

- The history DTC will clear after 50 consecutive fault-free ignition cycles have occurred.

### Reference Information

Schematic Reference

### Adjustable Pedal Schematics

Connector End View Reference

### COMPONENT CONNECTOR END VIEWS - INDEX

Description and Operation

### Adjustable Pedals Description and Operation (Without A45) Adjustable Pedals Description and Operation (With A45)

Electrical Information Reference

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

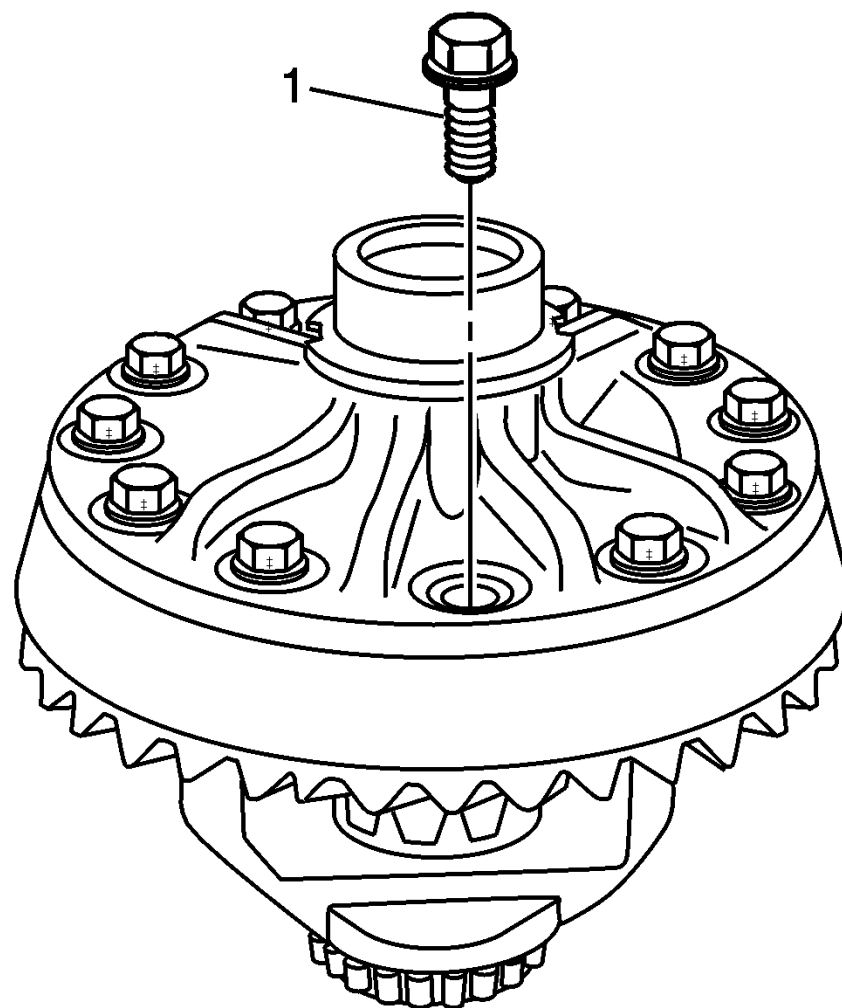
Scan Tool Reference

Control Module References for scan tool information

### Circuit/System Verification

1. Ignition ON, vehicle in P (Park).
2. Verify the scan tool Adjustable Pedal Control Switch parameter changes while when pushing the appropriate switch on the S48A Multifunction Switch-Instrument Panel.
  - **If the parameter does not change**  
  
