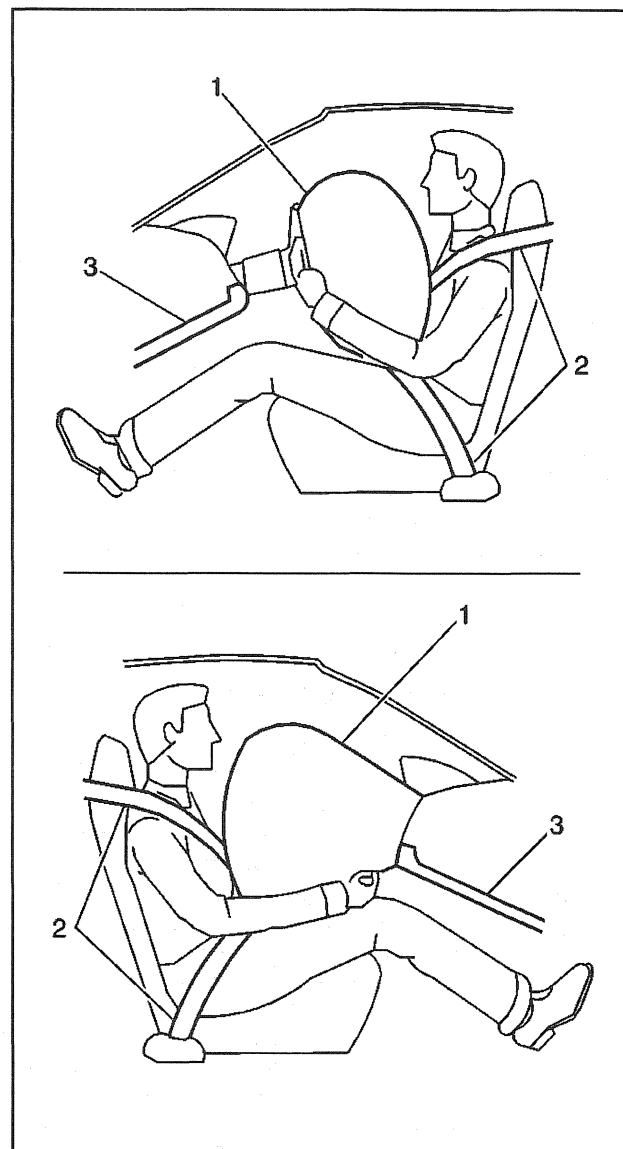
Handling a Deployed Inflatable Restraint Steering Wheel Inflator Module

After the inflator module has deployed, the surface of the air bag may contain a powdery residue. This powder consists primarily of cornstarch (used to lubricate the bag as the bag inflates), and by-products of the chemical reaction. The deployment reaction produces sodium hydroxide dust (similar to lye soap). The sodium hydroxide quickly reacts with the atmospheric moisture. This atmospheric moisture converts the sodium hydroxide into sodium carbonate and sodium bicarbonate (baking soda). Therefore, you will probably find no sodium hydroxide present after the deployment. Gloves and safety glasses are recommended, to prevent possible irritation of the skin or eyes.

Description and Operation

SIR System Operation

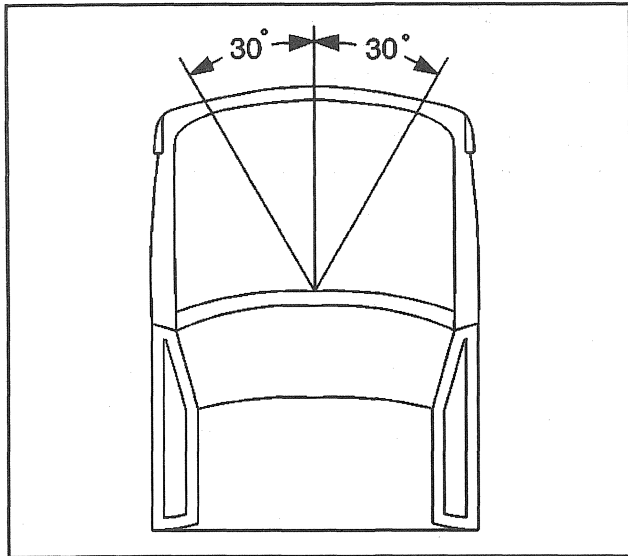
Restraint Devices



69681

The supplemental inflatable restraint (SIR) system supplements the protection offered by the driver and front passenger seat belts (2). The SIR system deploys an air bag (1) from the center of the steering wheel and from the right side of the instrument panel.

