

2008 ACCESSORIES & EQUIPMENT

Sunroof - LaCrosse

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	Specification	
	Metric	English
Overhead Console Bezel Screws	3.5 N.m	31 lb in
Sunroof Module to Roof Bolts	10 N.m	89 lb in
Sunroof Motor/Actuator Screws	3.5 N.m	31 lb in
Sunroof Opening Position Switch Screw	2 N.m	18 lb in
Sunshade Stop Screws	2 N.m	18 lb in
Sunroof Window Panel Screws	4 N.m	35 lb in

SCHEMATIC AND ROUTING DIAGRAMS

SUNROOF SCHEMATICS

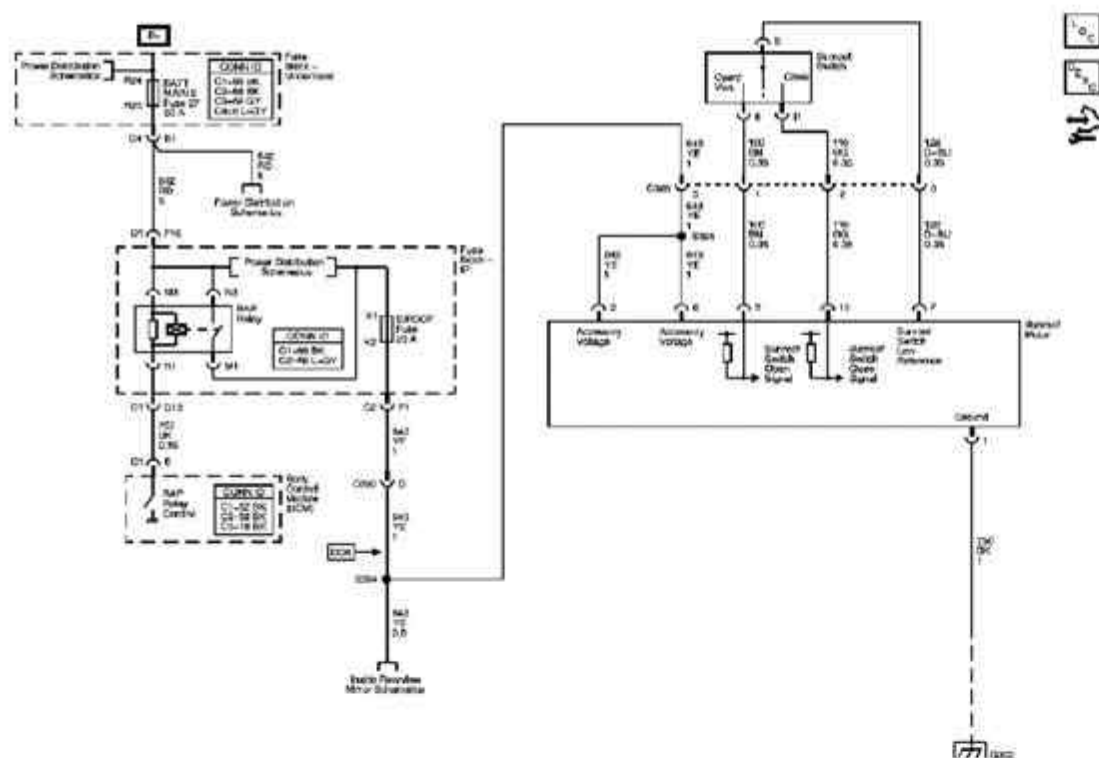


Fig. 1: Power Sunroof Schematic

Courtesy of GENERAL MOTORS CORP.

DIAGNOSTIC INFORMATION AND PROCEDURES

DIAGNOSTIC STARTING POINT - ROOF

Begin the system diagnosis by reviewing the **Diagnostic System Check - Vehicle**. 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 - Roof** in order to identify the correct procedure for diagnosing the system and where the procedure is located.

SYMPTOMS - ROOF

IMPORTANT: Review the system operation in order to familiarize yourself with the system functions. Refer to Sunroof Description and Operation (One Connector System).

Visual/Physical Inspection

- Inspect for aftermarket devices which could affect the operation of the Power Sunroof system. Refer to Checking Aftermarket Accessories.
- Inspect the easily accessible or visible system components for obvious damage or conditions which could cause the symptom.
- Inspect for mechanical binding.

Intermittent

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

Symptom List

Refer to a symptom diagnostic procedure from the following list in order to diagnose the symptom:

- Power Sunroof Malfunction
- Power Sunroof Does Not Close
- Power Sunroof Window is Skewed
- Power Sunroof When Operated from Vent to Close One Side Will Drop Before the Other
- Power Sunroof When Closing from the Vent Position the Window Will Reverse Direction
- Power Sunroof Will Stop at the Wrong Location
- Power Sunroof Will Over Travel the Open Position and Stall the Motor
- Power Sunroof Will Over Travel the Close Position and Stall the Motor

POWER SUNROOF MALFUNCTION

Diagnostic Instructions

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

Diagnostic Fault Information

Circuit	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
Ignition	1	1	-	-
Ignition	1	1	-	-
Sunroof Switch Close Signal	3	3	1	-
Sunroof Switch Open Signal	1	2	1	-
Low Reference - Sunroof Switch	-	1	-	-
Ground - Sunroof Motor Actuator	-	1	-	-

1. Power sunroof Malfunction
2. Power sunroof does not open
3. Power sunroof does not close

Circuit/System Description

The sunroof motor is located between the headliner and the roof structure, while the sunroof switch is located above the rearview mirror. When the ignition switch is in the ON or ACC positions, battery voltage from the RAP relay is applied through the S/ROOF fuse and the accessory voltage circuit to the sunroof motor actuator. The sunroof motor supplies voltage to the sunroof switch through the sunroof open and close signal circuits. It also supplies ground to the switch through the sunroof switch low reference circuit. When the sunroof open or close switch is pressed, ground is applied through the switch contacts and the signal circuit to the sunroof motor. It then internally applies battery voltage and ground to the appropriate circuits of the reversible motor in order to move the sunroof glass panel to the appropriate open, close, or vent position.

Reference Information**Schematic Reference****Sunroof Schematics****Connector End View Reference****Component Connector End Views****Description and Operation****Sunroof Description and Operation (One Connector System)****Electrical Information Reference**

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

Scan Tool Reference**Control Module References for Scan Tool Information****Circuit/System Verification**

1. With the sunroof in the closed position, press the sunroof open switch. The sunroof should open.
2. With the sunroof in the open position, press the sunroof close switch. The sunroof should close.

Circuit/System Testing

1. Ignition OFF, disconnect the harness connector at the sunroof switch.
2. Test for less than 5 ohms between the low reference circuit terminal B and ground.
 - If greater than the specified range, test the ground circuits listed below for an open/high resistance. If the circuits test normal, replace the sunroof motor/actuator.
 - Sunroof switch low reference circuit terminal B
 - Sunroof motor/actuator ground circuit terminal 1
3. Ignition ON, connect a 3A fused jumper wire between the signal circuit listed below and ground. The roof should be inoperative in at least one or more directions.
 - Roof open terminal E
 - Roof close terminal D

- If the roof moved in all directions, replace the sunroof switch.
- 4. Ignition OFF, disconnect the harness connector at the sunroof motor/actuator.
- 5. Test for less than 5 ohms between the ground circuit terminal 1 and ground.
 - If greater than the specified range, test the ground circuit for an open/high resistance.
- 6. Ignition ON, verify that a test lamp illuminates between the ignition circuit terminal 3 and ground.
 - If the test lamp does not illuminate, test the ignition circuit for a short to ground or an open/high resistance.
- 7. Verify that a test lamp illuminates between the ignition circuit terminal 6 and ground.
 - If the test lamp does not illuminate, test the ignition circuit for an open/high resistance.
- 8. Ignition OFF, connect the harness connector at the sunroof motor/actuator.
- 9. Ignition ON, at the sunroof switch harness connector, test for B+ between the signal circuits listed below and ground.
 - Roof open terminal E
 - Roof close terminal D
 - If less than the specified value, test the signal circuit for a short to ground or an open/high resistance. If the circuit test normal, replace the sunroof motor/actuator.
- 10. If all circuit test normal, replace the sunroof motor/actuator.

Component Testing

Sunroof Switch

1. With the ignition OFF, disconnect the harness connector at the sunroof switch.
2. Test for infinite resistance between the switch terminals listed below and the low reference terminal B with the switch in the open position.
 - Roof open terminal E
 - Roof close terminal D
 - If not the specified value, replace the sunroof switch.

IMPORTANT: If the switch tests open in any switch position other than Off, test the sunroof switch signal circuits for a short to voltage before replacing the switch.

3. Test for less than 5.0 ohms of resistance between the switch terminals listed below the low reference terminal B with the switch in the appropriate closed position.
 - Roof open terminal E
 - Roof close terminal D
 - If greater than the specified range, replace the sunroof switch.

Repair Procedures

Perform the **Diagnostic Repair Verification** after completing the diagnostic procedure.

- **Sunroof Switch Replacement**
- **Control Module References** for sunroof motor/actuator replacement, setup, and programming

POWER SUNROOF DOES NOT CLOSE

Perform the Initialization/Teach Process any time a new sunroof motor actuator is installed in the vehicle or any

time an existing sunroof motor actuator is removed from the vehicle. Refer to **Sunroof Track Timing/Synchronization**.

POWER SUNROOF WINDOW IS SKEWED

Parallel positioning of the window track guides or lift mechanism and cable is crucial to the proper function of the system. If the guides are misaligned, refer to **Sunroof Track Timing/Synchronization**.

POWER SUNROOF WHEN OPERATED FROM VENT TO CLOSE ONE SIDE WILL DROP BEFORE THE OTHER

Parallel positioning of the window track guides or lift mechanism and cable is crucial to the proper function of the system. If the guides are misaligned, refer to **Sunroof Track Timing/Synchronization**.

POWER SUNROOF WHEN CLOSING FROM THE VENT POSITION THE WINDOW WILL REVERSE DIRECTION

Perform the Initialization/Teach Process any time a new sunroof motor actuator is installed in the vehicle or any time an existing sunroof motor actuator is removed from the vehicle. Refer to **Sunroof Track Timing/Synchronization**.

POWER SUNROOF WILL STOP AT THE WRONG LOCATION

Perform the Initialization/Teach Process any time a new sunroof motor actuator is installed in the vehicle or any time an existing sunroof motor actuator is removed from the vehicle. Refer to **Sunroof Track Timing/Synchronization**.

POWER SUNROOF WILL OVER TRAVEL THE OPEN POSITION AND STALL THE MOTOR

Perform the Initialization/Teach Process any time a new sunroof motor actuator is installed in the vehicle or any time an existing sunroof motor actuator is removed from the vehicle. Refer to **Sunroof Track Timing/Synchronization**.

POWER SUNROOF WILL OVER TRAVEL THE CLOSE POSITION AND STALL THE MOTOR

Perform the Initialization/Teach Process any time a new sunroof motor actuator is installed in the vehicle or any time an existing sunroof motor actuator is removed from the vehicle. Refer to **Sunroof Track Timing/Synchronization**.

REPAIR INSTRUCTIONS

SUNROOF DRAIN INSPECTION AND CLEANING

Drain Hose Routing

A drain trough encircles the sunroof window panel and water is drained off by the drain hoses located at each corner of the housing. A drain channel spans across the sunroof module at the rear of the window panel and directs water into the trough.

1. Check to ensure the front drain hoses are routed down the windshield pillars and out the center of the pillar between the door hinges. Make sure the hoses are not kinked.
2. Check to ensure the rear drain hoses are routed through the rear pillars and out of the rocker panel. Make sure the rear hoses are properly routed in the metal roof slot and taped in place.

Plugged Drain Hose

If a waterleak has occurred check for a plugged drain hose at each corner of drainage system.

1. Open the sunroof window.
2. To test for blockage, pour a small container of water into the module housing drain trough. Check each corner to confirm the drain hose is draining water.

CAUTION: Wear safety glasses in order to avoid eye damage.

3. Use compressed air, 241 kpi (35 psi) or less to blow out any drain hose that is plugged.
4. Test the system again.
5. If the hose remains plugged, check to see it is properly routed and does not have a kink. Refer to **Drain Hose Routing**.
6. Remove the blockage using the following steps.
 1. Push mechanics wire through the hose to remove the obstruction.
 2. Use compressed air in order to blow out any remaining material.

Disconnected Drain Hose

Inspect the drainage system for disconnected drain hoses. Complete the following steps in order to obtain partial access to drain hoses and check for a disconnected hose.

1. Open the sunroof window panel.
2. Lower the headliner as needed. Refer to **Headlining Trim Panel Replacement**.
3. Connect any disconnected hoses.
4. Ensure that the rear drain hoses are properly routed in the metal roof slot and taped in place.

SUNROOF WIRING HARNESS REPLACEMENT

Removal Procedure

IMPORTANT: Note the following locations:

- The position of the wire harness routing
- The location of the tie-straps that secure the wire harness to the drive cable tube and the sunroof module.

1. Position the sunshade in the full forward position.
2. Remove the headliner. Refer to **Headlining Trim Panel Replacement**.
3. Remove the rear shelf. Refer to **Rear Window Shelf Trim Panel Replacement**.

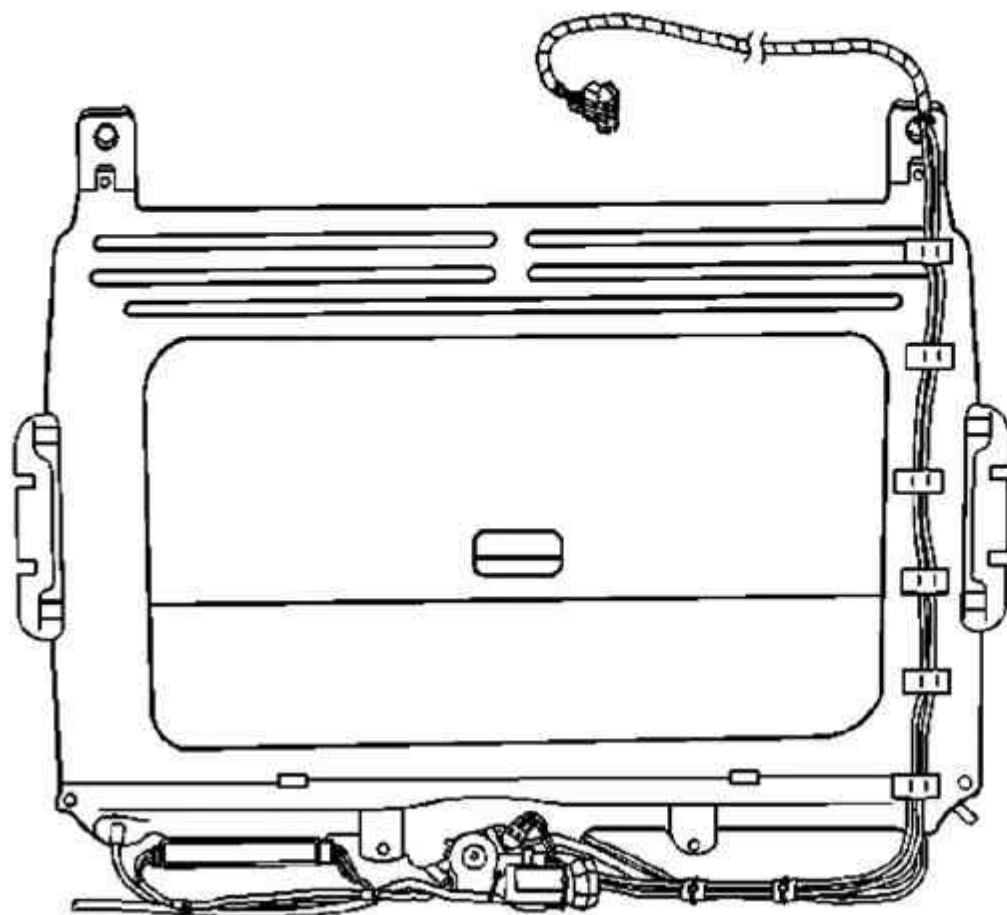


Fig. 2: View Of Sunroof Module Electrical Connector
Courtesy of GENERAL MOTORS CORP.

