

2004 RESTRAINTS

Seat Belts - Corvette

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Fastener Tightening Specifications

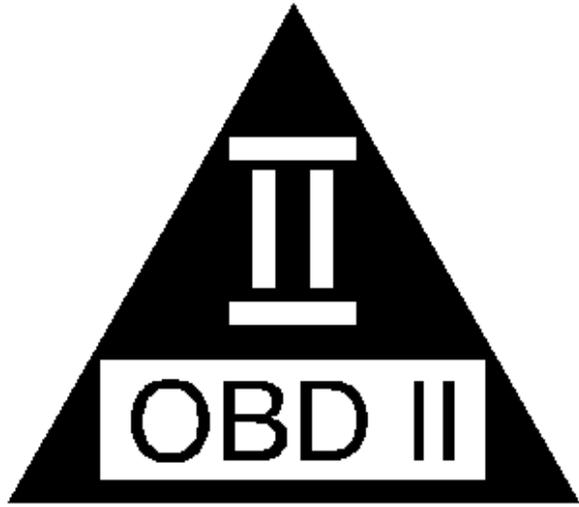
Application	Specifications	
	Metric	English
Antenna Ground Bolt	5.8 N.m	51lb in
Buckle Side Nut	50 N.m	37 lb ft
Child Restraint Tether Anchor Plate Bolt	27 N.m	20 lb ft
Lower Retractor Bolt	47 N.m	35 lb in
Shoulder Harness Guide Bracket Bolt	27 N.m	20 lb ft
Upper Guide Bolt (Coupe, Hardtop)	41 N.m	31 lb ft
Upper Guide Nut (Convertible)	40 N.m	29 lb ft
Upper Lock Pillar Trim Screw	1.8 N.m	16 lb in
Upper Retractor Bolt	41 N.m	31 lb ft

SCHEMATIC AND ROUTING DIAGRAMS

SEAT BELT SCHEMATIC ICONS

Seat Belt Schematic Icons

Icon	Icon Definition
	CAUTION: When performing service on or near the SIR components or the SIR wiring, the SIR system must be disabled. Refer to SIR Disabling and Enabling Zones. Failure to observe the correct procedure could cause deployment of the SIR components, personal injury, or unnecessary SIR system repairs.



SEAT BELT SCHEMATICS

LOC

DESC

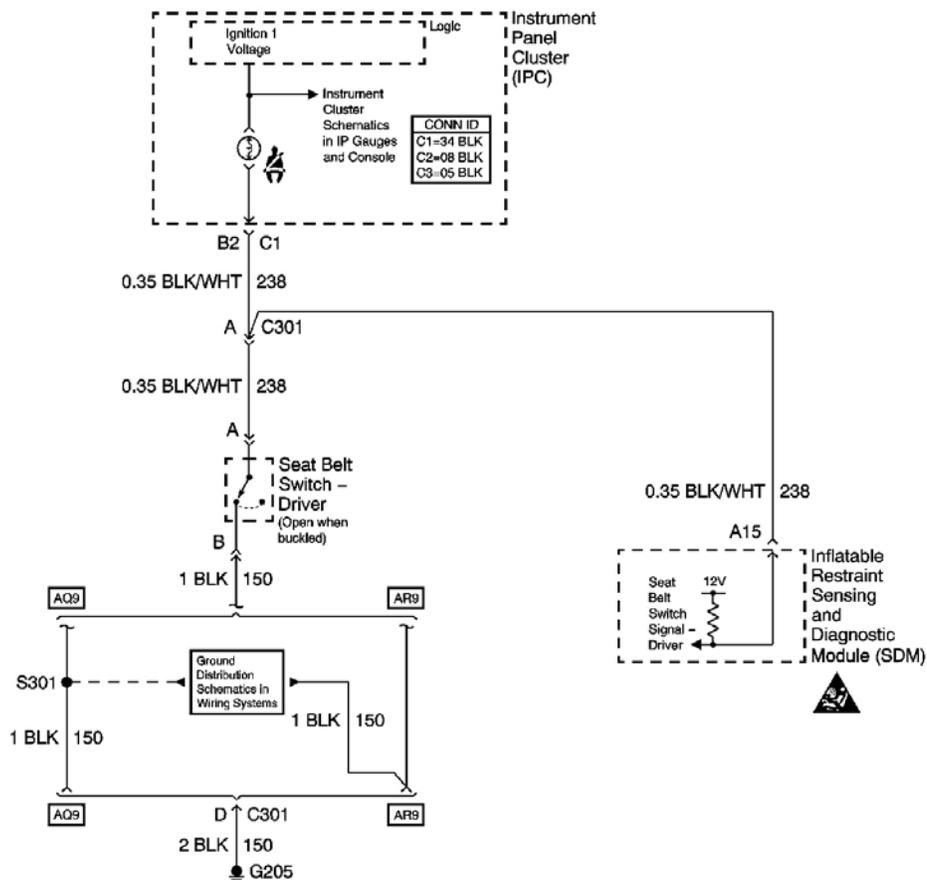


Fig. 1: Seat Belt Schematics
 Courtesy of GENERAL MOTORS CORP.

COMPONENT LOCATOR

SEAT BELT COMPONENT VIEWS

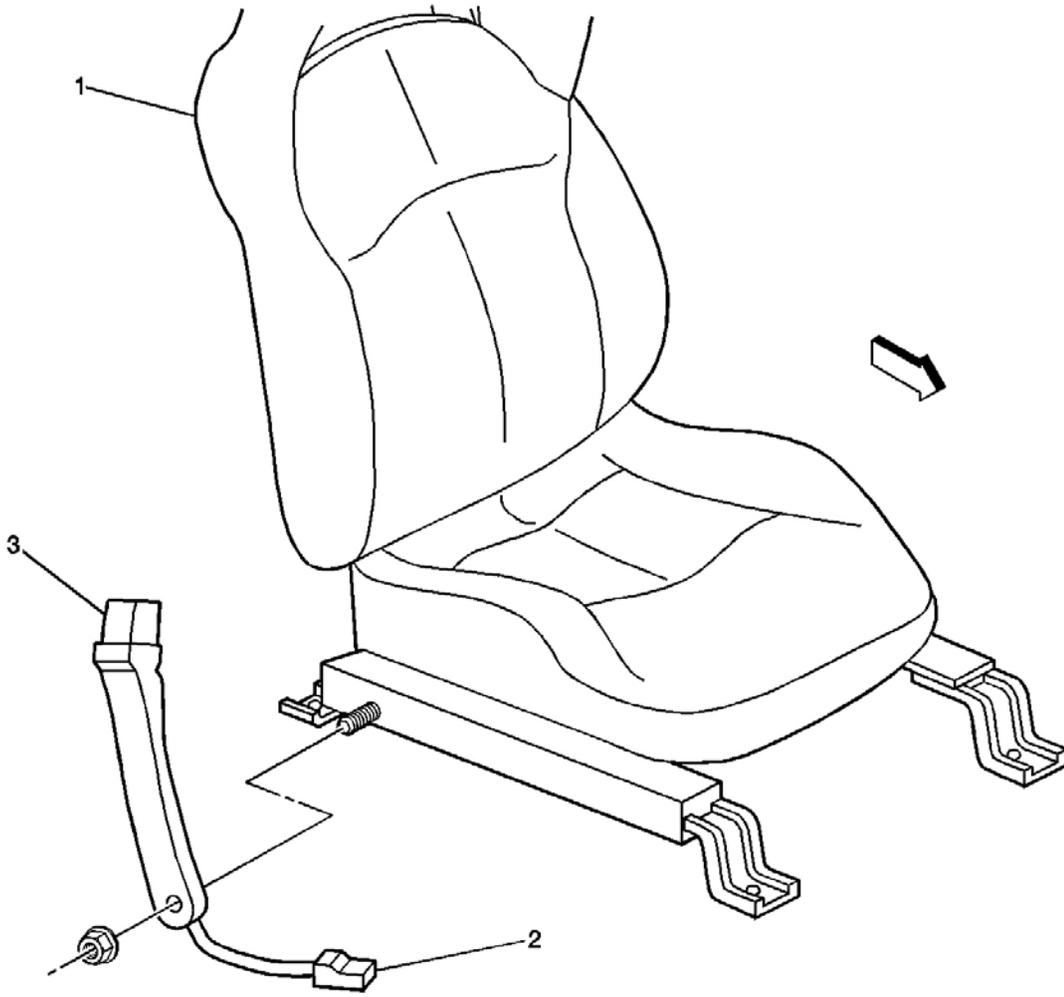


Fig. 2: Drivers Seat Belt Component View
 Courtesy of GENERAL MOTORS CORP.

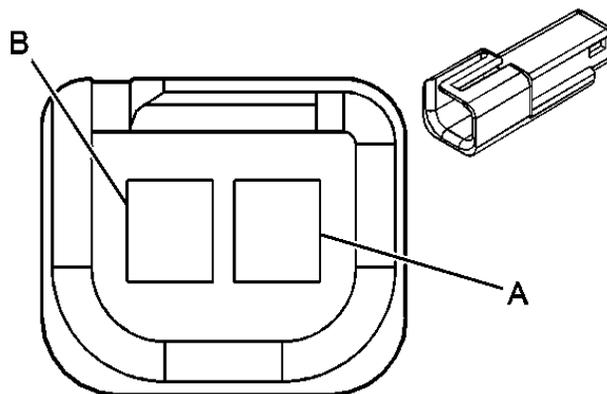
Callouts For Fig. 2

Callout	Component Name
1	Drivers Seat
2	Seat Belt Switch-Driver Connector
3	Seat Belt Buckle-Driver

SEAT BELT CONNECTOR END VIEWS

Seat Belt Switch Terminal Identification

--



Connector Part Information		<ul style="list-style-type: none"> • 12047663 • 2 Way M Metri-Pack 150 Series (BLK) 	
Pin	Wire Color	Circuit No.	Function
A	BLK/WHT	238	Seat Belt Switch Signal - Driver
B	BLK	150	Ground

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - SEAT BELTS

Begin the system diagnosis by reviewing the **Seat Belt System Description and Operation** . Reviewing the description and operation information will help you determine the correct symptom diagnostic procedure when a malfunction exists. Reviewing the description and operation information will also help you determine if the condition described by the customer is normal operation.

Refer to **Symptoms - Seat Belts** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

OPERATIONAL AND FUNCTIONAL CHECKS

IMPORTANT: If the vehicle has been in a collision, refer to Repairs and Inspections Required After a Collision for additional information.

Perform the following inspection from the driver seat:

1. Turn the ignition switch ON and verify the proper operation of the seat belt reminder lamp with the belt buckled and unbuckled. Refer to **Seat Belt System Description and Operation** .
2. Inspect the shoulder belt guide in order to ensure the that the following conditions are met:
 - The shoulder belt guide swivels freely.

- The seat belt webbing is seated flatly in the guide slot.
 - The 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 lap belt webbing. Verify that the seat belt webbing does not have any twists or tears.
 7. Allow the lap belt webbing to retract. Verify that the webbing returns freely and completely back into the lower retractor.
 8. Fully extend the shoulder belt webbing. Verify that the webbing does not have any twists or tears.
 9. Allow the shoulder belt webbing to retract. Verify that the webbing returns freely and completely back into the upper retractor.
 10. Verify that the energy management loop, sewn into the shoulder belt webbing at the latch plate, is intact and that the yellow, replace seat belt, label is not showing. This label is for energy management loop non-European belts only.
 11. Snap the seat belt latch plate into the buckle.
 12. Tug sharply on the seat belt latch plate and the buckle. Verify that the buckle remains locked.
 13. 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.
 14. Fully extend the lap belt webbing. Allow the webbing to partially rewind, tug sharply on the lap webbing, check that the lap webbing will not extend.

Repeat steps 2-14 for the front passenger seat.

Emergency Locking Retractors

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 then apply the brakes firmly.
3. Verify that both the lap belt retractor and the shoulder belt retractor lock the seat belt webbing when braking firmly.
4. If the belt webbing does not lock, proceed with the following steps:
 1. Remove the seat belt retractor.
 2. Tilt the seat belt retractor slowly.

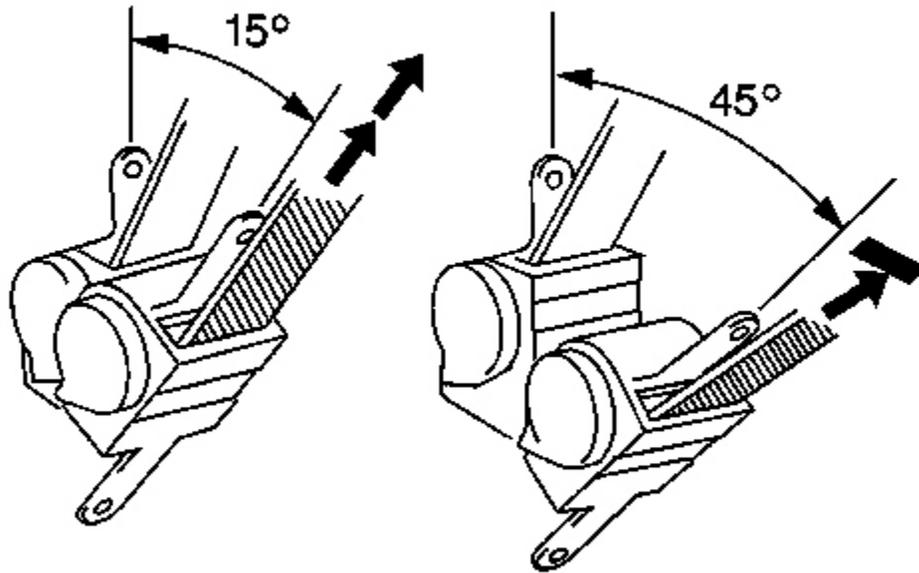


Fig. 3: Tilting Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

3. Check 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. If the seat belt retractor does not operate as described, replace the retractor side of the seat belt.

SYMPTOMS - SEAT BELTS

IMPORTANT: Review the seat belt system description and operation in order to familiarize yourself with the system and how it functions. Refer to Seat Belt System Description and Operation .

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the seat belt system. Refer to Checking Aftermarket Accessories in Wiring Systems.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.

Intermittent

Faulty electrical connections or wiring may be the cause of intermittent conditions. Refer to **Testing for Intermittent Conditions and Poor Connections** in Wiring Systems.

Symptom List

Refer to the following symptom diagnostic procedure in order to diagnose the symptom:

Seat Belt Indicator Circuit Malfunction

SEAT BELT INDICATOR CIRCUIT MALFUNCTION

Seat Belt Indicator Circuit Malfunction

Step	Action	Yes	No
Schematic Reference: <u>Seat Belt Schematics</u>			
1	Did you review the <u>Seat Belt System Description and Operation</u> and perform the necessary inspections?	Go to Step 2	Go to Symptoms - Seat Belts
2	<ol style="list-style-type: none"> 1. Turn ON the ignition, with the engine OFF. 2. Monitor the fasten safety belt indicator while buckling and unbuckling the driver seat belt. Does the system operate properly?	Go to Testing for Intermittent Conditions and Poor Connections in Wiring Systems	Go to Step 3
3	With the driver seat belt buckled, use a scan tool to observe the Driver Side Belt Status parameter in the SIR scan tool data list. Does the scan tool indicate that the Driver Side Belt Status parameter displays Buckled?	Go to Step 4	Go to Step 7
4	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the inflatable restraint sensing and diagnostic module (SDM) connector. Refer to <u>Inflatable Restraint Sensing and Diagnostic Module Replacement</u> in SIR. 3. Disconnect the seat belt switch - LF connector. Refer to <u>Seat Belt Buckle Replacement - Left Front</u> . 4. Test the seat belt switch - LF signal circuit for an open or a high resistance. Did you find and correct the condition?	Go to Step 10	Go to Step 5
5	Test the seat belt switch - LF ground circuit for an open or high resistance. Did you find and correct the condition?	Go to Step 10	Go to Step 6
	<ol style="list-style-type: none"> 1. Test the seat belt switch - LF for an open. 2. Replace the seat belt switch - LF if it is 		

6	malfunctioning. Refer to <u>Seat Belt Buckle Replacement - Left Front</u> .		
	Did you find and correct the condition?	Go to Step 10	Go to Step 9
7	<ol style="list-style-type: none"> 1. Turn OFF the ignition. 2. Disconnect the inflatable restraint sensing and diagnostic module (SDM) connector. Refer to <u>Inflatable Restraint Sensing and Diagnostic Module Replacement</u> in SIR. 3. Disconnect the seat belt switch - LF connector. Refer to <u>Seat Belt Buckle Replacement - Left Front</u> . 4. Test the seat belt switch - LF signal circuit for a short to voltage or a short to ground. 		
	Did you find and correct the condition?	Go to Step 10	Go to Step 8
8	<ol style="list-style-type: none"> 1. Test the seat belt switch - LF for a short. 2. Replace the seat belt switch - LF if it is malfunctioning. Refer to <u>Seat Belt Buckle Replacement - Left Front</u> . 		
	Did you find and correct the condition?	Go to Step 10	Go to Step 9
9	Replace the instrument panel cluster (IPC). Refer to <u>Instrument Panel Cluster (IPC) Replacement</u> in Instrument Panel, Gages, and Console. Did you complete the replacement?	Go to Step 10	-
10	Operate the system in order to verify the repair. Did you find and correct the condition?	System OK	Go to Step 3

SEAT BELT SERVICE PRECAUTIONS

IMPORTANT: If the vehicle has been in a collision, refer to **Repairs and Inspections Required After a Collision** for additional information.

- Do not bleach or dye the seat belt webbing. Clean only with a mild soap and water solution and a soft brush or cloth.
- Keep sharp edges and damaging objects away from the seat belts. Avoid bending or damaging any part of the seat belt buckle or latch plate. Replace any seat belts which are cut or damaged in any way.
- Use only the correct seat belt anchor bolts/screws and tighten to the correct torque value, refer to Specifications in this section. When installing seat belt anchor bolts, start the bolt by hand to ensure that the bolt is threaded straight.
- Some seat belts and retractors must be serviced as a set with service replacement parts only. Do not attempt to make repairs to the individual components which are only serviced as a set.

- Verify that the replacement part number is correct for the vehicle at that seating position. Do not substitute a seat belt from a different seating position.
- Verify that the energy management loop, sewn into the shoulder belt webbing at the latch plate, is intact and that the yellow Replace Seat Belt label is not showing. This label is for the energy management loop on non-European belts only.

REPAIR INSTRUCTIONS

REPAIRS AND INSPECTIONS REQUIRED AFTER A COLLISION

CAUTION: Restraint systems can be damaged in a collision. To help avoid injury and ensure that all parts in need of replacement are replaced:

- **Replace any seat belt system that was in use during the collision serious enough to deploy any automatic restraint device such as air bags and seat belt pretensioners. This not only includes seat belt systems in use by people of adult size, but seat belt systems used to secure child restraints, infant carriers and booster seats, including LATCH system and top tether anchorages.**
- **Replace any seat belt system that has torn, worn, or damaged components. This not only includes adult seat belt systems, but built-in child restraints and LATCH system components, if any.**
- **Replace any seat belt system if you observe the words "REPLACE" or "CAUTION", or if a yellow tag is visible. Do not replace a seat belt if only the child seat caution label is visible.**
- **Replace any seat belt system if you are doubtful about its condition. This not only includes adult seat belt systems, but built-in child restraints, LATCH system components, and any restraint system used to secure infant carriers, child restraints, and booster seats.**

Do NOT replace single seat belt system components in vehicles that have been in a collision as described above. Always replace the entire seat belt system with the buckle, guide and retractor assembly, which includes the latch and webbing material.

After a minor collision where no automatic restraint device was deployed, seat belt system replacement may not be necessary, unless some of the parts are torn, worn, or damaged.

SEAT BELT BUCKLE REPLACEMENT - LEFT FRONT

Removal Procedure



Fig. 4: Left Front Buckle Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

1. Remove the driver seat. Refer to **Seat Replacement (Power)** or **Seat Replacement (Manual)** in Seats.
2. Disconnect the seat belt electrical connector.
3. Remove the buckle side seat belt from the seat track.

Installation Procedure



Fig. 5: Left Front Buckle Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the buckle side seat belt to the drivers seat track.

Tighten: Tighten the buckle side nut to 50 N.m (37 lb ft).

2. Connect the electrical connector.
3. Install the seat. Refer to **Seat Replacement (Power)** or **Seat Replacement (Manual)** in Seats.

SEAT BELT BUCKLE REPLACEMENT - RIGHT FRONT

Removal Procedure

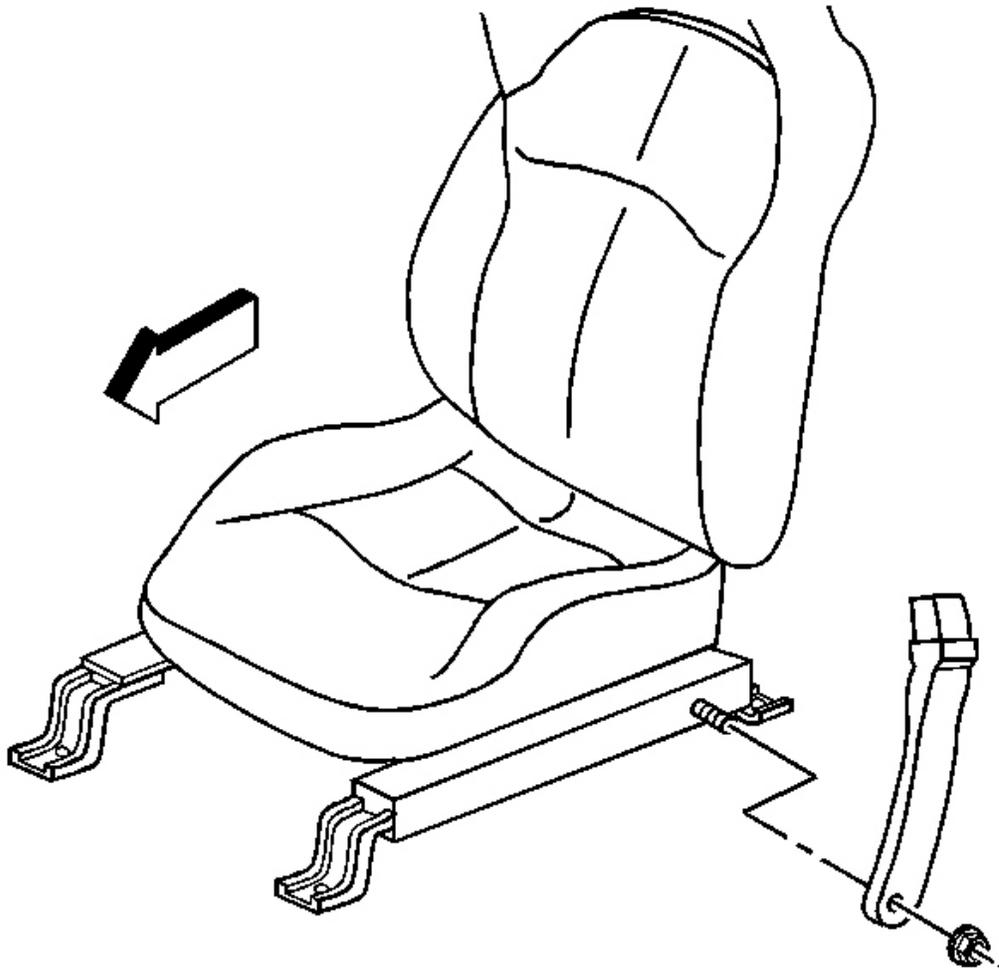


Fig. 6: Right Front Buckle Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

1. Remove the passenger seat. Refer to Seat Replacement (Power) or Seat Replacement (Manual) in Seats.
2. Remove the buckle side seat belt.

Installation Procedure

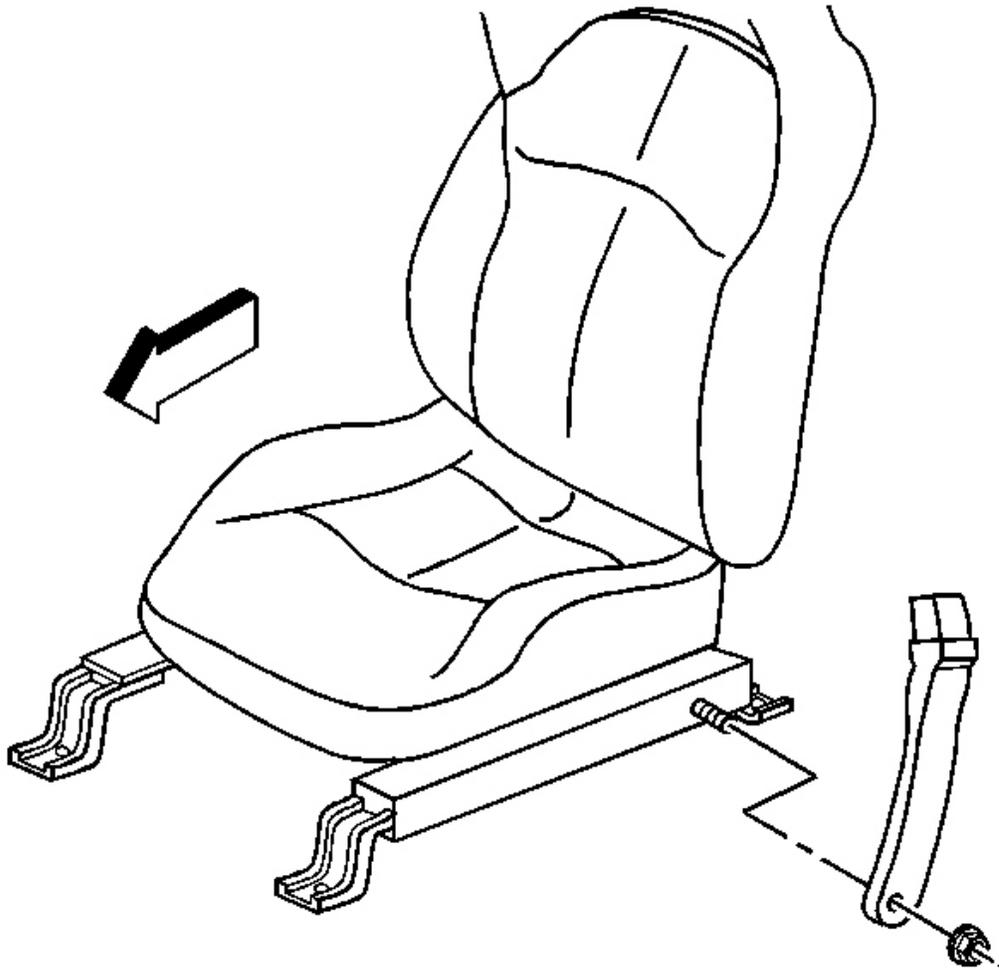


Fig. 7: Right Front Buckle Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the buckle side seat belt to the passenger seat track.

Tighten: Tighten the buckle side nut to 50 N.m (37 lb ft).