The knee bolsters (3) and the steering column absorb crash energy. The driver and passenger knee bolsters are below the instrument panel.



9579

A frontal crash of sufficient force up to 30 degrees off the centerline of the vehicle will deploy the air bags.

System Description

The SIR system consists of the following components:

- Inflatable restraint sensing and diagnostic module (SDM)
- Inflatable restraint steering wheel module
- Inflatable restraint steering wheel module coil
- Inflatable restraint IP module
- Inflatable restraint IP module switch
- Inflatable restraint front end discriminating sensor
- AIR BAG warning lamp in the instrument cluster

The inflatable restraint sensing and diagnostic module (SDM), inflatable restraint steering wheel module coil (SIR coil assembly), inflatable restraint steering wheel module (driver inflator module), inflatable restraint IP module (passenger inflator module), and connector wires make up the deployment loops. The function of the deployment loops is to supply current through the inflator modules, which will cause deployment of the air bags. Deployment occurs when the SDM detects vehicle velocity changes severe enough to warrant deployment.

The SDM contains a sensing device (Accelerometer) that converts vehicle velocity changes to an electrical signal. The SDM compares this electrical signal to a value stored in memory. When the generated signal exceeds the stored value, the SDM performs additional signal processing and compares the generated signals to values stored in memory. When 2 of the generated signals exceed the stored values, the SDM will cause current to flow through the inflator modules, deploying the air bags.

The inflatable restraint front end discriminating sensor assists the SDM in determining when a deployment should occur by providing an input signal to the SDM.

The IP Module switch is directly interfaced to the inflatable restraint sensing and diagnostic module (SDM). The SDM senses the state of the IP module switch. When the switch is in the ON position, the SDM enables possible deployment of the inflatable restraint IP module. When the switch is in the OFF position, the SDM disables or inhibits possible deployment of the inflatable restraint IP module.

SIR System Component Description and Definitions

Inflatable Restraint Sensing and Diagnostic Module

The inflatable restraint sensing and diagnostic module (SDM) performs the following functions in the SIR system:

- Energy Reserve – The SDM maintains 23 volt loop reserve (23 VLR) energy supplies to provide deployment energy. Ignition voltage may provide deployment energy if the 23 volt loop reserves malfunction.
- Frontal Crash Detection – The SDM monitors vehicle velocity changes to detect frontal crashes that are severe enough to warrant deployment.
- Air Bag Deployment – During a frontal crash of sufficient force, the SDM will cause enough current to flow through the inflator modules to deploy the air bags.
- Frontal Crash Recording – The SDM records information regarding the SIR system status during a frontal crash.
- Malfunction Detection – The SDM performs diagnostic monitoring of the SIR system electrical components. Upon detection of a circuit malfunction, the SDM will set a diagnostic trouble code (DTC).
- Malfunction Diagnosis – The SDM displays SIR diagnostic trouble codes and system status information through the use of a scan tool.
- Driver Notification – The SDM warns the vehicle driver of SIR system malfunctions by controlling the AIR BAG warning lamp.

The SDM connects to the SIR wiring harness using a 12-way connector. The SDM harness connector uses a shorting bar across certain terminals in the contact area. Removal of the SDM connector position assurance (CPA) or the harness connector itself will connect the AIR BAG warning lamp to ground through the shorting bar.

The AIR BAG warning lamp will come ON steady with power applied to the SDM when either one of the following 2 conditions exist:

- You remove the SDM CPA.
- You disconnect the SDM harness connector.

The SDM receives power whenever the ignition switch is in the RUN or START positions.