4. Cut the nylon tie straps on the express module and the drive cable tube.
5. Disconnect the electrical connectors from the following components:
 - The sunroof control switch
 - The sunroof control module
 - The sunroof actuator
 - The sunroof opening position switch
6. Remove the tape holding the wire harness to the sunroof module.
7. Remove the wire harness from the sunroof.

Installation Procedure

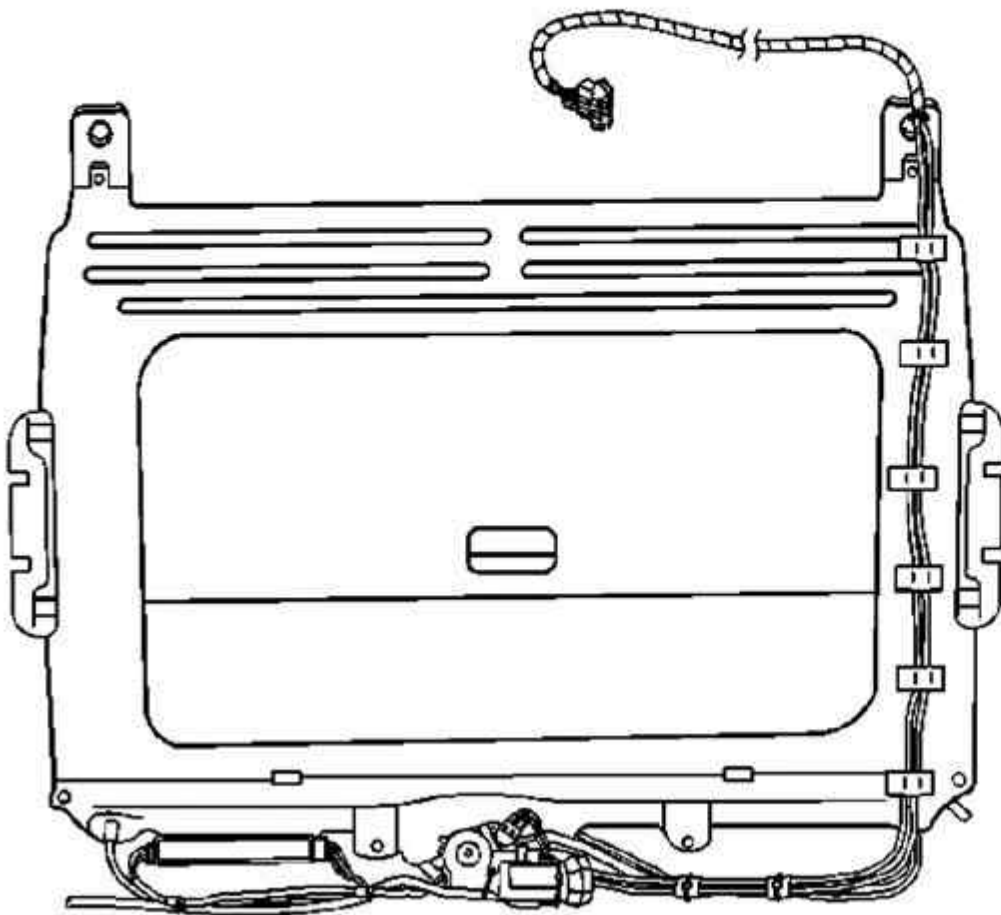


Fig. 3: View Of Sunroof Module Electrical Connector
Courtesy of GENERAL MOTORS CORP.

1. Align the wire harness to the sunroof module.
2. Connect the electrical connectors to the following components:
 - The sunroof control switch
 - The sunroof control module
 - The sunroof actuator
 - The sunroof opening position switch
3. Install new nylon tie straps to the sunroof control module and the drive cable tube.
4. Install new tape to hold the wire harness to the module.
5. Inspect for proper operation of the sunroof.
6. Install the rear shelf. Refer to **Rear Window Shelf Trim Panel Replacement**.
7. Install the headliner. Refer to **Headlining Trim Panel Replacement**.

SUNROOF OPENING TRIM FINISH LACE REPLACEMENT

Removal Procedure

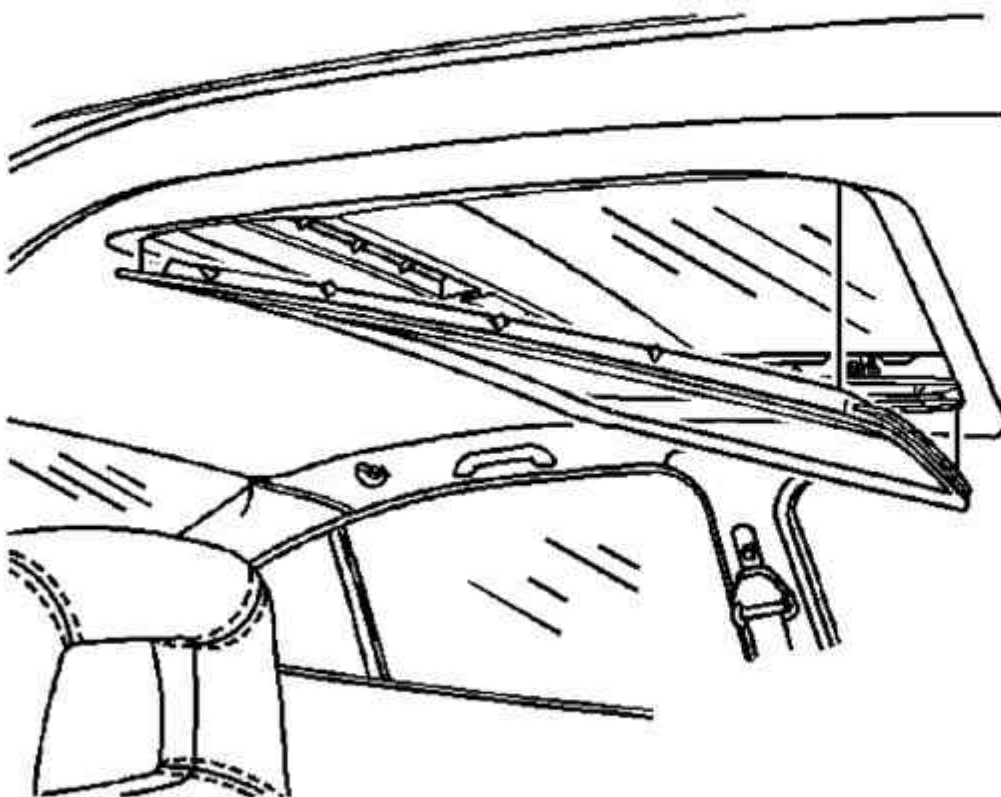


Fig. 4: Identifying Sunroof Opening Trim Bezel
Courtesy of GENERAL MOTORS CORP.

1. Pull inward on the sunroof opening trim bezel to release the tabs from the sunroof opening.
2. Remove the sunroof opening trim bezel from the headliner.

Installation Procedure

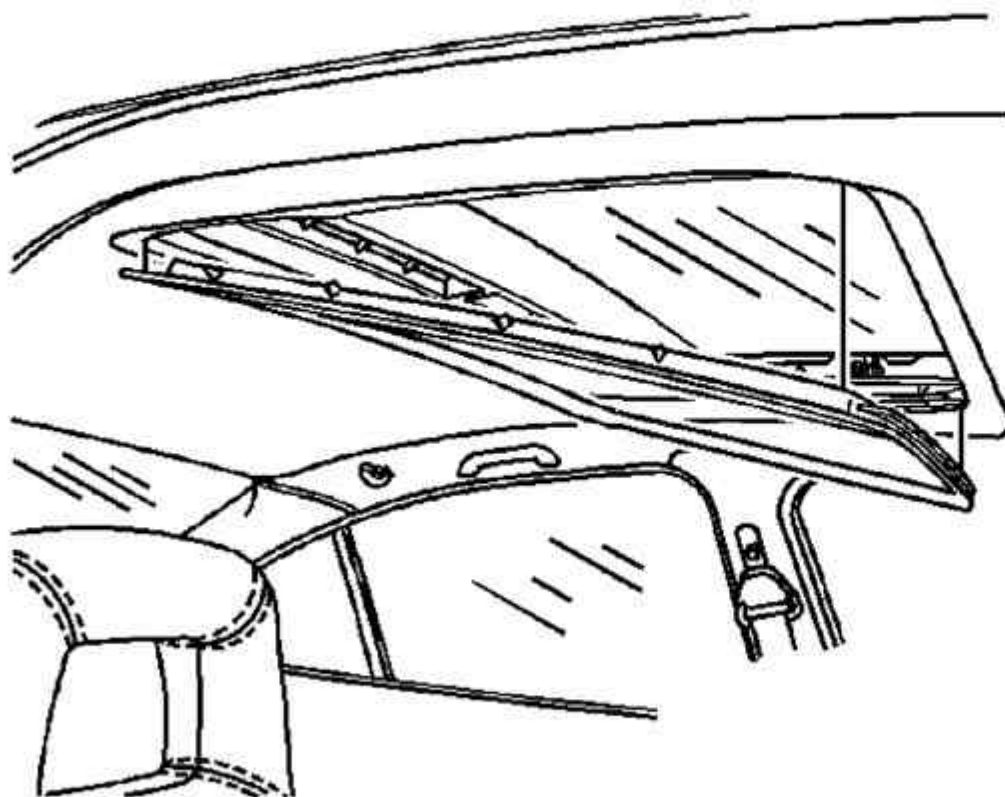


Fig. 5: Identifying Sunroof Opening Trim Bezel
Courtesy of GENERAL MOTORS CORP.

1. Position the back of the sunroof opening trim bezel to the headliner.
2. Press the sunroof opening trim bezel to the headliner until the tabs are fully seated.

SUNROOF MODULE ASSEMBLY REPLACEMENT

Removal Procedure

IMPORTANT: Transfer all necessary parts to the sunroof module.

1. Remove the sunroof window. Refer to Sunroof Window Replacement.

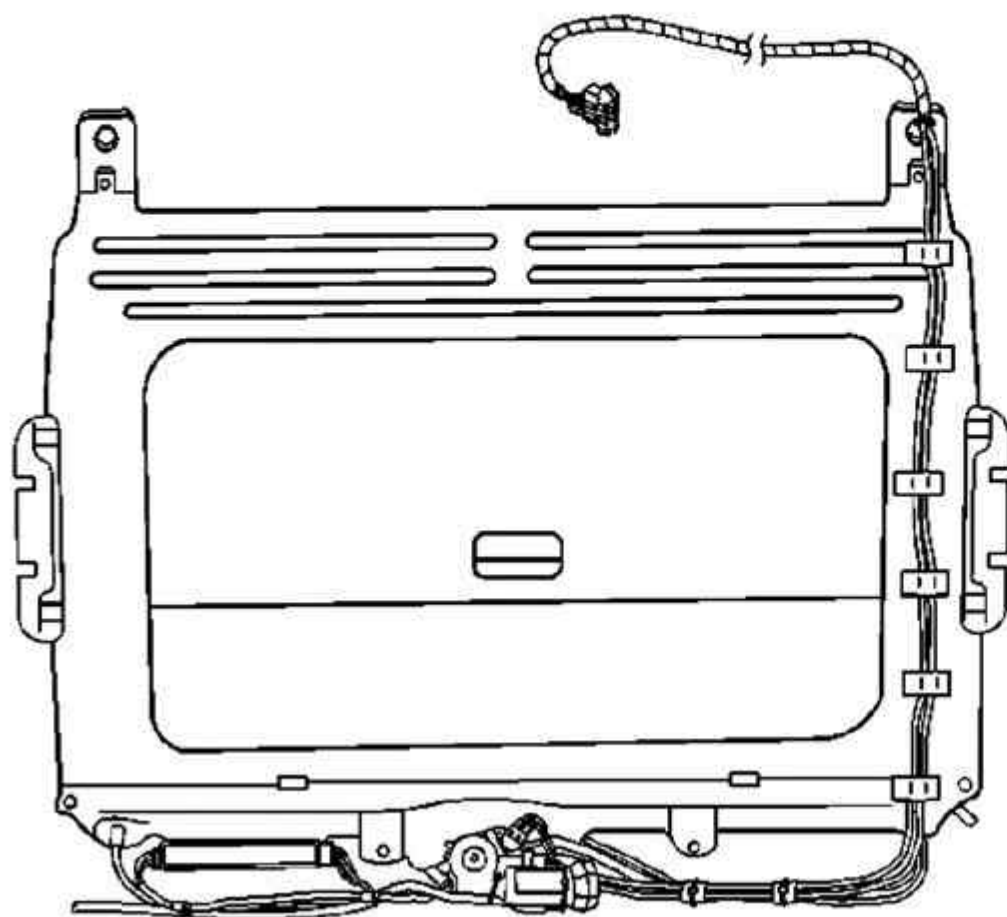


Fig. 6: View Of Sunroof Module Electrical Connector
Courtesy of GENERAL MOTORS CORP.

2. Remove the sunshade panel. Refer to **Sunroof Sunshade Replacement**.
3. It is only necessary to lower the headliner. Only do those step in headliner replacement that will lower the headliner enough to gain access to the part. Refer to **Headlining Trim Panel Replacement**.
4. Disconnect the electrical connector from the sunroof module.