2. Install the seat. Refer to Seat Replacement (Power) or Seat Replacement (Manual) in Seats.

SHOULDER BELT GUIDE BRACKET REPLACEMENT

Removal Procedure

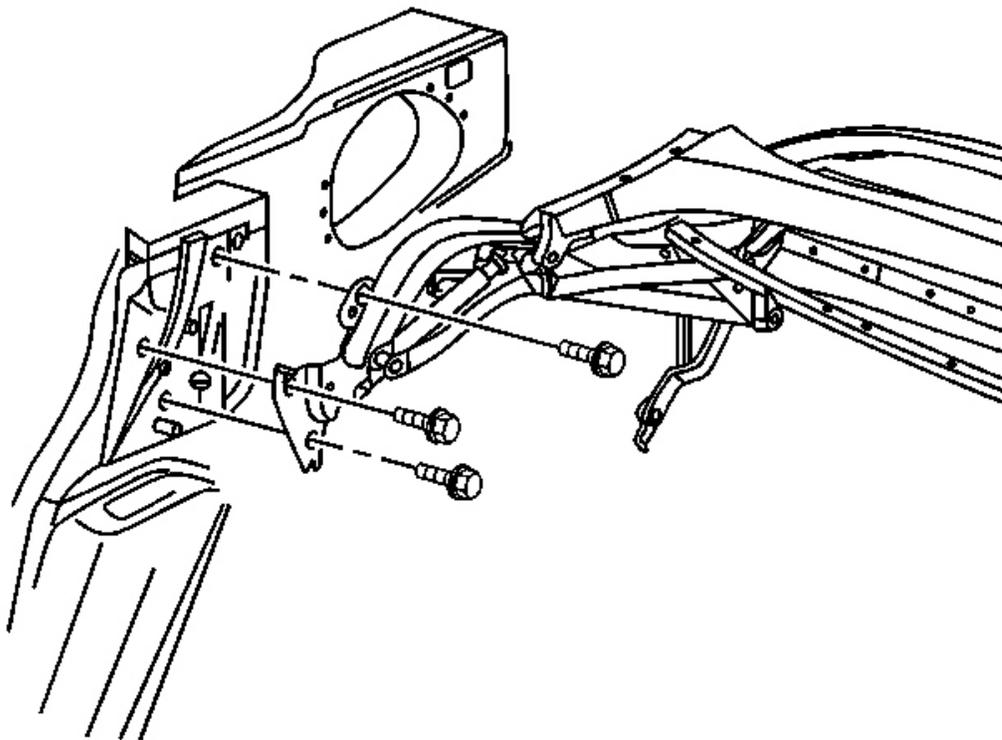


Fig. 8: Folding Top
Courtesy of GENERAL MOTORS CORP.

1. Remove the folding top. Refer to **Folding Top Replacement** in Roof.

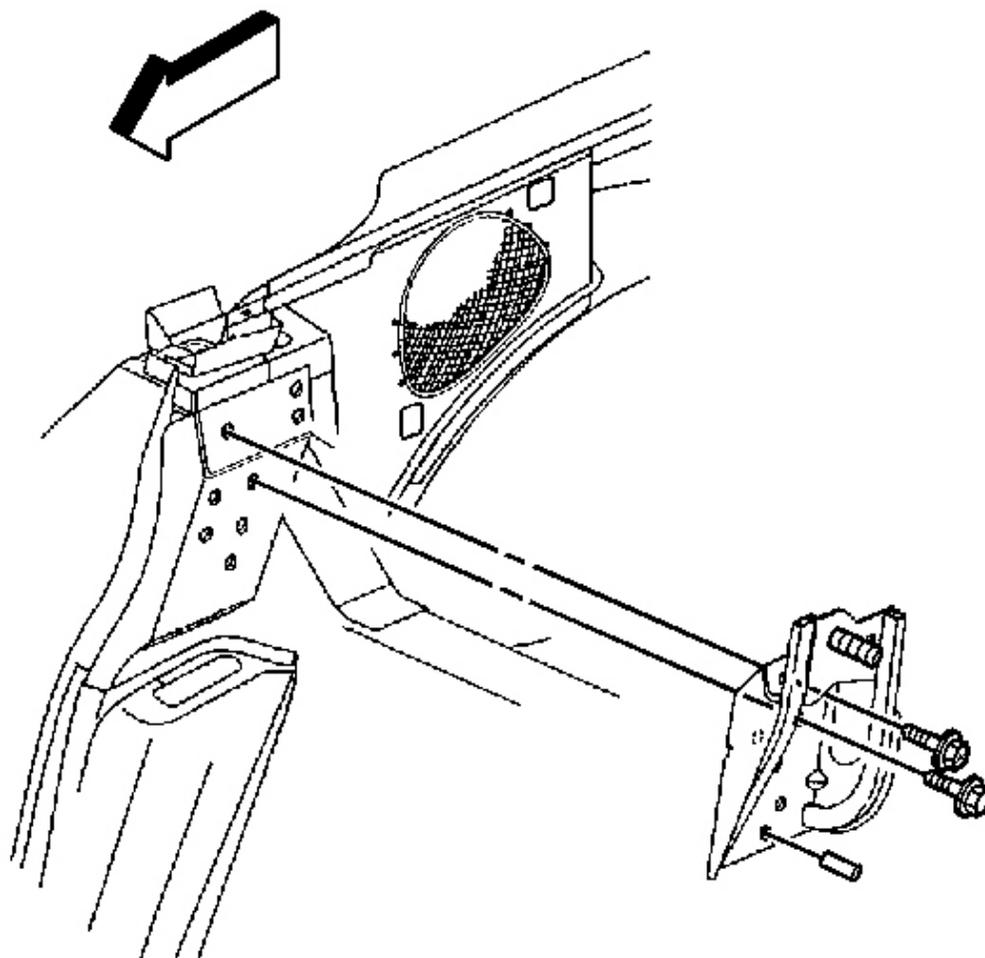


Fig. 9: Shoulder Harness Guide Bracket & Bolts
Courtesy of GENERAL MOTORS CORP.

2. Remove the bolts attaching the shoulder harness guide bracket.
3. Remove the bracket.

Installation Procedure

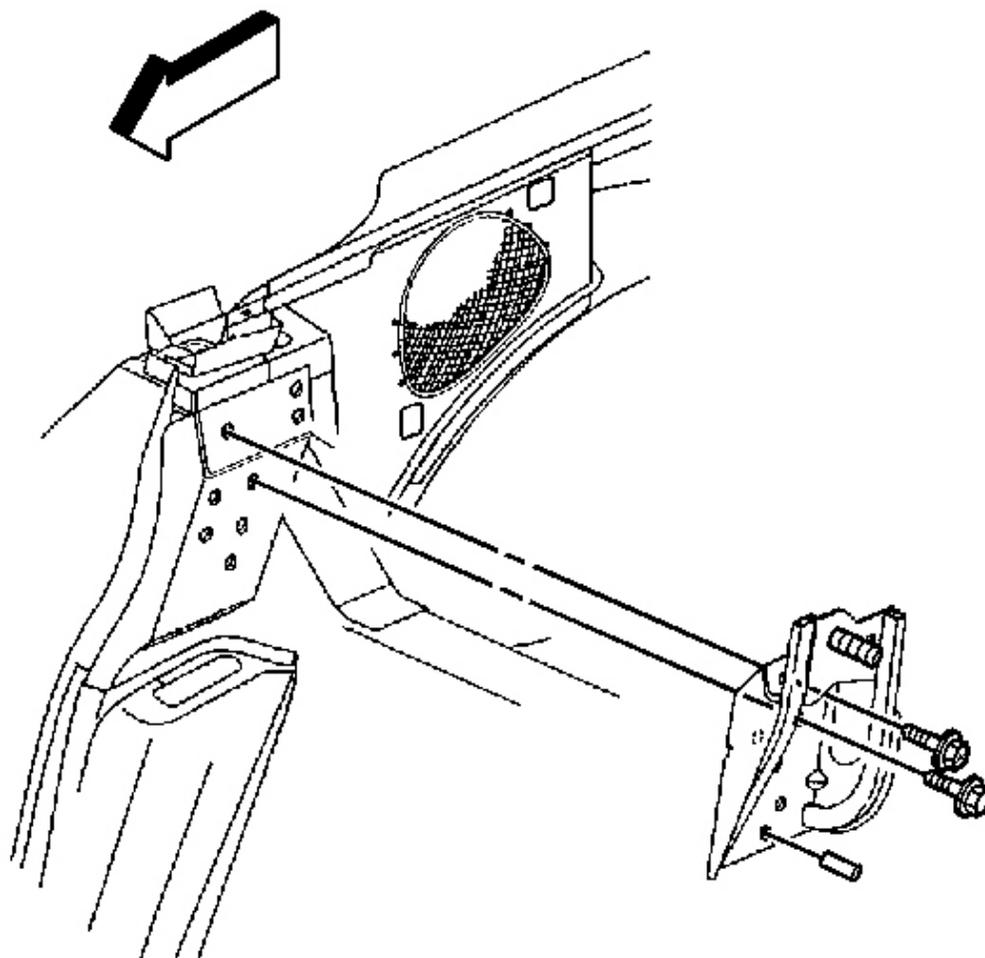


Fig. 10: Shoulder Harness Guide Bracket & Bolts
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the bolts attaching the shoulder harness guide bracket.

Tighten: Tighten the shoulder harness guide bracket bolts to 27 N.m (20 lb ft).

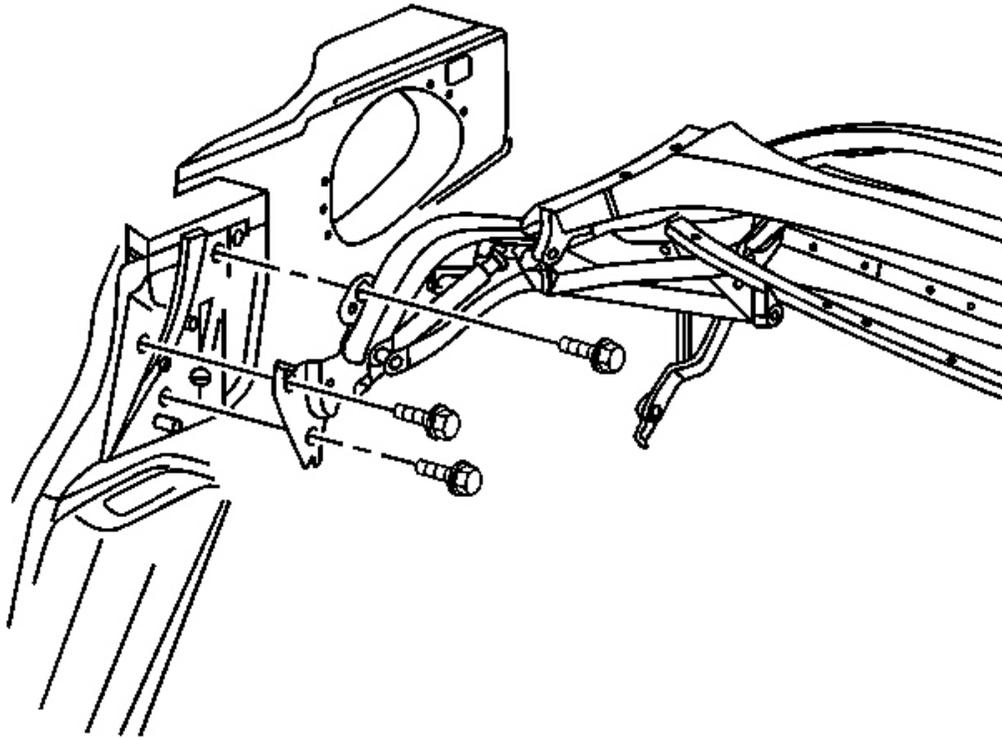


Fig. 11: Folding Top
Courtesy of GENERAL MOTORS CORP.

2. Install the folding top. Refer to **Folding Top Replacement** in Roof.

SEAT BELT RETRACTOR REPLACEMENT - LEFT FRONT (CONVERTIBLE)

Removal Procedure

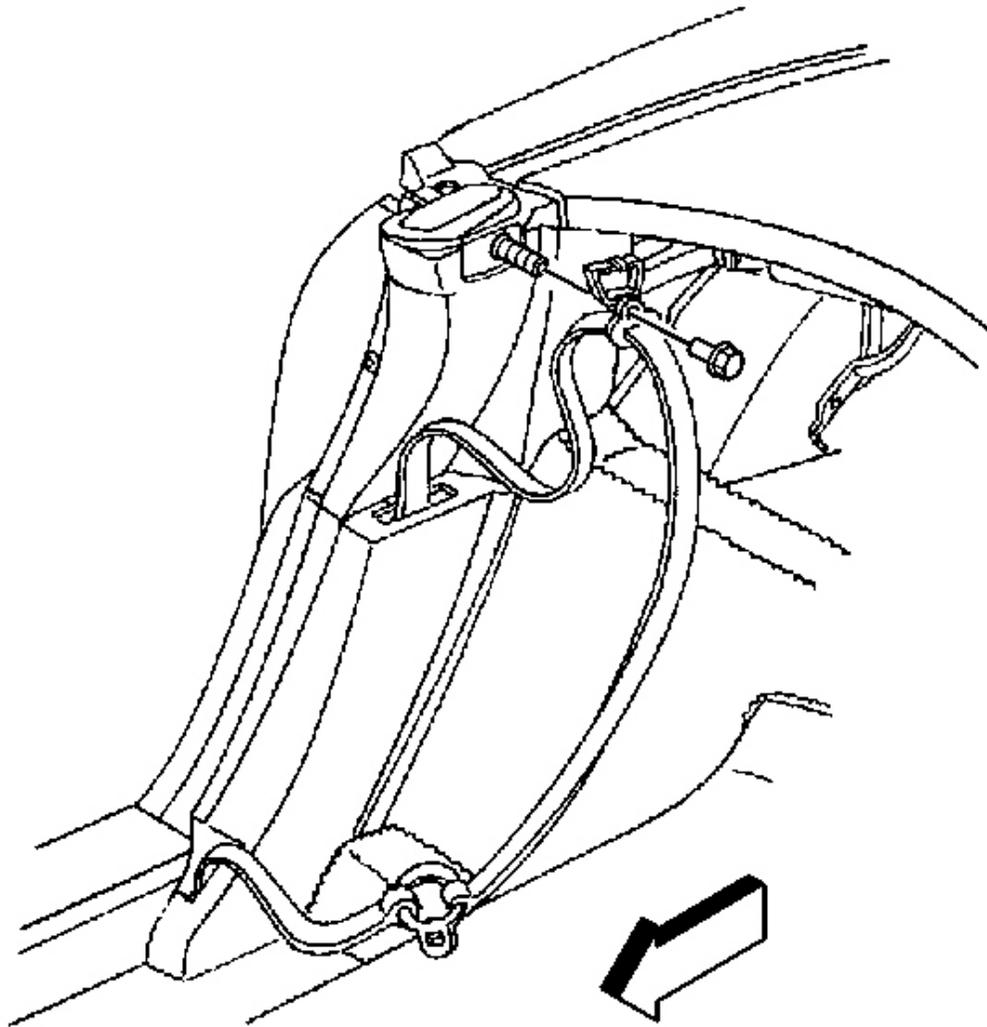


Fig. 12: Seat Belt Guide Bracket Stud & Upper Guide
Courtesy of GENERAL MOTORS CORP.

1. Open the upper guide bolt cover by prying up at the belt side of the cover.
2. Remove the nut attaching the upper guide to the seat belt guide bracket stud.
3. Remove the upper guide from the stud.

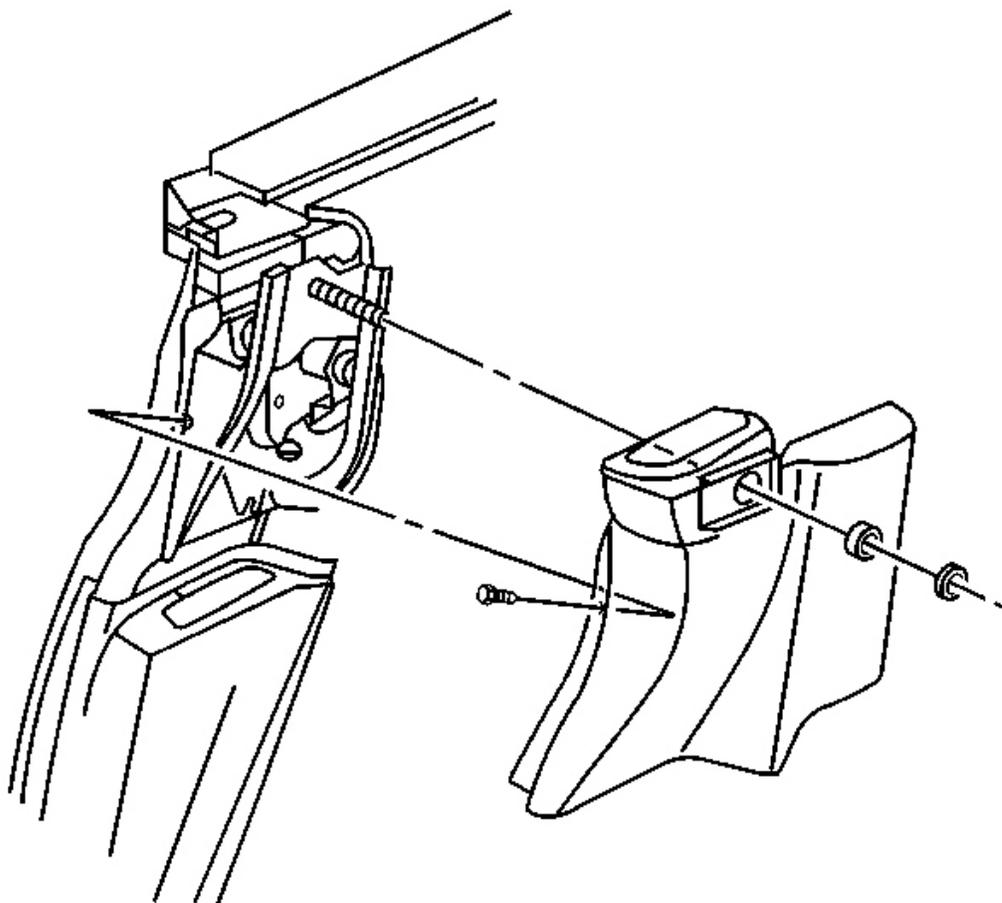


Fig. 13: Lock Pillar Upper Trim Panel
Courtesy of GENERAL MOTORS CORP.

4. Remove the washer and spacer from the stud.
5. Remove the screw attaching the lock pillar upper trim panel.
6. Remove the lock pillar upper trim panel.

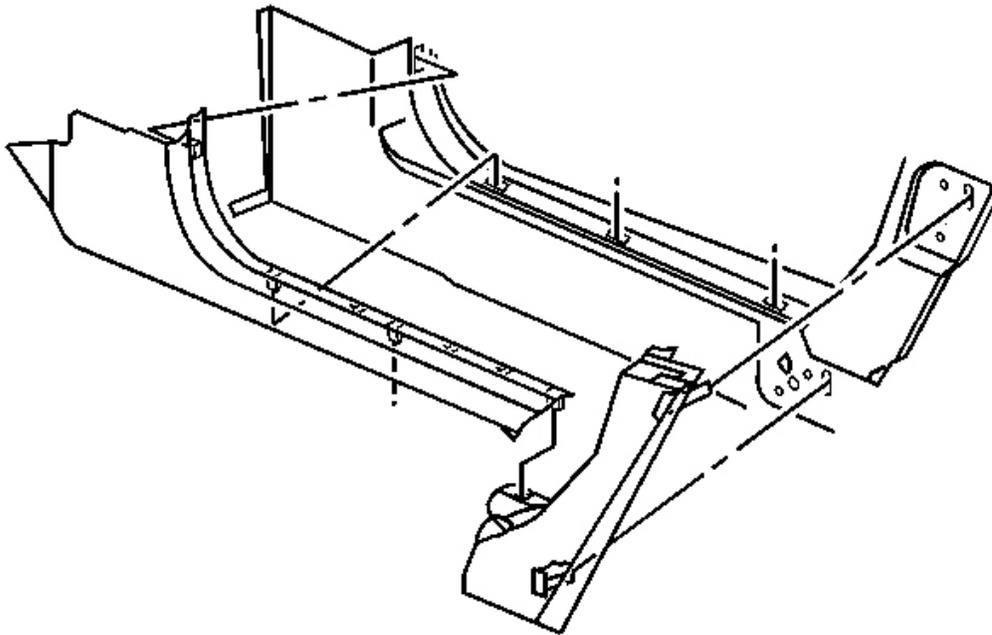


Fig. 14: Lock Pillar Lower Trim Panel
Courtesy of GENERAL MOTORS CORP.

7. Remove the sill plate trim.
8. Remove the lock pillar lower trim panel.

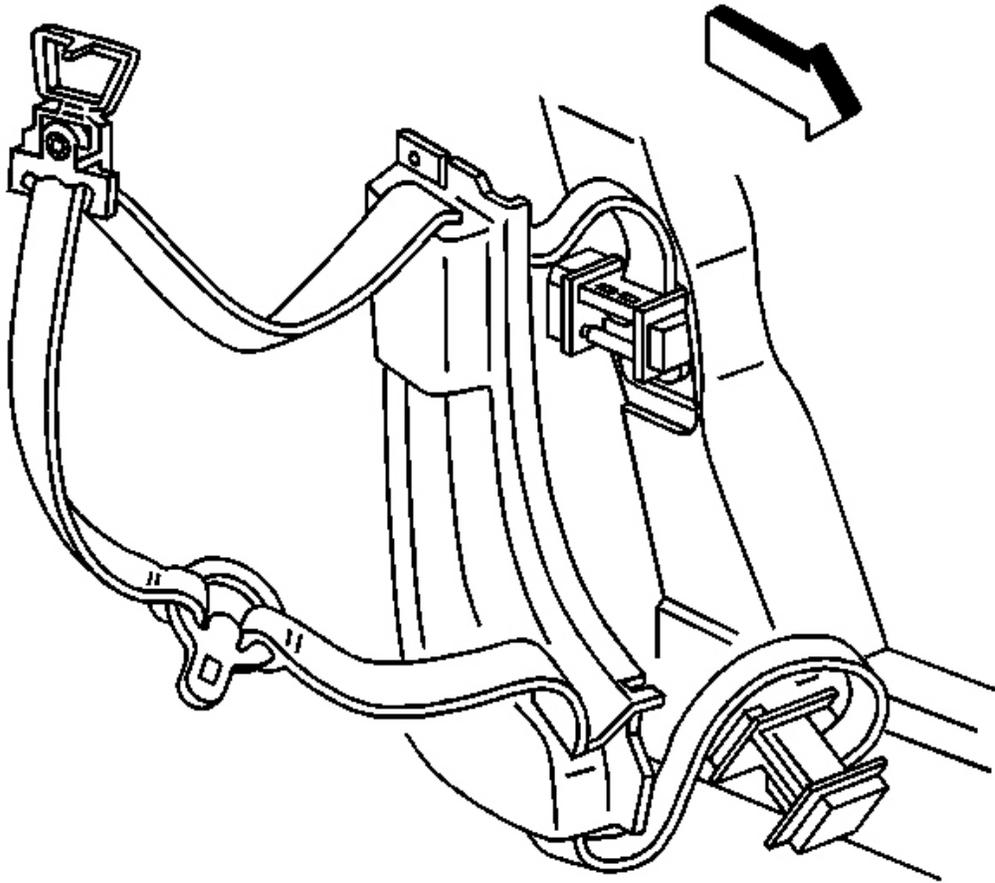


Fig. 15: Retractor Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

9. Remove the bolt attaching the upper retractor.
10. Remove the bolt attaching the lower retractor.
11. Remove the retractor side of the seat belt.

Installation Procedure

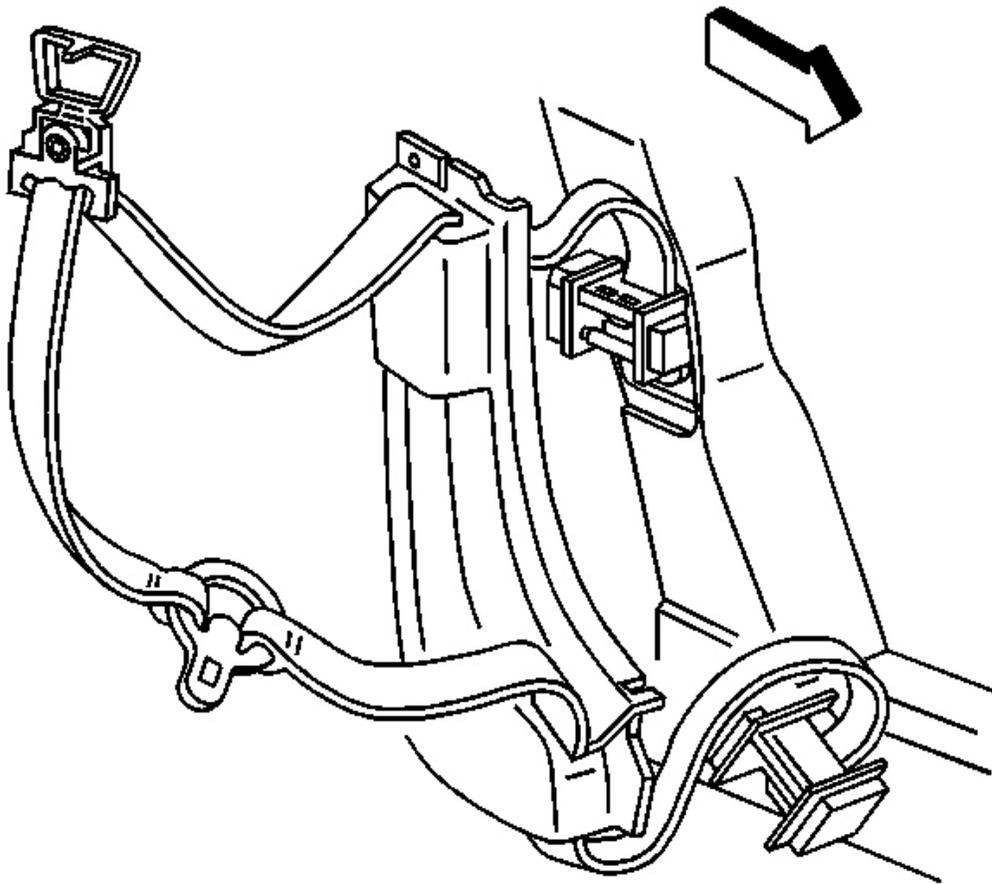


Fig. 16: Retractor Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the upper retractor and attaching bolt.

Tighten: Tighten the upper retractor bolt to 41 N.m (31 lb ft).

2. Install the lower retractor and attaching bolt.

Tighten: Tighten the lower retractor bolt to 47 N.m (35 lb ft).

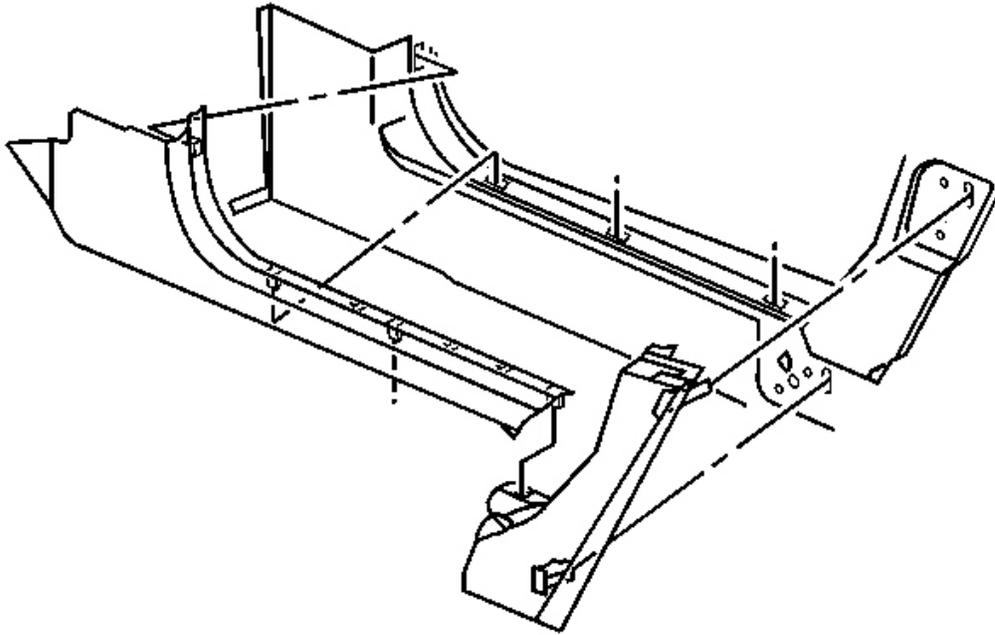


Fig. 17: Lock Pillar Lower Trim Panel
Courtesy of GENERAL MOTORS CORP.

