

[2009 Chevrolet Traverse](#) | [Acadia, Enclave, OUTLOOK, Traverse \(VIN R/V\) Service Manual](#) | [Driveline/Axle](#) | [Rear Drive Axle](#) | [Specifications](#) | Document ID: 1848698

---

## Differential Carrier Assembly Specifications

Application	Specification	
	Metric	English
Axle Ratio	3.42	
Differential Lubricant Fill Quantity	0.8 liters	0.85 quarts

## Fastener Tightening Specifications

Application	Specification	
	Metric	English
Clutch Control Module to Torque Tube Screws	8 N·m	71 lb in
Differential-to-Cradle Mount Bolts/Nuts	28 N·m	21 lb ft
Differential Rear Mounting bolts	160 N·m	118 lb ft
Differential Side Cover Bolts	28 N·m	21 lb ft
Lubricant Drain Plug	35 N·m	26 lb ft
Lubricant Fill Plug	35 N·m	26 lb ft
Pinion Housing-to-Differential Bolts	28 N·m	21 lb ft
Torque Tube Bracket-to-Body Bolts	185 N·m	137 lb ft
Torque Tube-to-Differential Bolts	55 N·m	40 lb ft

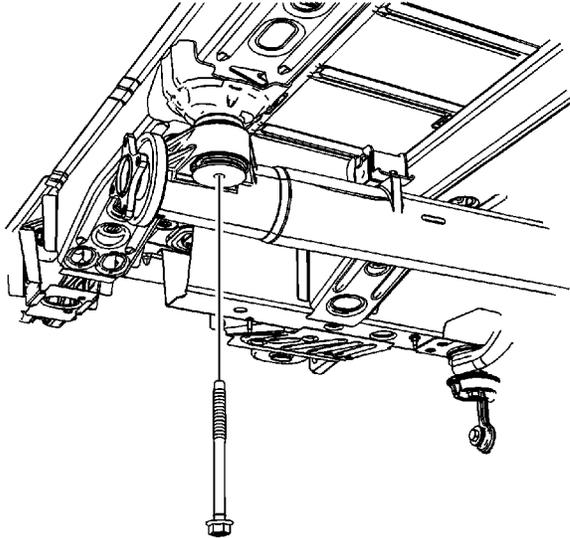
## Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Differential Lubricant	Synthetic Gear Oil	89021677	89021678

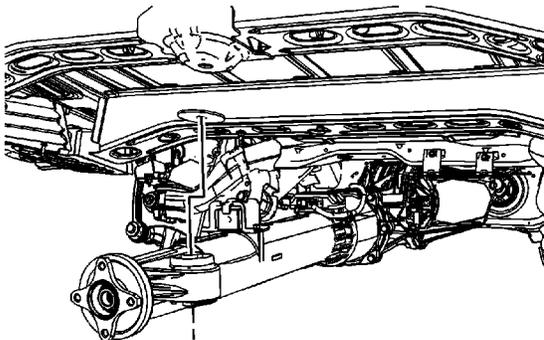
## Rear Differential Clutch Control Module Replacement

### Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Remove the propeller shaft assembly. Refer to [Propeller Shaft Replacement](#).



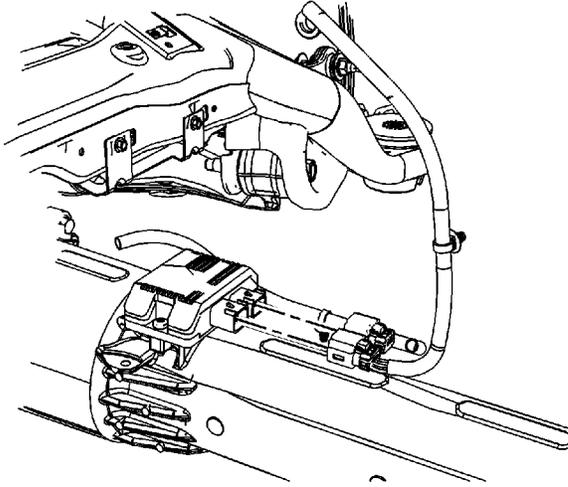
3. Remove the torque tube mounting bolt.