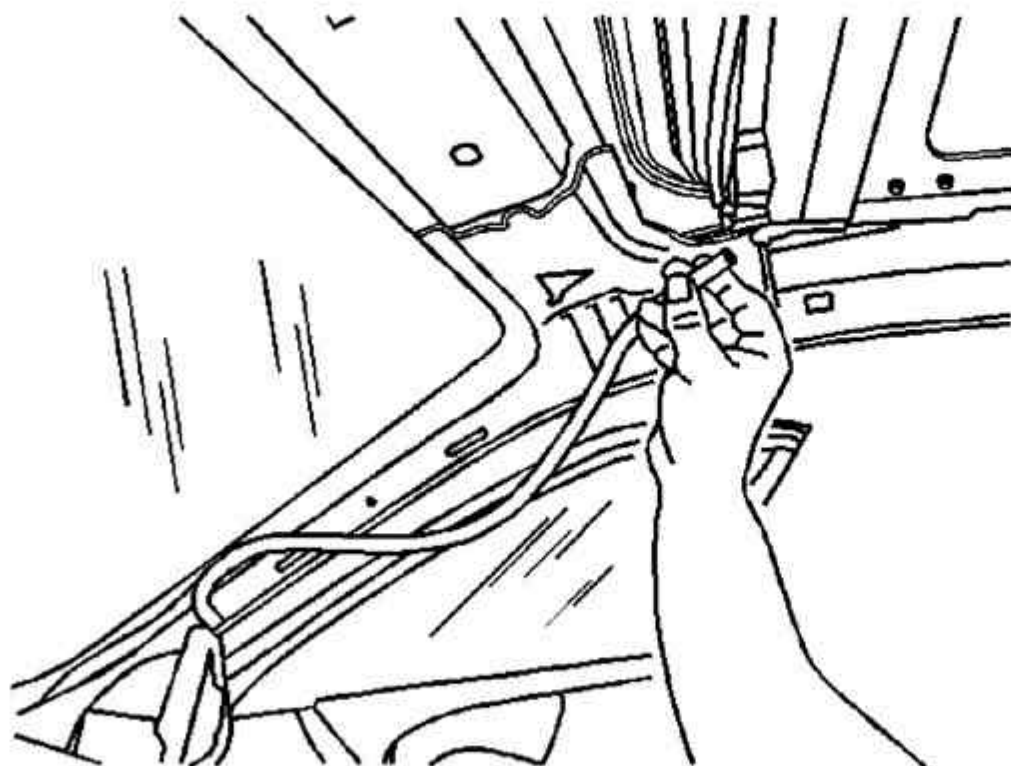


Fig. 7: Identifying Sunroof Module Drain Hoses
Courtesy of GENERAL MOTORS CORP.

5. Disconnect the front and rear drain hoses from the sunroof module.

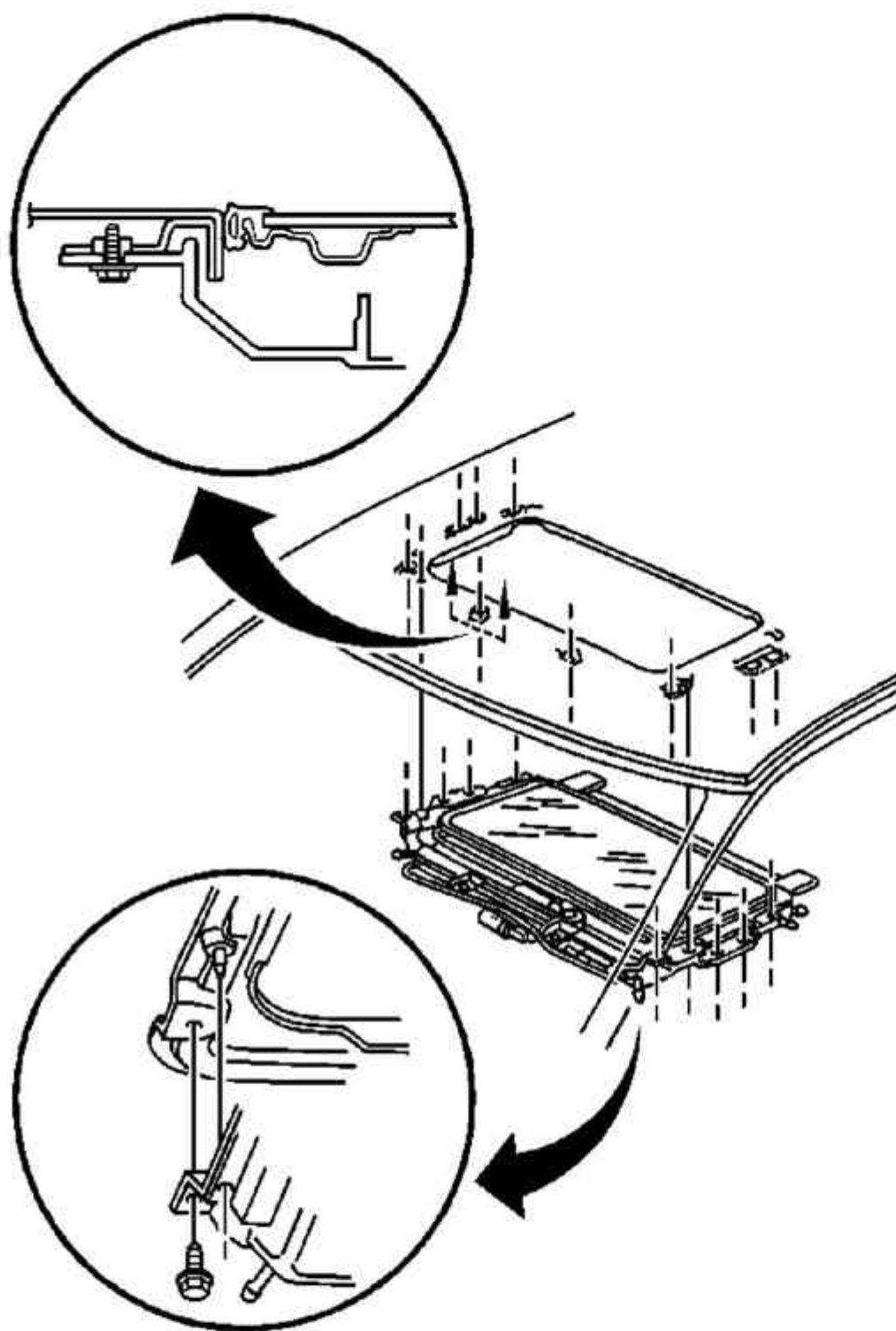


Fig. 8: Identifying Sunroof Module & Components
Courtesy of GENERAL MOTORS CORP.

6. Have an assistant support the sunroof module.
7. Remove the bolts from the sunroof module.
8. Remove the sunroof module from the vehicle with an assistant.

Installation Procedure

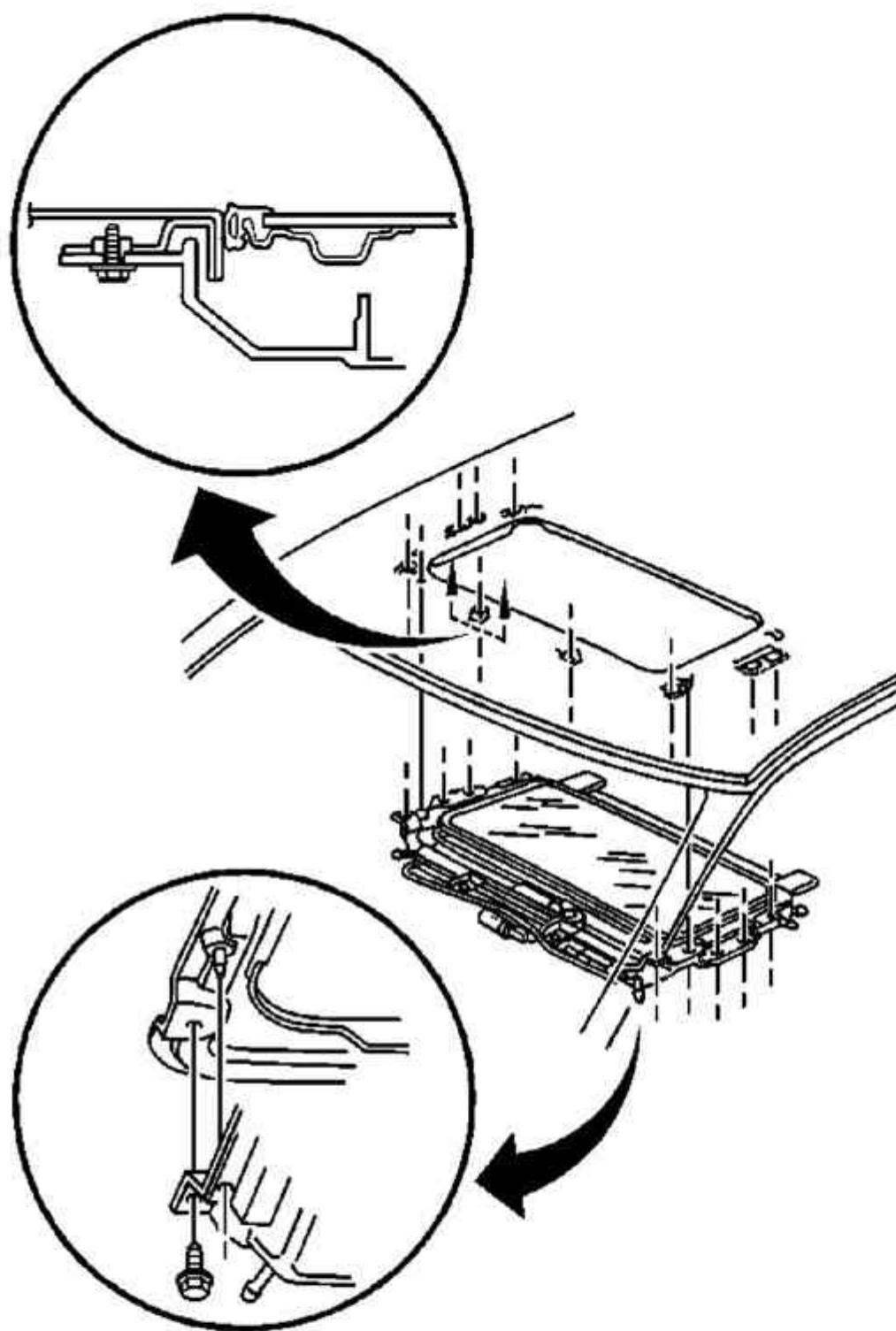


Fig. 9: Identifying Sunroof Module & Components
Courtesy of GENERAL MOTORS CORP.

1. Position the sunroof module to the vehicle roof with an assistant.

NOTE: Refer to FASTENER NOTICE .

2. Install the sunroof module bolts.

Tighten: Tighten the sunroof module bolts to 10 N.m (89 lb in).

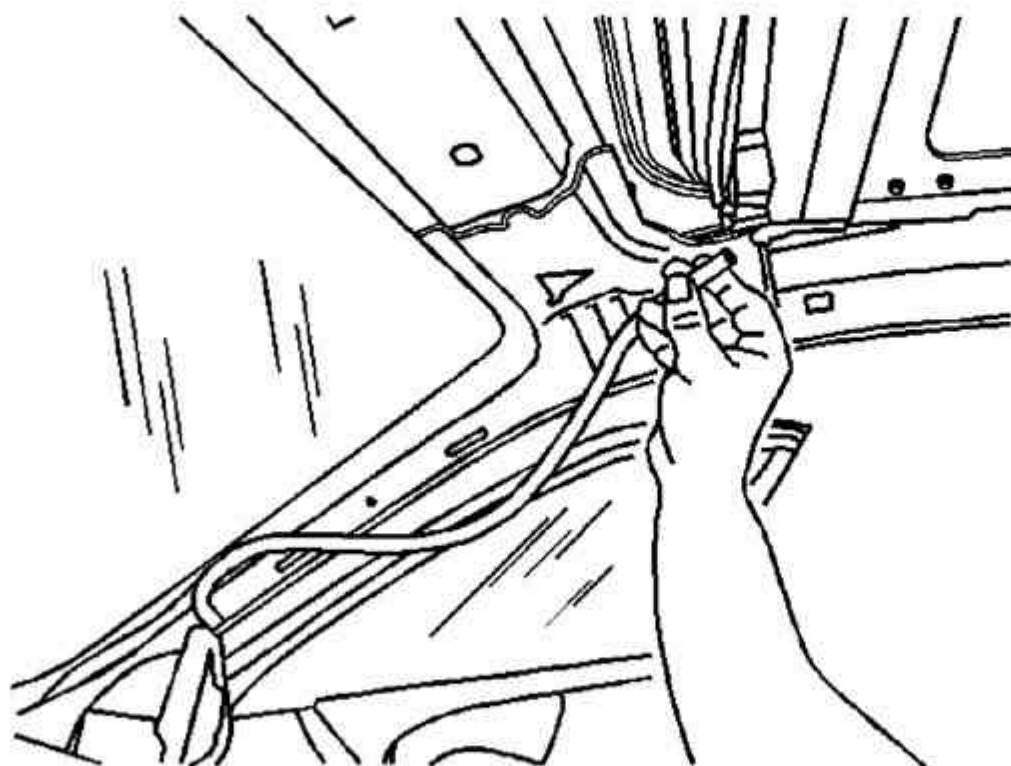


Fig. 10: Identifying Sunroof Module Drain Hoses
Courtesy of GENERAL MOTORS CORP.

3. Connect the front and rear drain hoses to the sunroof module.

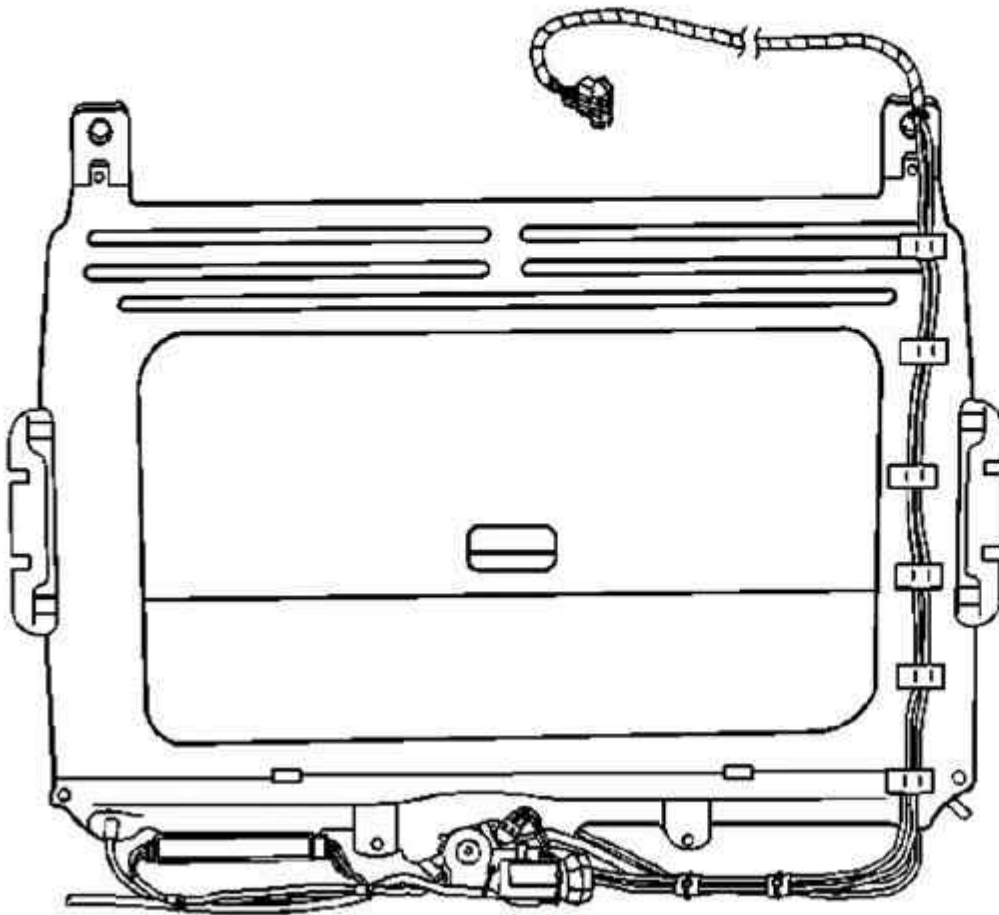


Fig. 11: View Of Sunroof Module Electrical Connector
Courtesy of GENERAL MOTORS CORP.