3. Install the lock pillar lower trim panel.
4. Install the sill plate.

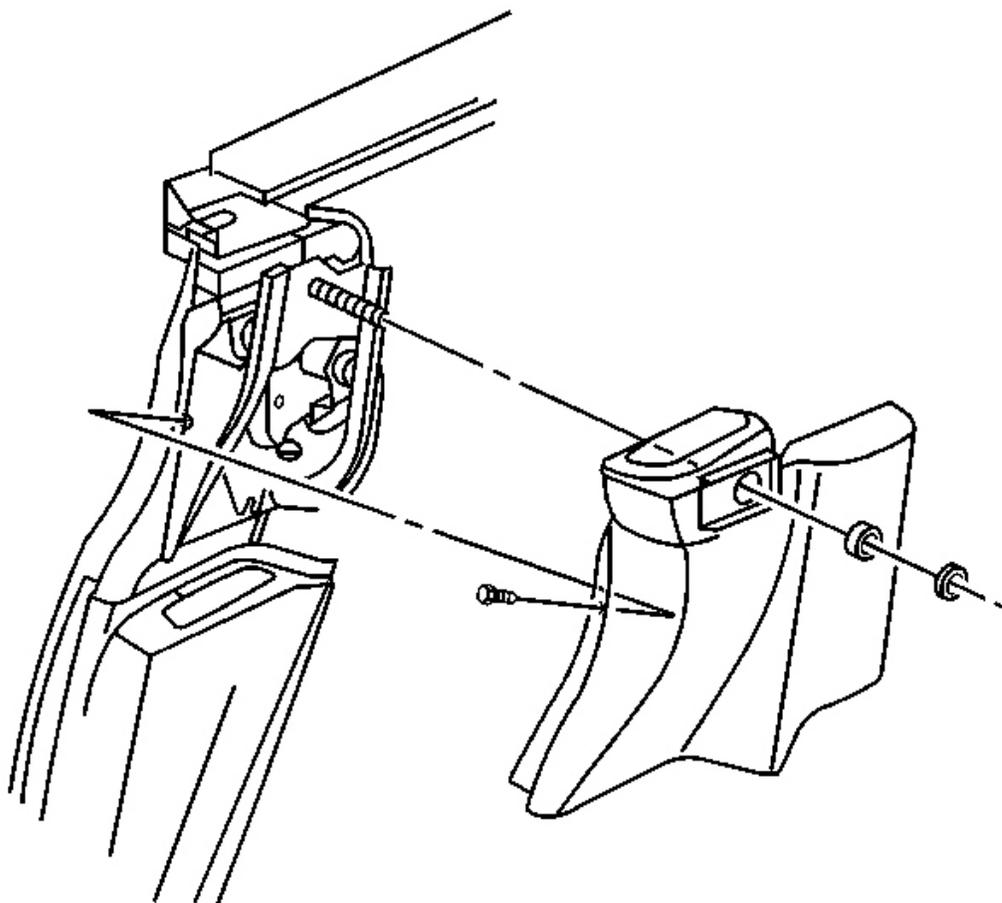


Fig. 18: Lock Pillar Upper Trim Panel
Courtesy of GENERAL MOTORS CORP.

5. Install the lock pillar upper trim panel.
6. Install the screw attaching the upper trim panel to the lock pillar.

Tighten: Tighten the upper lock pillar trim screw to 1.8 N.m (16 lb in).

7. Install the spacer and washer to the seat belt harness bracket stud.

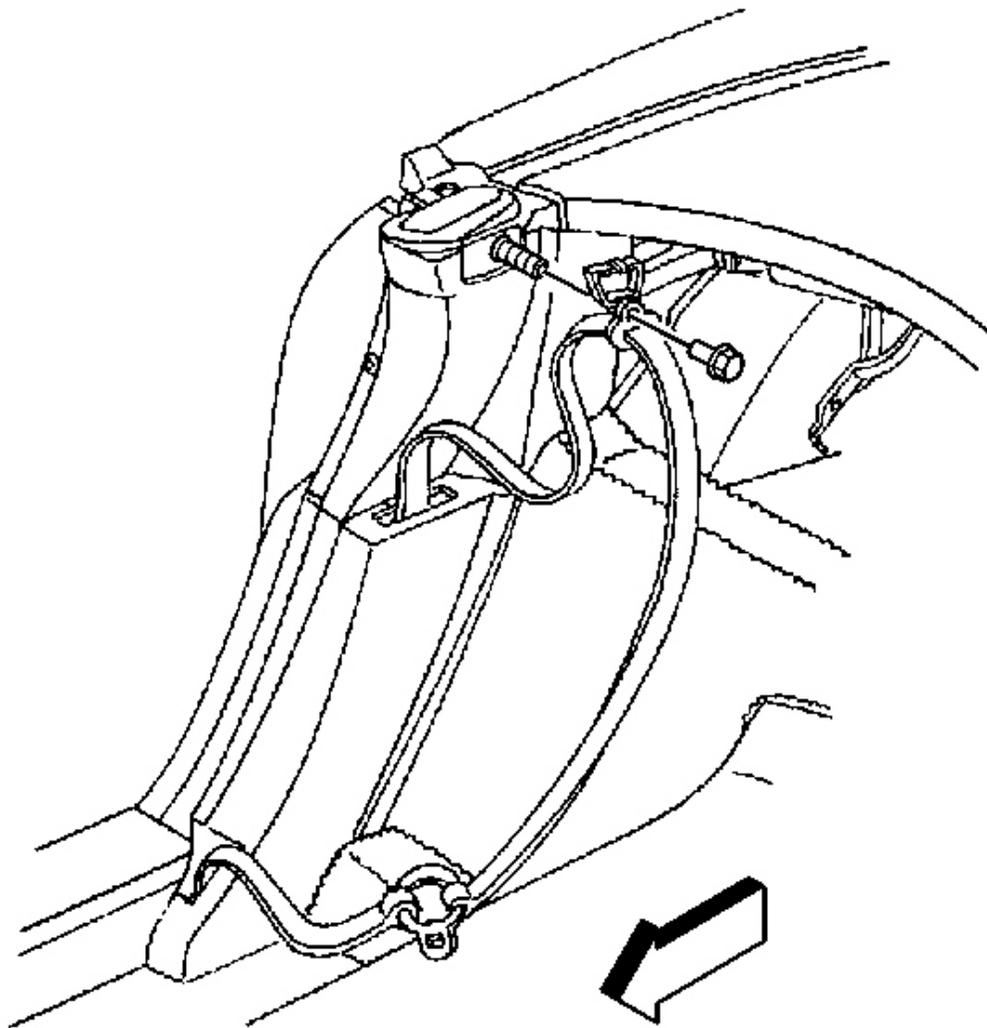


Fig. 19: Seat Belt Guide Bracket Stud & Upper Guide
Courtesy of GENERAL MOTORS CORP.

8. Install the upper guide to the stud.
9. Install the nut attaching the upper guide to the stud.

Tighten: Tighten the upper guide nut to 40 N.m (29 lb ft).

10. Snap the upper guide cover closed.

SEAT BELT RETRACTOR REPLACEMENT - LEFT FRONT (COUPE, HARDTOP)

Removal Procedure

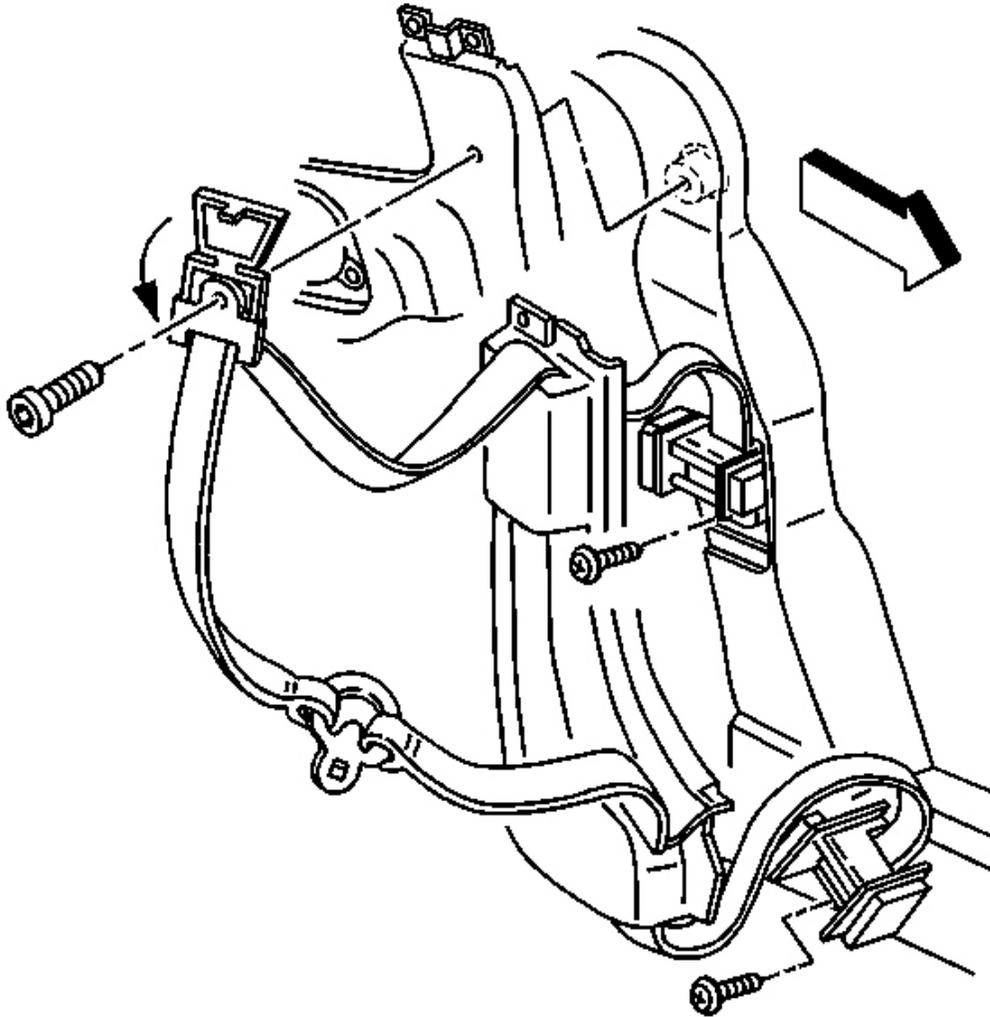


Fig. 20: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

1. Uncover the upper guide bolt by pushing up at the belt edge of the cover and flipping up the cover.
2. Remove the upper guide bolt.

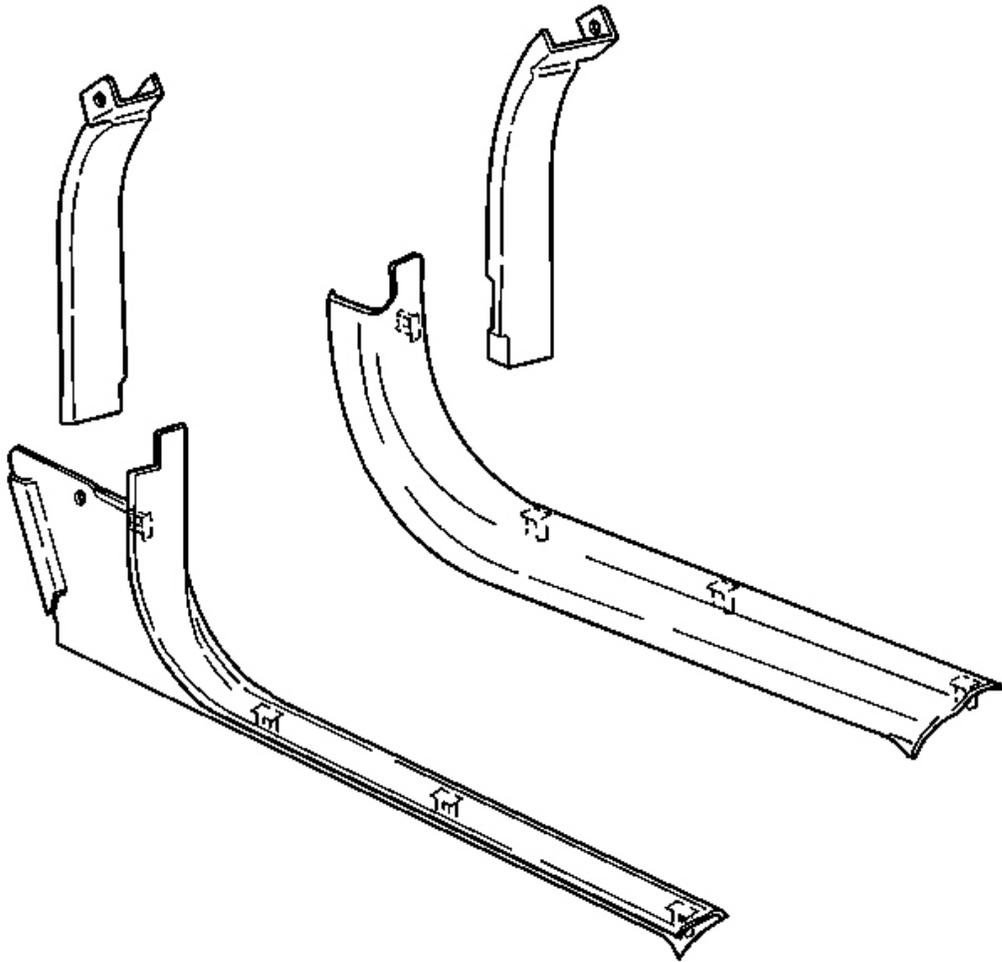


Fig. 21: Side Sill Trim Plate
Courtesy of GENERAL MOTORS CORP.

3. Remove the side sill trim plate. Refer to **Door Sill Plate Replacement** in Interior Trim.

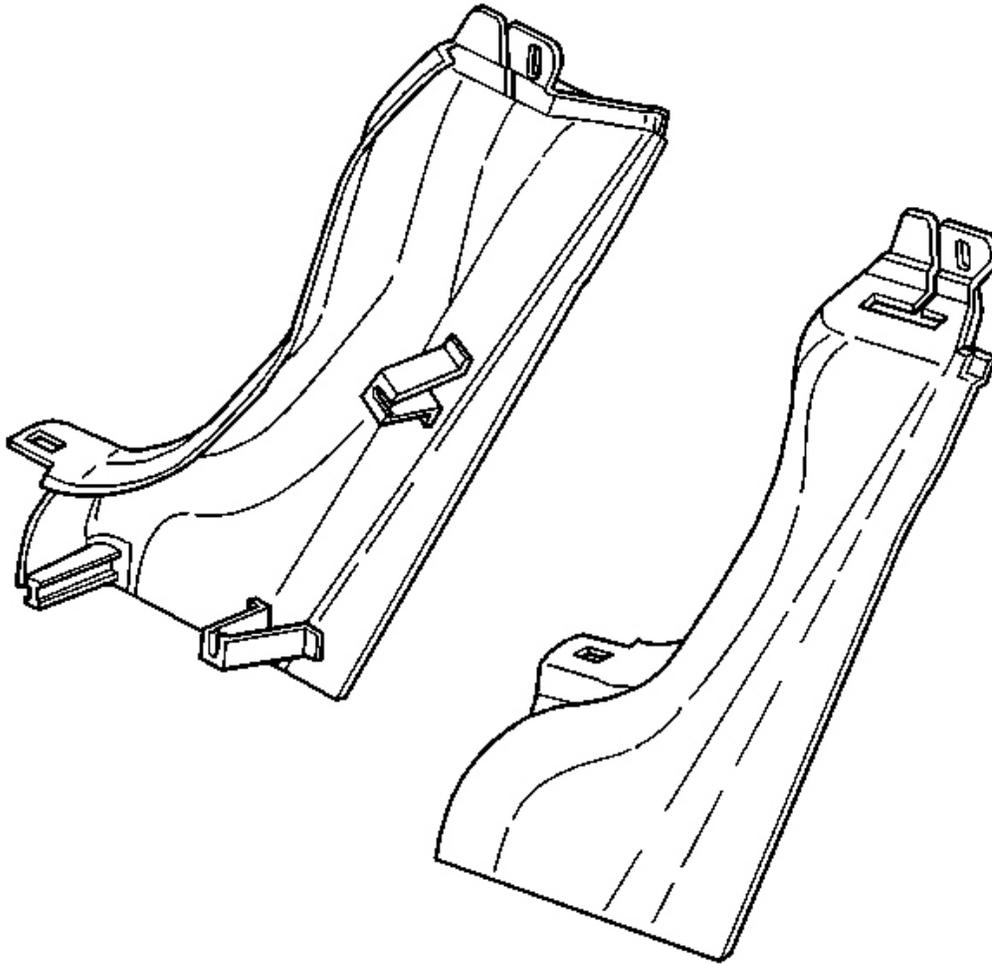


Fig. 22: Lock Pillar Trim Panel
Courtesy of GENERAL MOTORS CORP.

4. Remove the lock pillar trim panel. Refer to Trim Replacement - Lock Pillar (Upper Convertible) or Trim Replacement - Lock Pillar (Coupe) or Trim Replacement - Lock Pillar (Lower Convertible and Hard Top) in Interior Trim.

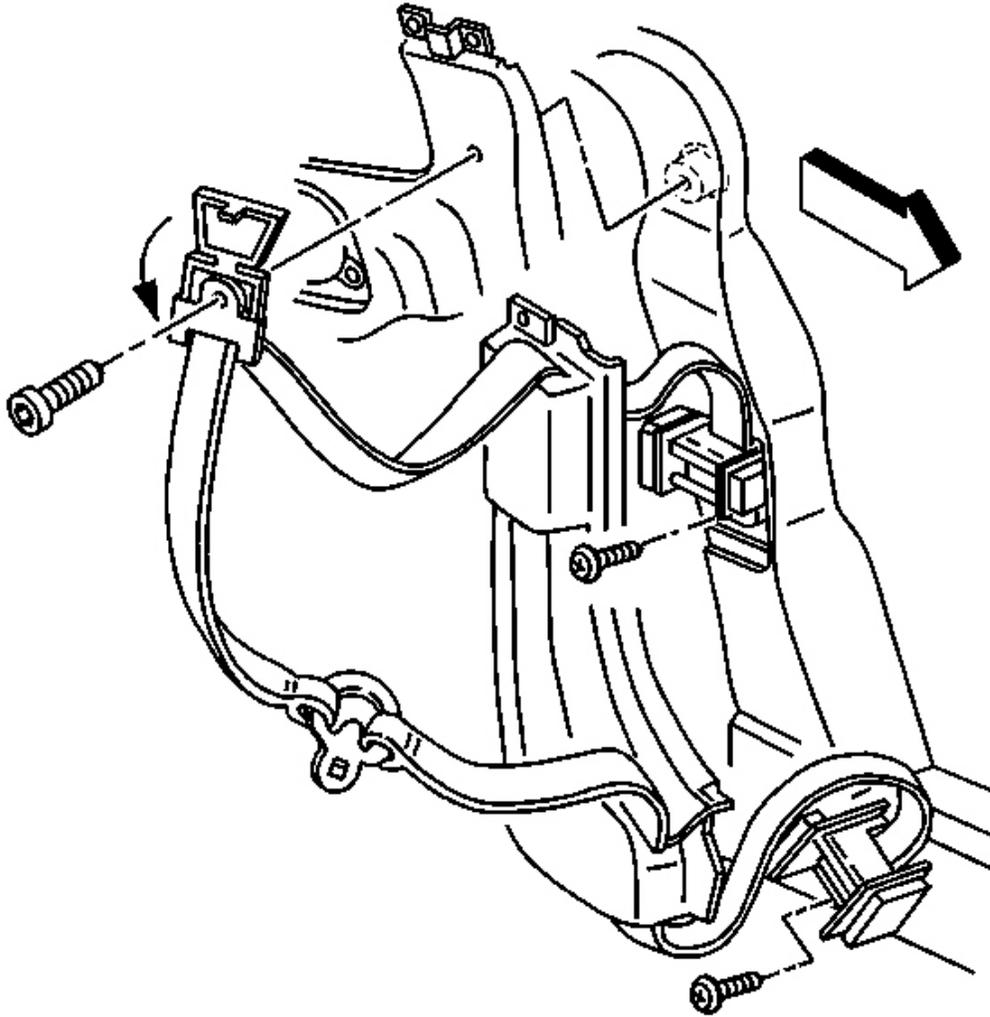


Fig. 23: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

5. Remove the bolt, mounting the upper retractor.
6. Remove the bolt, mounting the lower retractor.
7. Remove the retractor side of the seat belt.

Installation Procedure

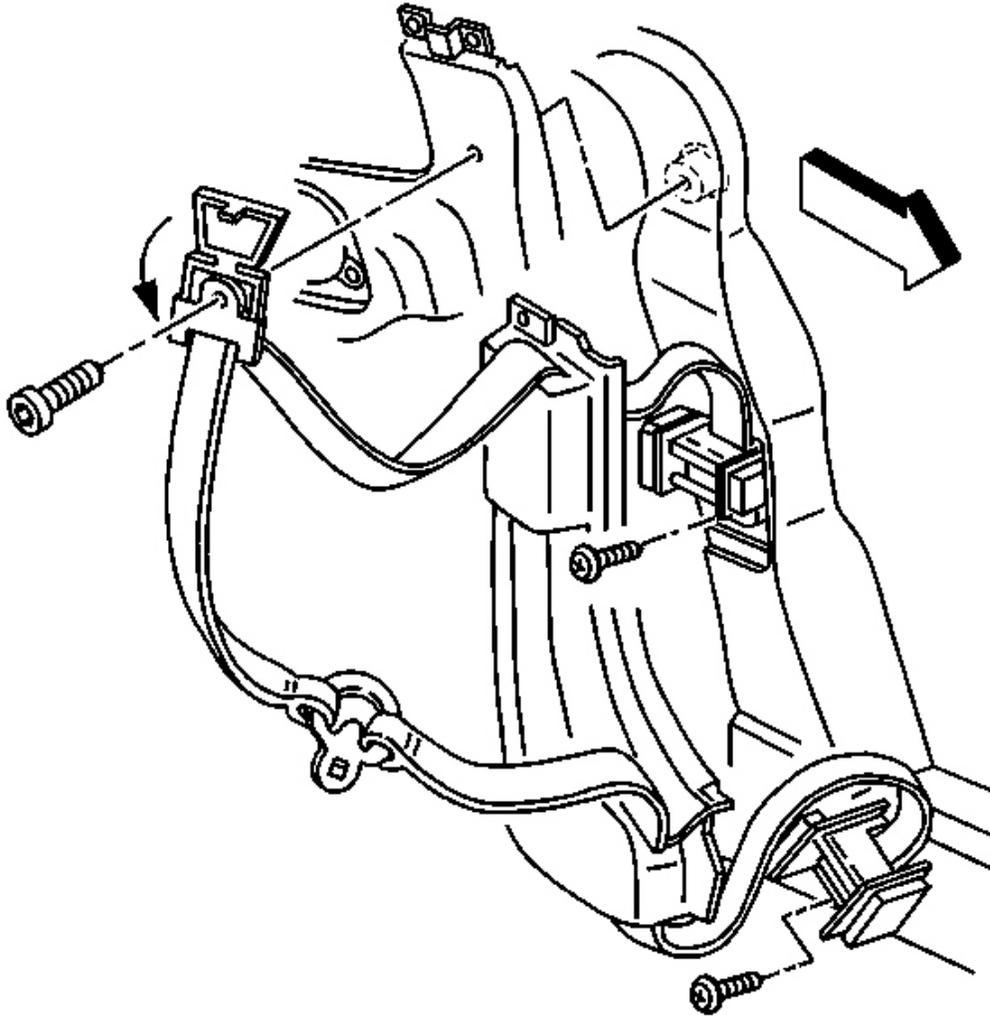


Fig. 24: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the upper retractor and attaching bolt.

Tighten: Tighten the upper retractor bolt to 41 N.m (31 lb ft).

2. Install the lower retractor and attaching bolt.

Tighten: Tighten the lower retractor bolt to 47 N.m (35 lb ft).

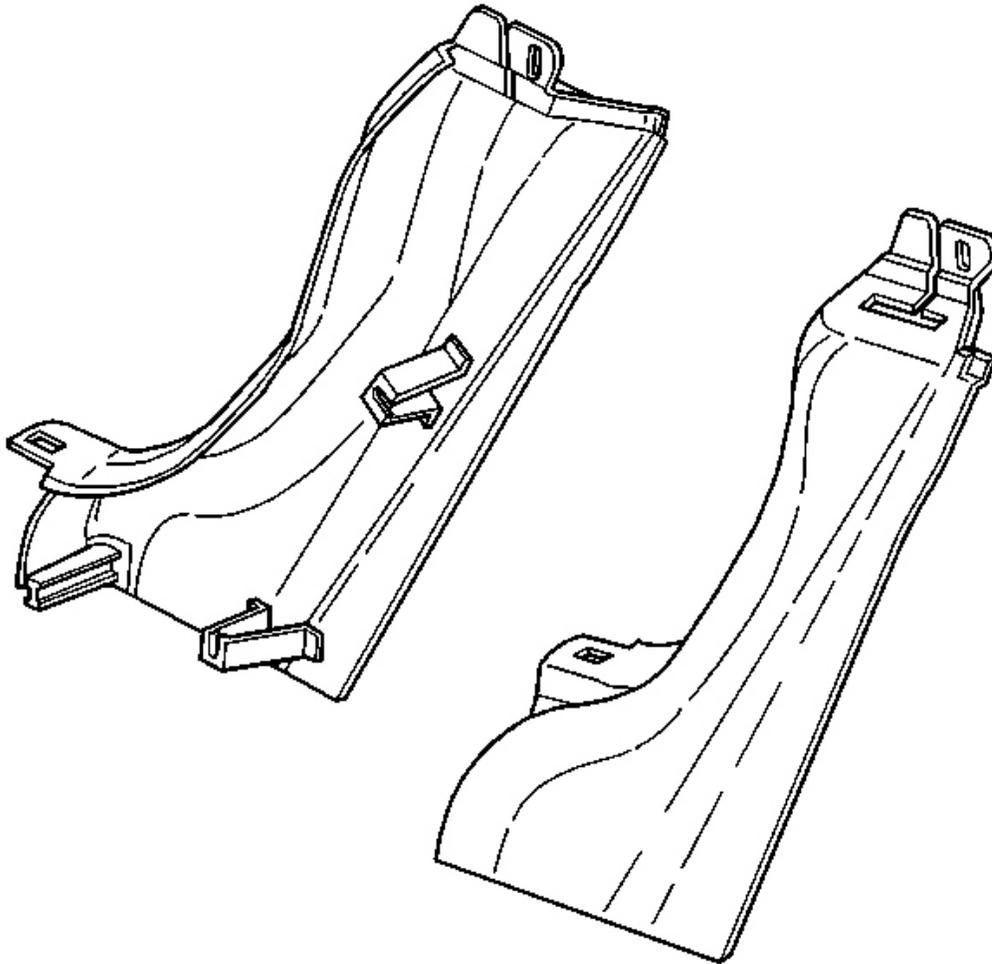


Fig. 25: Lock Pillar Trim Panel
Courtesy of GENERAL MOTORS CORP.