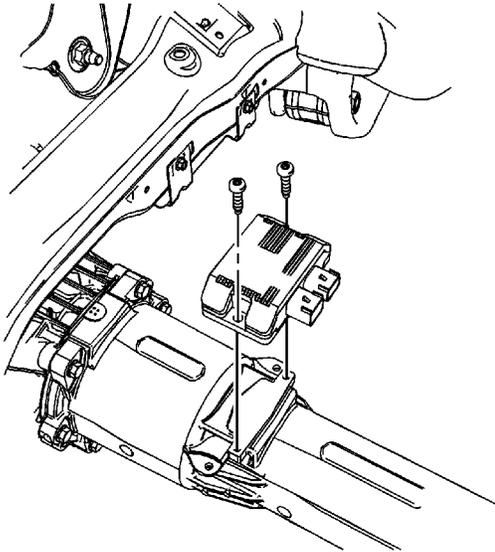
**Note:** DO NOT allow the torque tube to hang, support with a suit stand.

© 2010 General Motors Corporation. All rights reserved.

4. Lower the torque tube to gain access to the clutch control module.

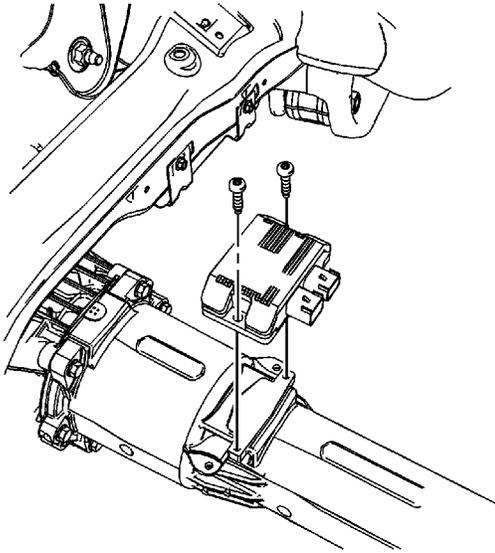


5. Disconnect the electrical connectors from the clutch control module.



6. Remove the screws for the clutch control module.
7. Remove the clutch control module from the torque tube.

## **Installation Procedure**



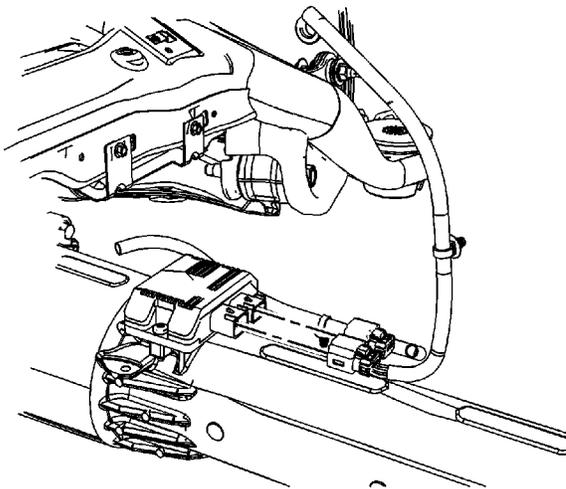
1. Position the clutch control module on the torque tube.

**Caution:** Refer to [Fastener Caution](#) in the Preface section.

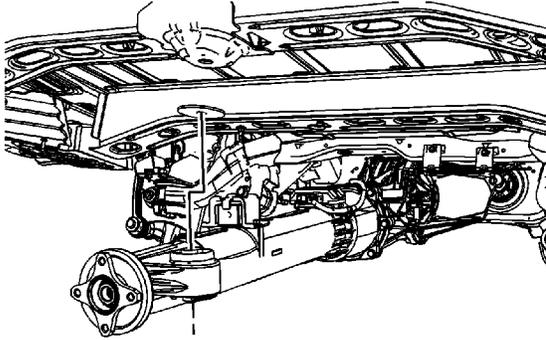
2. Install the mounting screws for the clutch control module.