4. Connect the electrical connector to the sunroof module.
5. Install the sunshade panel. Refer to **Sunroof Sunshade Replacement**.
6. Install the sunroof window. Refer to **Sunroof Window Replacement**.
7. Perform the Initialization/Teach Procedure. Refer to **Sunroof Motor/Actuator Initialization/Teach Process (New Motor)** or **Sunroof Motor/Actuator Initialization/Teach Process (Existing Motor)**.
8. Inspect for proper operation of the sunroof. Refer to **Sunroof Description and Operation (One Connector System)**.
9. Install the headliner. Refer to **Headlining Trim Panel Replacement**.

SUNROOF MOTOR/ACTUATOR INITIALIZATION/TEACH PROCESS (NEW MOTOR)

Perform the Initialization/Teach Process any time a new sunroof motor actuator is installed in the vehicle.

1. Ensure that the electrical harness on the headliner is connected to the sunroof.
2. Press the sunroof switch to the close position until the window stops at the front hard stop in the fully closed position, then moves slightly back to the soft stop position. Release the switch.
3. Verify the operation of the sunroof.

IMPORTANT: The Initialization/Teach Process is not complete if any of the following actions take place before the initialization cycle is done:

- The sunroof switch is not held in the close position.
- The ignition and/or battery power has been removed.
- The glass panel has not reached the closed position.

The Initialization/Teach Process must be restarted if the procedure is not carried out completely.

SUNROOF MOTOR/ACTUATOR INITIALIZATION/TEACH PROCESS (EXISTING MOTOR)

Perform the Initialization/Teach Process any time the sunroof motor/actuator is removed from the sunroof.

1. Ensure that the electrical harness on the headliner is connected to the sunroof.
2. Press the sunroof switch to the close position until the window stops at the front soft stop in the fully closed position. Release the switch.
3. Press the close position again. Hold the switch for at least 13 Seconds. The sunroof will stall at the hard stop, then move slightly back to the soft stop position. Release the switch.
4. Verify the operation of the sunroof.

IMPORTANT: The Initialization/Teach Process is not complete if any of the following actions take place before the initialization cycle is done:

- The sunroof switch is not held in the close position.
- The ignition and/or battery power has been removed.
- The glass panel has not reached the closed position.

The Initialization/Teach Process must be restarted if the procedure is not carried out completely.

SUNROOF MOTOR/ACTUATOR REPLACEMENT

Tools Required

J 41718 Sunroof Timing Pins. See Special Tools.

Removal Procedure

IMPORTANT: This sunroof system is timed from the factory in order to allow the actuator to shut off automatically when the sunroof window reaches a certain position. Use extreme care when removing the sunroof actuator from the sunroof module. Improper removal may cause the timing to be thrown off. Anytime the sunroof actuator requires removal from the sunroof module, ensure that the sunroof window is in the fully closed position and the J 41718 are installed. See Special Tools.

1. Position the sunroof window panel to the fully closed position.
2. It is only necessary to lower the headliner. Only do those step in headliner replacement that will lower the headliner enough to gain access to the part. Refer to Headlining Trim Panel Replacement .

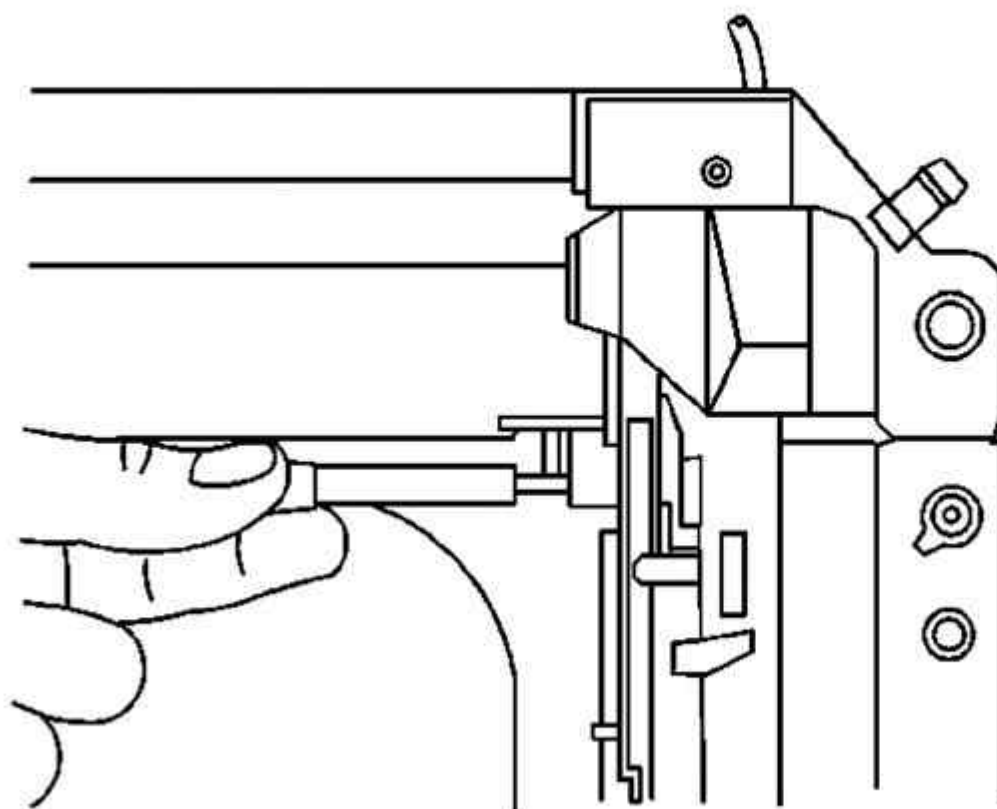


Fig. 12: Locating Sunroof Window Panel Screw Holes
Courtesy of GENERAL MOTORS CORP.

3. Remove the right and left front screw from the sunroof window panel. Refer to **Sunroof Window Replacement**.

IMPORTANT: Before removing the sunroof actuator, ensure that J 41718 are tight and holding the cable. See **Special Tools**.

4. Install the sunroof timing pins into the front sunroof window panel screw holes to retain the cable adjustment.
5. Disconnect the electrical connector from the sunroof module actuator.

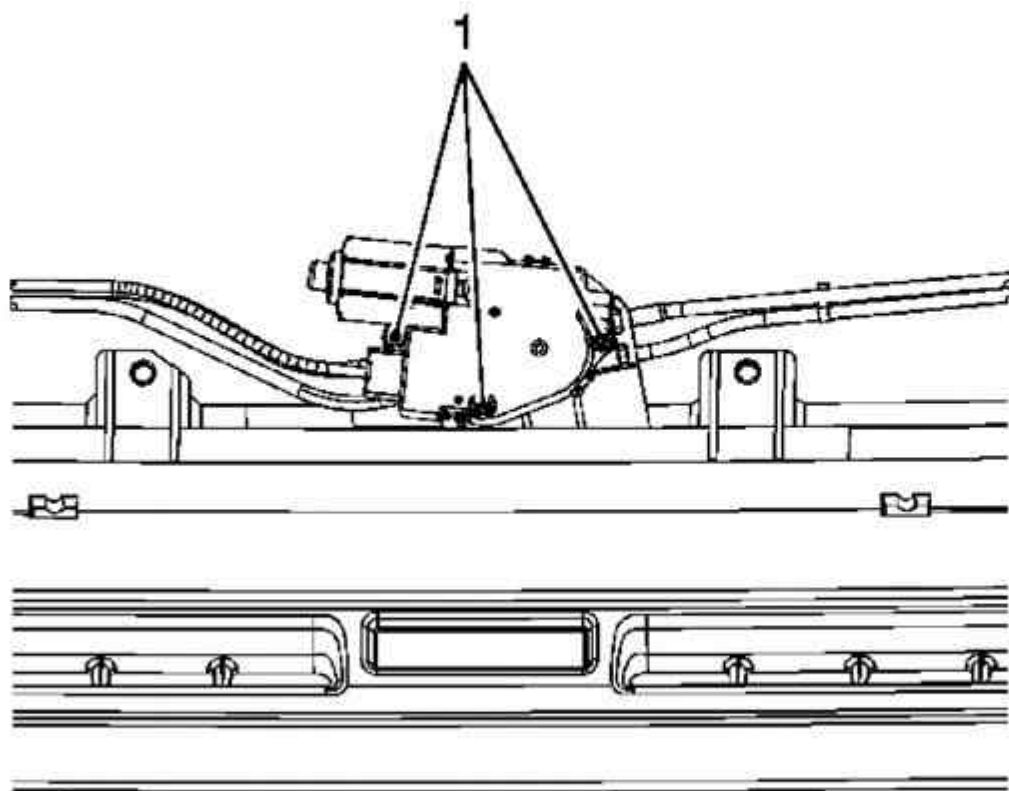


Fig. 13: Identifying Sunroof Actuator Bolts
Courtesy of GENERAL MOTORS CORP.

6. Remove the bolts (1) from the sunroof actuator.
7. Remove the sunroof actuator from the sunroof module.

Installation Procedure

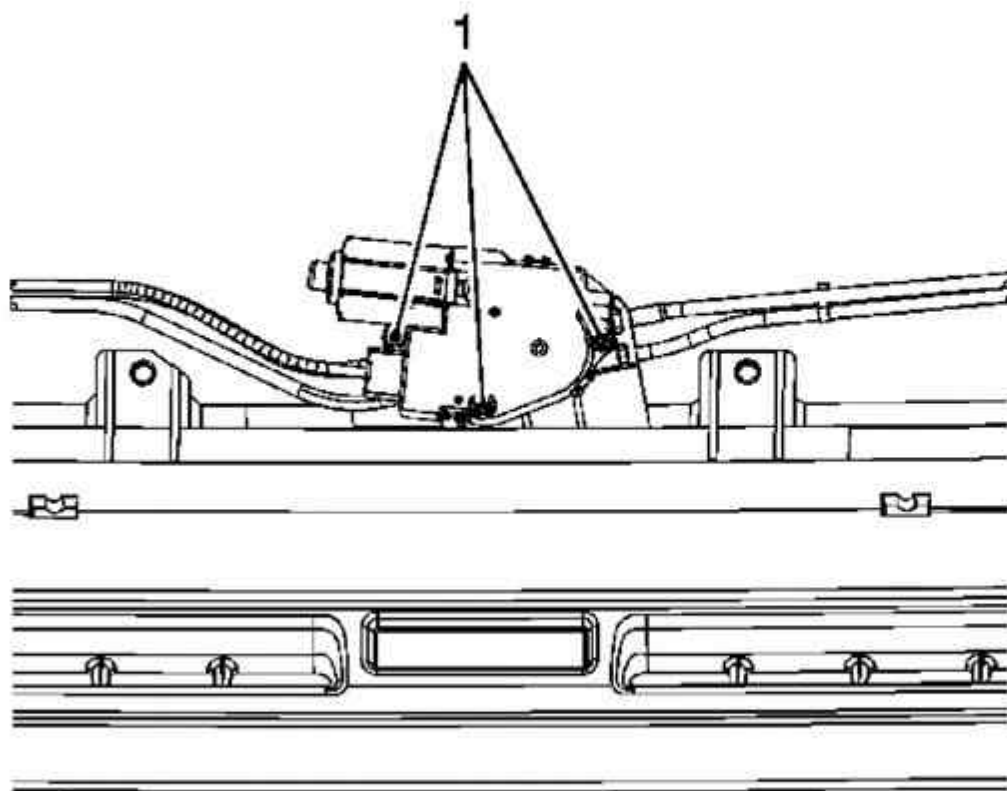


Fig. 14: Identifying Sunroof Actuator Bolts
Courtesy of GENERAL MOTORS CORP.

1. Install the sunroof actuator screw (1) to the sunroof module.

NOTE: Refer to Fastener Notice .

2. Install the sunroof actuator bolts.

Tighten: Tighten the sunroof actuator bolts to 4 N.m (35 lb in).

3. Connect the electrical connector to the sunroof actuator.

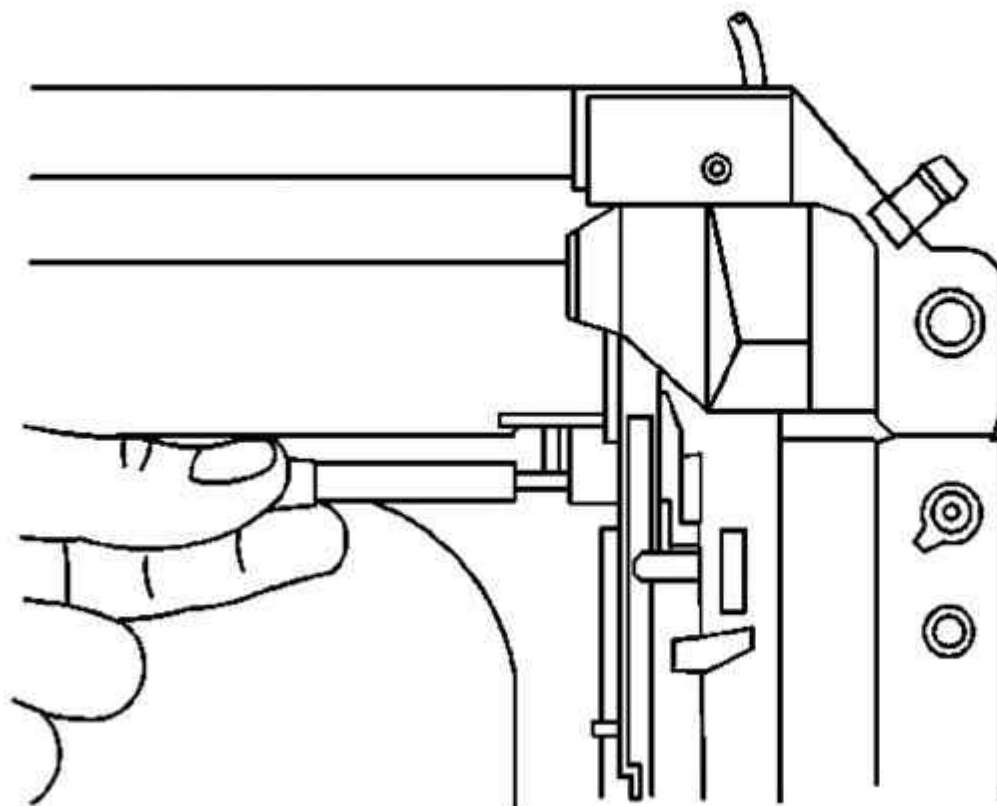


Fig. 15: Locating Sunroof Window Panel Screw Holes
Courtesy of GENERAL MOTORS CORP.