3. Install the lock pillar trim panel. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.

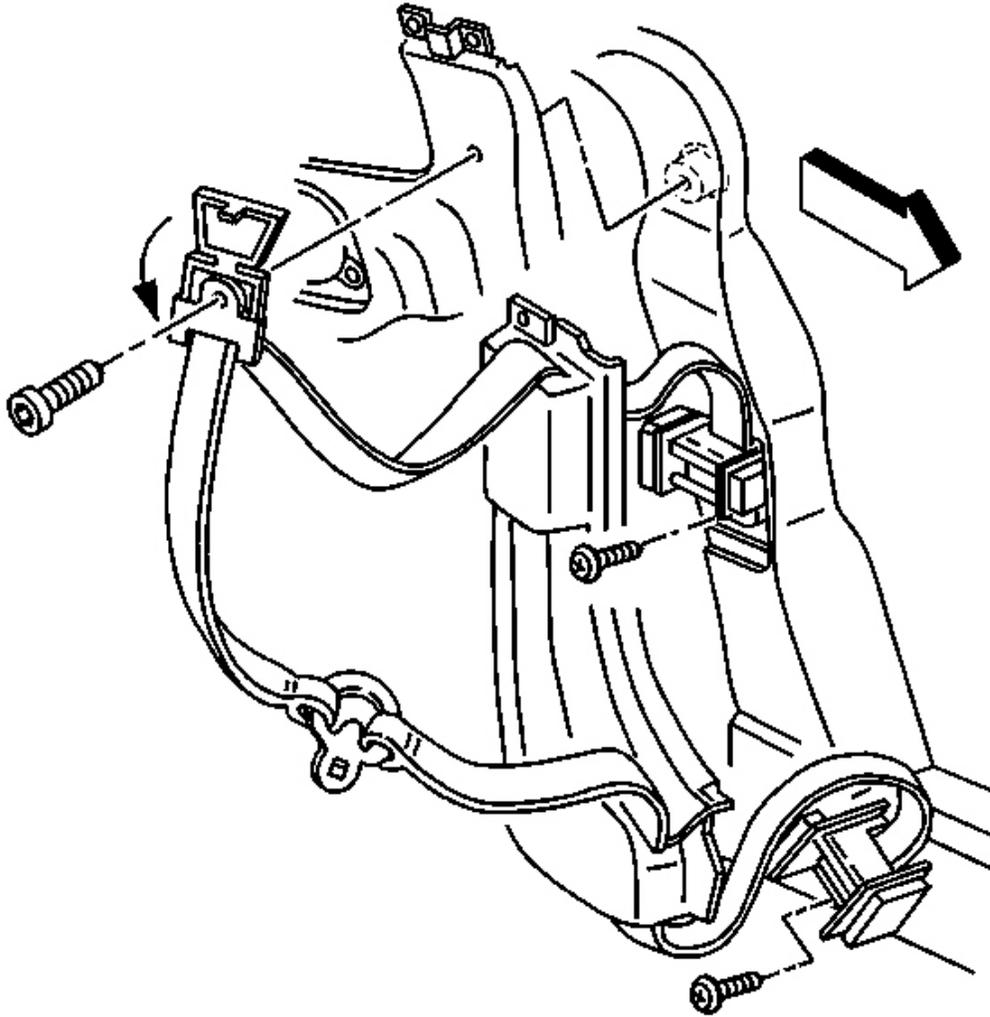


Fig. 26: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

4. Install the upper guide bolt and cover.

Tighten: Tighten the upper guide bolt to 41 N.m (31 lb ft).

5. Snap the cover closed.

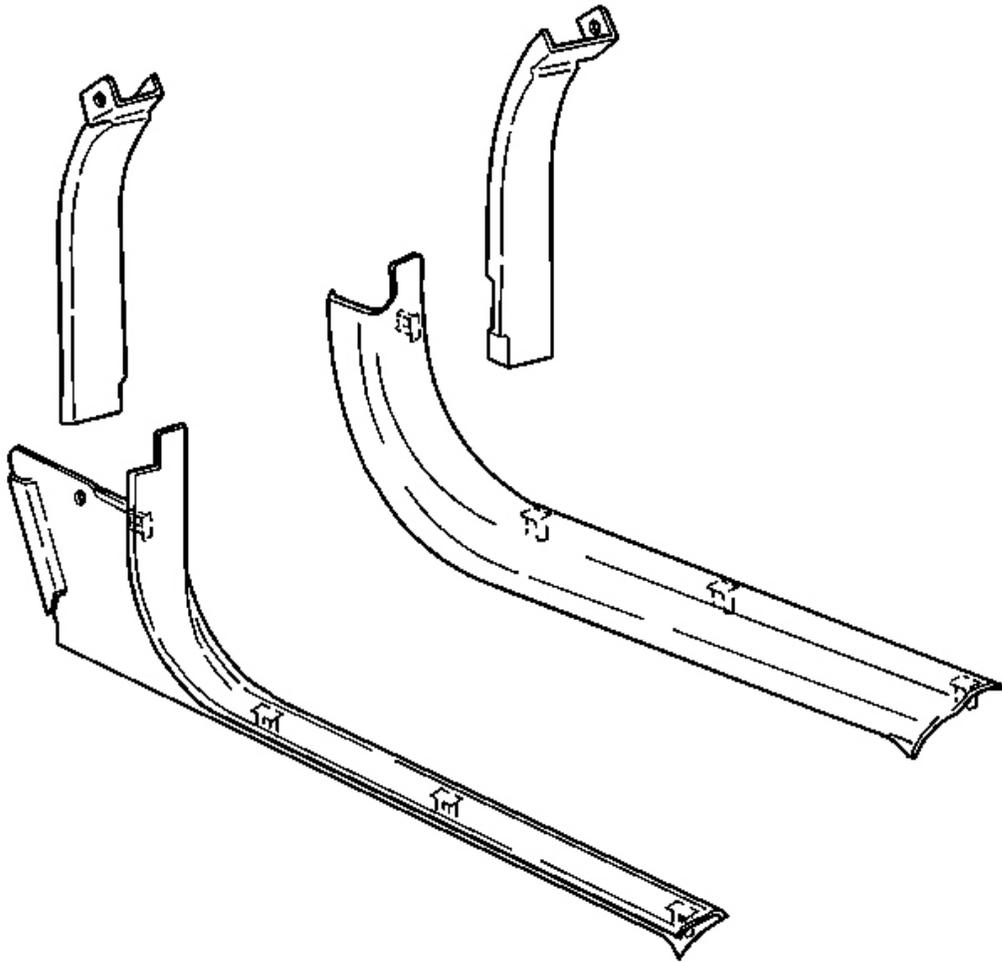


Fig. 27: Side Sill Trim Plate
Courtesy of GENERAL MOTORS CORP.

6. Install the side sill trim plate. Refer to **Door Sill Plate Replacement** in Interior Trim.

SEAT BELT RETRACTOR REPLACEMENT - RIGHT FRONT (CONVERTIBLE)

Removal Procedure

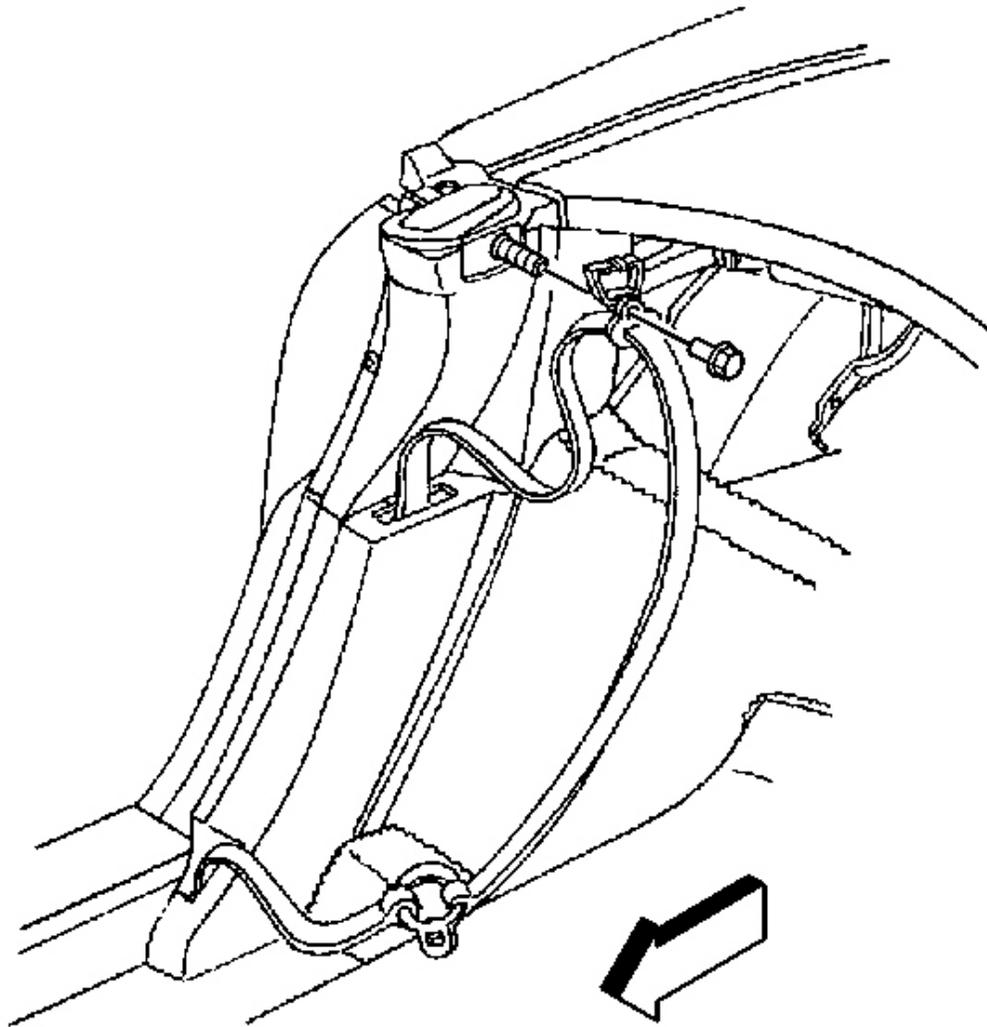


Fig. 28: Seat Belt Guide Bracket Stud & Upper Guide
Courtesy of GENERAL MOTORS CORP.

1. Uncover the upper guide nut by pushing up at the belt edge of the cover and flipping up the cover.
2. Remove the nut attaching upper guide.
3. Remove the washer and spacer from the stud.

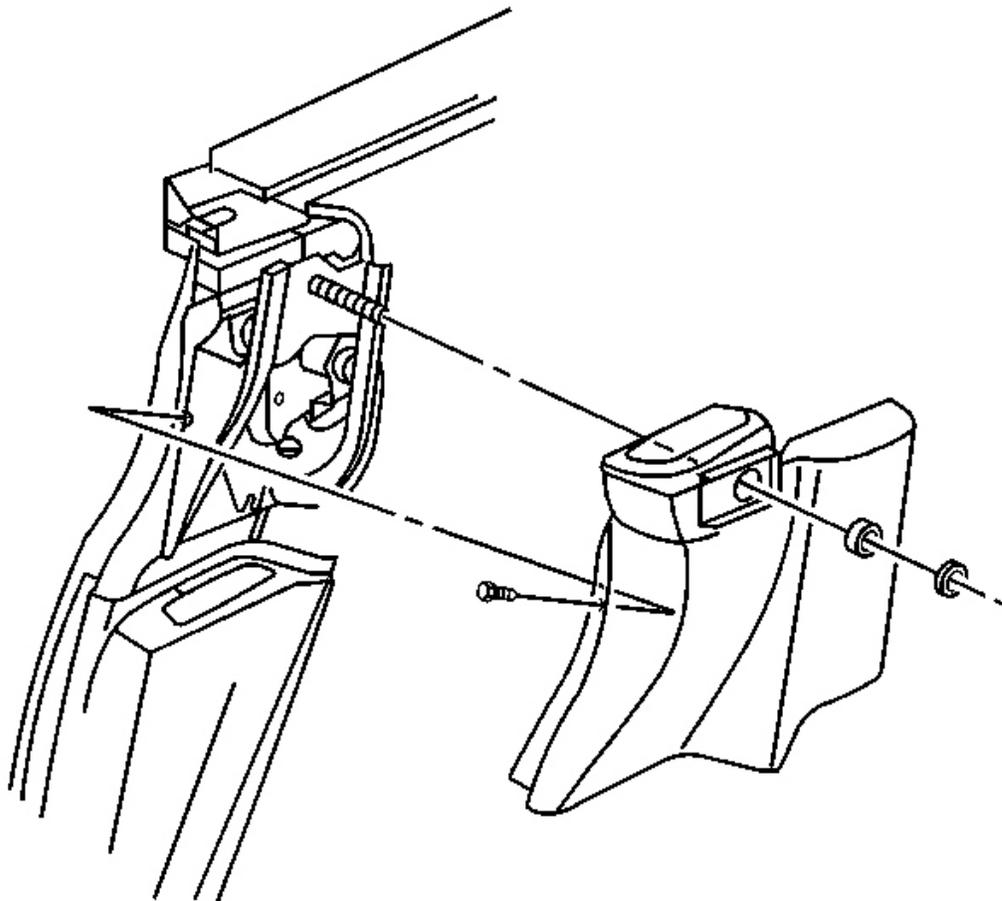


Fig. 29: Lock Pillar Upper Trim Panel
Courtesy of GENERAL MOTORS CORP.

4. Remove the screw attaching the upper lock pillar trim panel.
5. Remove the upper lock pillar trim panel.

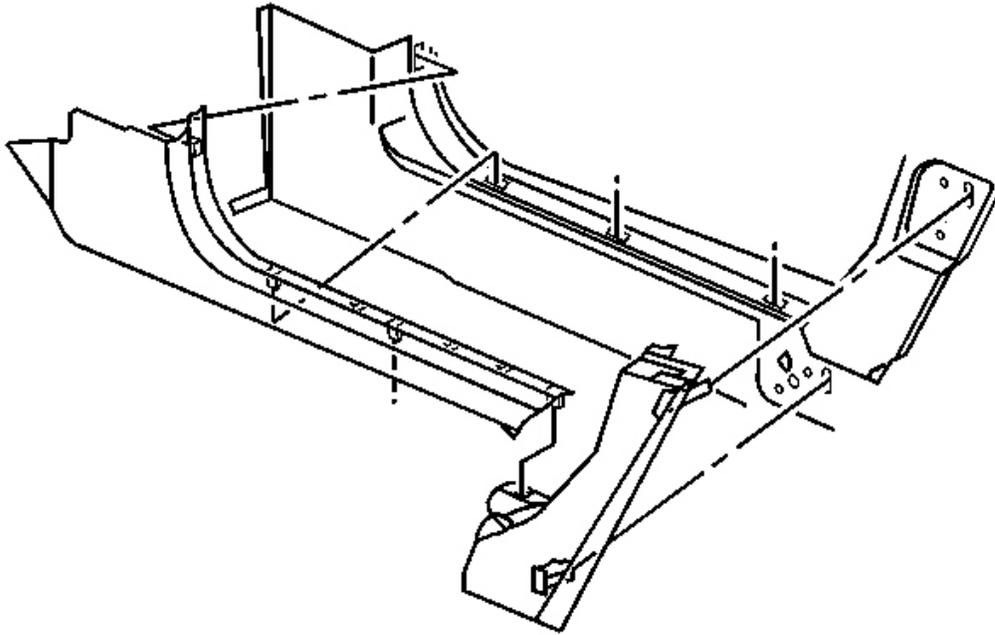


Fig. 30: Lock Pillar Lower Trim Panel
Courtesy of GENERAL MOTORS CORP.

6. Remove the sill plate trim.
7. Remove the lower lock pillar trim panel.

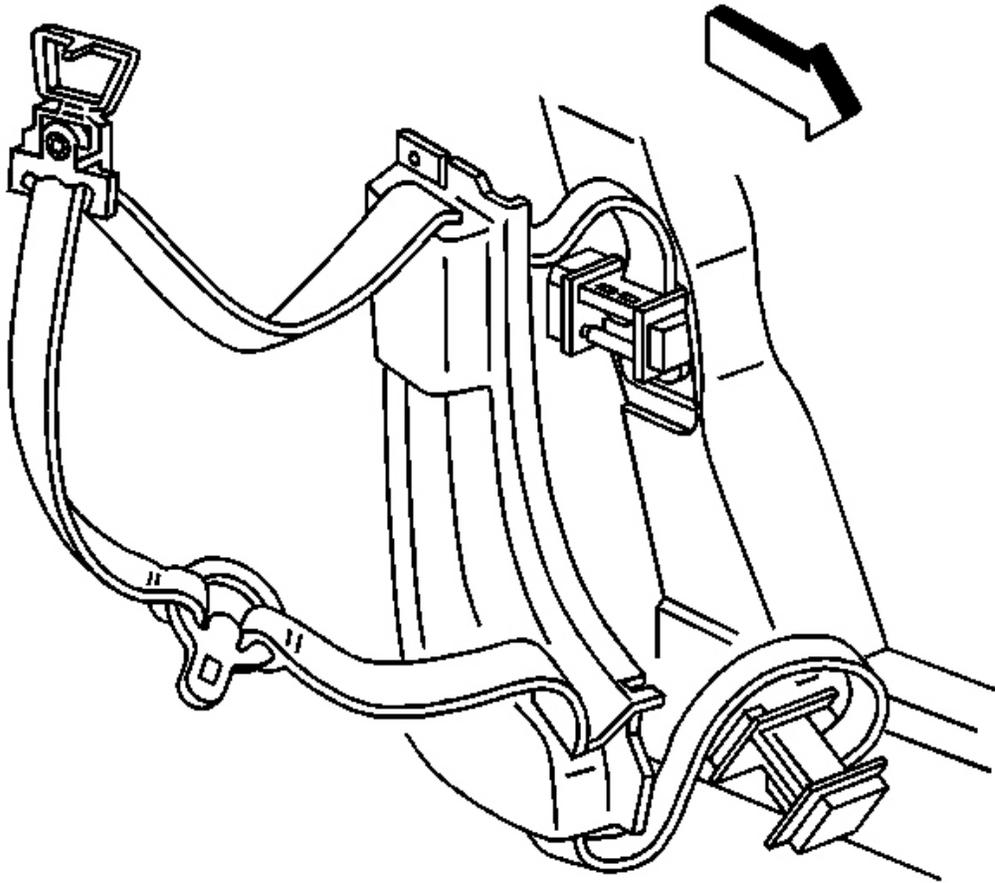


Fig. 31: Retractor Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

8. Remove the bolt attaching the upper retractor.
9. Remove the bolt attaching the lower retractor.
10. Remove the retractor side of the seat belt.

Installation Procedure

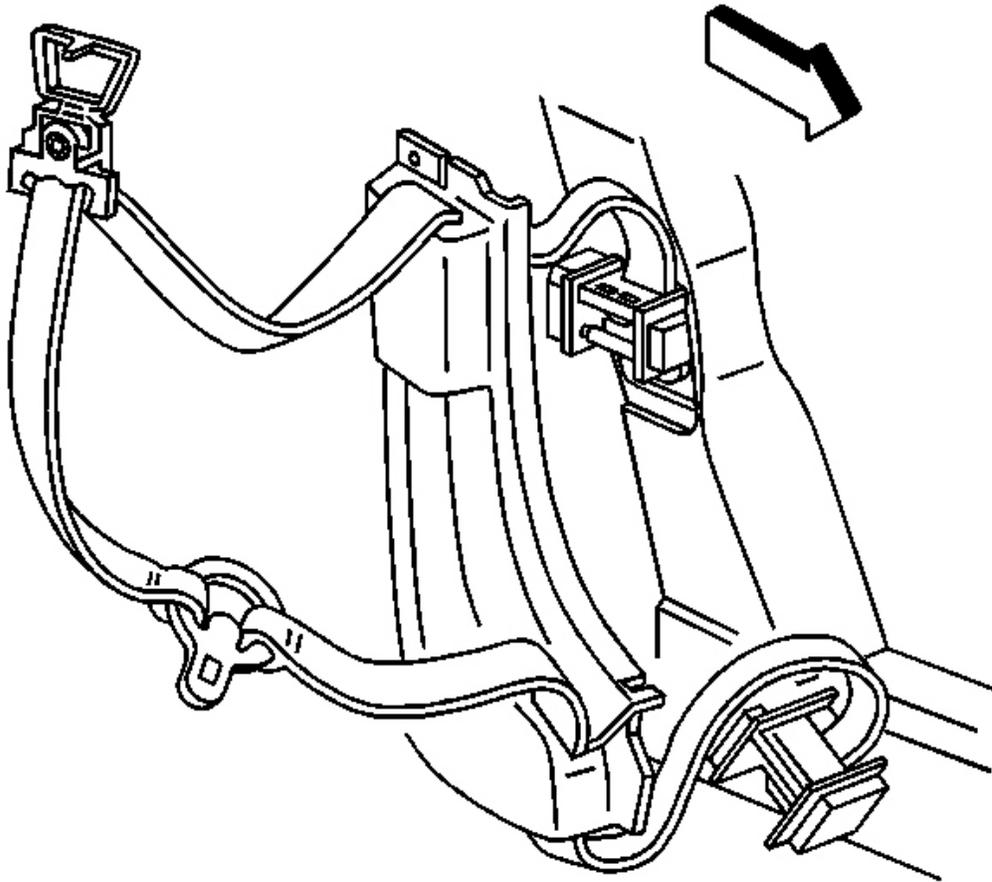


Fig. 32: Retractor Side Seat Belt
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the upper retractor and attaching bolt.

Tighten: Tighten the upper retractor bolt to 41 N.m (30 lb ft).

2. Install the lower retractor and attaching bolt.

Tighten: Tighten the lower retractor bolt to 41 N.m (30 lb ft).

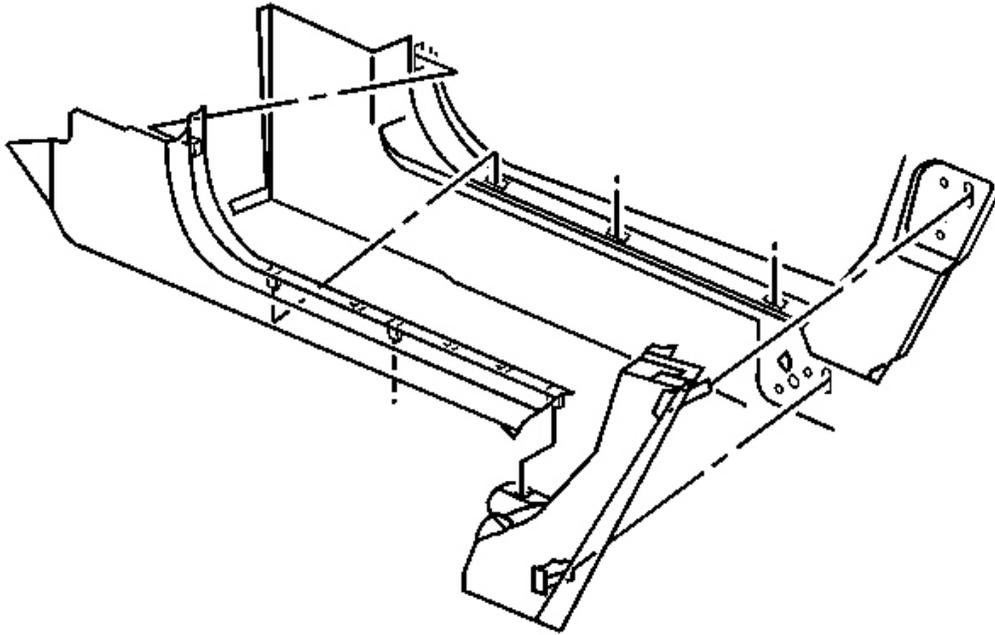


Fig. 33: Lock Pillar Lower Trim Panel
Courtesy of GENERAL MOTORS CORP.

3. Install the lower lock pillar trim panel.
4. Install the sill plate.

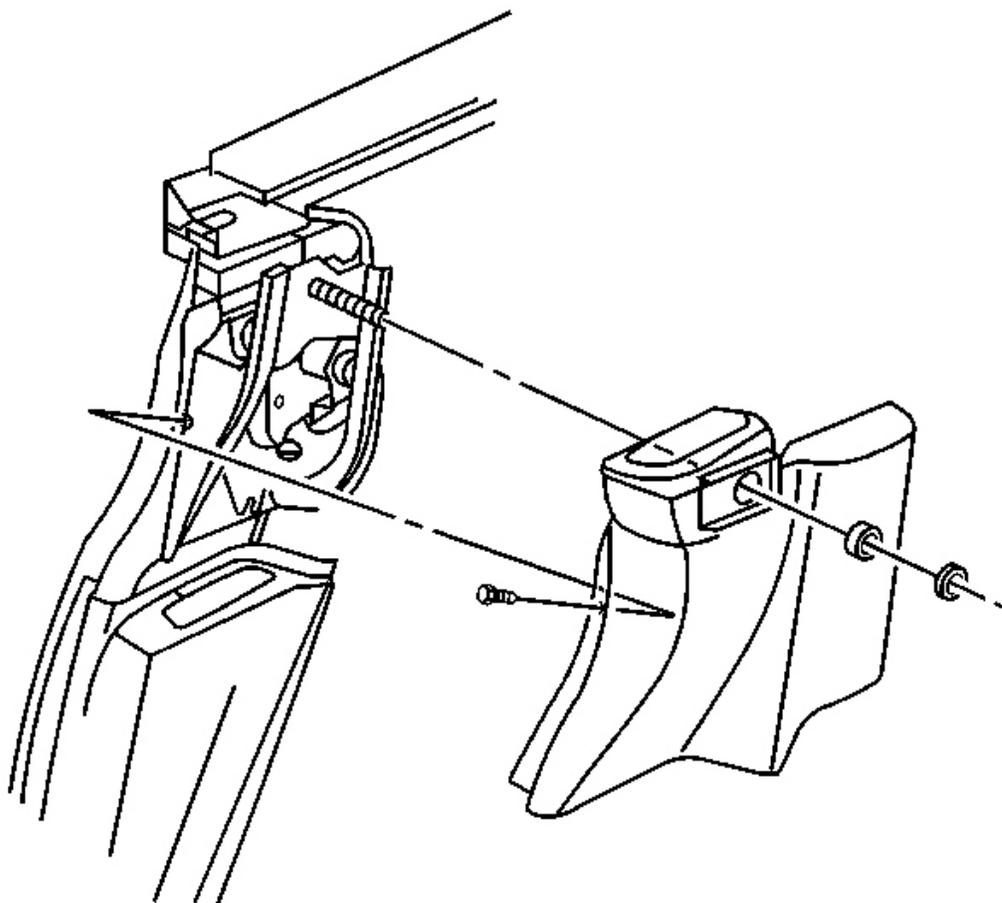


Fig. 34: Lock Pillar Upper Trim Panel
Courtesy of GENERAL MOTORS CORP.

5. Install the upper lock pillar trim panel.
6. Install the screw securing the upper trim panel.

Tighten: Tighten the upper lock pillar trim panel screw to 1.8 N.m (16 lb in).