Refer to Circuit/System Testing.
  - **If the parameter changes**

11. Remove the differential assembly from the vise.

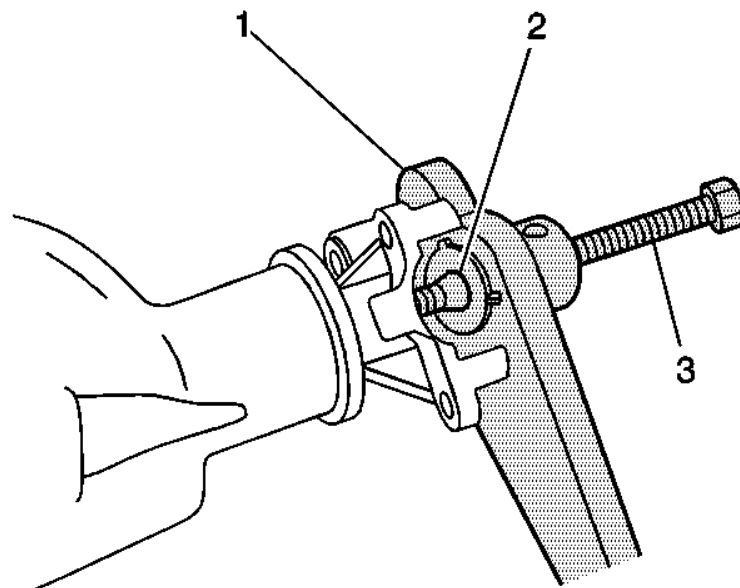


**Fig. 325: Ring Gear Bolts Have Left-Hand Threads**

Courtesy of GENERAL MOTORS COMPANY

**NOTE:** The ring gear bolts have left-hand threads.

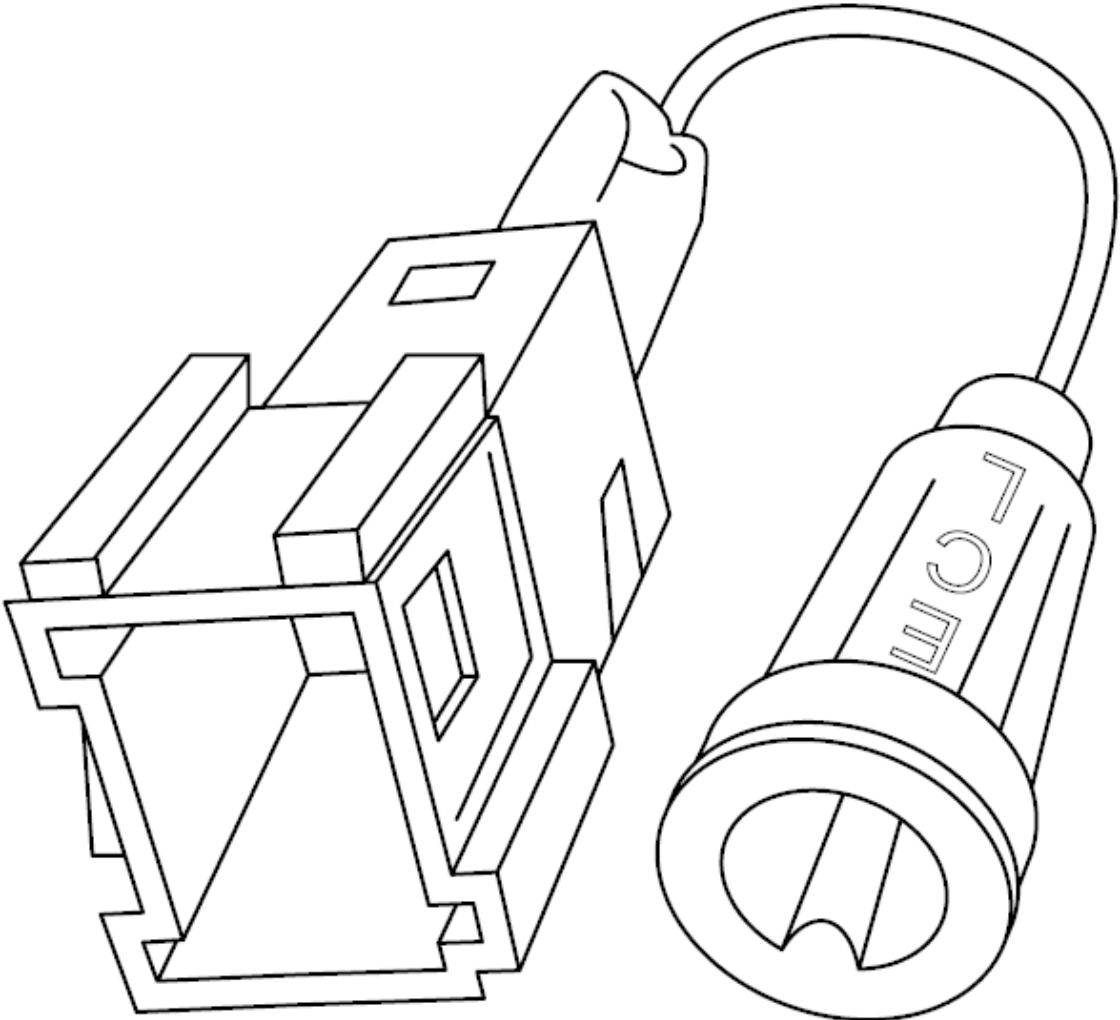
12. Remove the ring gear bolts (1). Discard the bolts.