AIR BAG Warning Lamp

The ignition switch applies ignition voltage to the AIR BAG warning lamp. The AIR BAG warning lamp receives power whenever the ignition switch is at the RUN or START positions. The inflatable restraint sensing and diagnostic module (SDM) controls the lamp by providing ground with a lamp driver. The SIR system uses the AIR BAG warning lamp to perform the following steps:

- Verify lamp and SDM operation by flashing the lamp 7 times when the ignition switch is first turned to the RUN position.
- Warn the vehicle driver of SIR electrical system malfunctions which could potentially affect the operation of the SIR system. These malfunctions could result in either of the following conditions:
 - Non-deployment in the case of a frontal crash
 - Deployment for conditions less severe than intended

The AIR BAG warning lamp is the key to driver notification of SIR system malfunctions. Refer to *SIR Diagnostic System Check* for proper lamp operation.

Inflatable Restraint Steering Wheel Module Coil

The inflatable restraint steering wheel module coil consists of 2 or more current-carrying coils. The inflatable restraint steering wheel module coil attaches to the steering column. 2 of the current-carrying coils allow rotation of the steering wheel while maintaining continuous contact of the driver deployment loop to the inflatable restraint steering wheel module.

There is a shorting bar on the yellow 2-way connector near the base of the steering column that connects the inflatable restraint steering wheel module coil to the SIR wiring harness. The shorting bar shorts the circuits to the inflatable restraint steering wheel module coil and inflatable restraint steering wheel module during the disconnection of the yellow 2-way connector. The shorting of the inflatable restraint steering wheel module coil and inflatable restraint steering wheel module circuitry will help prevent unwanted deployment of the air bag when servicing the steering column or other SIR system components.

Inflator Modules

The inflator modules consist of an inflatable bag and an inflator. An inflator consists of a canister of gas-generating material and an initiating device. The initiator is part of the deployment loop. When the vehicle is in a frontal crash of sufficient force, the inflatable restraint sensing and diagnostic module (SDM) causes current to flow through the deployment loops. Current passing through the initiator ignites the material in the inflator module. The gas produced from this reaction rapidly inflates the air bag.

There is a shorting bar on the inflatable restraint steering wheel module side of the upper steering column connector that connects the inflatable restraint steering wheel module coil to the inflatable restraint steering wheel module.

The shorting bar shorts across the inflatable restraint steering wheel module circuits during the disconnection of the upper steering column connector. The shorting of the inflatable restraint steering wheel module circuitry will help prevent unwanted deployment of the air bag when servicing the inflatable restraint steering wheel module, the steering column or other SIR system components.

There is a shorting bar on the inflatable restraint IP module connector that connects to the SIR wiring harness. The shorting bar shorts across the inflatable restraint IP module circuits during the disconnection of the inflatable restraint IP module connector. The shorting of the inflatable restraint IP module circuitry will help prevent unwanted deployment of the air bag when servicing the inflatable restraint IP module, the instrument panel or other SIR system components.

In the event of a fault in the inflatable restraint IP module switch circuitry, the SDM will detect the fault and set diagnostic trouble code (DTC) B1054, the SDM will attempt to illuminate the AIR-BAG OFF lamp, the AIR BAG warning lamp will turn ON and the inflatable restraint IP module will default to the suppressed (disabled) state.

Inflatable Restraint IP Module Switch (Pickup and Extended Cab Only)

The inflatable restraint IP module switch is a manual 2-position key switch located in the instrument panel, to the right of the steering wheel. This switch gives the vehicle operator the ability to enable or disable inflatable restraint IP module (Passenger Front Air Bag) deployment should the vehicle be involved in a severe frontal collision. The vehicle operator may choose to disable the inflatable restraint IP module if there is no occupant in the front seat, or if there is a child in a rear-facing child seat in the front seat.

The manual key-switch operates in 2 positions. When the key is vertical, the switch is in the OFF position and the inflatable restraint IP module is in the suppressed (disabled) state. In the suppressed state, the inflatable restraint IP module will not deploy in the event of a severe frontal collision. When the key is horizontal, the switch is in the ON position and the inflatable restraint IP module is in the nonsuppressed (enabled) state. In the nonsuppressed state, the inflatable restraint IP module will deploy in the event of a severe frontal collision. The key—switch assembly also includes a backlit switch cover which illuminates when the headlights are on.