7. Install the spacer and washer to the seat belt harness bracket stud.

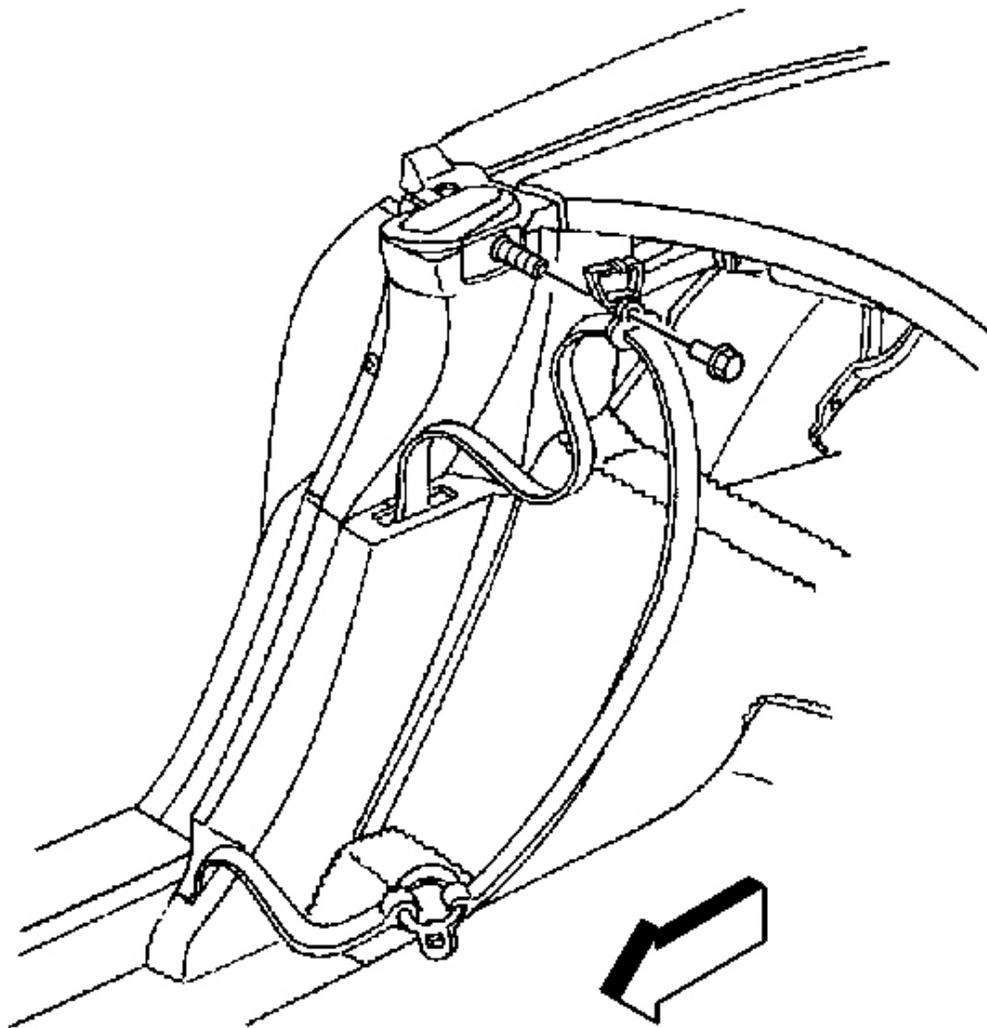


Fig. 35: Seat Belt Guide Bracket Stud & Upper Guide
Courtesy of GENERAL MOTORS CORP.

8. Install the upper guide to the stud.
9. Install the nut attaching the upper guide to the bracket stud.

Tighten: Tighten upper guide nut to 40 N.m (29 lb ft).

10. Snap the guide cover closed.

SEAT BELT RETRACTOR REPLACEMENT - RIGHT FRONT (COUPE, HARDTOP)

Removal Procedure

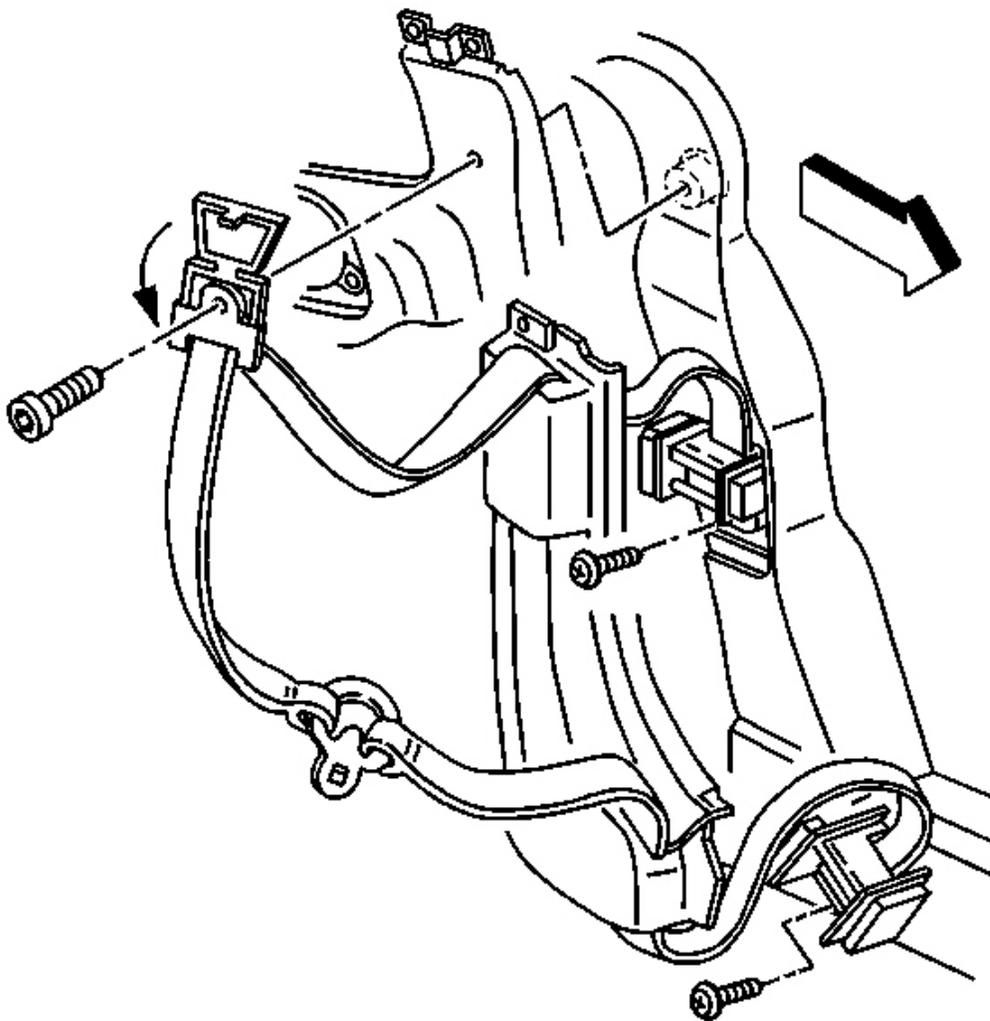


Fig. 36: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

1. Uncover the upper guide bolt by pushing up at the belt edge of the cover and flipping up the cover.
2. Remove the upper guide bolt.

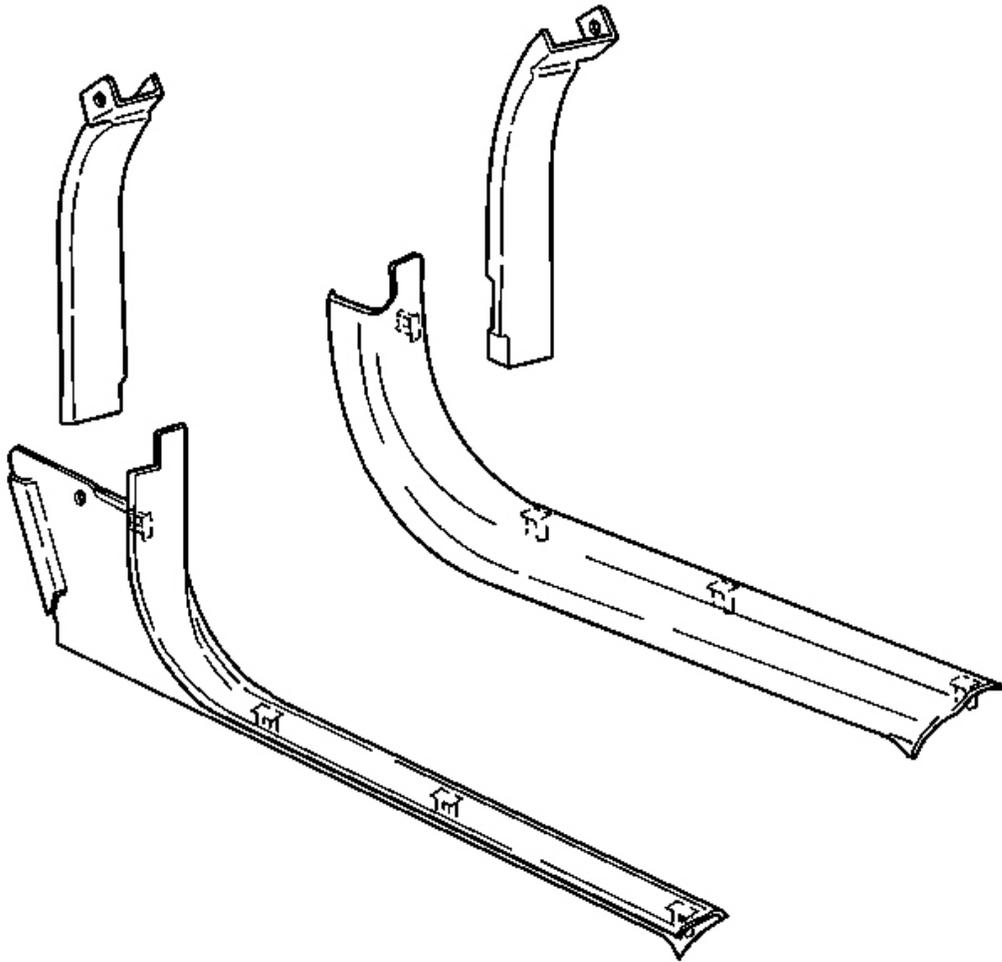


Fig. 37: Side Sill Trim Plate
Courtesy of GENERAL MOTORS CORP.

3. Remove the side sill trim plate. Refer to **Door Sill Plate Replacement** in Interior Trim.

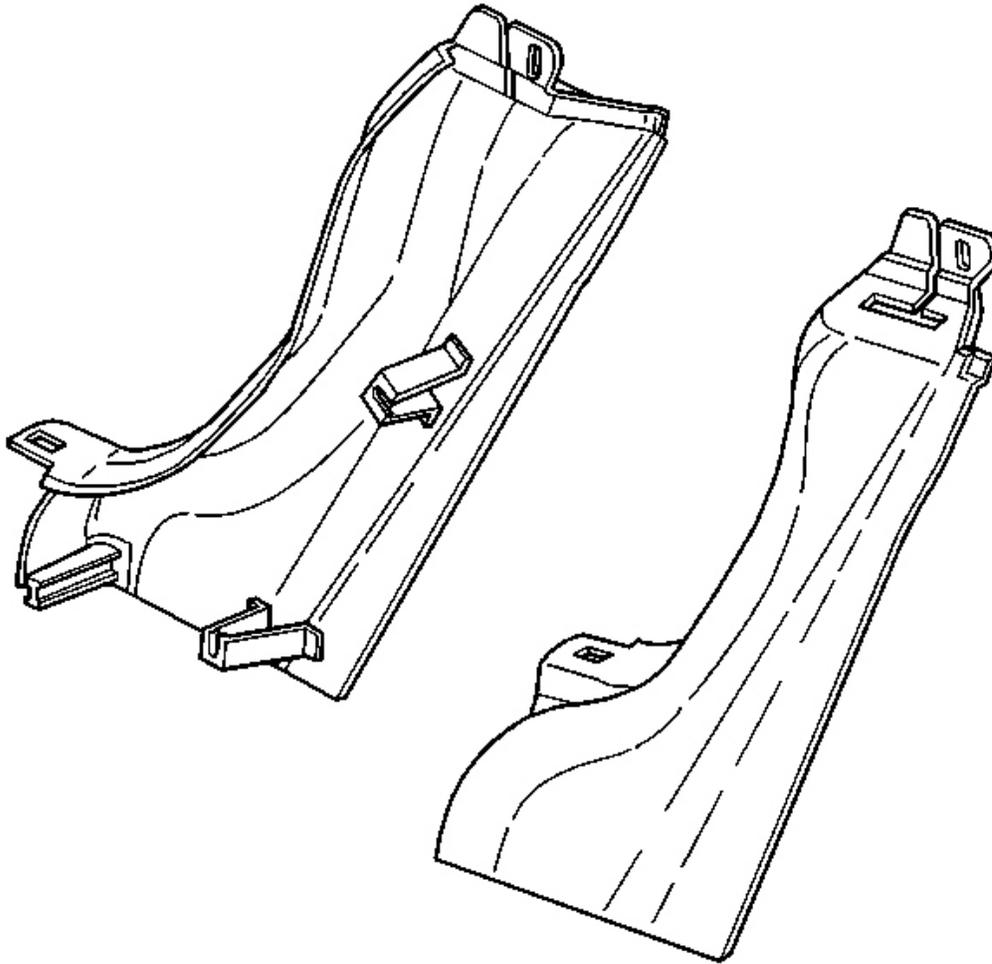


Fig. 38: Lock Pillar Trim Panel
Courtesy of GENERAL MOTORS CORP.

4. Remove the lock pillar trim panel. Refer to Trim Replacement - Lock Pillar (Upper Convertible) or Trim Replacement - Lock Pillar (Coupe) or Trim Replacement - Lock Pillar (Lower Convertible and Hard Top) in Interior Trim.

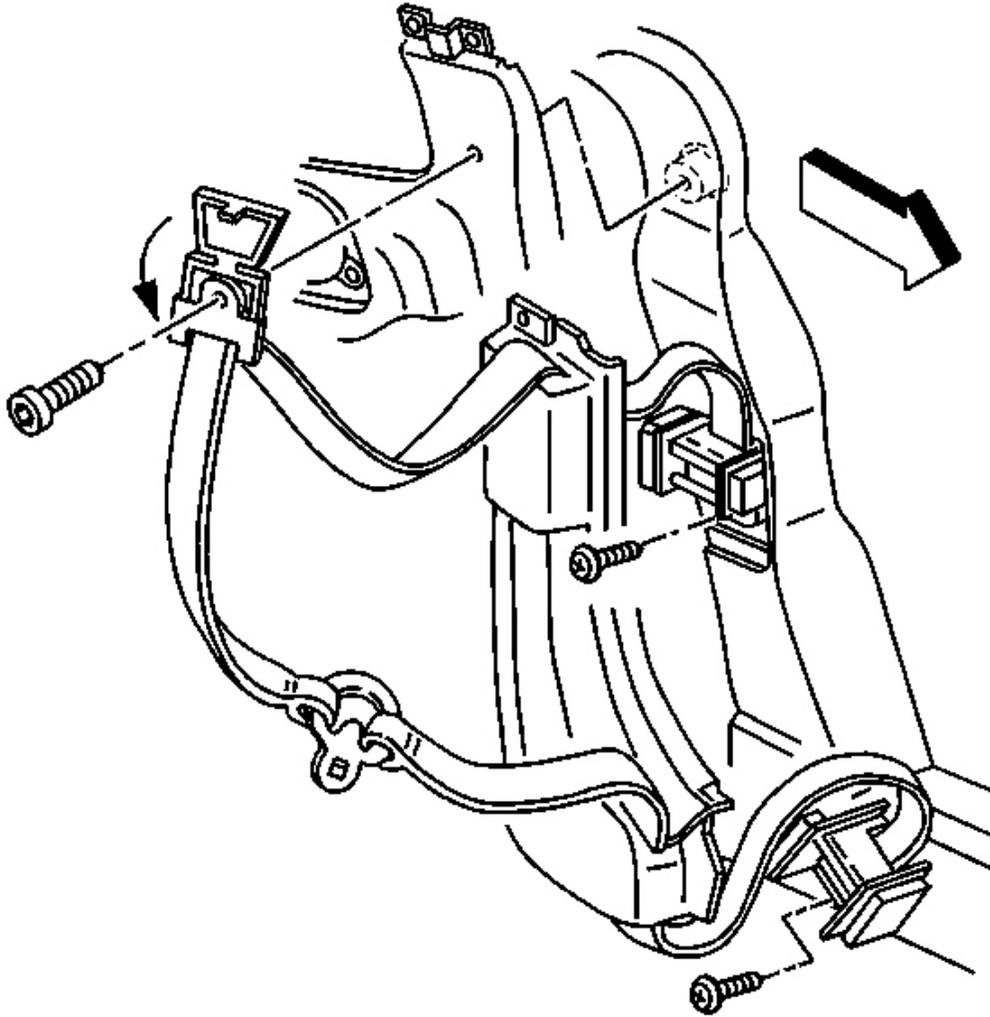


Fig. 39: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

5. Remove the bolt, mounting the upper retractor.
6. Remove the bolt, mounting the lower retractor.
7. Remove the retractor side of the seat belt.

Installation Procedure

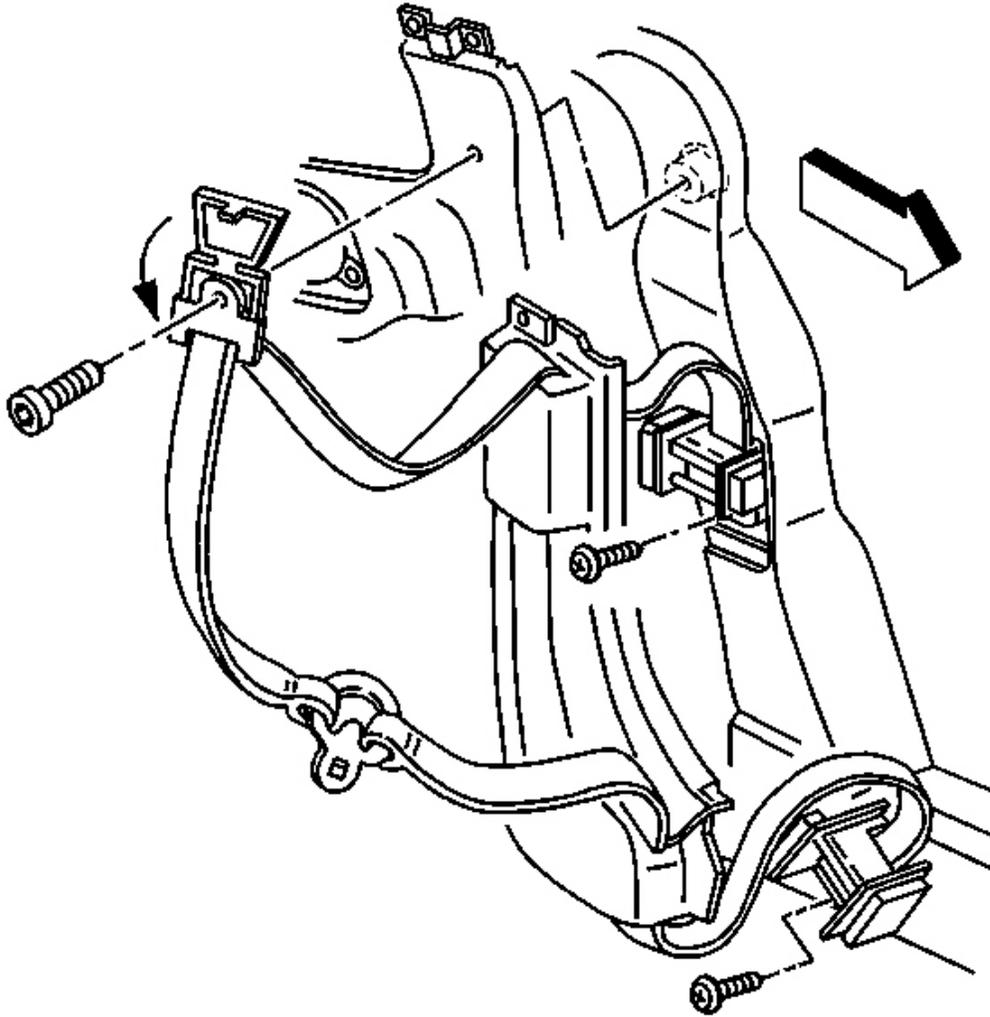


Fig. 40: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to Fastener Notice in Cautions and Notices.

1. Install the upper retractor and attaching bolt.

Tighten: Tighten the upper retractor bolt to 41 N.m (31 lb ft).

2. Install the lower retractor and attaching bolt.

Tighten: Tighten the lower retractor bolt to 47 N.m (35 lb ft).

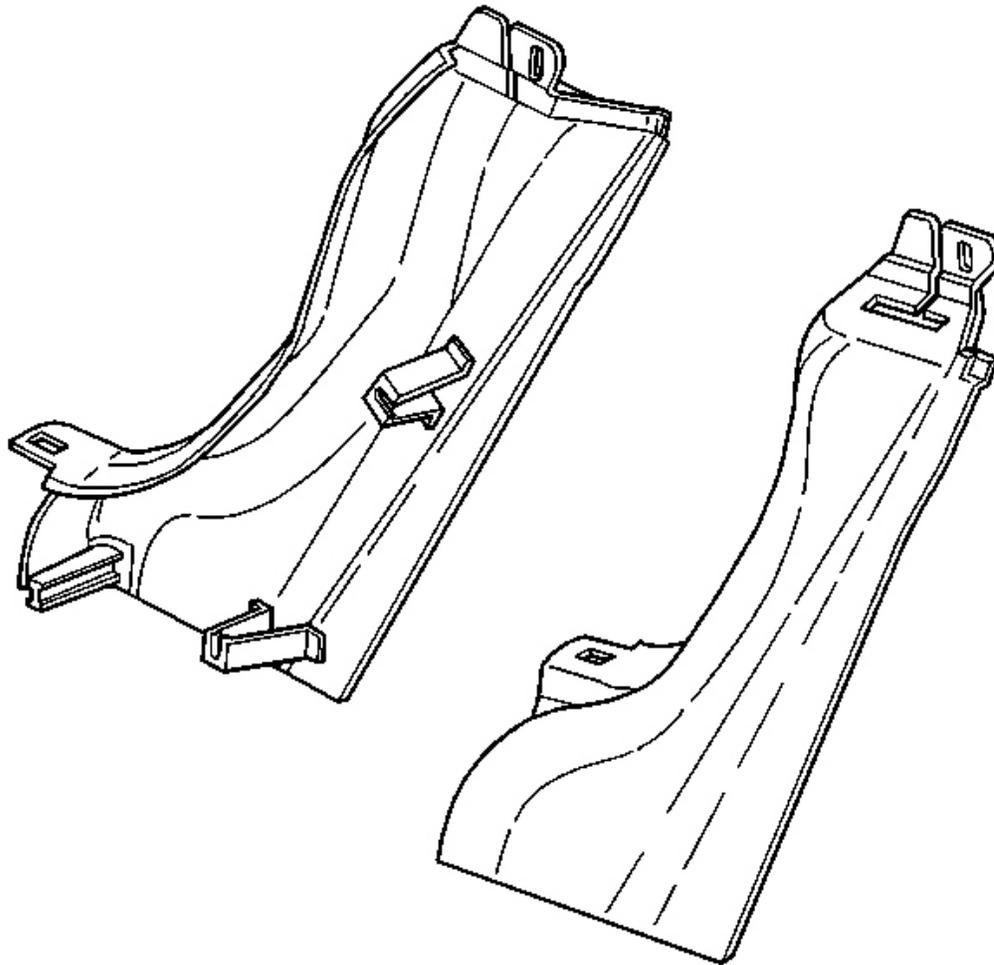


Fig. 41: Lock Pillar Trim Panel
Courtesy of GENERAL MOTORS CORP.

3. Install the lock pillar trim panel. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.

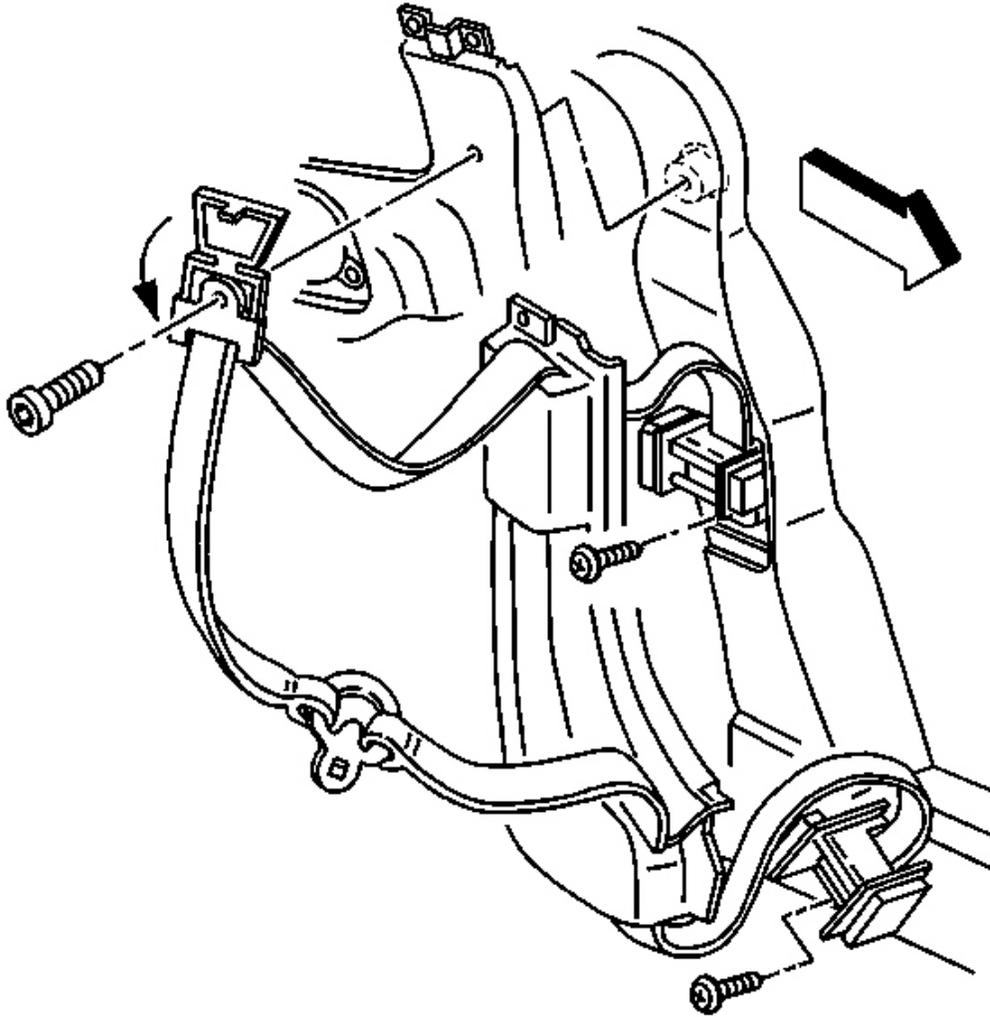


Fig. 42: Upper Guide, Bolt & Seat Belt Retractor
Courtesy of GENERAL MOTORS CORP.

4. Install the upper guide bolt and cover.

Tighten: Tighten the upper guide bolt to 41 N.m (31 lb ft).

5. Snap the cover closed.

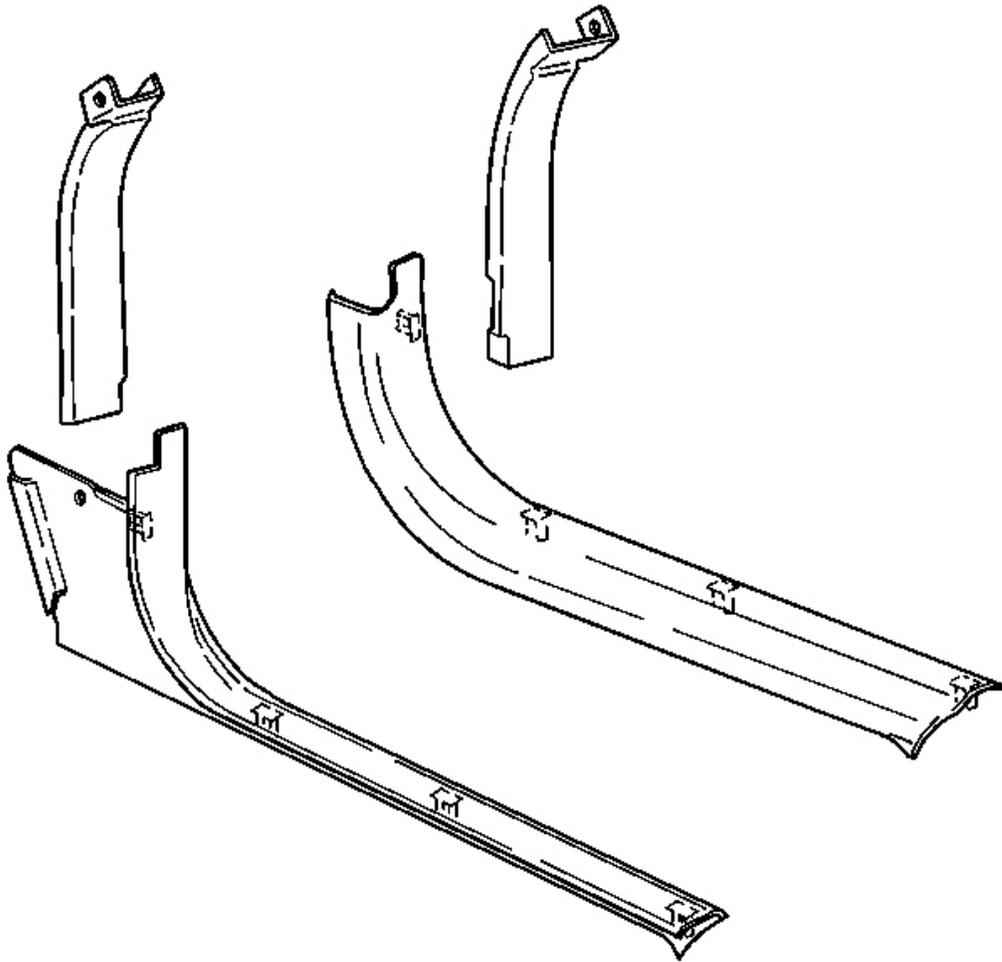


Fig. 43: Side Sill Trim Plate
Courtesy of GENERAL MOTORS CORP.