**Tighten**

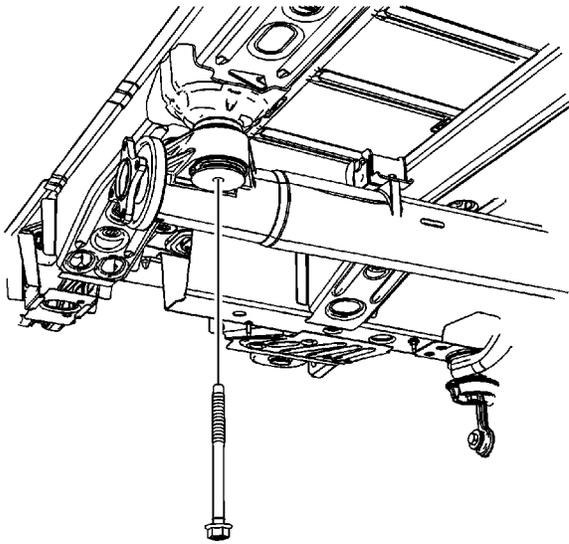
Tighten the screws to 8 N·m (71 lb in).



3. Reconnect the electrical connectors for the clutch control module.



4. Lift the torque back into position.



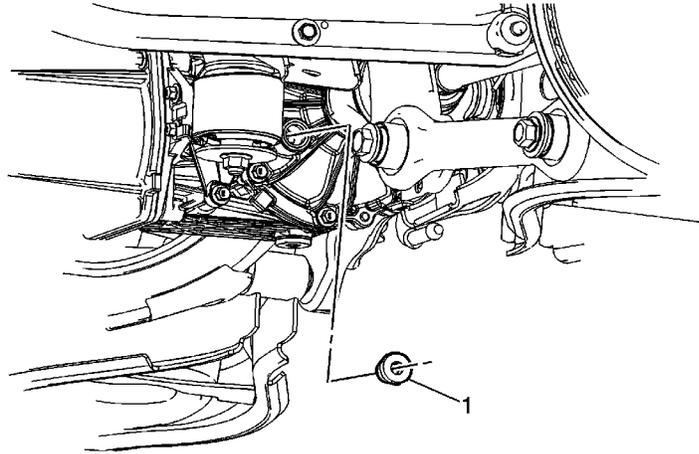
5. Install the torque tube mounting bolt.

#### **Tighten**

Tighten the bolt to 185 N·m (137 lb ft).

6. Install the propeller shaft. Refer to [Propeller Shaft Replacement](#)
7. Remove the support and lower the vehicle.
8. Reprogram the clutch control module. Refer to [Control Module References](#).

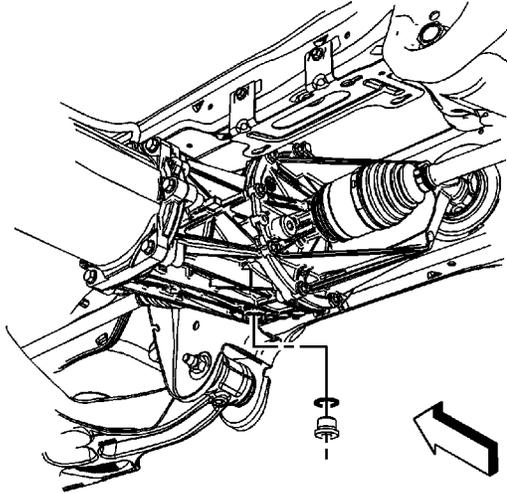
## Rear Axle Lubricant Level Inspection



Callout	Component Name
<p><b>Preliminary Procedure</b></p>	
<p>Raise the vehicle. Refer to <a href="#">Lifting and Jacking the Vehicle</a>.</p>	
<p>1</p>	<p>Rear Differential Fill Plug</p> <p><b>Caution:</b> Refer to <a href="#">Fastener Caution</a> in the Preface section.</p> <p><b>Tip</b> The fluid level should be even with the bottom of the threads of the fill hole.</p> <p><b>Tighten</b> 35 N·m (26 lb ft)</p>