The IP module switch is directly interfaced to the inflatable restraint sensing and diagnostic module (SDM). The SDM senses the state of the IP module switch. When the switch is in the ON position, the SDM enables possible deployment of the inflatable restraint IP module. When the switch is in the OFF position, the SDM disables or inhibits possible deployment of the inflatable restraint IP module.

Inflatable Restraint Front End Discriminating Sensor

The presence of an inflatable restraint front end discriminating sensor enhances the SIR system performance. Use of the inflatable restraint front end discriminating sensor provides timely deployment of the air bags during some crashes. Although this is a mechanical sensor, the front end discriminating sensor is not a part of the deployment loop but instead only provides an input signal to the inflatable restraint sensing and diagnostic module (SDM).

Steering Column

The steering column is energy absorbing. The steering column may compress during a frontal crash in order to decrease the chance of injury to the driver.

Knee Bolster

The knee bolsters absorb energy and control the forward movement of the vehicle's front seat occupants during a frontal crash, by limiting leg movement.

Definitions

Air Bag: An inflatable cloth cushion designed to deploy in certain frontal crashes. The air bags distribute the impact load more evenly over the occupant's head and torso in order to supplement the safety belt protection.

Asynchronous: An event that may occur at any time without a warning and without falling within a defined time period.

B+: The battery voltage available at the time of the indicated measurement. With the ignition switch in the RUN position and the engine stopped, the voltage is usually 11.5–12.5 volts. With the engine at idle, the voltage may be 14.0–16.0 volts. During engine cranking, the voltage may be as low as 10.0 volts.

Bulb Test: The inflatable restraint sensing and diagnostic module (SDM) will cause the air bag warning indicator to flash 7 times. Under normal operation, this occurs when the ignition is turned from the OFF position to the RUN position. The bulb test will also occur if the Ignition Positive Voltage exceeds 17.1 volts and then returns within the normal operating voltage range. A malfunction could prevent the module from flashing the indicator.

Continuous Monitoring Test: The inflatable restraint sensing and diagnostic module (SDM) continuously monitors the SIR system during each 100 millisecond interval. The Ignition Positive Voltage at the module must be with the normal operating voltage range for the continuous monitoring to occur. These tests follow the power-on tests.

Data Link Connector (DLC): The DLC electrically connects to many on-board computers and allows communication with an off-board computer such as a scan tool.

Datum Line: A base line parallel to the plane of the vehicle underbody or the frame. All vertical measurements originate from this base line.

Deploy: To inflate the air bag.

Deployment Loop Continuity Test: The inflatable restraint sensing and diagnostic module (SDM) performs this test in order to inspect for voltage variations in the DRIVER SIDE HIGH/LOW and the PASSENGER SIDE HIGH/LOW circuitry. The module first measures the Ignition Positive Voltage and the 23 VLR in order to verify that the voltage is within specifications. The module then performs the deployment loop continuity test. Detection of a malfunction during these tests may prevent the resistance measurement test from occurring until the next ignition cycle. This test is part of the power-on tests and occurs before the continuous monitoring tests.

Deployment Loops: The circuits that supply the current to the inflator modules for air bag deployment.

Diagnostic Trouble Code (DTC): An alphanumeric designator used by the inflatable restraint sensing and diagnostic module (SDM) in order to indicate specific SIR system malfunctions.

Driver Current Sink: An output of the inflatable restraint sensing and diagnostic module (SDM) that supplies a low resistance path to ground for the inflatable restraint steering wheel module circuit.

Driver Current Source: An output of the inflatable restraint sensing and diagnostic module (SDM) that supplies current into the inflatable restraint steering wheel module circuit.

EEPROM (Electrically Erasable Programmable Read Only Memory): Memory that does not require power to the inflatable restraint sensing and diagnostic module (SDM) in order to retain its contents.