6. Install the side sill trim plate. Refer to **Door Sill Plate Replacement** in Interior Trim.

SEAT BELT RETRACTOR ANCHOR PLATE REPLACEMENT (CONVERTIBLE)

Removal Procedure

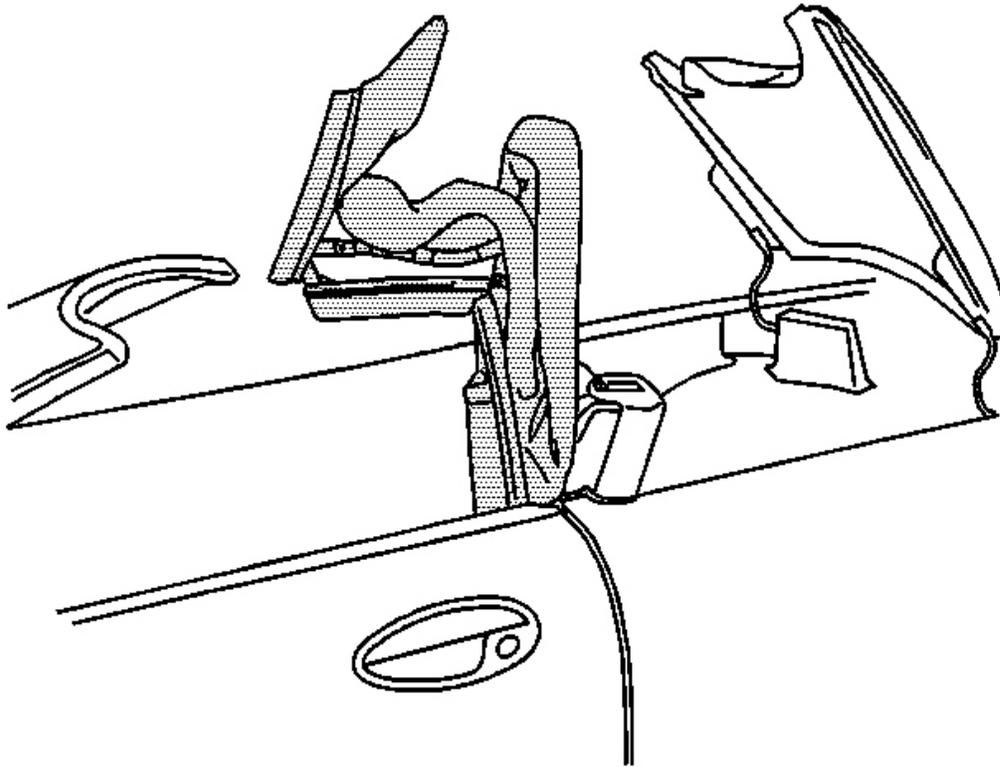


Fig. 44: Seat Belt Retractor Anchor Plate
Courtesy of GENERAL MOTORS CORP.

1. Lower the folding top.
2. Remove the seat. Refer to **Seat Replacement (Power)** or **Seat Replacement (Manual)** (Power) or **Seat Replacement (Power)** or **Seat Replacement (Manual)** (Manual) in Seats.
3. Remove the upper lock pillar trim. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.
4. Remove the lower lock pillar trim. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.
5. Partially remove the intermediate carpet.
6. Remove the ground wire bolt and reposition the wires (LH side only).
7. Reposition the wire harness.
8. Install a protective cover to the interior.

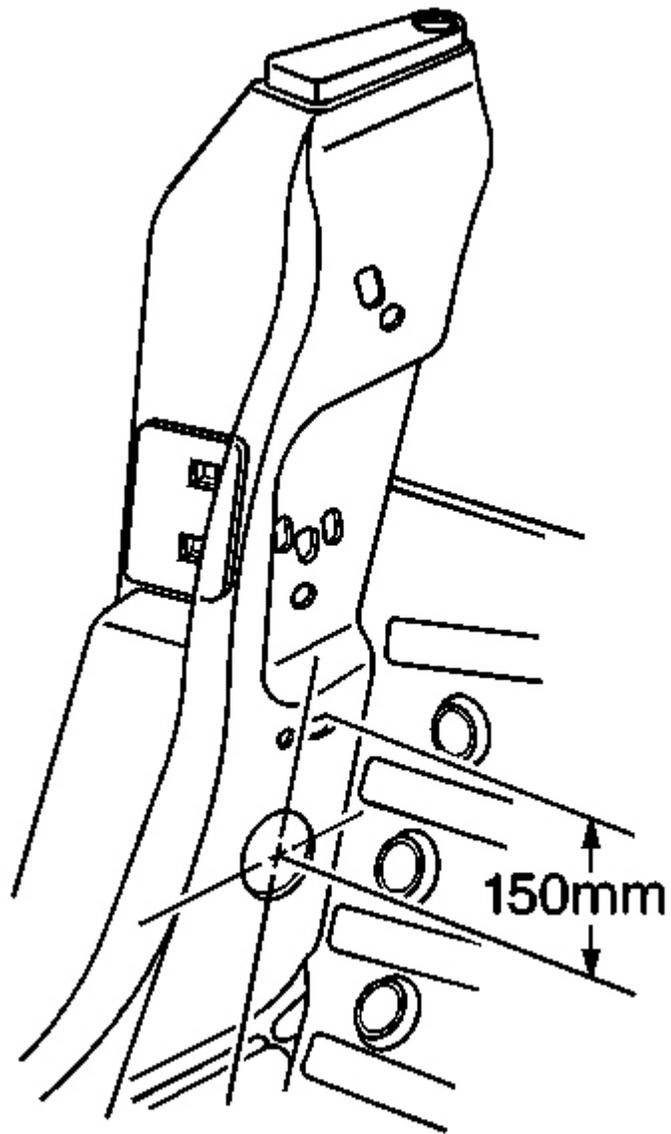


Fig. 45: Lock Pillar

Courtesy of GENERAL MOTORS CORP.

9. Drill a 38.1 mm (1.5 in) access hole 150 mm (6 in) in the lock pillar below the lower gauge slot on a line parallel to the lock pillar.
10. Insert a wire through the anchor plate and down out through the drilled hole.
11. Locate the anchor plate weld witness marks on the pillar.

12. Drill out the spot welds that are attaching the anchor plate.
13. Allow the anchor plate to slide down the wire to the drilled hole.

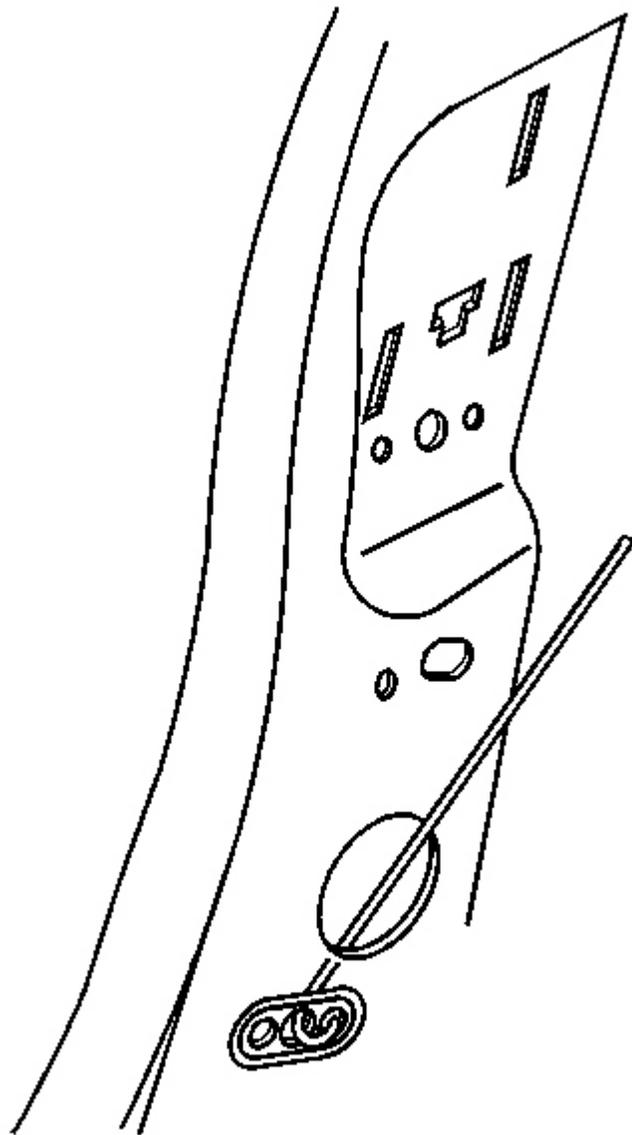


Fig. 46: Anchor Plate & Hooked Rod
Courtesy of GENERAL MOTORS CORP.

14. Insert a hooked rod through the drilled out hole and hook the anchor plate.

15. Remove the anchor plate through the drilled hole.
16. Remove the wire.

Installation Procedure

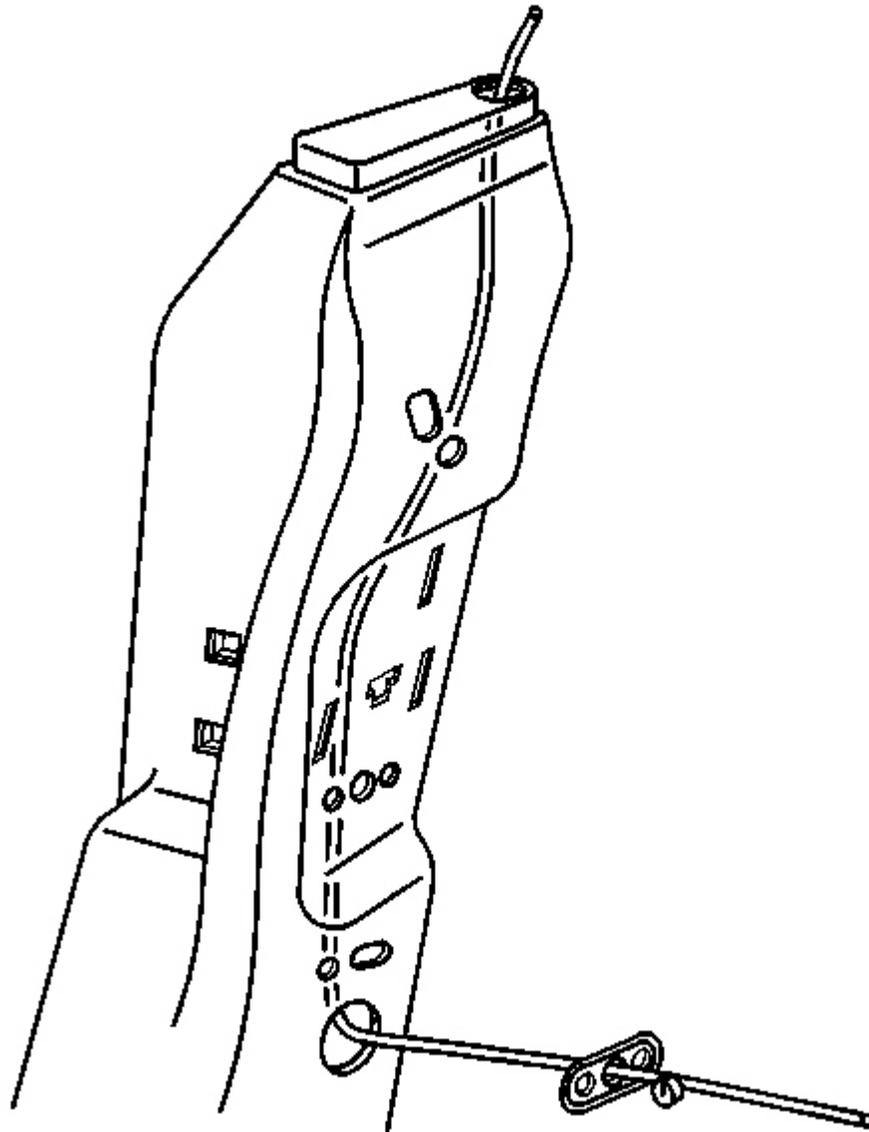


Fig. 47: Seat Belt Anchor Plate & Stiff Wire
Courtesy of GENERAL MOTORS CORP.

1. Remove the folding top stowage lid bumper from the top of the lock pillar.
2. Route a long stiff wire down through the bumper hole and out through the drilled out hole.
3. Attach a new seat belt anchor plate to the stiff wire.
 1. Insert the wire through the threaded hole in the anchor plate.
 2. Slide the plate up the wire.
 3. Make a small loop in the wire so the anchor plate can not slide back down the wire.

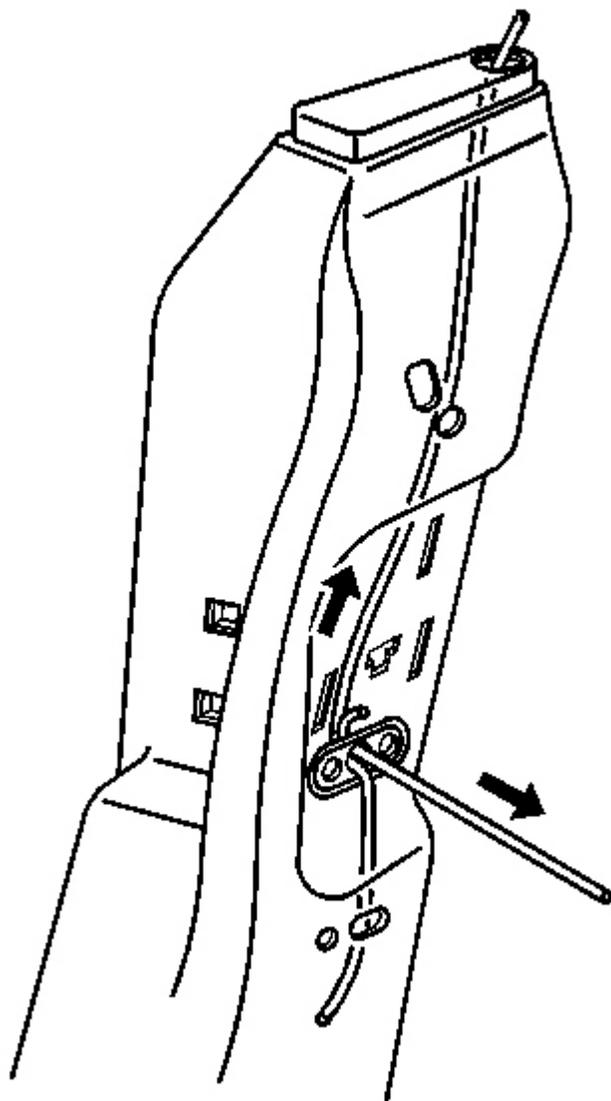


Fig. 48: Pulling The Stiff Wire With Anchor Plate Through Drilled Out Hole Upward Where Plate Attaches

Courtesy of GENERAL MOTORS CORP.

4. Pull the stiff wire with the anchor plate attached through the drilled out hole upward to the hole where the plate attaches.
5. Insert a hooked rod through the bolt hole in the pillar and hook the anchor plate.

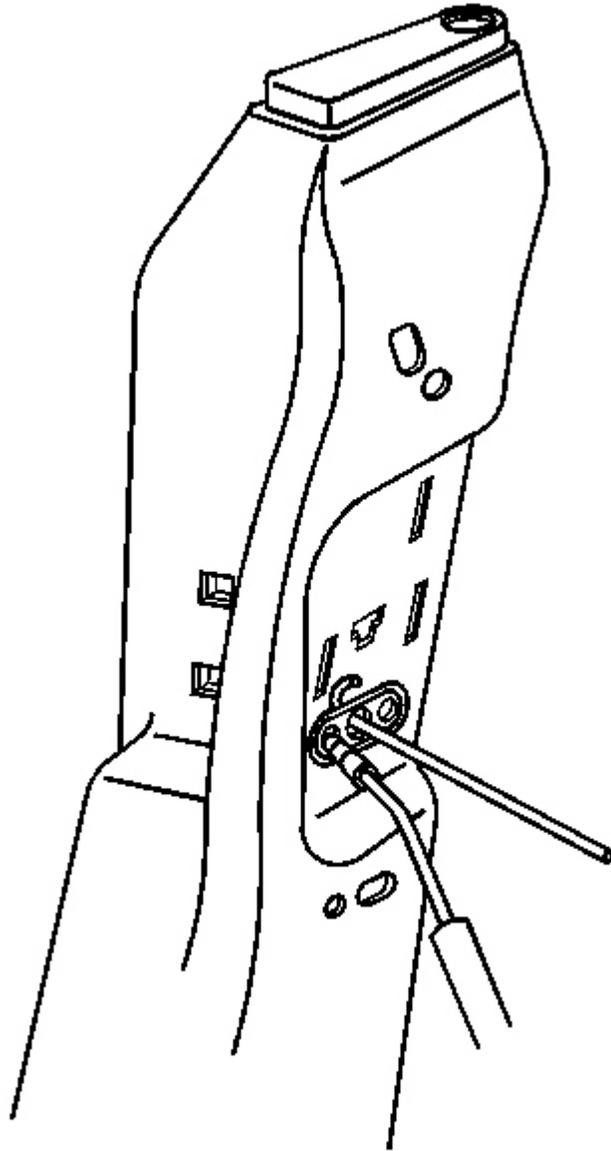


Fig. 49: Anchor Plate, Lock Pillar & Stiff Wire
Courtesy of GENERAL MOTORS CORP.

6. Pull the anchor plate into position against the inside of the lock pillar.
7. Push the stiff wire down and remove the stiff wire through the drilled hole.
8. Pull the anchor plate into position tight against the inside of the lock pillar.

CAUTION: To avoid personal injury when exposed to welding flashes or to galvanized (Zinc Oxide) metal toxic fumes while grinding/cutting on any type of metal or sheet molded compound, you must work in a properly ventilated area, wearing an approved respirator, eye protection, earplugs, welding gloves, and protective clothing.

9. Mig weld the anchor plate into position welding both ends of the anchor plate to the pillar.
10. Remove the hooked rod.

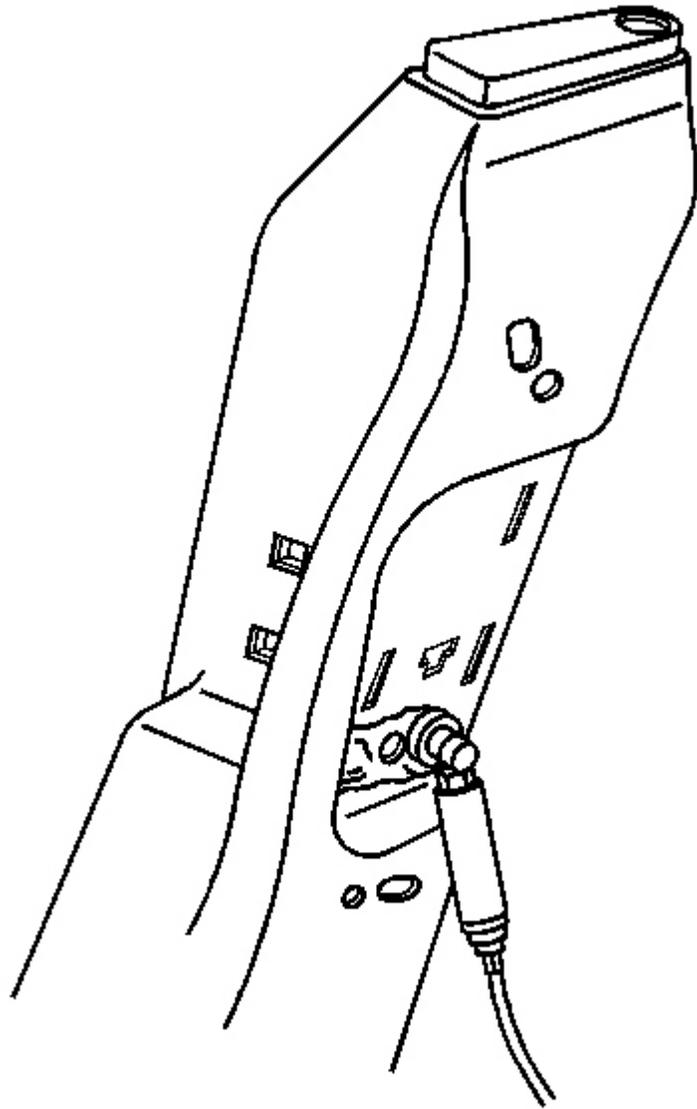


Fig. 50: Grind Welded Surface
Courtesy of GENERAL MOTORS CORP.

11. Grind smooth the welded surface.

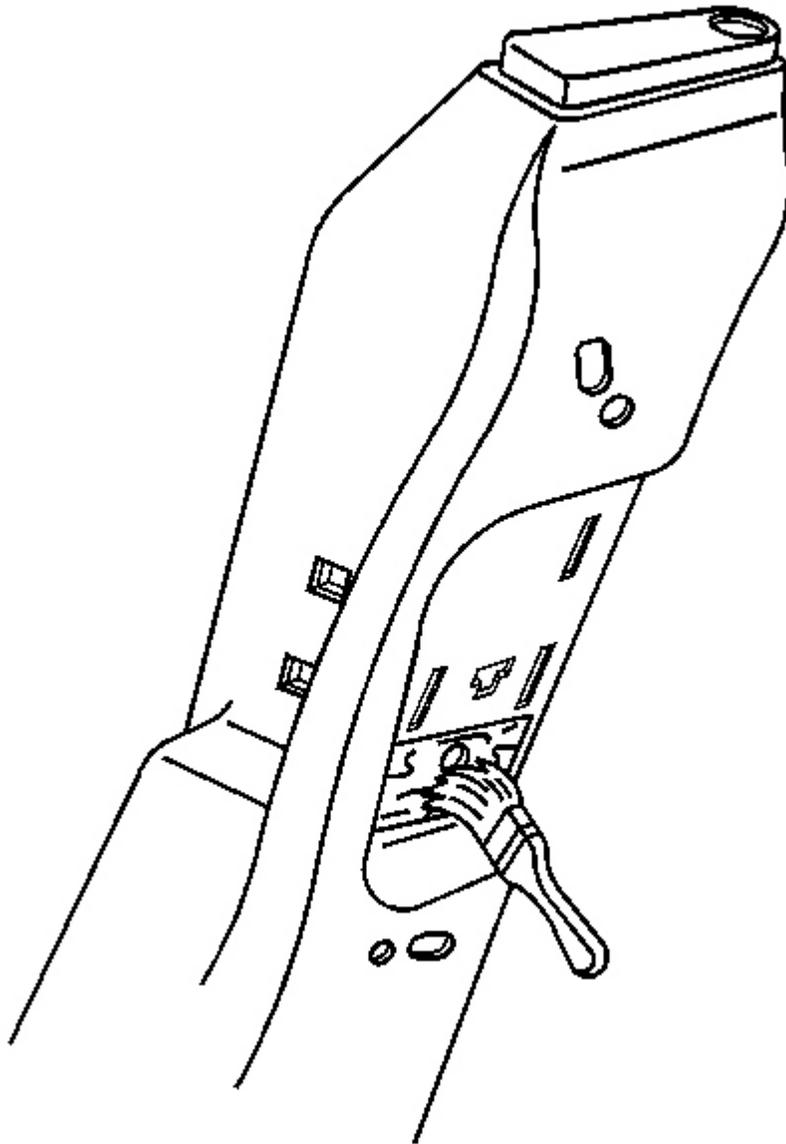


Fig. 51: Primer Repaired Area
Courtesy of GENERAL MOTORS CORP.

12. Apply primer to the repaired area.

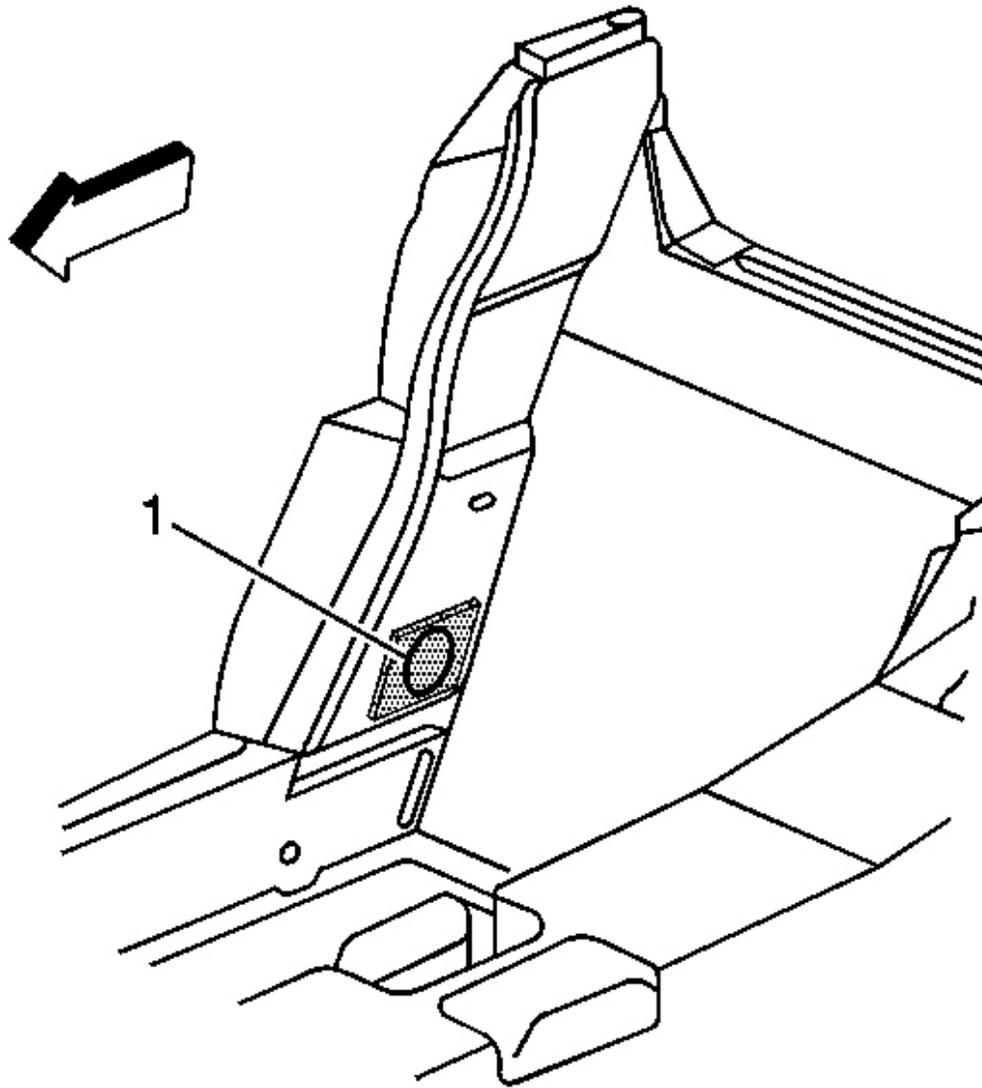


Fig. 52: Cover Drilled Hole With Sealing Patch
Courtesy of GENERAL MOTORS CORP.