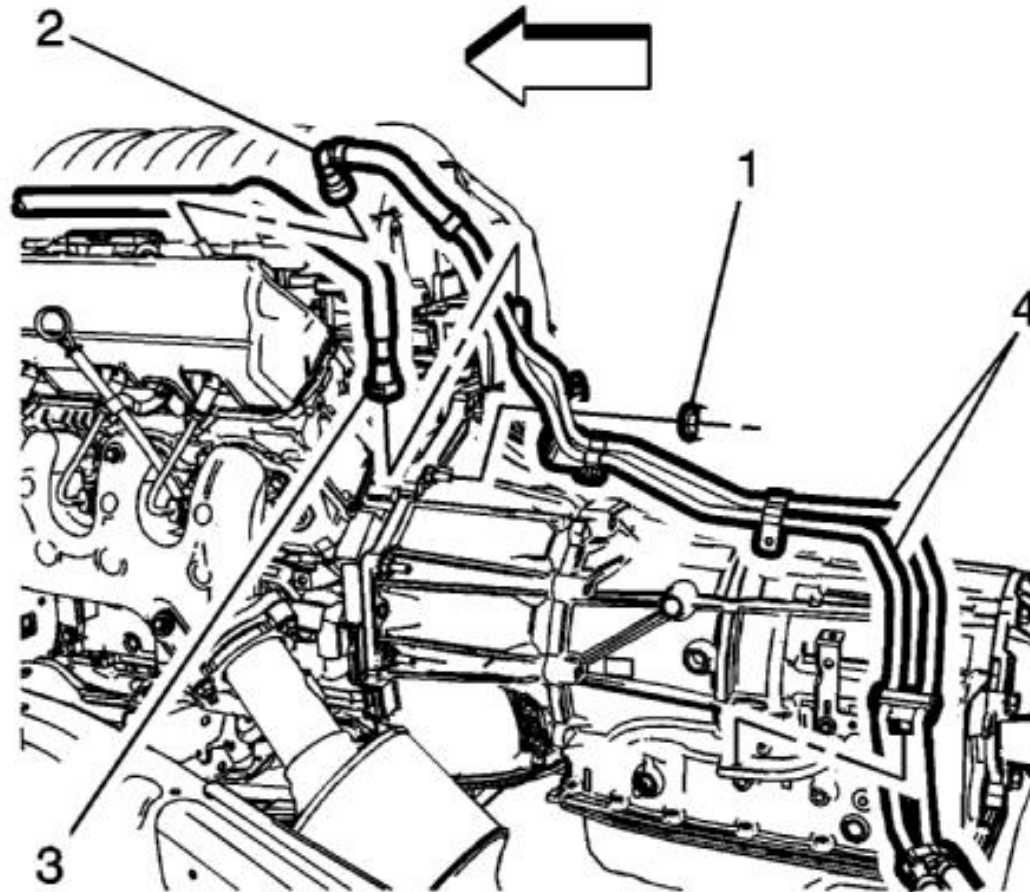


**Fig. 210: Removing Pinion Yoke Using Special Tools**  
Courtesy of GENERAL MOTORS COMPANY

**NOTE:** Remove the pinion yoke by turning the J-8614-3 (3) clockwise.

9. Using the J-8614-2 (2), J-8614-3 (3) and the J-8614-01 remover (1), remove the pinion yoke.

Illustration	Tool Number/Description
 A line drawing of an 8-pin connector touch pad assembly. On the left is a rectangular connector housing with eight pins extending from its front face. A cable is attached to the top of the housing. On the right is a cylindrical touch pad with a central circular opening. The touch pad has the text 'LCM' printed on its side. The cable connects the two components.	<p data-bbox="1381 706 1822 779">EL-51578-1 8-Pin Black Connector Touch Pad</p>

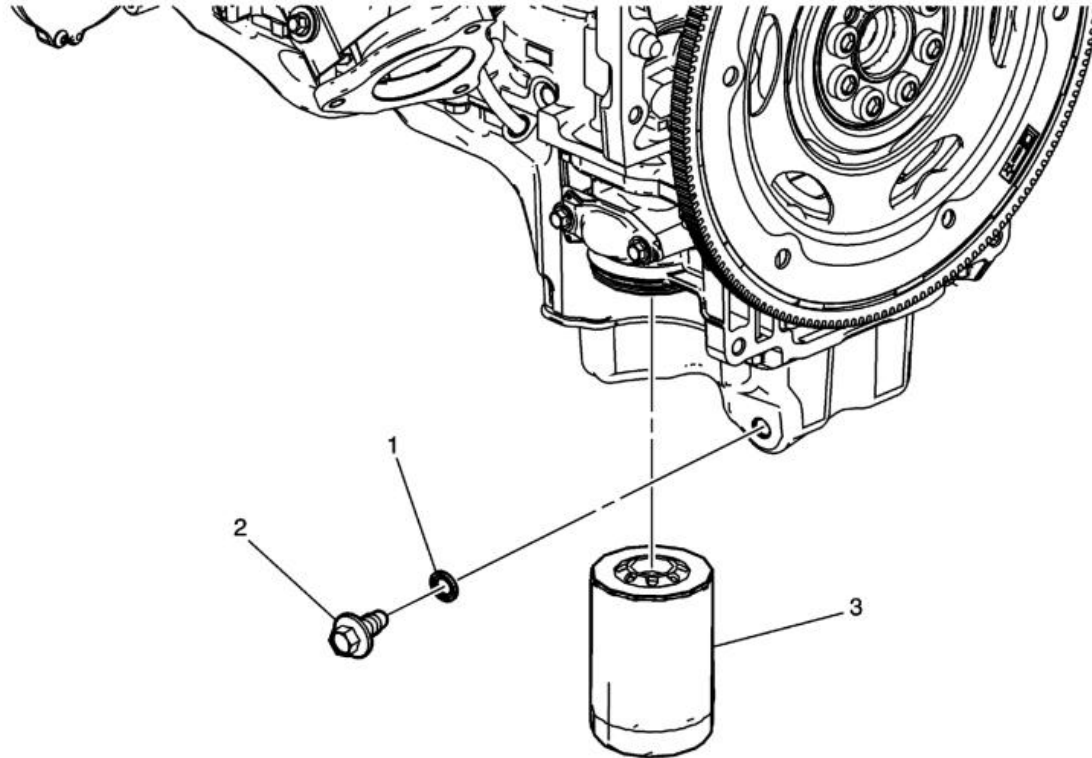


**Fig. 114: Fuel Feed And EVAP Hose Nut**  
Courtesy of GENERAL MOTORS COMPANY

2. Remove the fuel feed and EVAP hose nut (1).
3. Disconnect the fuel hose (2) from the fuel rail. Refer to [Metal Collar Quick Connect Fitting Service](#).
4. Disconnect the EVAP hose (3) from the EVAP canister purge tube. Refer to [Plastic Collar Quick Connect Fitting Service](#).
5. Remove the fuel feed and EVAP hose (4) from the retainers.