Higher Priority Fault: Each DTC has an assigned priority based on its detectability with other DTCs present. The priority corresponds to the detectability of the malfunction only. This does not relate to the seriousness of the malfunction with respect to deployment or non deployment under any given condition.

Ignition Cycle: The operation of the ignition switch causes this cycle to occur. The inflatable restraint sensing and diagnostic module (SDM) must first sense Ignition Positive Voltage input greater than 8.2 volts with the ignition switch in the RUN position. The Ignition Positive Voltage input voltage must remain above 8.2 volts for at least 10 seconds before turning the ignition switch to the OFF position.

Ignition 1: A B+ circuit receiving power with the ignition in the RUN position or the START position.

Inflatable Restraint Front End Discriminating Sensor: A sensor mounted on the front of the vehicle that supplies an input signal to the inflatable restraint sensing and diagnostic module (SDM).

Inflatable Restraint IP Module: An assembly located on the RH of the IP consisting of an inflatable air bag, an inflator, and an initiator.

Inflatable Restraint IP Module Switch: A manual two-position key switch located in the instrument panel, to the right of the steering wheel. This switch gives the vehicle operator the ability to enable or disable inflatable restraint IP module (Passenger Front Air Bag) deployment should the vehicle be involved in a severe frontal collision. The vehicle operator may choose to disable the inflatable restraint IP module if there is no occupant in the front seat, or if there is a child in a rear-facing child seat in the front seat.

Inflatable Restraint Sensing and Diagnostic Module: The SDM that provides reserve energy to the deployment loops, deploys the air bags when required, and performs diagnostic monitoring of all SIR system components.

Inflatable Restraint Steering Wheel Module: An assembly located in the steering wheel hub consisting of an inflatable bag, an inflator, and an initiator.

Inflatable Restraint Steering Wheel

Module Coil: An assembly of two or more current carrying coils mounted within the steering column hub. The assembly allows the rotation of the steering wheel while maintaining continuous electrical circuit contact. Two of the coils provide continuous contact of the driver deployment loop to the inflatable restraint steering wheel module.

Initiator: Located in the inflator module, the initiator initiates the chemical reaction that inflates the air bag when sufficient current flows through the component.

Normal Operating Voltage Range: 8.2-17.1 volts when measuring between the inflatable restraint sensing and diagnostic module (SDM) Ignition Positive Voltage terminal and ground.

Passenger Current Sink: An output of the inflatable restraint sensing and diagnostic module (SDM) that supplies a low resistance path to ground for the inflatable restraint IP module circuit.

Passenger Current Source: An output of the inflatable restraint sensing and diagnostic module (SDM) that supplies current into the inflatable restraint IP module circuit.

Power-on Test: Tests that the inflatable restraint sensing and diagnostic module (SDM) performs on the SIR system once per ignition cycle. These tests occur immediately after the module receives Ignition Positive Voltage, and before the continuous monitoring tests.

Resistance Measurement Test: A test that the inflatable restraint sensing and diagnostic module (SDM) performs once per ignition cycle in order to measure the resistance of the deployment loops. The module first measures Ignition Positive Voltage, 23 VLR, and the deployment loop voltages in order to verify readings within specifications. The module then sources a constant current into the loop. The module measures the voltage drop across the loop and converts the value to a resistance value. This resistance value is within the range of 0.0–6.3 ohms.

Upon the detection of an open circuit, the module aborts the tests in order to prevent the calculation of the resistances until the next ignition cycle. This test also inspects for proper operation of the driver/passenger current sources. This test is part of the power-on tests and occurs before the continuous monitoring tests.

Scan Tool: An off-board computer that reads on-board computer diagnostic information through the use of a DLC.

Serial Data: The information communicated to an off-board computer using the DLC. Some of this data represents the status of the SIR system.

SIR: Supplemental inflatable restraint.

SIR Wiring Harness: The wires and connectors that electrically connect the components in the SIR system.

23 VLR: The 23 volt loop reserve. The energy supply that is internal to the inflatable restraint sensing and diagnostic module (SDM).