4. Remove the **J 41718** . See **Special Tools**.
5. Install the front screws to the sunroof glass panel. Refer to **Sunroof Window Replacement**.
6. Perform the Initialization/Teach Procedure. Refer to **Sunroof Motor/Actuator Initialization/Teach Process (New Motor)** or **Sunroof Motor/Actuator Initialization/Teach Process (Existing Motor)**.
7. Inspect for proper operation of the sunroof.
8. Install the headliner. Refer to **Headlining Trim Panel Replacement** .
9. Refer to **Control Module References** for programming and setup information.

SUNROOF SUNSHADE REPLACEMENT

Removal Procedure

1. Remove the sunroof window panel from the sunroof module. Refer to **Sunroof Window Replacement**.
2. Cycle sunroof to vent position.
3. Fully close the sunshade.
4. Remove the screws from the rear brace.

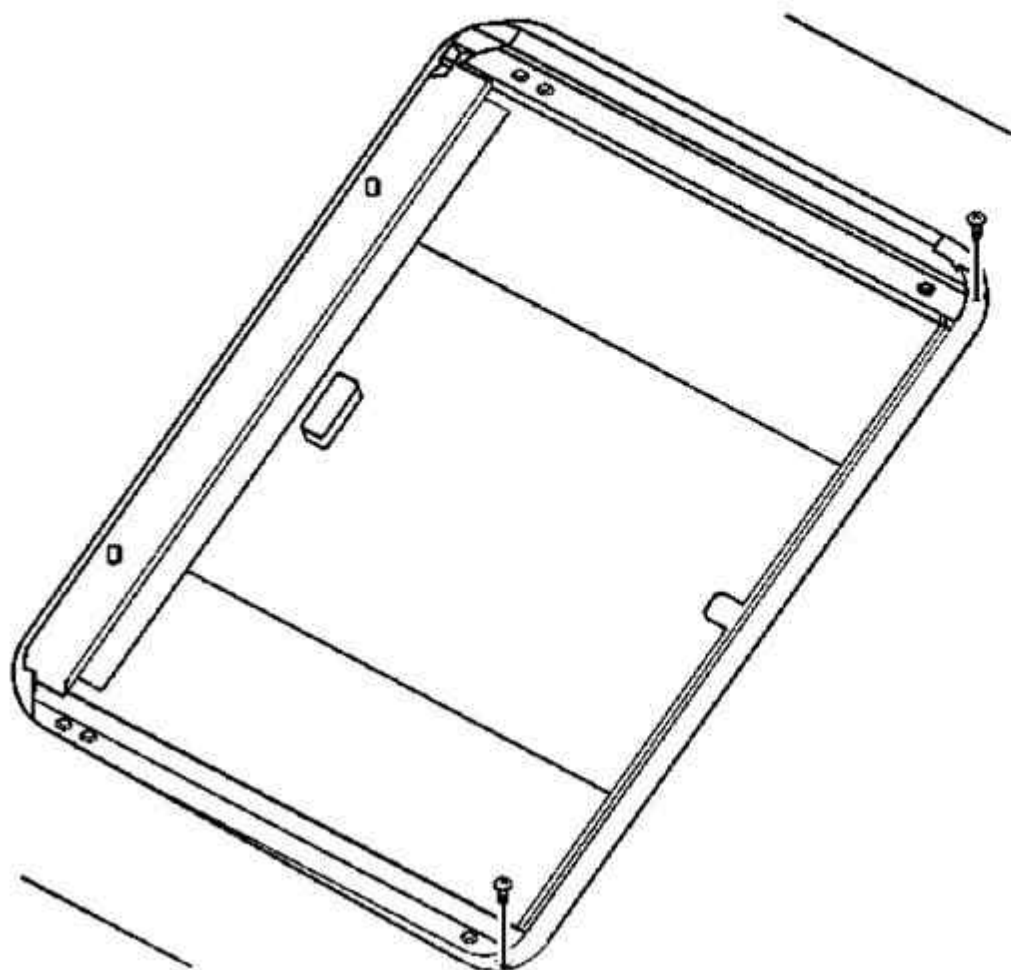


Fig. 16: View Of Sunshade

Courtesy of GENERAL MOTORS CORP.

5. Lift upward and slightly forward on the rear of the sunshade to clear the rear brace sunshade guide.

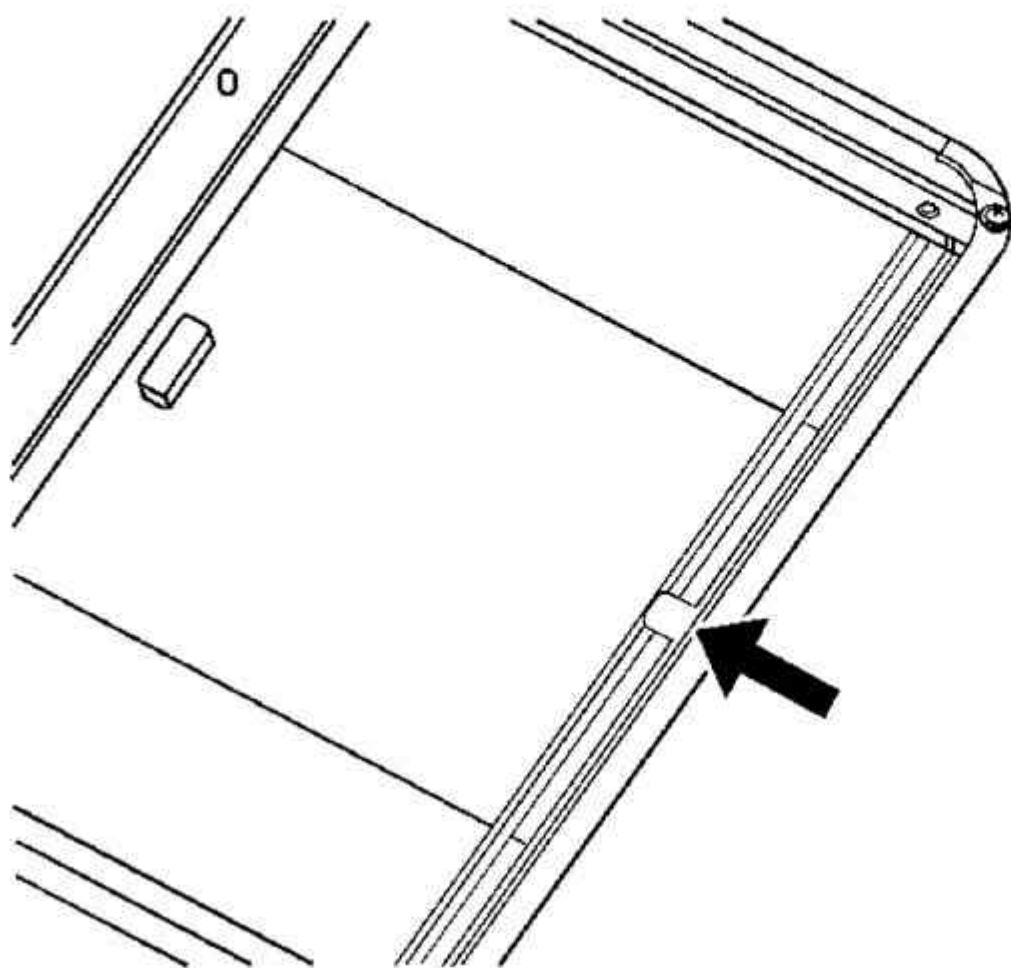


Fig. 17: Pushing Sunshade

Courtesy of **GENERAL MOTORS CORP.**

6. From the inside of the vehicle, with one hand, gently push up on the rear edge of the sunshade until one of the rear sunshade guides disengages from the track.
7. Push the side of the sunshade where the rear guide has disengaged from the track forward, and the opposite side of the sunshade rearward to disengage the remaining rear sunshade guide.
8. Continue to rotate the sunshade to disengage one of the front sunshade guides from the track.

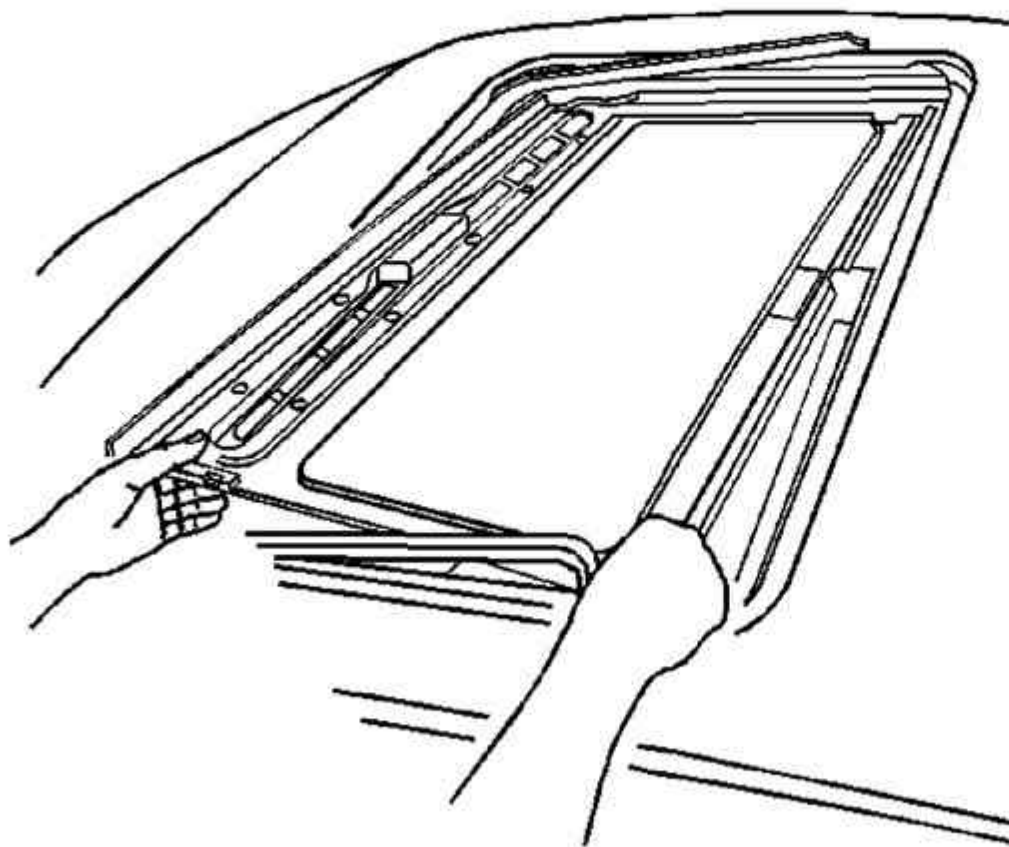


Fig. 18: View Of Rear Brace
Courtesy of GENERAL MOTORS CORP.

9. Remove the sunshade from the sunroof module.

Installation procedure

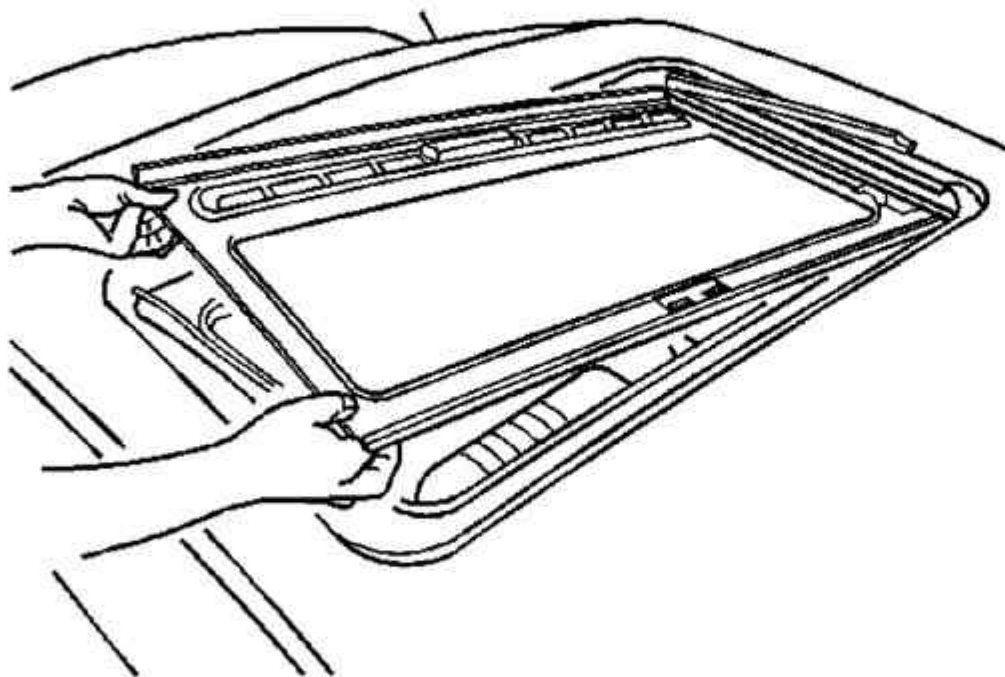


Fig. 19: Identifying Sunshade Retainers
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Be sure to compress the sunshade guide to prevent the guide from breaking and ensure the guide properly engages the track.

1. From the outside of the vehicle, install one of the front sunshade guides into the sunshade track.

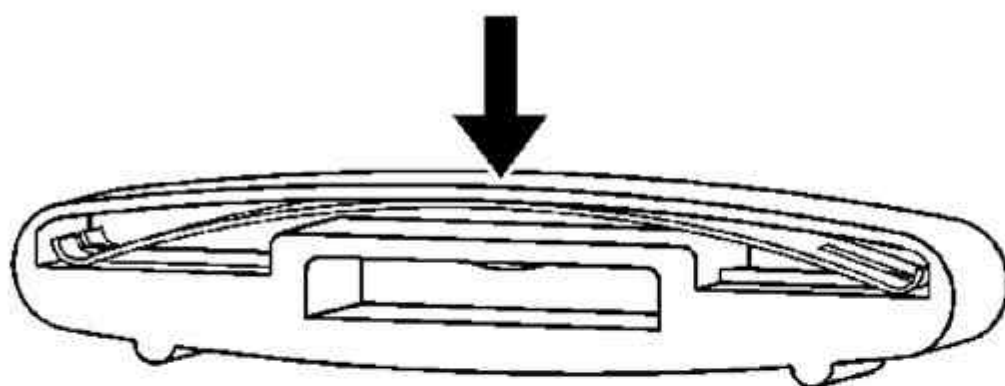


Fig. 20: Compressing Rear Sunshade Guide
Courtesy of GENERAL MOTORS CORP.