## Axle Lubricant Change

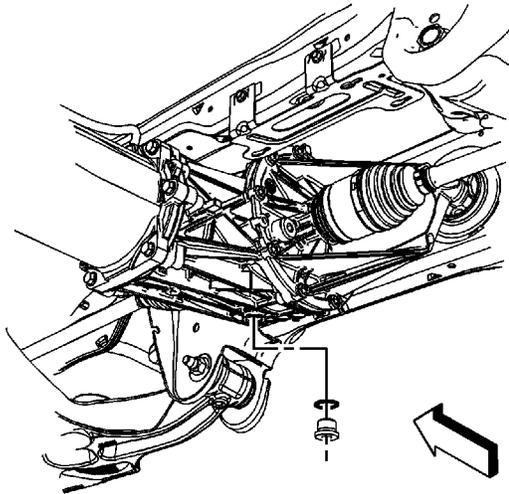
### Removal Procedure



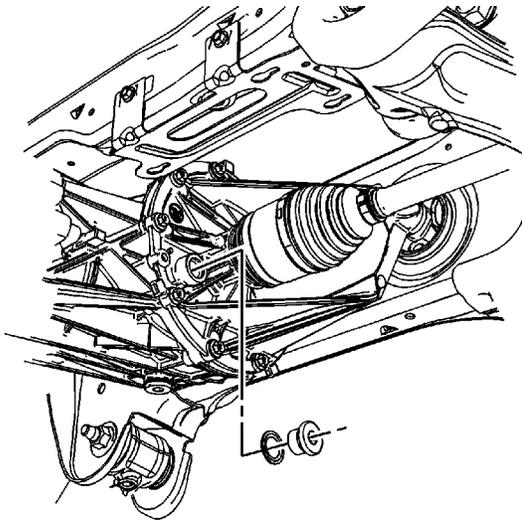
1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Remove the drain plug and gasket from the rear differential housing.

### Installation Procedure

**Caution:** Refer to [Fastener Caution](#) in the Preface section.



1. Install the drain plug and gasket, then tighten to **35 N·m (26 lb ft)**..

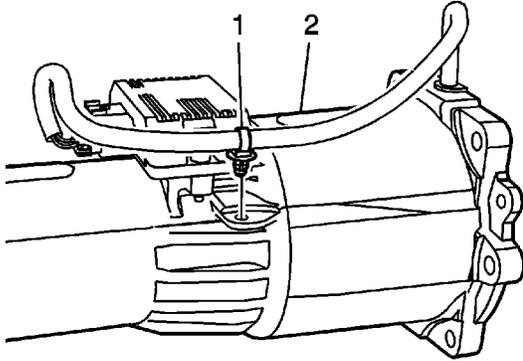


2. Remove the fill plug and gasket from the rear differential housing.
3. Fill the rear differential with the proper synthetic gear lubricant. Refer to [Adhesives, Fluids, Lubricants, and Sealers](#).
4. Inspect the gear oil level to ensure it is even with the bottom of the fill plug.
5. Install the fill plug and gasket in the rear differential housing and tighten to **35 N·m (26 lb ft)**..
6. Remove the support and lower the vehicle.

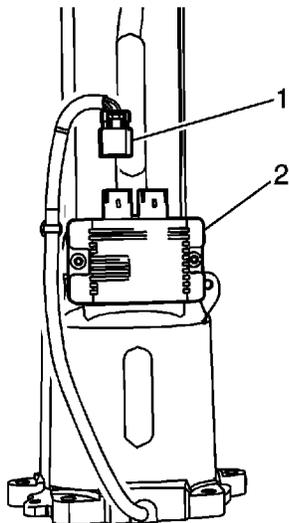
## Differential Clutch Drum Assembly Replacement

### Removal Procedure

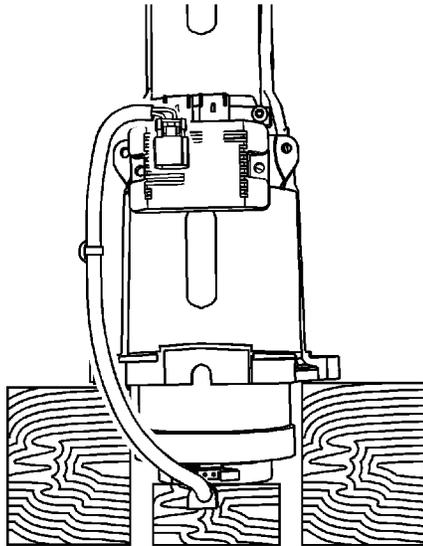
1. Remove the torque tube assembly from the vehicle. Refer to [Driveline Torque Tube Replacement](#) .