Callout	Component Name
	12 N.m (106 lb in)

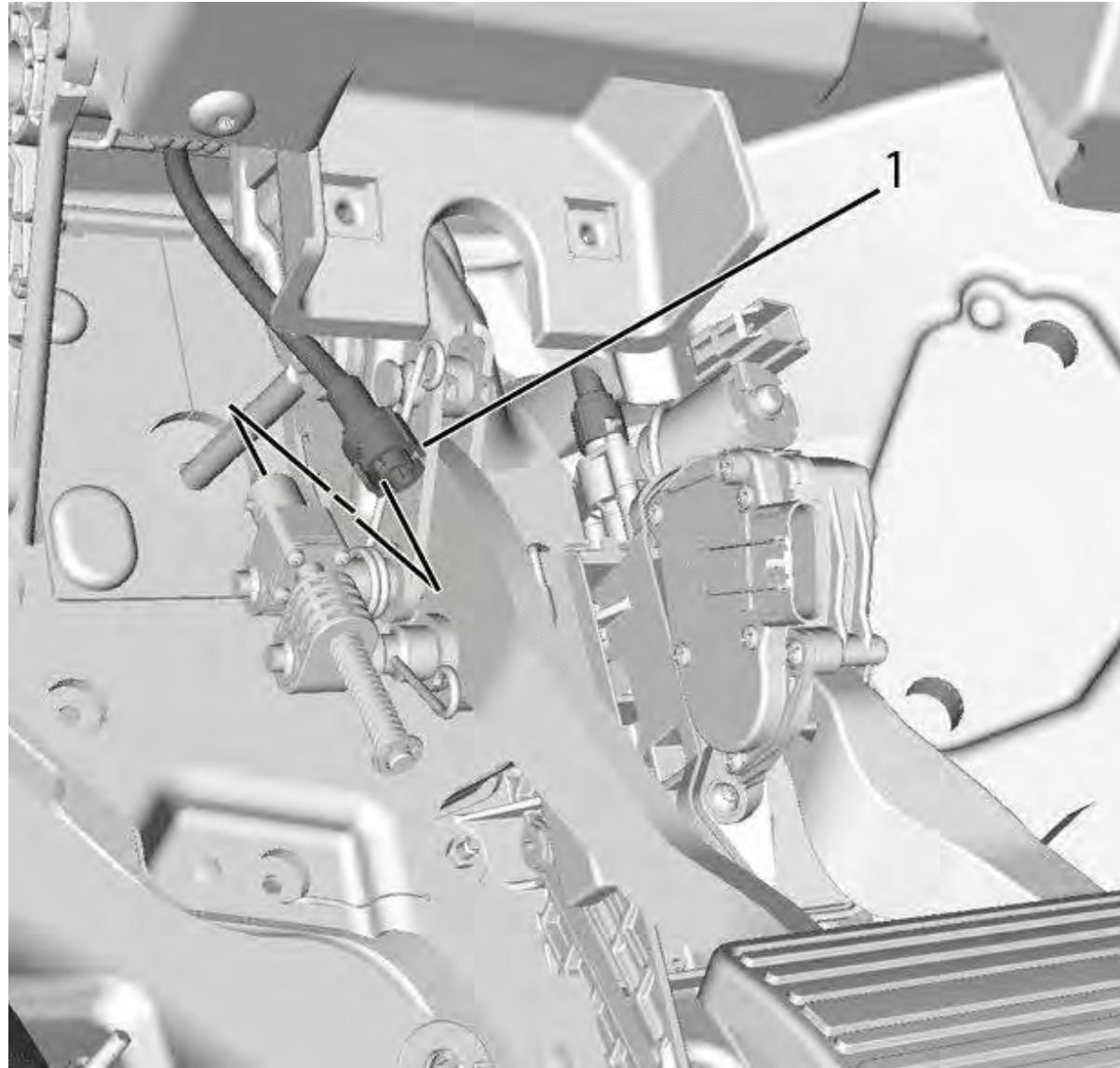
## OIL FILTER INSTALLATION



**Fig. 524: Oil Filter**

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
1	Oil Pan Drain Plug Seal
	Oil Pan Drain Plug
2	<b>CAUTION:</b> Refer to