Special Tools Description

J 35616-A Connector Test Adapter Kit

Use the J 35616-A Connector Test Adapter Kit whenever a diagnostic procedure requests inspecting or probing a terminal. Using the appropriate adapter will ensure that no damage to the terminal occurs from the DMM probe, such as spreading or bending. The adapter will also give an idea of whether contact tension is sufficient, helping to find an open or intermittent open due to poor terminal contact.

J 38125-B Terminal Repair Kit

Use the J 38125-B Terminal Repair Kit for SIR wiring repair. This kit contains a special crimping tool, heat torch, and sealed splices. Do not use the terminals in the kit in order to replace damaged SIR system terminals unless specifically indicated by the terminal package.

J 38715-A SIR Driver/Passenger Load Tool

Use the J 38715-A SIR Driver/Passenger Load Tool only when required by the SIR diagnostics. The Load Tool is used as a diagnostic aid and a safety device in order to prevent inadvertent inflator module deployment.

The load tool has 4 yellow connectors attached to the case. The 3 small connectors are electrically functional and serve as resistive load substitutions. The large dummy connector does not serve as a load substitution and is not used. Use no more than 2 connectors at any time.

One of the small connectors is used in order to substitute the load of the inflatable restraint steering wheel module. The connector is connected at the top of the column to the inflatable restraint steering wheel module coil. Use 1 of the following adapters in order to connect the load tool to the steering wheel module coil:

- The J 38715-5 SIR Load Tool Adapter (pigtail connector)
- The J 38715-30 Steering Column SIR Load Tool Adapter (integral connector)

A second small connector is used in order to substitute the load of the inflatable restraint steering wheel module and the inflatable restraint steering wheel module coil. The second small connector is connected at the base of the column to the SIR wiring harness. The third small connector is used in order to substitute for the load of the inflatable restraint IP module. The third small connector is connected to the inflatable restraint IP module harness connector.

Substitute the resistance of the inflator module in order to determine whether an inflator circuit component is causing a system malfunction. Use the load tool only when specifically called for in the diagnostic procedures.

J 38826 SIR Deployment Harness

Use the J 38826 SIR Deployment Harness in order to deploy a driver inflator module outside of the vehicle. Use 1 of the following adapters in order to connect the deployment harness to the inflator module:

- The J 38826-20 SIR Deployment Harness Adapter (pigtail connector)
- The J 38826-50 SIR Deployment Harness Adapter (integral connector)

J 39200 Digital Multimeter

The J 39200 Digital Multimeter (DMM) is the preferred DMM for use in SIR diagnosis and repair. The J 34029-A may be used if the J 39200 is not available. No other DMMs are approved for SIR diagnosis and repair.

Scan Tool

The scan tool is used for the following reasons:

- In order to read and clear SIR system Diagnostic Trouble Codes (DTCs)
- In order to provide SIR system circuit values using the data list function

Refer to the scan tool operator's manual for specific information on how to use the scan tool.

Special Tools and Equipment



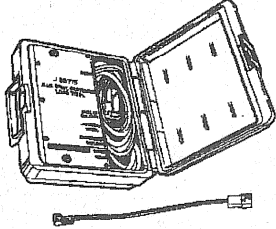

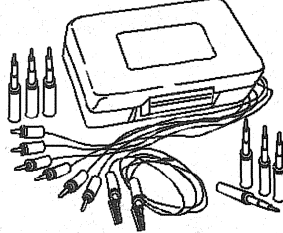
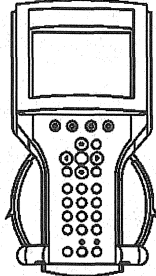
Illustration	Tool Number/ Description
 <p>9081</p>	<p>J 38125-B Terminal Repair Kit</p>
 <p>9082</p>	<p>J 38826 SIR Deployment Harness</p>
 <p>9083</p>	<p>J 38715-A SIR Driver/Passenger Load Tool</p>

Illustration	Tool Number/ Description
 <p>3430</p>	<p>J 39200 Digital Multimeter</p>
 <p>8917</p>	<p>J 35616-A Connector Test Adapter Kit</p>
 <p>59260</p>	<p>Scan Tool</p>

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