2. Remove the electrical harness retainer (1) from the torque tube (2).

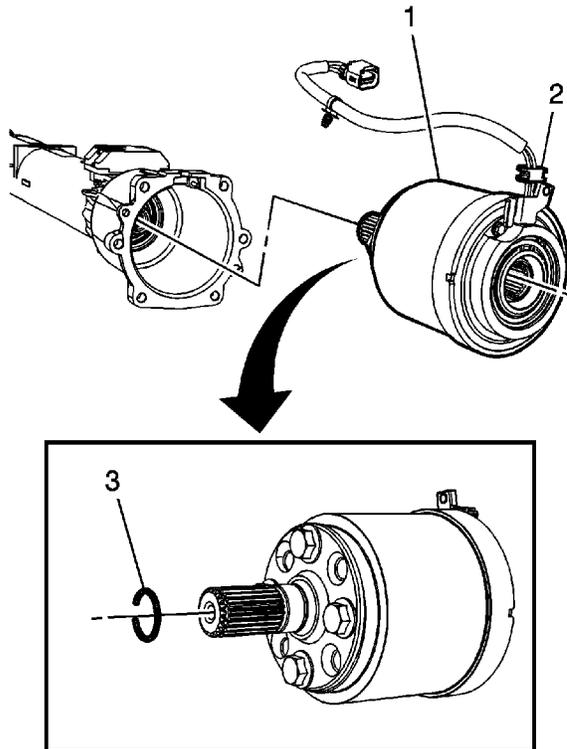


3. Disconnect the electrical connector (1) for the clutch control module (2).
4. Position 2 pieces of wood along side of the torque tube.



**Important:** It is important to place a piece of wood under the clutch assembly so as not to damage the clutch assembly when it exits the torque tube.

5. Position a piece of wood under the clutch assembly in the torque tube.
6. Pick up the torque tube and with a quick downward motion, snap the torque tube to release the clutch drum assembly from the input shaft.



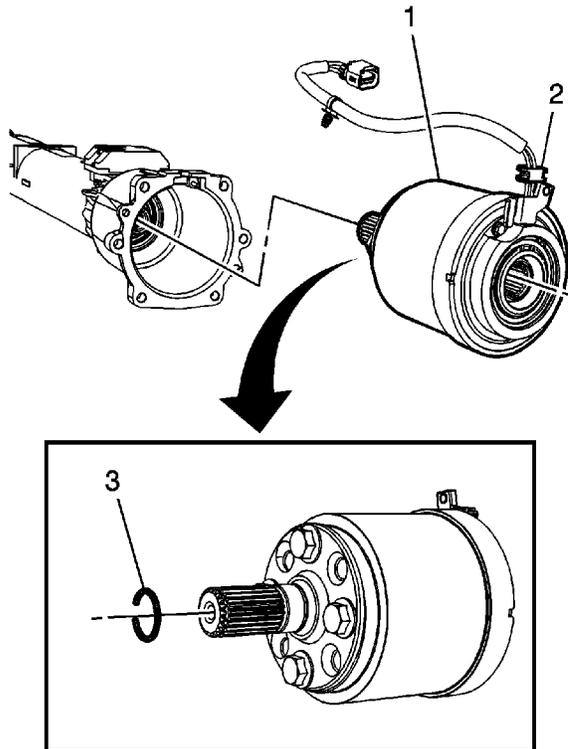
**Important:** DO NOT re-use the retaining clip (1). Discard and use a new retaining clip. If servicing the clutch, a new retaining clip comes with the new clutch assembly.

7. Remove the clutch drum (1) assembly from the torque tube.

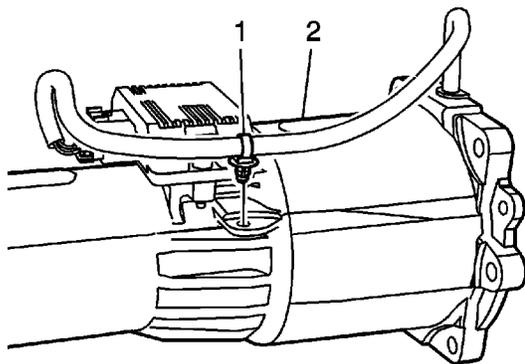
**Important:** When removing or install the wiring harness and weather seal (2), ensure that the wiring harness does become damaged. The wiring harness is NOT SERVICED separately.