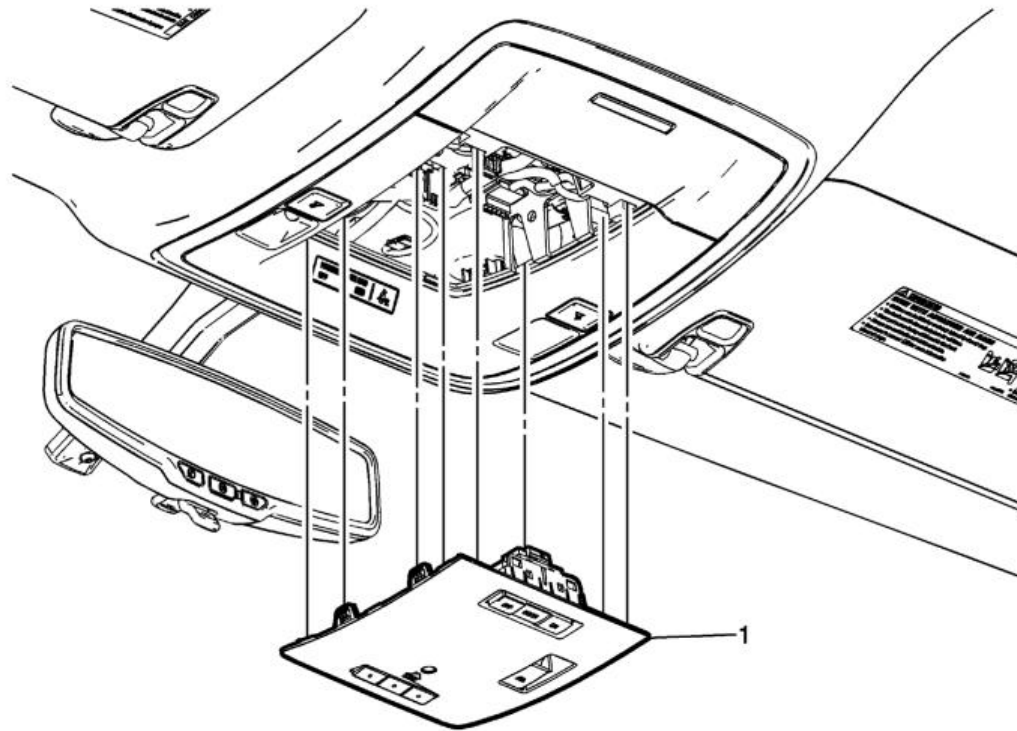


**Fig. 32: Brake Pedal Adjuster Actuator Cable**  
Courtesy of GENERAL MOTORS COMPANY

10. Disconnect the brake pedal adjuster actuator cable (1) from the brake pedal adjuster actuator.
  1. Rotate the brake pedal adjuster actuator cable collar counter clockwise.
  2. Compress the secondary locking tabs located below the cable collar alignment pins with a pointed tool.

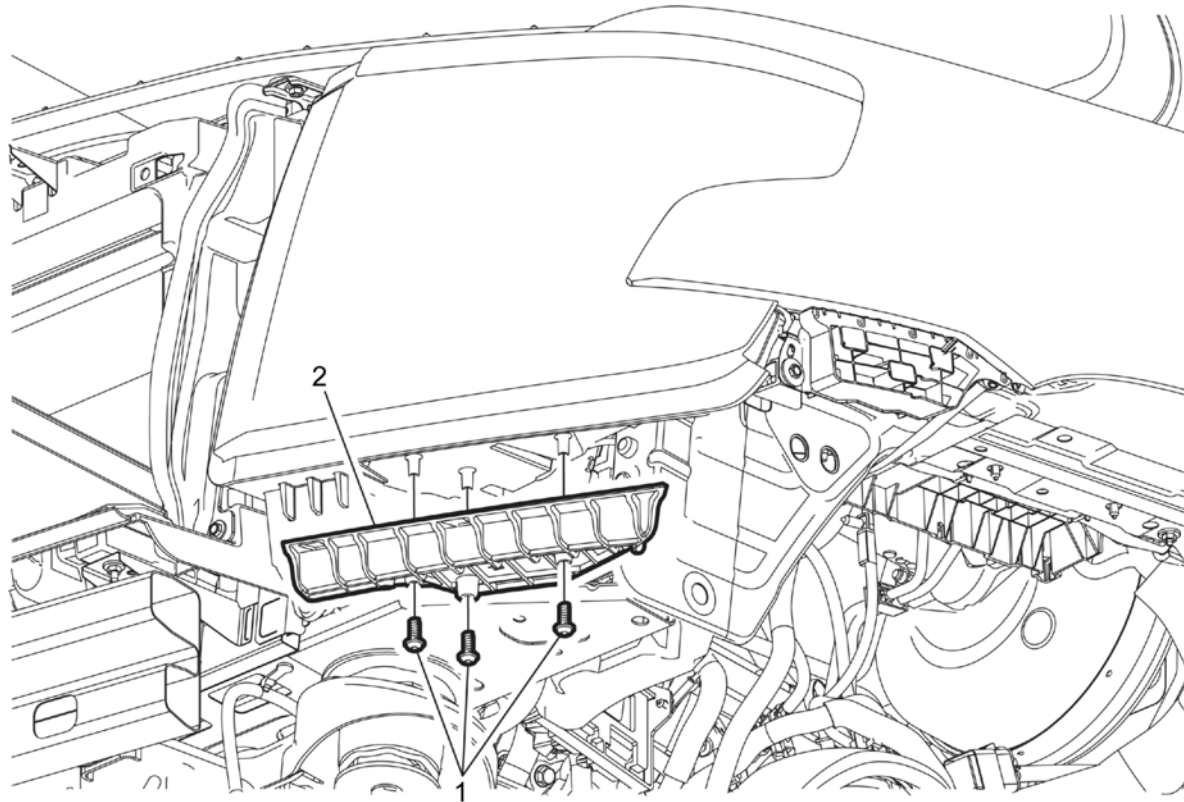
Callout	Component Name
	<b>Tighten</b> 2.5 N.m (22 lb in)
2	Roof Console Assembly  <b>Procedure</b>  1. Grasp the front of the right and left sides of the roof console assembly and pull downward using equal force on each side in order to release the four retainer clips securing the roof console assembly to the headlining assembly.  2. Disconnect the electrical connections.  3. When replacing the roof console assembly, transfer all necessary components.