2. Repeat step 1 to install the other front guide into the track.
3. Compress one of the rear sunshade guides and slide it into the track.
4. Ensure the sunshade is clear of the rear brace and install the remaining rear sunshade guide.

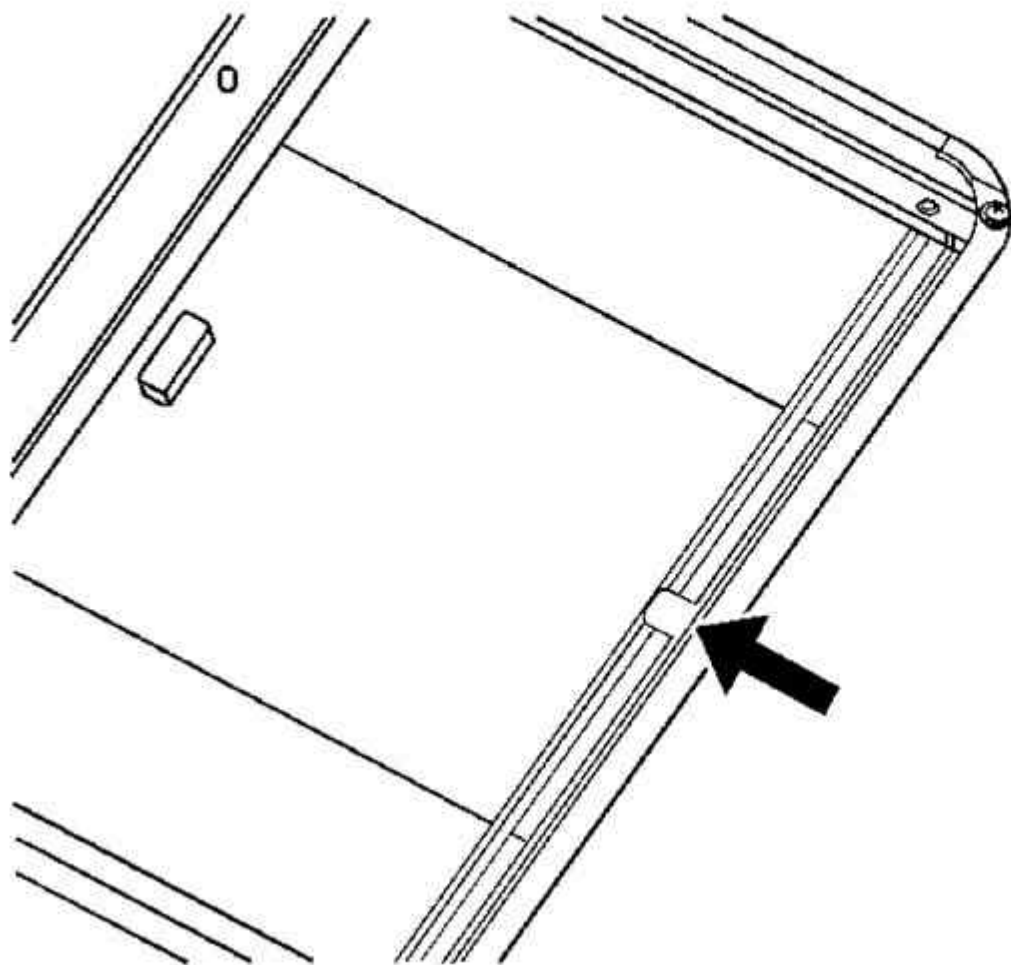


Fig. 21: Pushing Sunshade
Courtesy of GENERAL MOTORS CORP.

5. Cycle the sunshade to ensure proper orientation.
6. Install the screws for the rear brace.

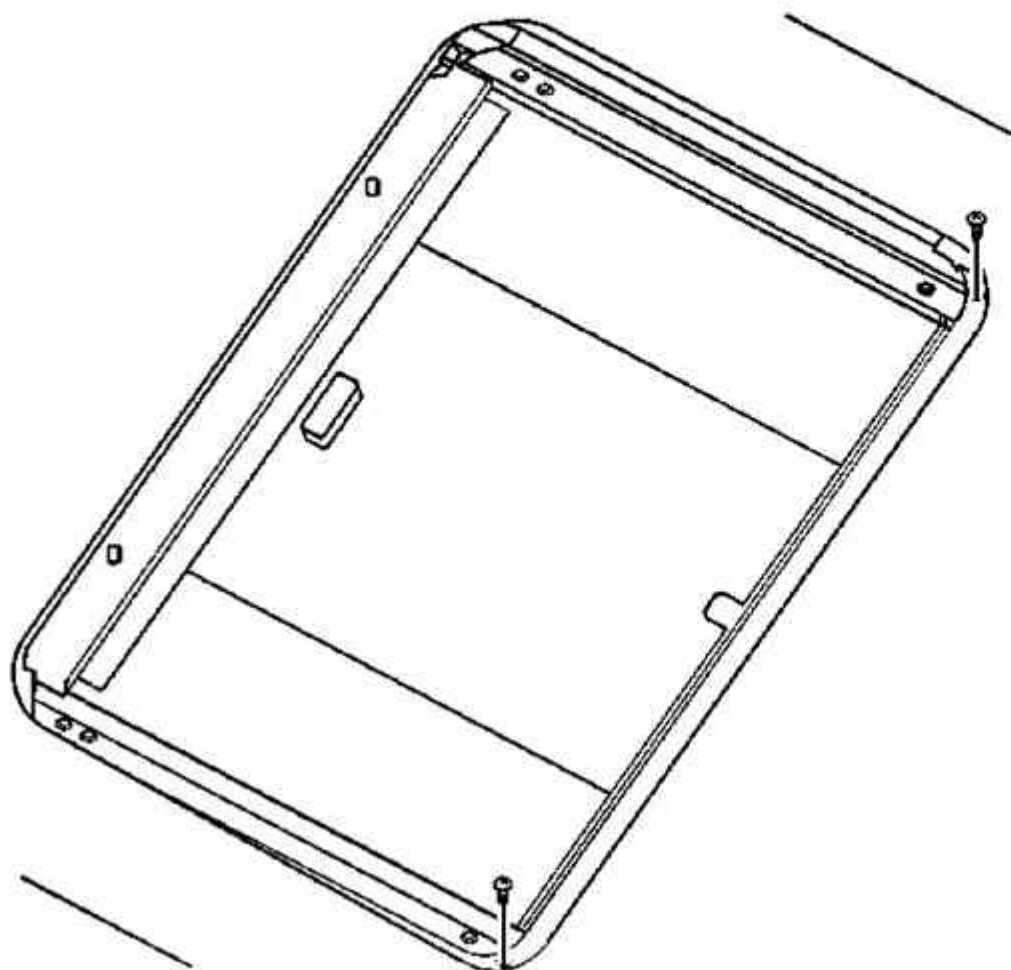


Fig. 22: View Of Sunshade
Courtesy of GENERAL MOTORS CORP.

7. Install the sunroof window panel. Refer to Sunroof Window Replacement.

SUNROOF SUNSHADE STOP REPLACEMENT

Removal Procedure

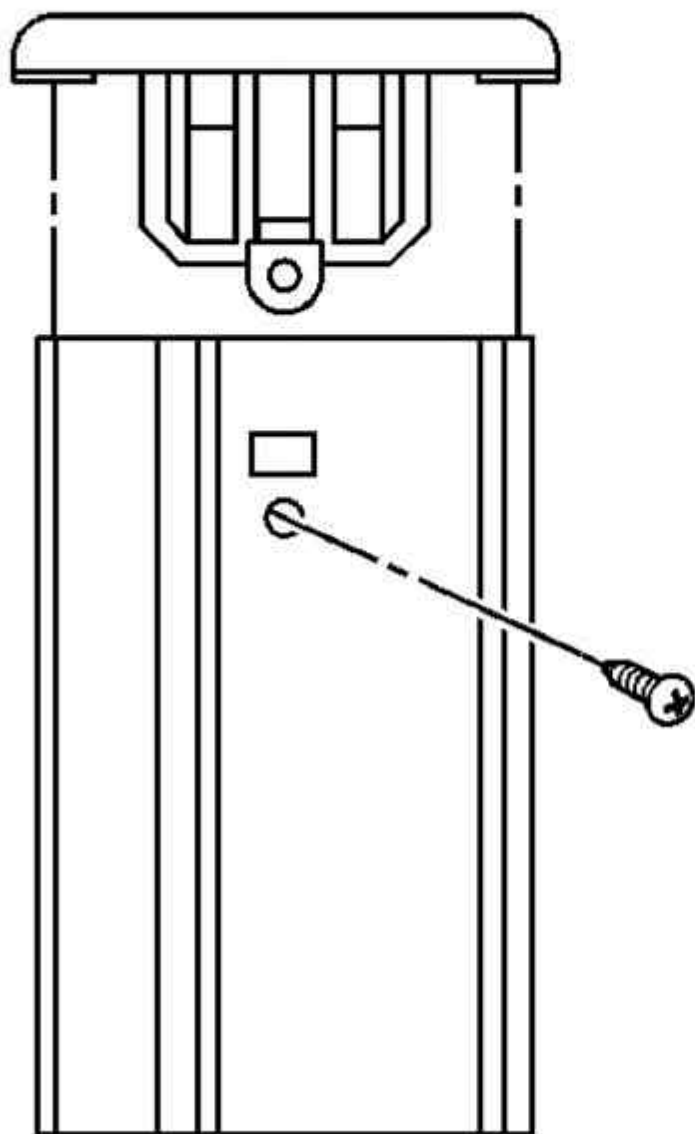


Fig. 23: Identifying Sunshade Stop & Screw
Courtesy of GENERAL MOTORS CORP.

1. It is only necessary to lower the headliner. Only do those step in headliner replacement that will lower the headliner enough to gain access to the part. Refer to **Headlining Trim Panel Replacement** .
2. Remove the sunshade stop screw from the sunshade track.
3. To remove the sunshade stop, press the sunshade stop locking tab in and slide sunshade stop out of the sunshade track.

Installation Procedure

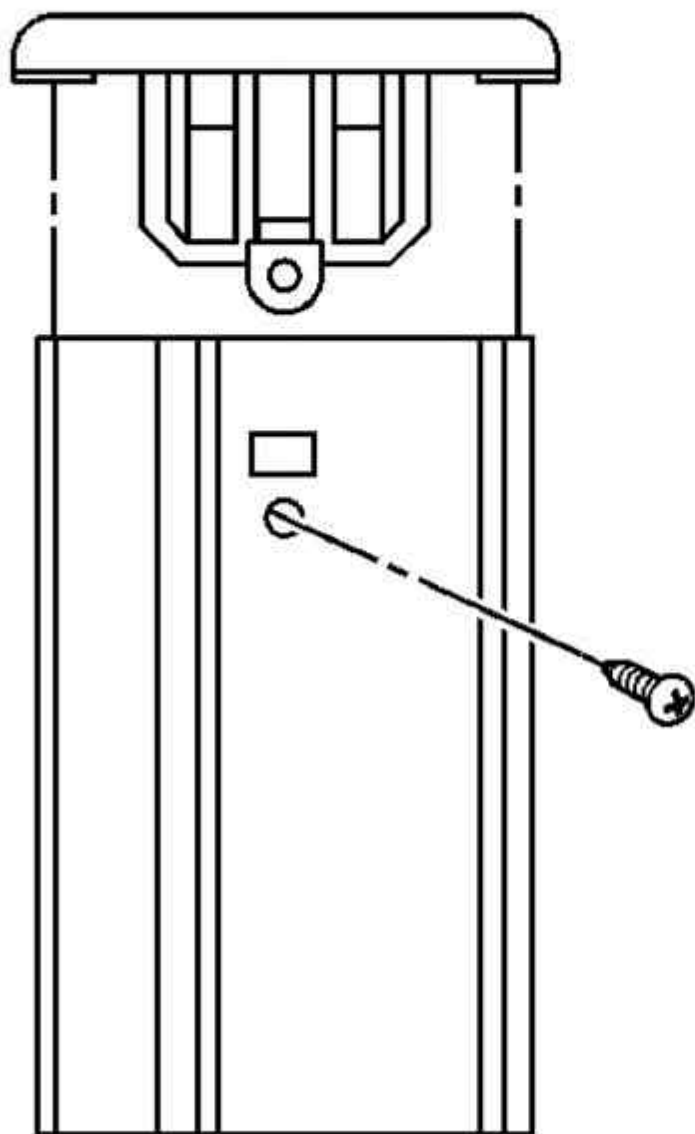


Fig. 24: Identifying Sunshade Stop & Screw
Courtesy of GENERAL MOTORS CORP.

1. Position the sunshade stop to the sunshade track.
2. Press the sunshade stop into the sunshade track until fully seated.

NOTE: Refer to FASTENER NOTICE .

3. Install the sunshade stop screw to the sunshade track.

Tighten: Tighten the sunshade stop screw to 2 N.m (18 lb in).