8. Remove the wiring harness and weather seal (2) from the torque tube.

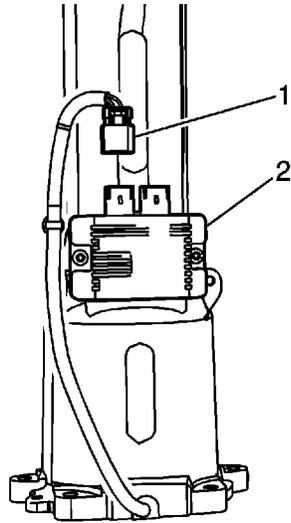
## Installation Procedure



1. Install the new retaining clip (3) on the clutch assembly.
2. Install the clutch assembly (1) in the torque tube.
3. Position the wiring harness and weather seal (2) in the torque tube.

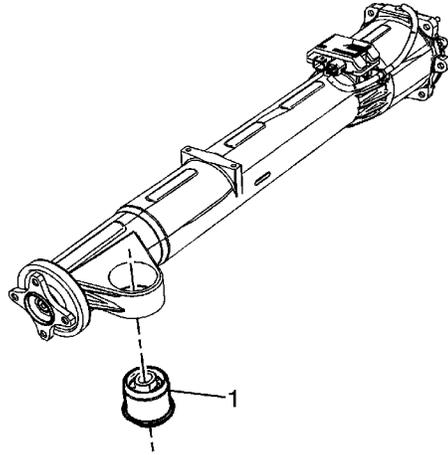


4. Install the electrical harness retaining clip (1) in the torque tube (2).



5. Install the electrical connector (1) to the clutch control module (2).
6. Install the torque tube assembly. Refer to [Driveline Torque Tube Replacement](#)
7. Program the rear differential clutch control module. Refer to [Control Module References](#) .

## Differential Carrier Bushing Replacement - Front



Callout	Component Name
<b>Preliminary Procedure</b>	
Remove the torque tube assembly. Refer to <a href="#">Driveline Torque Tube Replacement</a> .	
1	Rear Differential Mount Bushing <b>Tip</b> Use the appropriate tool to remove the bushing.

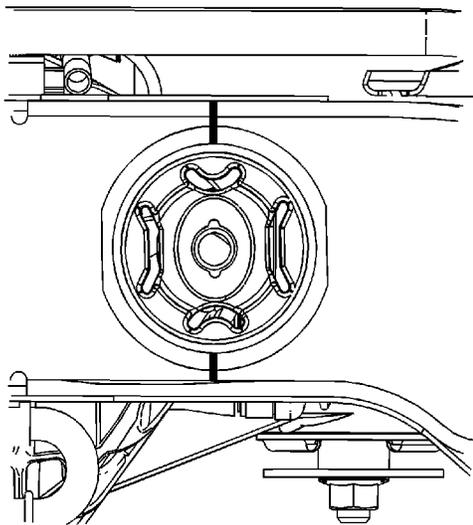
## Differential Carrier Bushing Replacement - Rear

### Tools Required

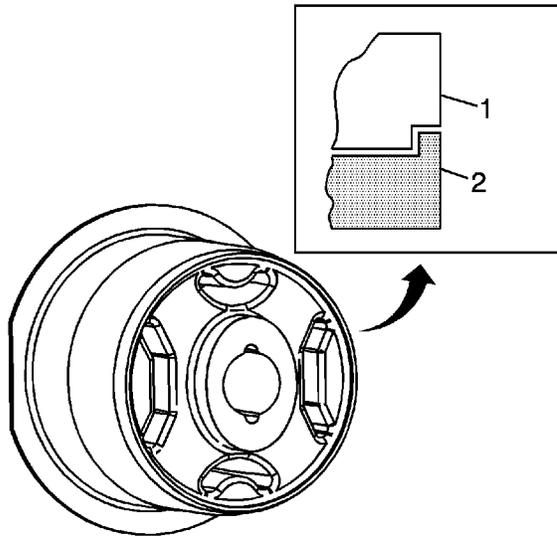
[J-45725](#) Cradle Bushing Replacer

### Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Remove the rear differential assembly. Refer to [Differential Replacement](#) .



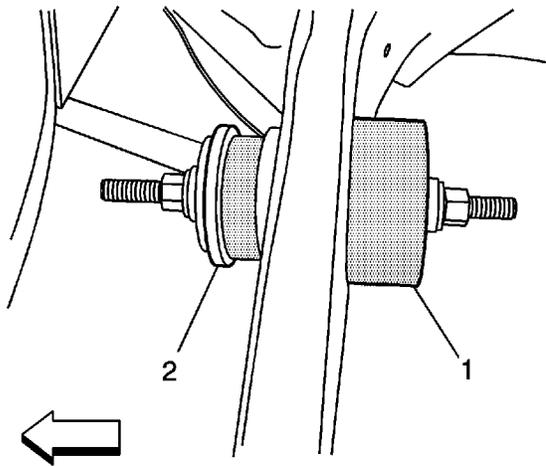
3. Mark a reference point on the frame and old bushing at the 12 and 6 o'clock position to use to align the new bushing.