13. Cover the drilled hole (1) with a sealing patch.

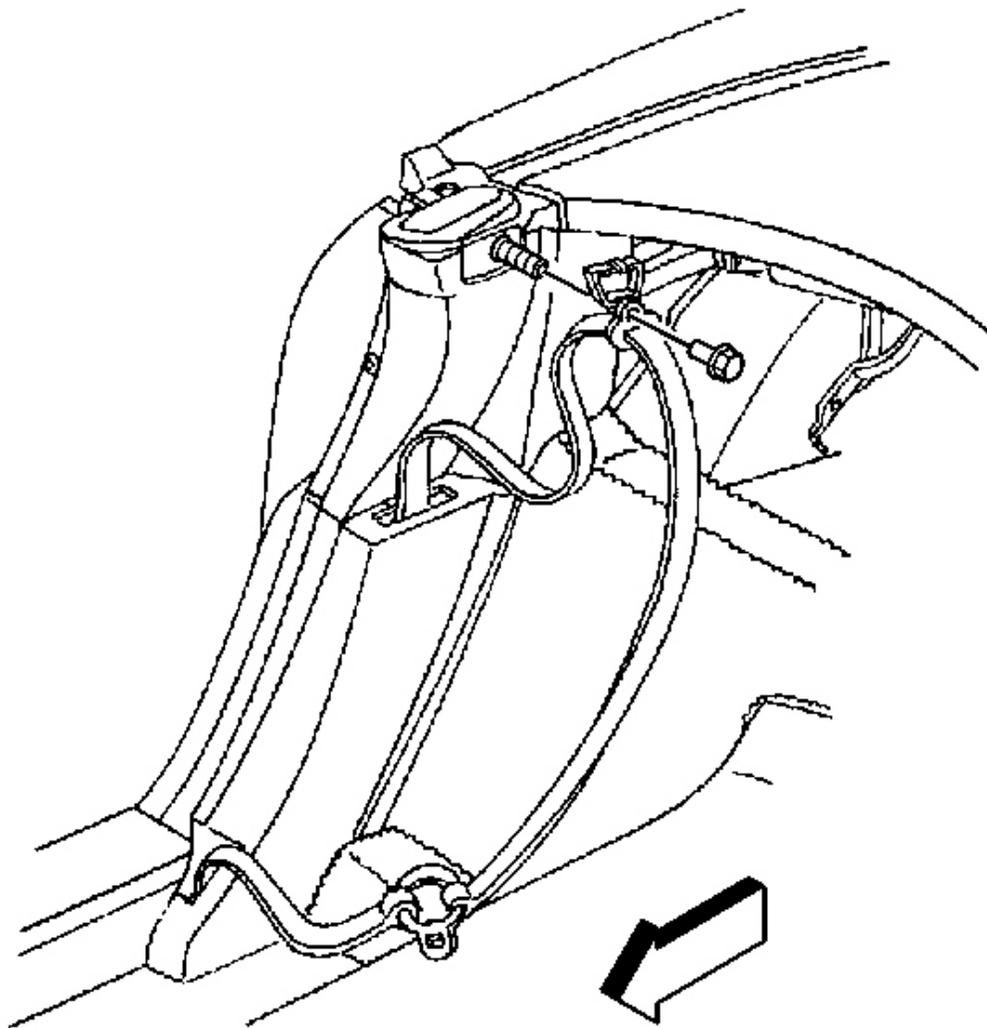


Fig. 53: Seat Belt Guide Bracket Stud & Upper Guide
Courtesy of GENERAL MOTORS CORP.

14. Remove the protective cover from the interior of the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

15. Reposition the ground wires and install the ground bolt.

Tighten: Tighten the antenna ground bolt to 5.8 N.m (51 lb in).

16. Reposition the wire harness.
17. Install the intermediate carpet.
18. Install the lock pillar lower trim. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.
19. Install the lock pillar upper trim. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.
20. Install the stowage lid bumper.
21. Install the seat. Refer to **Seat Replacement (Power)** or **Seat Replacement (Manual)** (Power) or **Seat Replacement (Power)** or **Seat Replacement (Manual)** (Manual) in Seats.
22. Raise and secure the folding top.

SEAT BELT RETRACTOR ANCHOR PLATE REPLACEMENT (COUPE, HARDTOP)

Removal Procedure

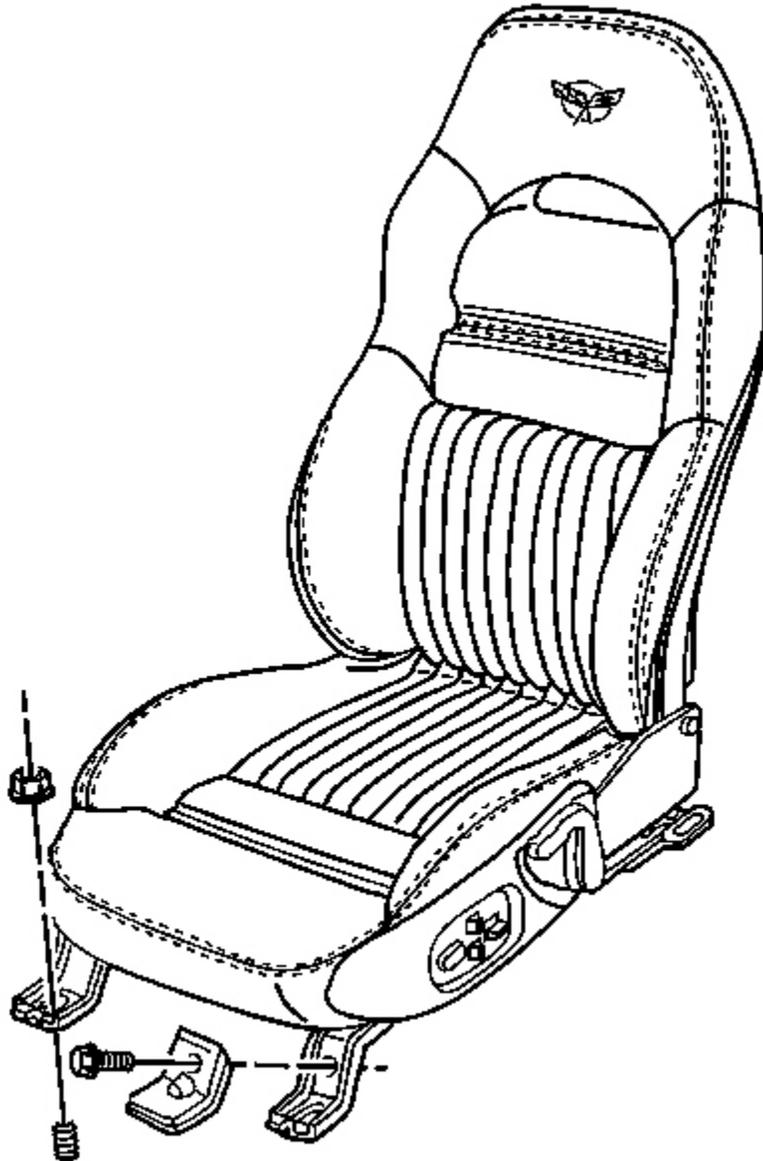


Fig. 54: Seat Mounting View
Courtesy of GENERAL MOTORS CORP.

1. Remove the seat. Refer to **Seat Replacement (Power)** or **Seat Replacement (Manual)** in Seats.

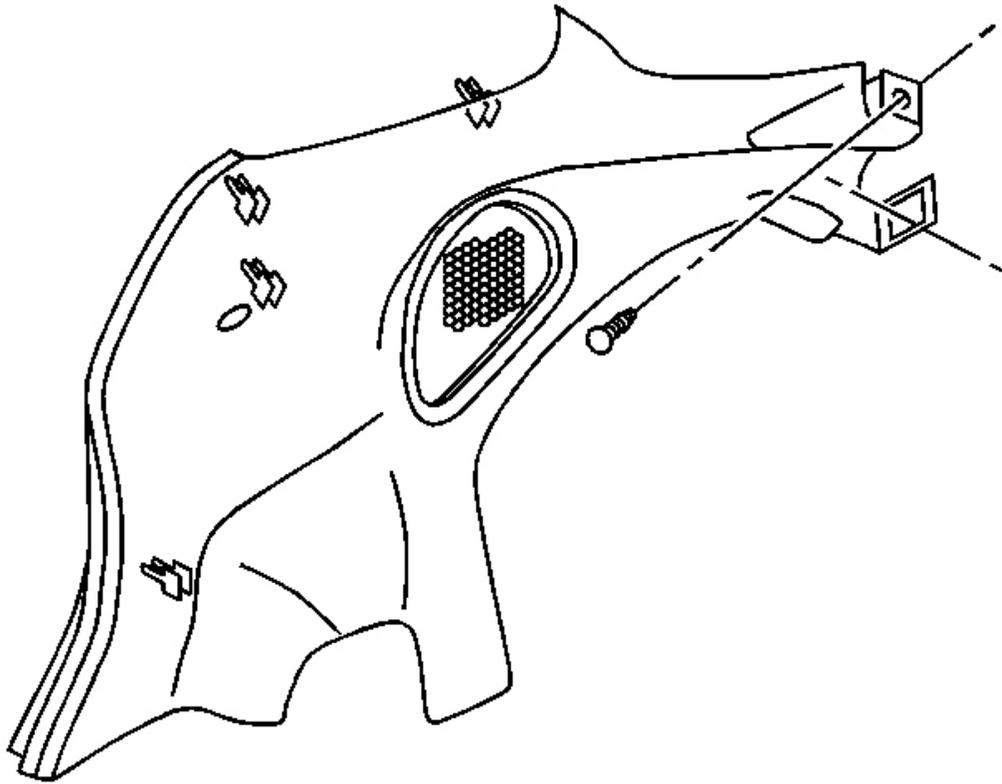


Fig. 55: Rear Compartment Front Side Trim Panel
Courtesy of GENERAL MOTORS CORP.

2. Remove the rear compartment front side trim panel. Refer to **Trim Panel Replacement - Rear Compartment Front Side (Convertible)** or **Trim Panel Replacement - Rear Compartment Front Side (Hardtop)** or **Trim Panel Replacement - Rear Compartment Front Side (Coupe)** in Interior Trim.
3. Partially remove the intermediate carpet.

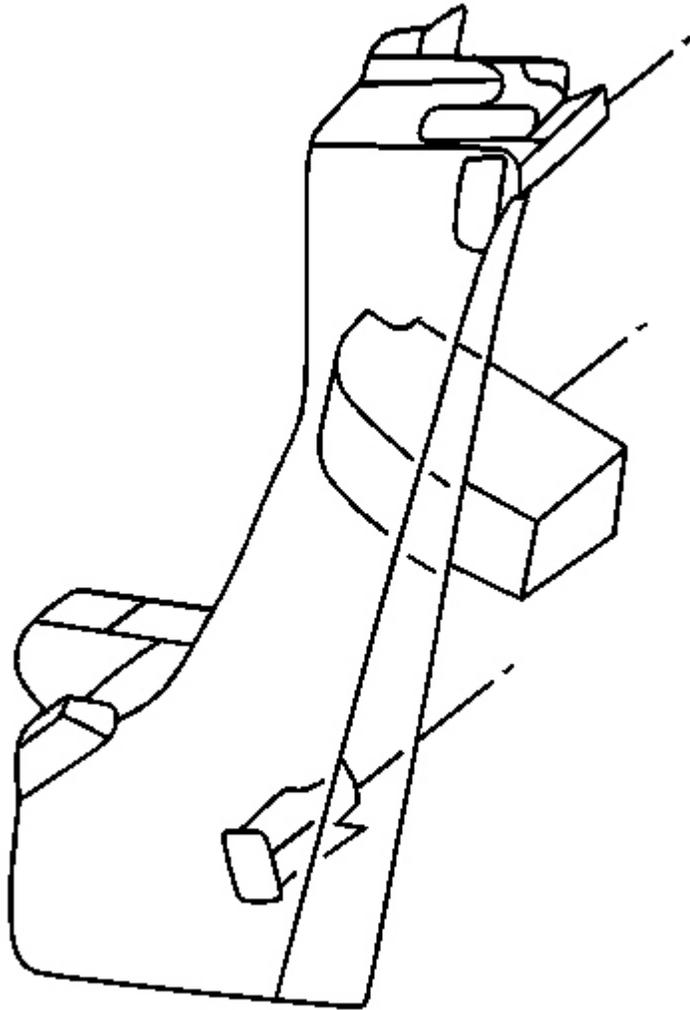


Fig. 56: Lower Lock Pillar Trim
Courtesy of GENERAL MOTORS CORP.

4. Remove the lower lock pillar trim. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.

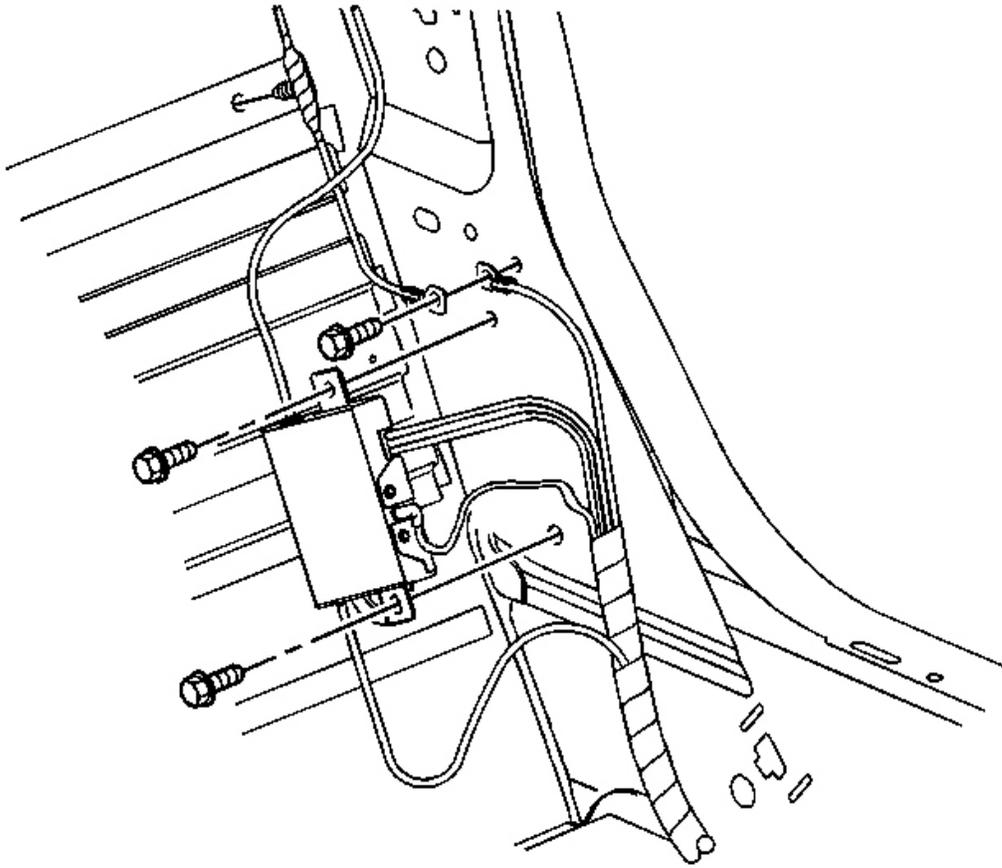


Fig. 57: ASR Module Ground Wire & Bolt
Courtesy of GENERAL MOTORS CORP.

5. Remove the ground wire bolt and ASR module from the left side only.
6. Reposition the wire harness.
7. Reposition the seat belt.
8. Install a protective cover over the interior trim of the vehicle.

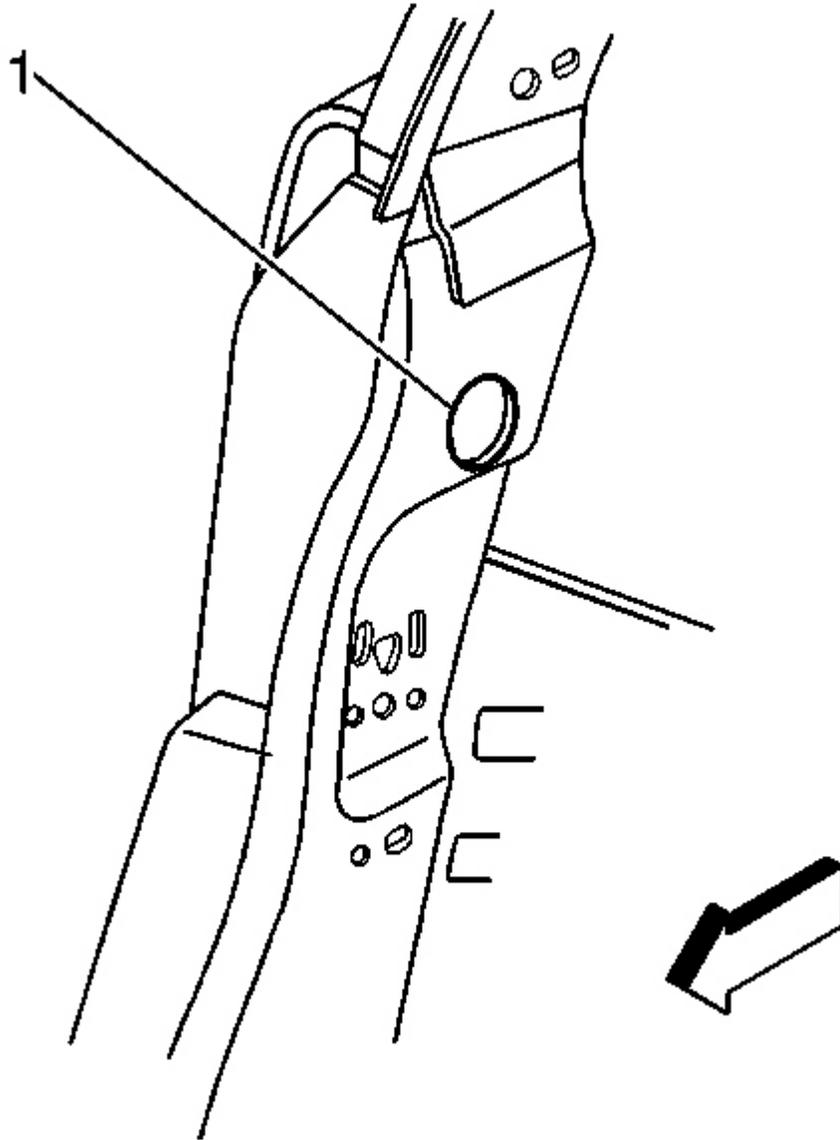


Fig. 58: Upper Retractor Anchor Plate & Lock Pillar
Courtesy of GENERAL MOTORS CORP.

9. Drill a 38 mm (1.5 in) hole (1) in the lock pillar above the upper retractor anchor plate as shown.
10. Insert a rod down through the drilled out hole and out through the anchor plate.
11. Bend a hook on the end of the rod.

12. Hook the anchor plate.

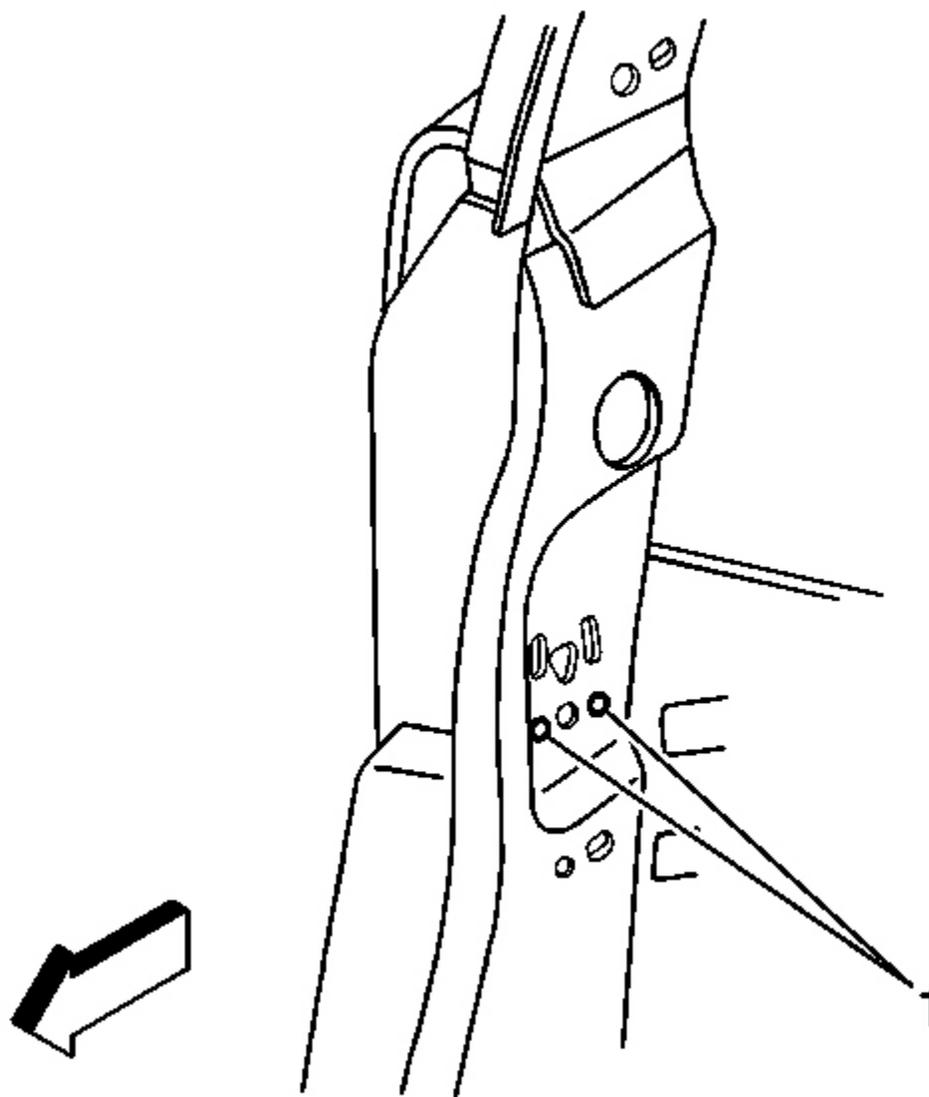


Fig. 59: Anchor Plate Spot Welds
Courtesy of GENERAL MOTORS CORP.

13. Locate the anchor plate spot weld witness marks on the lock pillar.
14. Drill out the spot welds (1) that are securing the anchor plate to the lock pillar.

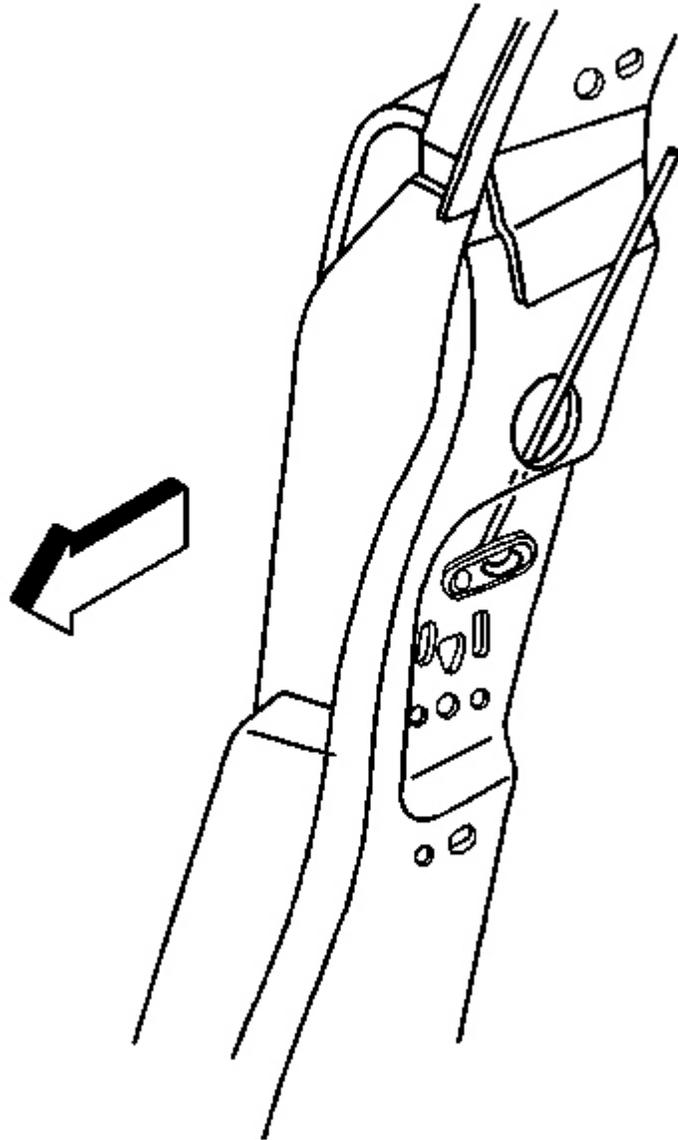


Fig. 60: Anchor Plate & Hooked Rod
Courtesy of GENERAL MOTORS CORP.

15. Remove the anchor plate with the hooked rod up through the drilled out hole.

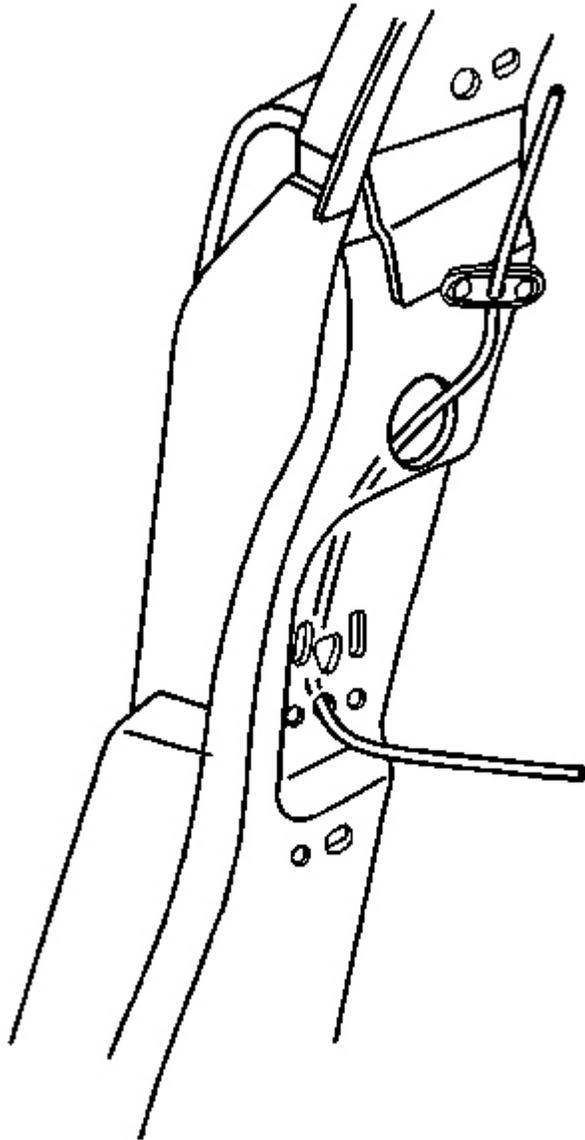


Fig. 61: Inserting Stiff Wire Through Drilled Out Hole & Through Anchor Plate Hole
Courtesy of GENERAL MOTORS CORP.

1. Insert a stiff wire down through the drilled out hole and out through the anchor plate hole.
2. Place the new anchor plate, flat side first, onto the stiff wire and allow the plate to slide downward to the anchor plate hole.