4. Install the headliner. Refer to Headlining Trim Panel Replacement .

SUNROOF SWITCH REPLACEMENT

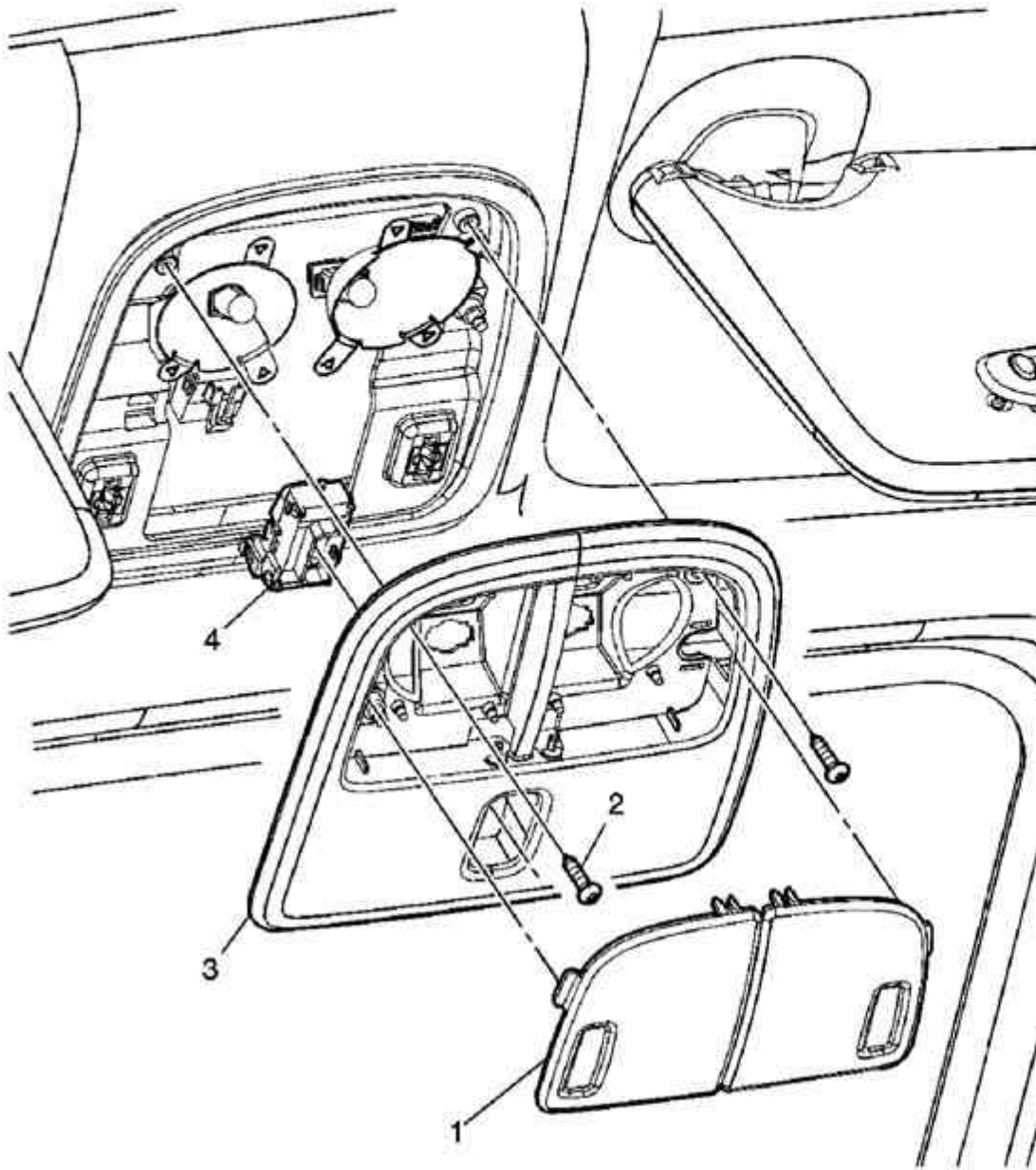


Fig. 25: Replacing Sunroof Switch
 Courtesy of GENERAL MOTORS CORP.

Callout	Component Name
1	Overhead Console Lamp Lens
2	Overhead Console Bezel Screw (Qty: 2) NOTE: Refer to <u>Fastener Notice</u> . Tighten: 3 N.m (40 lb in)
3	Overhead Console Bezel
4	Sunroof Position Switch Tip: Disconnect the electrical connector.

SUNROOF TRACK TIMING/SYNCHRONIZATION

Removal Procedure

1. It is only necessary to lower the headliner. Only do those step in headliner replacement that will lower the headliner enough to gain access to the part. Refer to Headlining Trim Panel Replacement .
2. Disconnect the electrical connector from the motor/actuator.

3. Remove the motor/actuator. Refer to **Sunroof Motor/Actuator Replacement**.
4. Remove the sunroof window. Refer to **Sunroof Window Replacement**.
5. Manually slide the mechanism forward in the track until the mechanism reaches the hard stop.

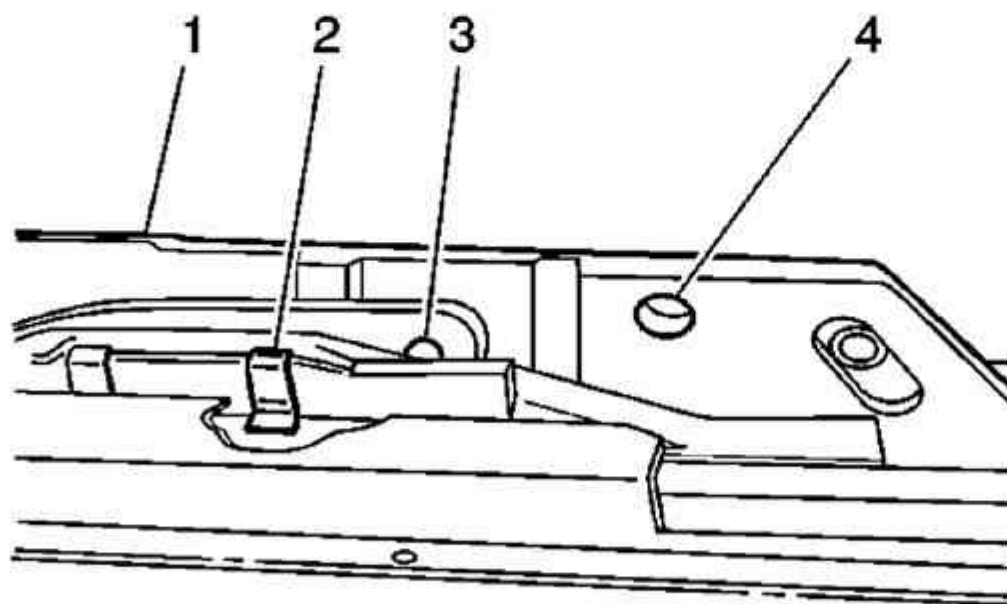


Fig. 26: View Of Cam Assembly, Timing Hole & Lifter Arm
Courtesy of GENERAL MOTORS CORP.

6. Push the cam assembly (2) forward until the timing hole (3) in the cam is aligned with the timing hole (4) in the lifter arm (1).

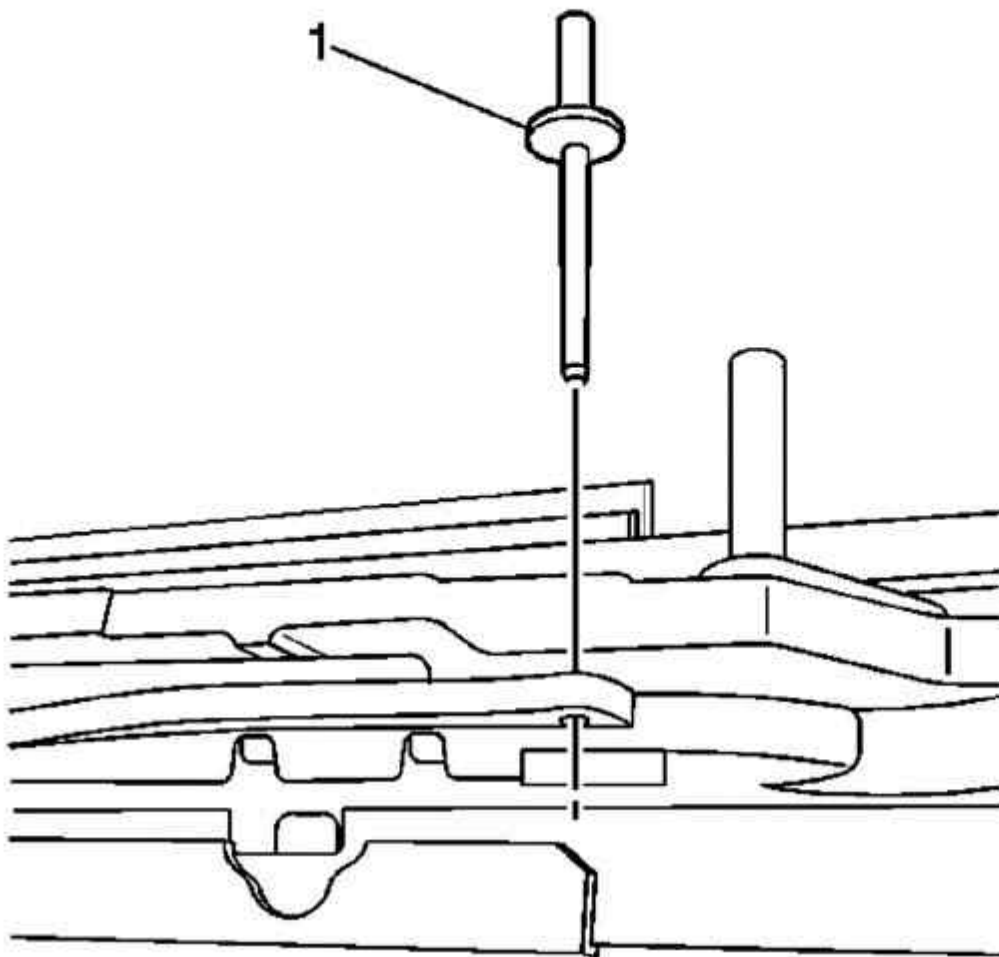


Fig. 27: View Of Pin & Drive Motor
Courtesy of GENERAL MOTORS CORP.

IMPORTANT: Both mechanisms should now be in the closed position.

7. Insert a pin (1) in the holes to hold the position while installing the drive motor.
8. Repeat this procedure for the opposite side.

Installation Procedure

NOTE: Refer to Fastener Notice .

1. Install the sunroof window. Refer to Sunroof Window Replacement.

Tighten: Tighten the screws to 4 N.m (35 lb in).

2. Install the motor/actuator. Refer to Sunroof Motor/Actuator Replacement.

Tighten: Tighten the motor attachment screws to 3.5 N.m (31 lb in).

3. Connect the electrical connector to the motor/actuator.

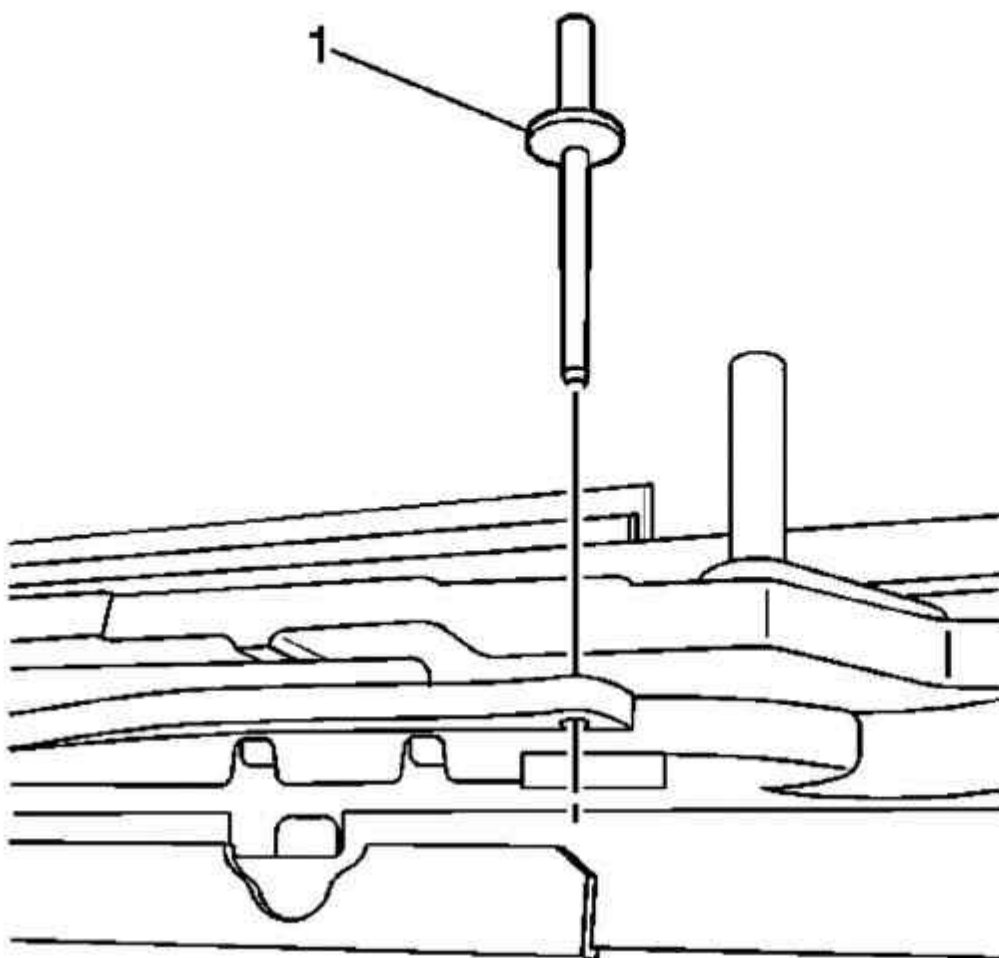


Fig. 28: View Of Pin & Drive Motor
Courtesy of GENERAL MOTORS CORP.

4. Remove the pin (1) from the holes that held the position while installing the drive motor.
5. Install the headliner. Refer to Headlining Trim Panel Replacement.
6. Perform the Initialization/Teach Procedure. Refer to Sunroof Motor/Actuator Initialization/Teach Process (New Motor) or Sunroof Motor/Actuator Initialization/Teach Process (Existing Motor).
7. Verify the operation of the sunroof.

SUNROOF WINDOW HEIGHT AND OPENING FIT ADJUSTMENT

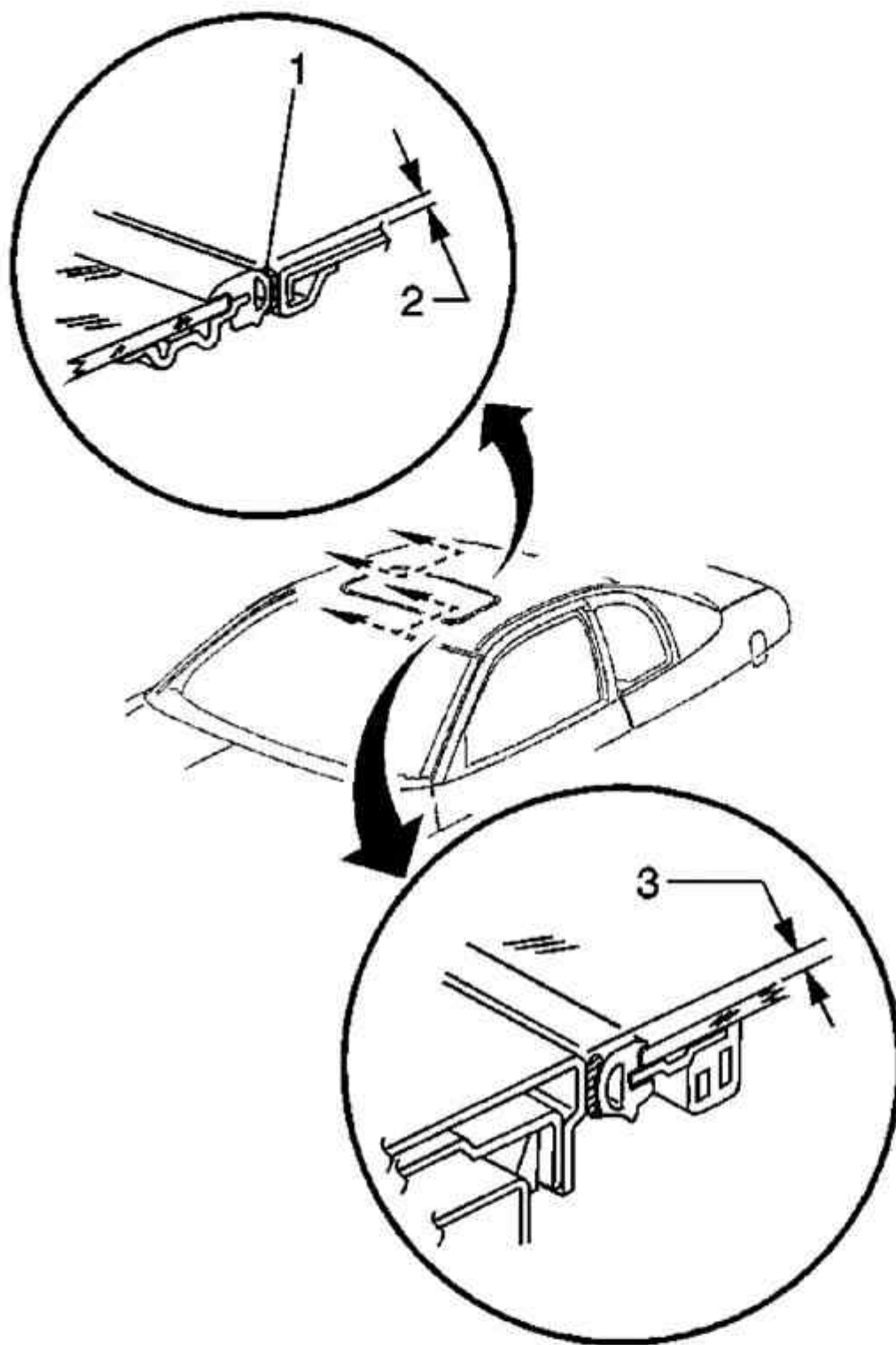


Fig. 29: Adjusting Sunroof Window Panel
Courtesy of GENERAL MOTORS CORP.