## ROOF CONSOLE OPENING TRIM PLATE REPLACEMENT





## HEADLAMP AND FRONT BUMPER FASCIA MOUNT PANEL BRACKET REPLACEMENT (CHEVROLET)



**Fig. 55: Headlamp and Front Bumper Fascia Mount Panel Bracket (Chevrolet)**

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
<b>Preliminary Procedure</b> Remove the front bumper fascia. Refer to <a href="#">Front Bumper Fascia Replacement (Chevrolet)</a> .	
1	Headlamp and Front Bumper Fascia Mount Panel Bracket Bolt (Qty: 3)  <b>CAUTION:</b> Refer to <a href="#">Fastener Caution</a> .

- If less than 1 V
3. Ignition OFF.
  4. Test infinite resistance between each control circuit and ground.
    - If less than infinite resistance, repair the short to ground on the circuit.
    - If infinite resistance
  5. Test for less than 2  $\Omega$  in each control circuit end to end.
    - If 2  $\Omega$  or greater, repair the open/high resistance in the circuit.
    - If less than 2  $\Omega$ , replace the K40D Seat Memory Control Module - Driver.
- **If the test lamp turns ON during each of the commands**
4. Test or replace the A141D Seat Lumbar Support Pump - Driver.

### Component Testing

#### Lumbar Support Switch

1. Ignition OFF, disconnect the X1 and X2 harness connector at the S64D Seat Adjuster Switch - Driver.
2. Test for infinite resistance between the ground terminal 6 X1 and each lumbar signal terminal with the switch in the open position.
  - **If less than infinite resistance**  
  
Replace the S64D Seat Adjuster Switch - Driver.
  - **If infinite resistance**
3. Test for less than 2  $\Omega$  between the ground terminal 6 X1 and each lumbar signal terminal with the appropriate switch in the closed position.
  - **If 2  $\Omega$  or greater**  
  
Replace the S64D Seat Adjuster Switch - Driver.
  - **If less than 2  $\Omega$**
4. All OK.

### Repair Instructions

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

6. At the end of programming, choose the "Clear All DTCs" function on the SPS screen.

### Reprogram ECU (except Cadillac)

To program an existing ECU, perform the following procedure:

1. Install **EL-49642** SPS programming support tool.
2. Access the Service Programming System (SPS) and follow the on-screen instructions.
3. On the SPS Supported Controllers screen, select Instrument Cluster - Programming, Setup and Configuration and follow the on-screen instructions.

#### **NOTE:**

- **The USB File Transfer procedure requires the use of a USB memory stick. The radio must be on during this procedure. The USB File Transfer procedure is not required for vehicles with UDC.**
- **Software currently loaded on the USB Drive will be verified and if files are incorrect they will be deleted and correct files will be loaded. If files residing on the USB Drive are correct for the vehicle being serviced, the Techline terminal will not delete those files and allow the drive to be re-used.**

4. On the SPS Supported Controllers screen, select Instrument Cluster - USB File Transfer and follow the on-screen instructions. When prompted after installing files in vehicle via USB memory stick, select UPDATE on radio display. When update is complete, select DISMISS and remove the USB memory stick.
5. At the end of programming, choose the "Clear All DTCs" function on the SPS screen.

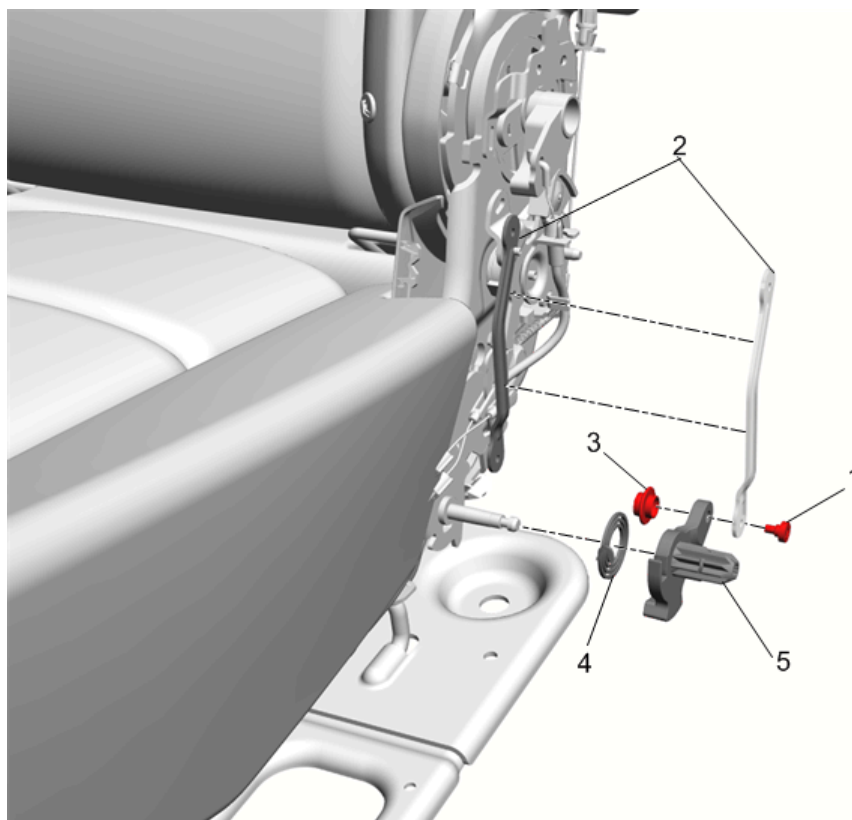
### Reprogram ECU (Cadillac)