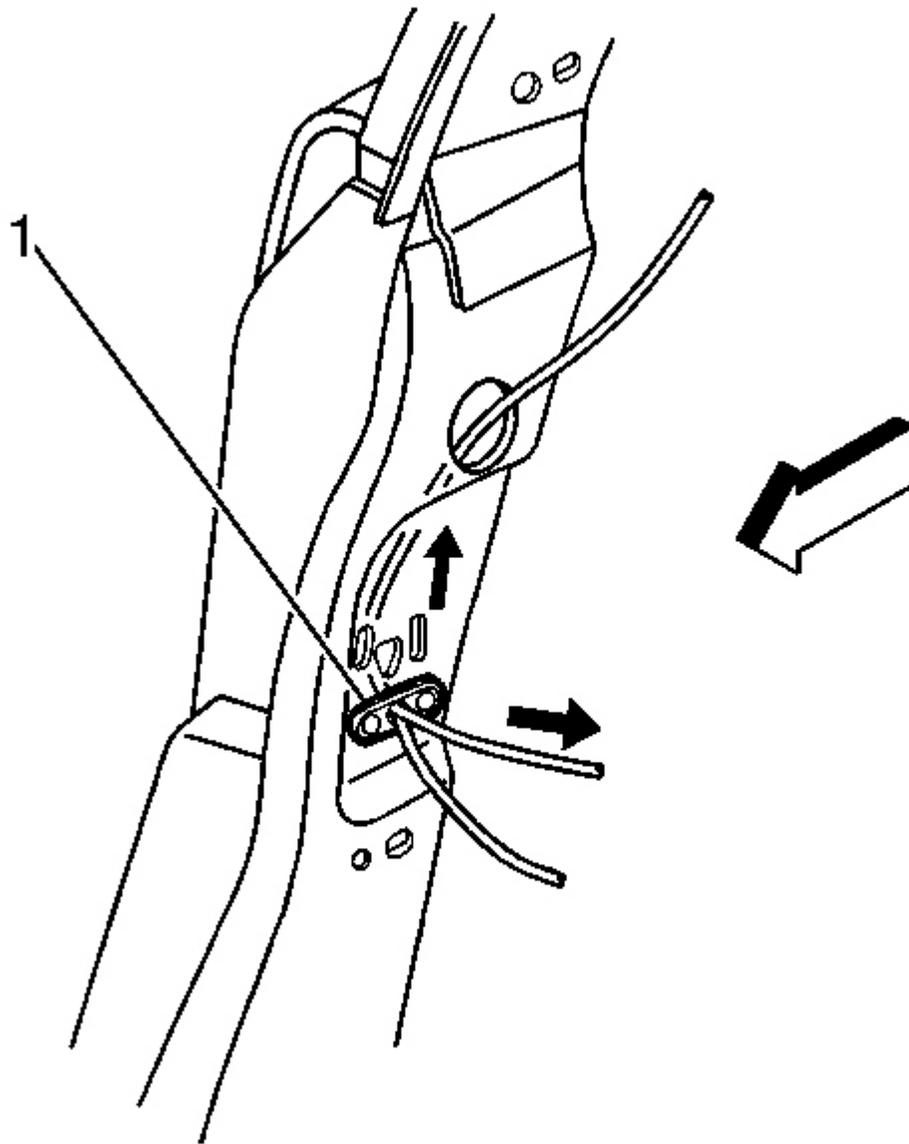


Fig. 62: Inserting Hooked Rod Through Anchor Plate Hole
Courtesy of GENERAL MOTORS CORP.

3. Insert a hooked rod through the anchor plate hole.
4. Hook the anchor plate (1).
5. Align the plate to the lock pillar opening.

6. Pull the plate tight against the inside of the lock pillar.

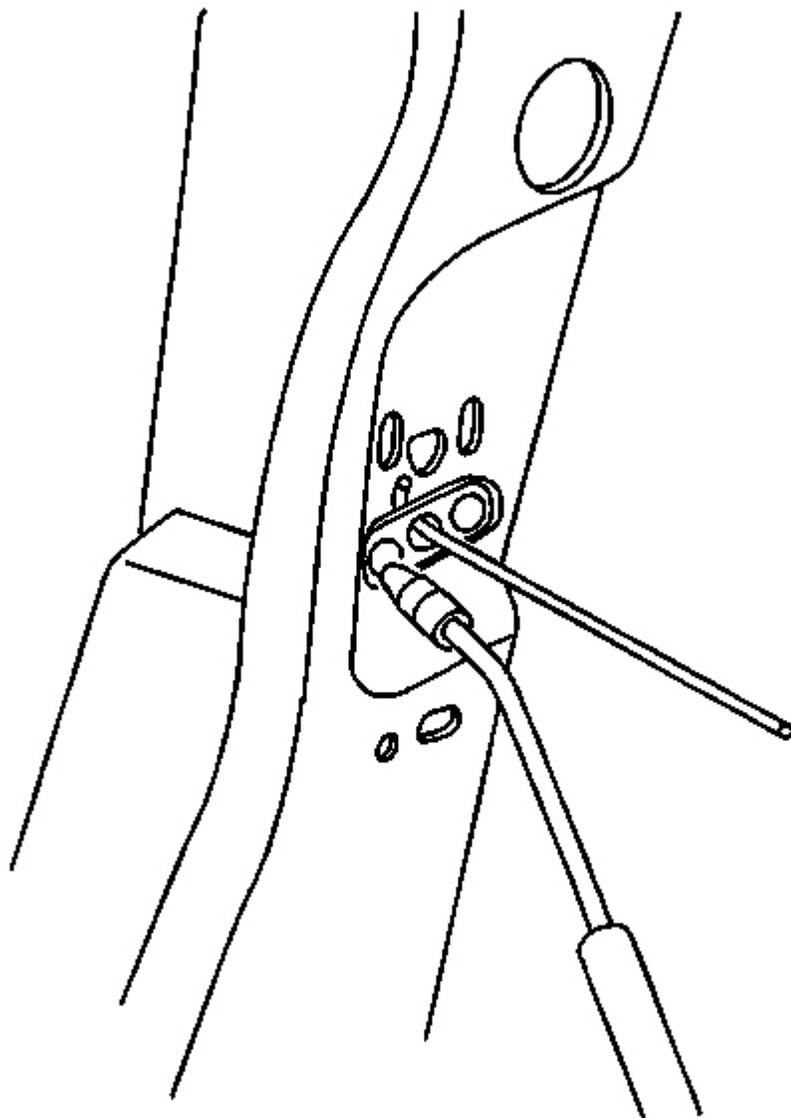


Fig. 63: Anchor Plate & Pillar
Courtesy of GENERAL MOTORS CORP.

CAUTION: To avoid personal injury when exposed to welding flashes or to galvanized (Zinc Oxide) metal toxic fumes while grinding/cutting on

any type of metal or sheet molded compound, you must work in a properly ventilated area, wearing an approved respirator, eye protection, earplugs, welding gloves, and protective clothing.

7. Mig weld the anchor plate into position welding both ends of the anchor plate to the pillar.

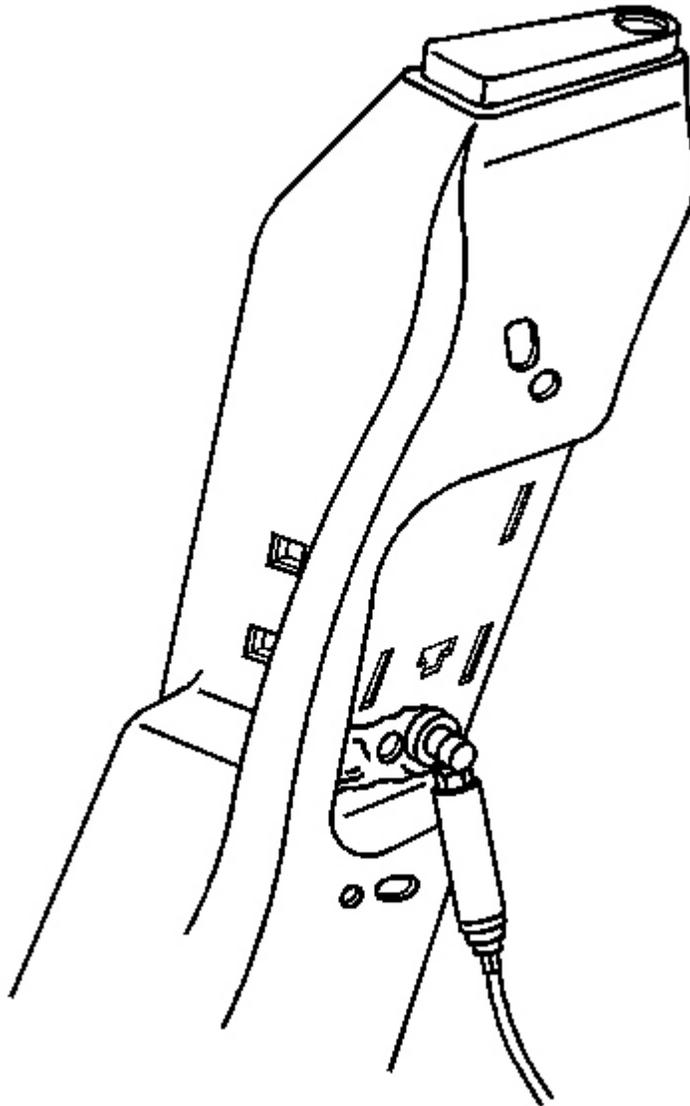


Fig. 64: Grind Welded Surface
Courtesy of GENERAL MOTORS CORP.

8. Remove the stiff wire and the hooked rod.
9. Grind smooth the welded surface.

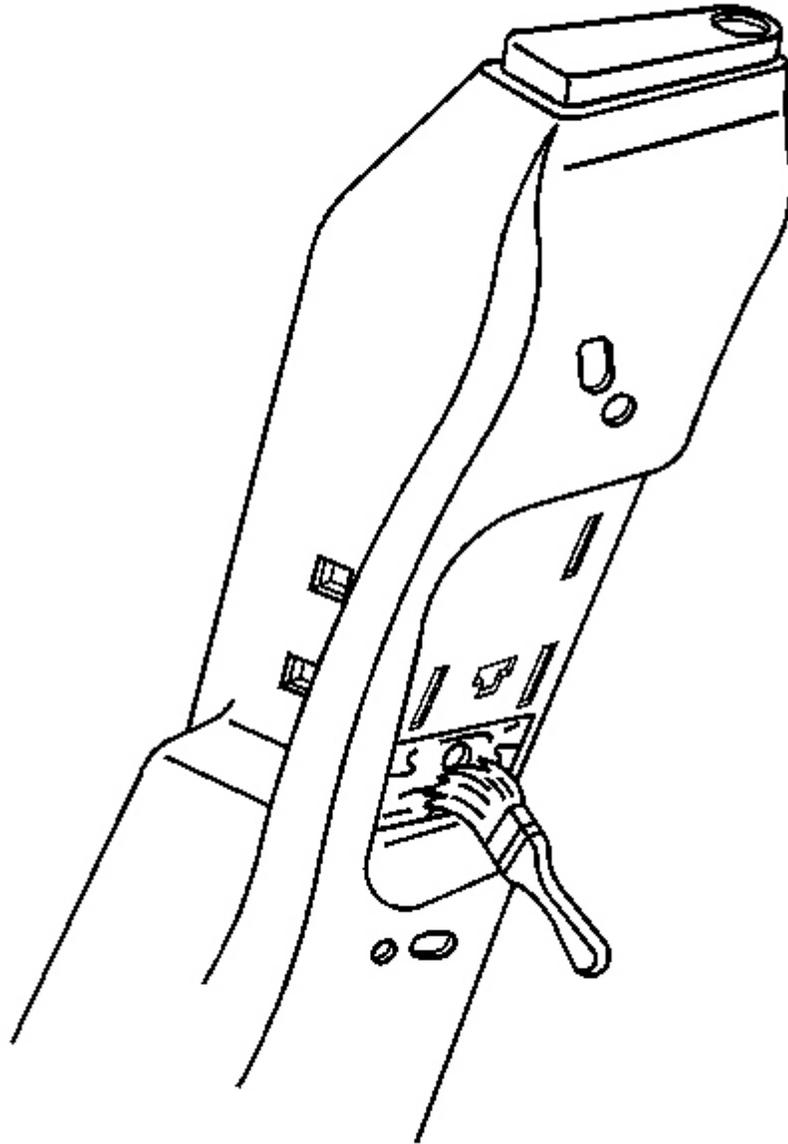


Fig. 65: Primer Repaired Area
Courtesy of GENERAL MOTORS CORP.

10. Apply primer to the repaired area.

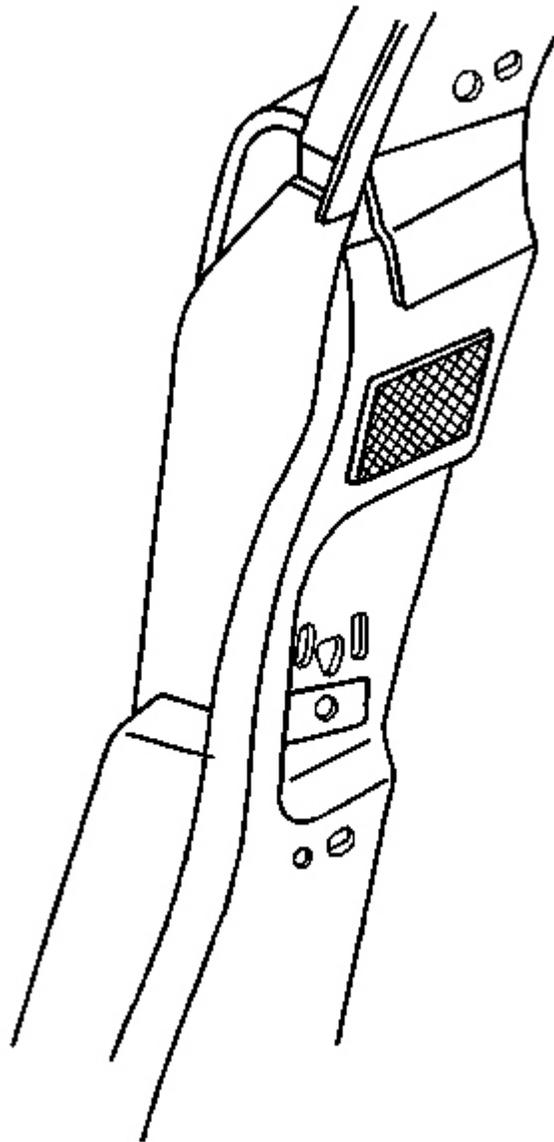


Fig. 66: Covering Drilled Hole With Sealing Patch
Courtesy of GENERAL MOTORS CORP.

11. Cover the drilled hole with a sealing patch.

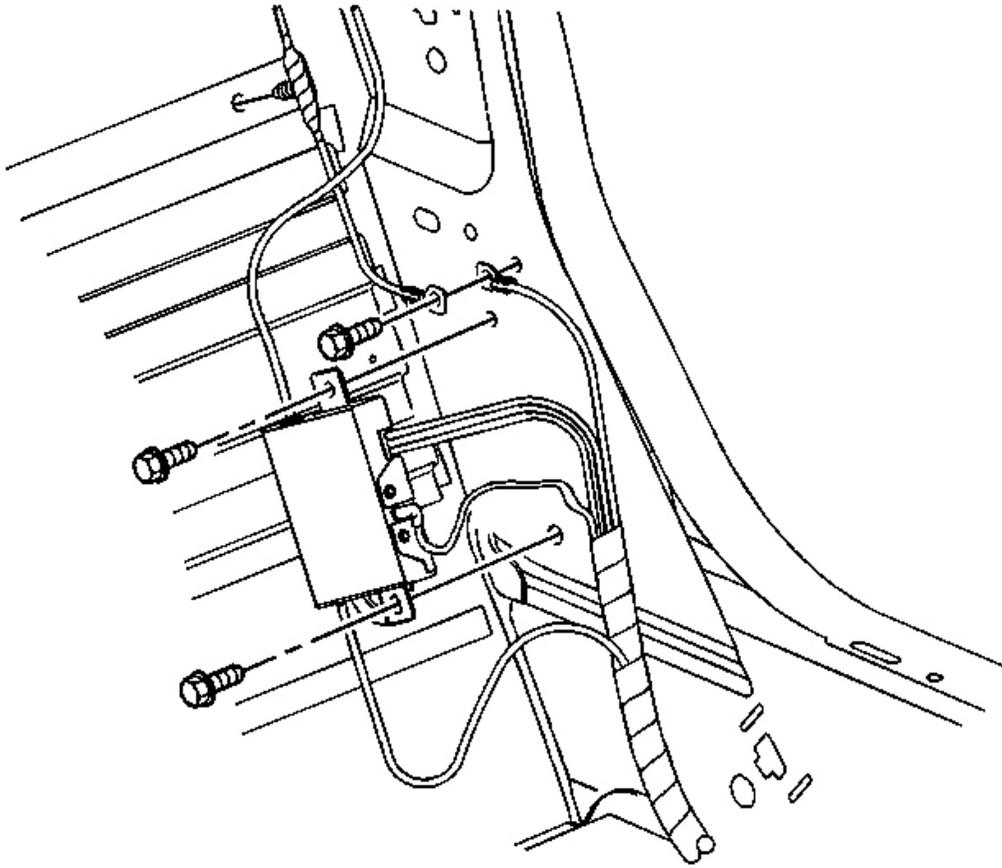


Fig. 67: ASR Module Ground Wire & Bolt
Courtesy of GENERAL MOTORS CORP.

12. Remove the protective cover from the interior of the vehicle.

NOTE: Refer to Fastener Notice in Cautions and Notices.

13. Reposition the ground wires and install the ground bolt on the left side only.

Tighten: Tighten the antenna ground bolt to 5.8 N.m (51 lb in).

14. Install the intermediate carpet.
15. Install the bolt attaching the upper seat belt retractor to the new anchor plate.

Tighten: Tighten the bolt to 41 N.m (31 lb ft).

16. Install the lock pillar lower trim. Refer to **Trim Replacement - Lock Pillar (Upper Convertible)** or **Trim Replacement - Lock Pillar (Coupe)** or **Trim Replacement - Lock Pillar (Lower Convertible and Hard Top)** in Interior Trim.
17. Install the rear compartment front side trim panel. Refer to **Trim Panel Replacement - Rear Compartment Front Side (Convertible)** or **Trim Panel Replacement - Rear Compartment Front Side (Hardtop)** or **Trim Panel Replacement - Rear Compartment Front Side (Coupe)** in Interior Trim.
18. Install the seat. Refer to **Seat Replacement (Power)** or **Seat Replacement (Manual)** in Seats.

CHILD RESTRAINT TETHER ANCHOR REPLACEMENT

Removal Procedure

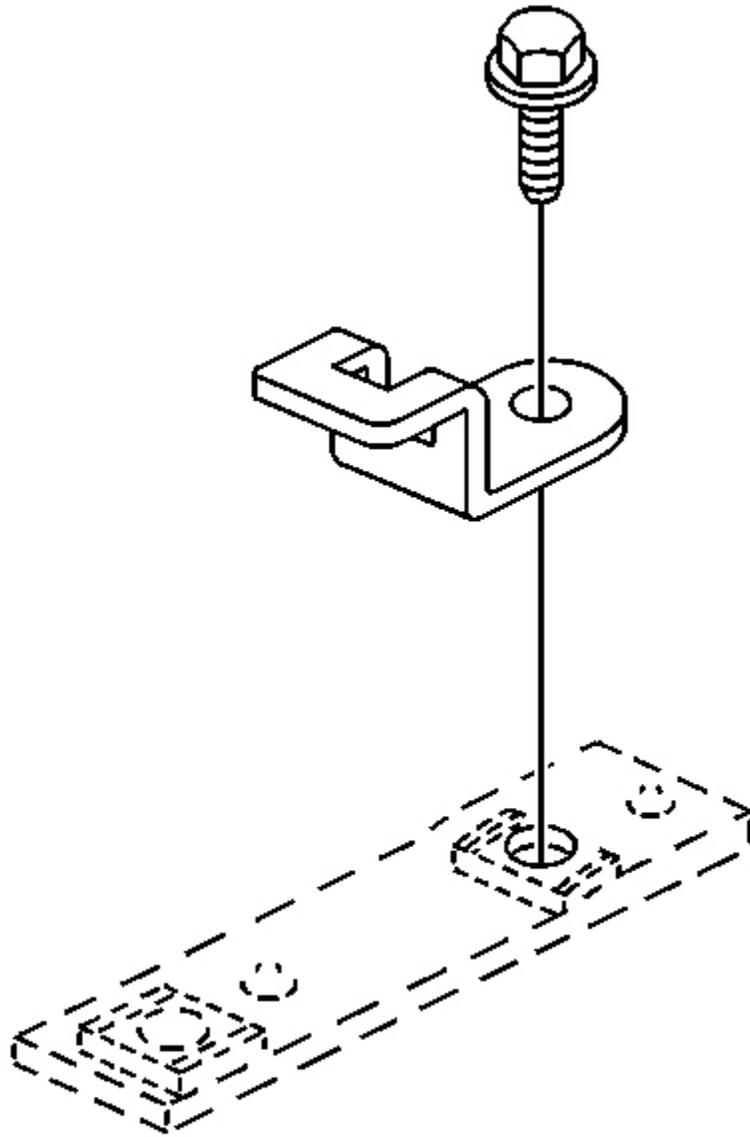


Fig. 68: Child Restraint Tether Anchor Plate & Bolt
Courtesy of GENERAL MOTORS CORP.

1. Remove the child restraint tether strap from the anchor plate, if the child restraint is installed.
2. Reposition the rear compartment floor carpet to expose the anchor plate bolt.
3. Remove the bolt and the anchor plate.

Installation Procedure

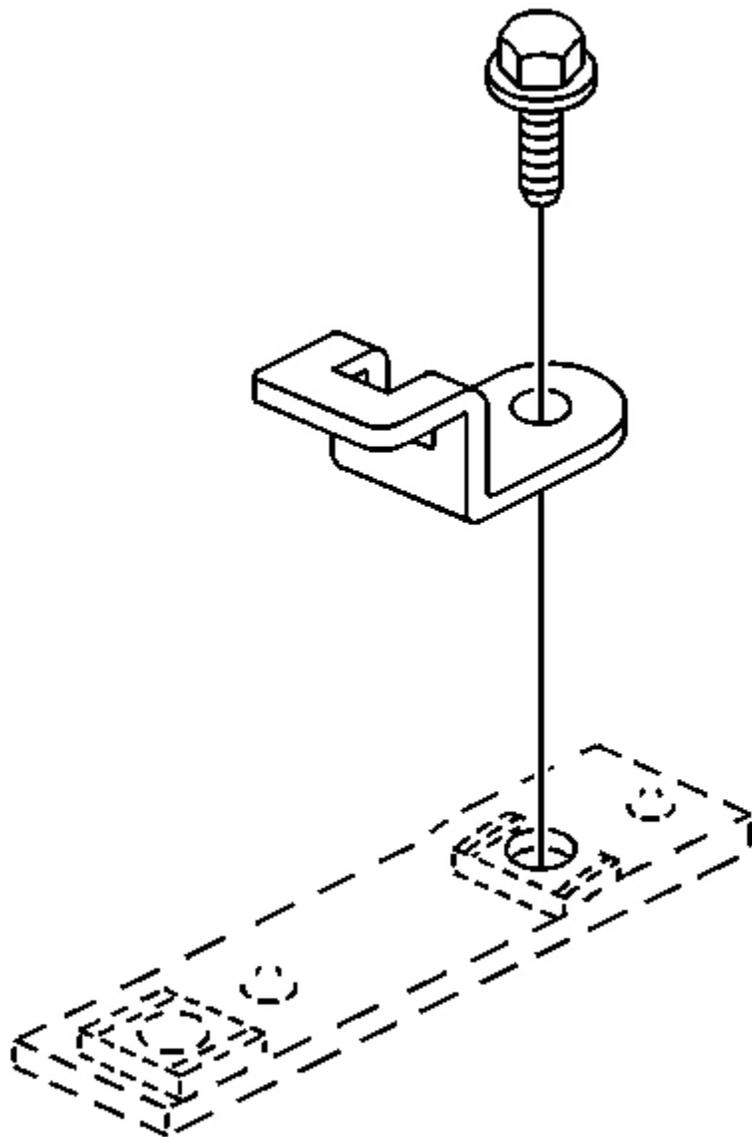


Fig. 69: Child Restraint Tether Anchor Plate & Bolt
Courtesy of GENERAL MOTORS CORP.

1. Insert the anchor plate through the slit in the carpet.
2. Align the anchor plate with the raised end forward.

3. Start the bolt through the anchor plate into the hole in the floor reinforcement.

NOTE: Refer to Fastener Notice in Cautions and Notices.

IMPORTANT: Insure the anchor plate does not turn while tightening the bolt.

4. Tighten the child restraint tether anchor plate bolt.

Tighten: Tighten the child restraint tether anchor plate bolt to 27 N.m (20 lb ft).

5. Reposition the carpet over the bolt.
6. Install the child restraint tether, if the child restraint is installed.

DESCRIPTION AND OPERATION

SEAT BELT SYSTEM DESCRIPTION AND OPERATION

Fasten Safety Belt Indicator

The instrument panel cluster (IPC) illuminates the fasten safety belt indicator when the following occurs:

- The IPC detects that the driver's seat belt is unbuckled. The IPC illuminates the indicator for 20 seconds and then flashes the indicator for 55 seconds. The IPC activates the audible warning for 8 seconds or until the seat belt is buckled.
- The IPC performs the displays test at the start of each ignition cycle. The indicator illuminates for approximately 3 seconds.

Restraint System

Seat belts are the primary means of occupant restraint.

Seat belts help to keep the occupants inside the passenger compartment and to gradually reduce the impact forces during the following events:

- Frontal impact type crashes
- Rear impact type crashes
- Side impact type crashes
- Roll-over type crashes

All seat belt retractors have emergency locks. The retractors remain unlocked during normal operation and under normal driving conditions. The retractors remain unlocked during normal conditions in order to allow free movement of the upper body of each occupant.

A pendulum locks the seat belt webbing into position. The pendulum causes a locking bar to engage a cog on

the spool of the retractor mechanism when the following conditions occur:

- A rapid extraction of the seat belt webbing from the retractor
- An abrupt change in the vehicle speed
- An abrupt change in the vehicle direction
- Operation of the vehicle on a steep upgrade
- Operation of the vehicle on a steep downgrade

The seat belts have an automatic locking feature, or cinch feature. The cinch feature is recommended for securing a child seat. The cinch feature is engaged by fully extending the seat belt from the retractor. Once engaged, the seat belt can retract, but cannot be extended again until the cinch feature is cancelled. The cinch feature is cancelled when the seat belt has fully retracted.

This vehicle is also equipped with a supplemental inflatable restraint (SIR) system. Refer to **SIR System Description and Operation** in SIR.

Front Seat System

The front seat belt system includes the following components:

- The driver and the passenger seat buckle-side belts, attached to the inboard side of the seat frame
- The driver and the passenger seat retractor-side belts, attached to the lock pillar behind the lock pillar trim panel

The driver seat belt system includes a seat belt switch in the driver seat buckle-side belt. The seat belt switch controls the fasten safety belt indicator and a tone alarm. The fasten safety belt indicator and the tone alarm will not operate when the following conditions exist:

- The driver seat belt is buckled.
- The driver door is closed.
- The ignition switch is turned ON.

The following events will occur when the driver door is closed and the ignition switch is turned ON, but the driver seat belt is not buckled:

- The tone alarm will operate for 4-8 seconds and then turn off.
- The fasten safety belt indicator will operate until the driver seat belt is buckled, or until approximately 1 minute has elapsed.

Refer to **Seat Belt Indicator Circuit Malfunction** in Seat Belts in order to diagnose faults in the fasten safety belt indicator or Wiring Systems in order to diagnose faults in the tone alarm.