1. Slide the sunroof sunshade to the open position.
2. Adjust the sunroof to the fully closed position.
3. Loosen the sunroof window panel screws.
4. Individually adjust the 4 corners of the sunroof window panel.
5. Adjust the front of the sunroof window panel to 0.5 mm (0.020 in) below the top surface (3) of the roof panel.
6. Adjust the rear of the sunroof window panel to 0.5 mm (0.020 in) above the top surface (2) of the roof panel.

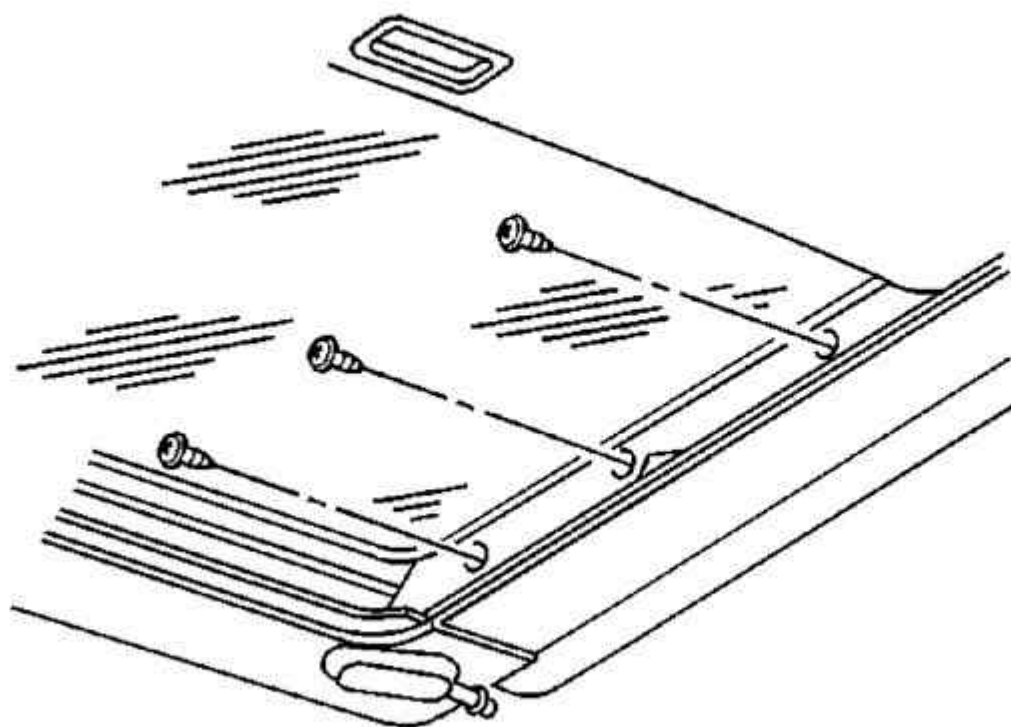


Fig. 30: View Of Sunroof Window Panel Screws
Courtesy of GENERAL MOTORS CORP.

NOTE: Refer to FASTENER NOTICE .

7. Tighten the sunroof window panel screws.

Tighten: Tighten the sunroof window panel screws to 4 N.m (35 lb in).

8. Close the sunshade.

SUNROOF WINDOW REPLACEMENT

Removal Procedure

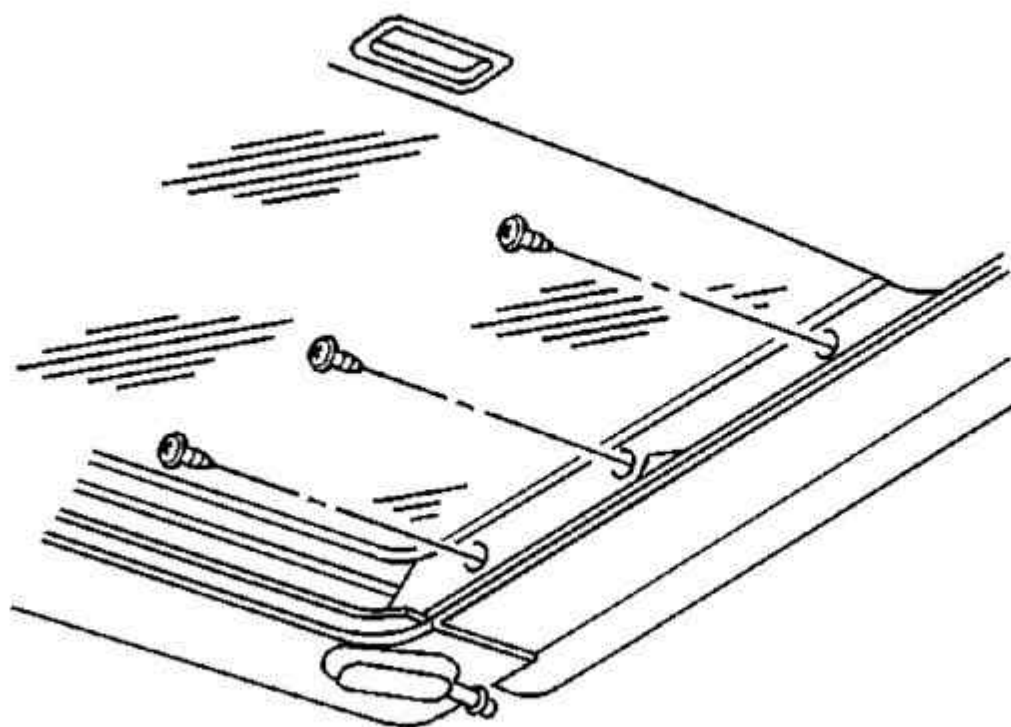


Fig. 31: View Of Sunroof Window Panel Screws
Courtesy of GENERAL MOTORS CORP.

1. Position the sunshade panel fully rearward.
2. Position the sunroof window panel to the vent position.
3. Remove the sunroof window panel screws from the sunroof window panel.
4. Remove the sunroof window panel from the sunroof module.

Installation Procedure

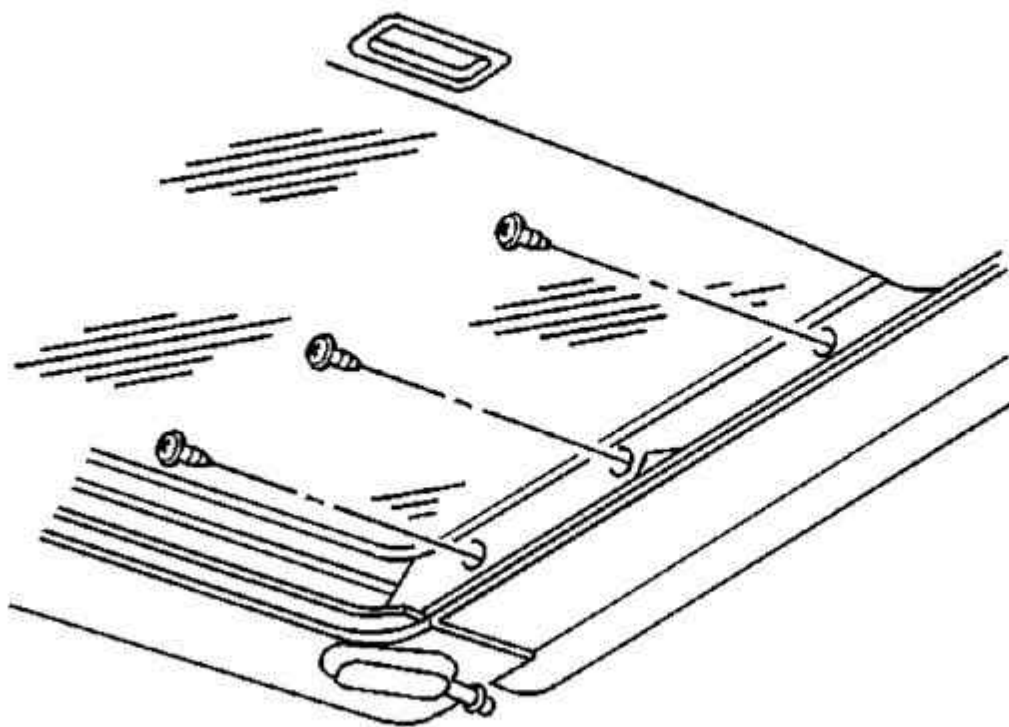


Fig. 32: View Of Sunroof Window Panel Screws
Courtesy of GENERAL MOTORS CORP.

1. Position the sunroof window panel to the sunroof module.

Ensure that the information logo stencil is towards the rear of the sunroof opening.

NOTE: Refer to FASTENER NOTICE.

2. Install the sunroof window panel screws to the sunroof window panel.

Tighten: Tighten the sunroof window panel screws to 4 N.m (35 lb in).

3. Adjust the sunroof window panel as necessary. Refer to Sunroof Window Height and Opening Fit Adjustment.
4. Inspect the sunroof window panel for proper operation.

DESCRIPTION AND OPERATION

SUNROOF DESCRIPTION AND OPERATION (ONE CONNECTOR SYSTEM)

Sunroof

This diagnostic procedure is to be used for the 1 connector Sunroof System that combines the sunroof control module with the sunroof motor/actuator.

The Sunroof System consists of the following components:

- BATT MAIN 2 Fuse 50 A
- Body control module (BCM)
- RAP relay

- S/Roof Fuse 20 A
- Sunroof module (includes sunroof motor/actuator)
- Sunroof switch

The Sunroof System is controlled by the sunroof switch and the sunroof motor/actuator assembly.

When the ignition is turned to RUN or ACCESSORY, or when the retained accessory power (RAP) system is active, the body control module (BCM) applies a ground to the RAP relay in the instrument panel (I/P) fuse block. This activates the RAP relay and allows battery positive voltage to be applied through the SUNROOF Fuse to the sunroof module. Ground for the sunroof module is supplied from G302.

The sunroof can be placed in 3 preset positions:

- Open
- Vent
- Closed

When the sunroof switch is placed in the OPEN position, a ground is applied from the sunroof switch low reference circuit, through the sunroof switch and to the sunroof switch open signal circuit. The sunroof motor/actuator then applies voltage to the sunroof motor open control circuit and applies a ground to the sunroof motor close circuit. The sunroof motor then opens the sunroof to the full open position.

When the sunroof switch is placed in the VENT position, a ground is applied from the sunroof switch low reference circuit, through the sunroof switch and to the sunroof switch open signal circuit. The sunroof module then applies voltage to the sunroof motor open control circuit and applies a ground to the sunroof motor close circuit. The sunroof motor then opens the sunroof to the VENT position.

When the sunroof switch is placed and held in the CLOSED position, a ground is applied from the sunroof switch low reference circuit, through the sunroof switch and to the sunroof switch close signal circuit. The sunroof module then applies voltage to the sunroof motor close control circuit and applies a ground to the sunroof motor open circuit. The sunroof motor then closes the sunroof.

The sunroof can be placed in any preferred open position when:

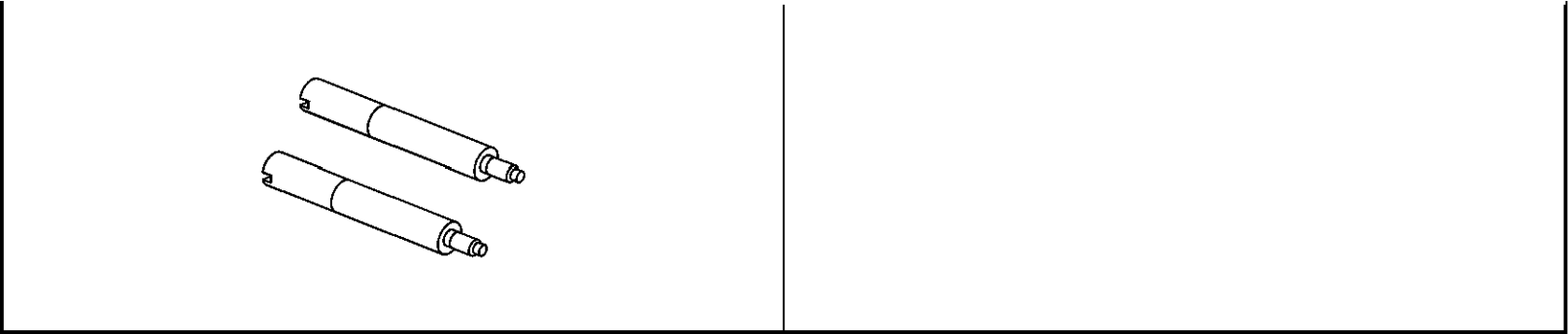
- The sunroof is in the fully opened position by pressing and holding the sunroof switch in the CLOSE position until the panel has reached the desired position then release the CLOSE switch in order to stop the sunroof
- The sunroof is opening, it can be stopped by momentarily pressing either side of the switch.

The sunroof control module, sun roof actuator, and the sunroof motor are integral parts of the sunroof module assembly and are not service separately.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

Illustration	Tool Number/Description
	J 41718 Sunroof Timing Pins



2008 Buick LaCrosse CXL
2008 ACCESSORIES & EQUIPMENT Sunroof - LaCrosse

2008 Buick LaCrosse CXL
2008 ACCESSORIES & EQUIPMENT Sunroof - LaCrosse

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