To program an existing ECU, perform the following procedure:

1. Install **EL-49642** SPS programming support tool.
2. Access the Service Programming System (SPS) and follow the on-screen instructions.
3. On the SPS Supported Controllers screen, select Instrument Cluster - Programming and follow the on-screen instructions.
4. On the SPS Supported Controllers screen, select Instrument Cluster - Setup and Configuration and follow the on-screen instructions.

#### **NOTE:**

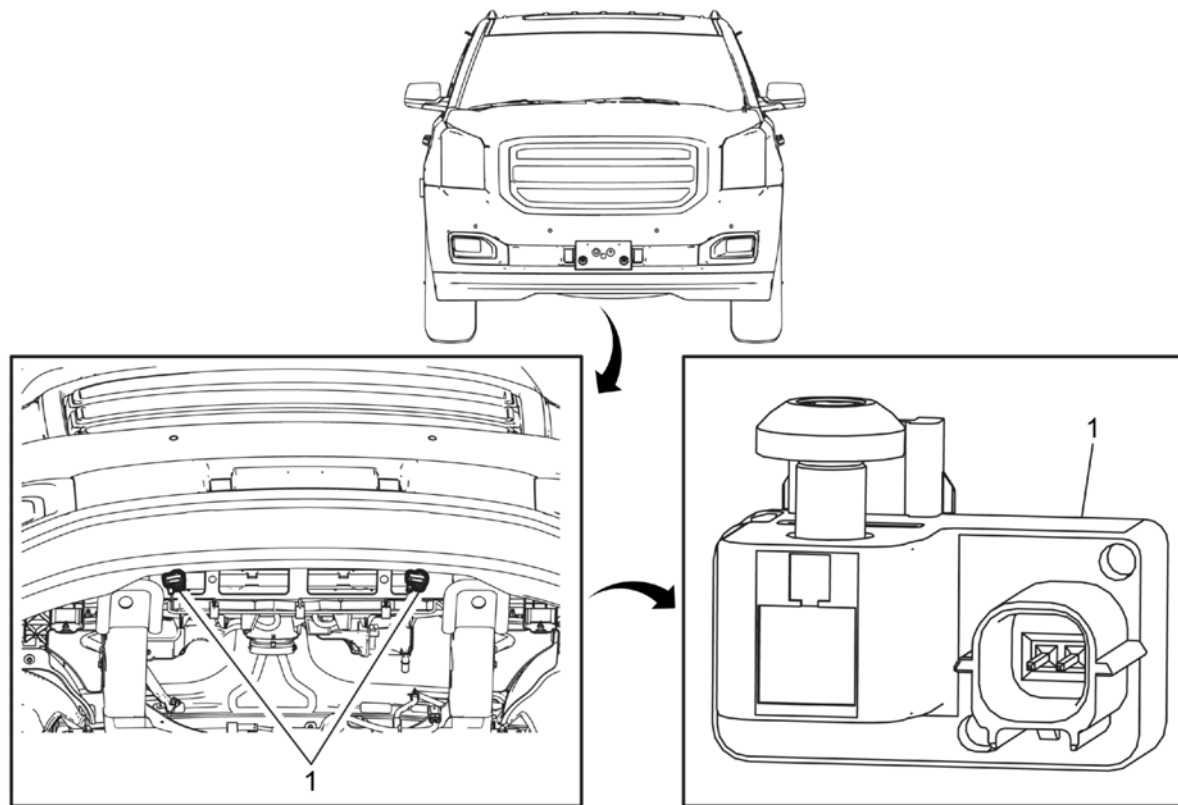
**The USB File Transfer procedure is performed after the new Instrument Cluster is installed in the vehicle. This procedure requires the use of a USB memory stick. The radio must be on during this procedure. The USB File Transfer procedure is not required for vehicles with UDC. Do not use the software on the USB memory stick in multiple vehicles. The USB memory stick must be cleared after each USB programming**



**Fig. 81: Rear Seat Outer Recliner**

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
<p><b>WARNING:</b>  Refer to <a href="#">Eye Protection Warning</a> .</p> <p><b>Preliminary Procedure</b> Remove rear seat cushion outer trim panel. Refer to <a href="#">Rear Seat Cushion Outer Trim Panel Replacement</a>.</p>	
1	Rear Seat Outer Recliner Rivet
2	Rear Seat Outer Recliner Lever <b>Procedure</b> Swing the recliner lever out of the way in order to remove the recliner.



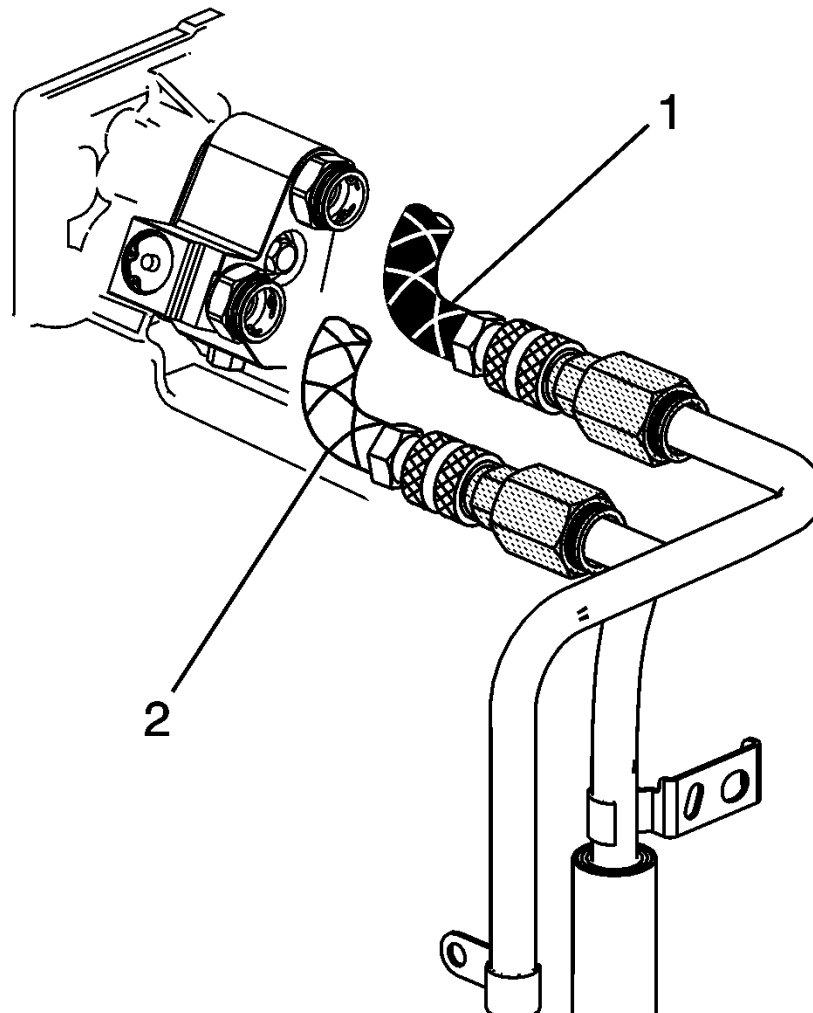
**Fig. 20: Front End Inflation Restraint Discriminating Sensor**

Courtesy of GENERAL MOTORS COMPANY

Callout	Component Name
<p><b>WARNING:</b> Refer to <a href="#">SIR Warning</a> .</p>	
<p><b>WARNING:</b> Refer to <a href="#">SIR Inflator Module Handling and Storage</a></p>	

- If less than 10  $\Omega$
3. Test for infinite resistance between battery positive voltage circuit, A16 transfer case motor harness terminal B, and a good ground.
    - If less than infinite resistance, repair the short to ground in the circuit.
    - If infinite resistance
  4. Test for infinite resistance between the battery positive voltage circuit, A16 transfer case motor harness terminal B, and all other terminals of the A16 transfer case motor harness connector.
    - If less than infinite resistance, repair the shorted together condition in the affected circuits.
    - If infinite resistance, replace the K69 transfer case control module and perform the Range Actuator Learn procedure. The Range Actuator Learn procedure is also known as the Transfer Case High/Low Clutch Reset procedure. Refer to [Transfer Case Control Module Replacement](#) .
    - *If the test light does illuminate*
  5. Using the PU probes J 35616-4A, connect a test lamp between the battery positive voltage circuit, A16 transfer case motor harness terminal B and the transfer case lock solenoid control circuit, A16 transfer case motor harness terminal C. The test light should not illuminate.
    - *If the test light illuminates*
      1. Ignition OFF, disconnect the X1 harness connector at the K69 transfer case control module.
      2. Test for infinite resistance between the transfer case lock solenoid control circuit, A16 transfer case motor harness terminal C, and a good ground.
        - If less than infinite resistance, repair the short to ground in the circuit.
        - If infinite resistance
      3. Test for infinite resistance between the transfer case lock solenoid control circuit, A16 transfer case motor harness terminal C, and all other terminals of the A16 transfer case motor harness connector.
        - If less than infinite resistance, repair the shorted together condition in the affected circuits.
        - If infinite resistance, replace the K69 transfer case control module and perform the Range Actuator Learn procedure. The Range Actuator Learn procedure is also known as the Transfer Case High/Low Clutch Reset procedure. Refer to [Transfer Case Control Module Replacement](#) .
      - *If the test light does not illuminate*
  6. Using the Transfer Case Lock function of the Control Function feature of the scan tool, command the transfer case lock ON and OFF. When the lock is commanded ON, release solenoid de-energized, the test light should not illuminate. When the lock is commanded OFF, release solenoid energized, the test light should illuminate.
    - *If the test light stays ON when the lock is commanded ON*
      1. Ignition OFF, disconnect the X1 harness connector at the K69 transfer case control module.

if equipped.



**Fig. 24: Black Supply Hose And Clear Waste Hose**  
Courtesy of GENERAL MOTORS COMPANY

2. Connect the black supply hose (1) to the return line, top connector of the transmission, and the clear waste hose (2) to the supply line, bottom connector of the transmission, to the vehicle cooler lines. This is the reverse flow - backflush direction.