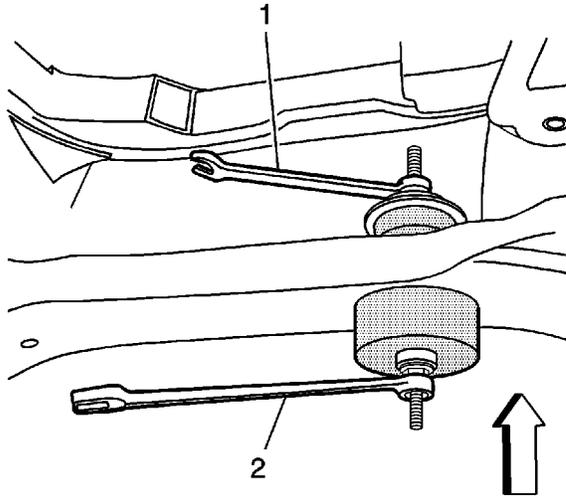
4. Position the J-45725-1A (1) on the bushing (2).
5. Position the J-45725-2A (1) on the frame.

**Important:** Apply a small amount of grease on the threaded to lubricate the nuts when turning the nuts.

6. Install the threaded rod, bearing and washers.

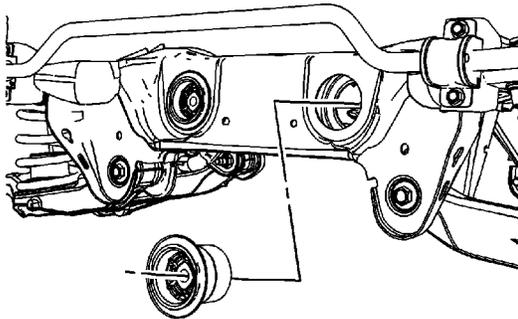


7. Adjust the nuts so that they are touching the J-45725-1A (2) and the J-45725-2A (1).
8. Install the proper size wrenches on the nuts.



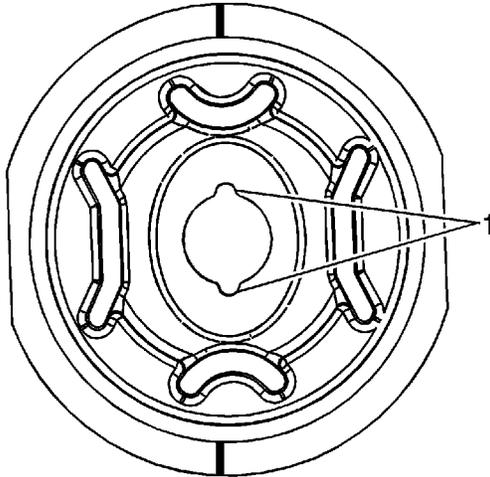
**Important:** In the following service procedure, use only **HAND TOOLS** when using the [J-45725](#).

9. While holding the front wrench (1) rotate the rear wrench (2) to remove the bushing.
10. Remove the special tools.



11. Remove the bushing from the frame.

## Installation Procedure

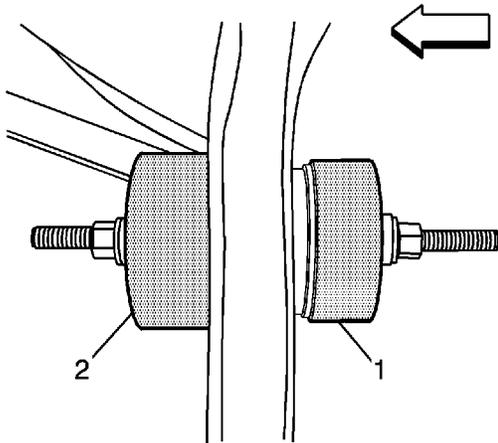


**Important:** Failure to perform the following service procedure prior to the installation of the new bushing, could cause premature failure of the bushing.

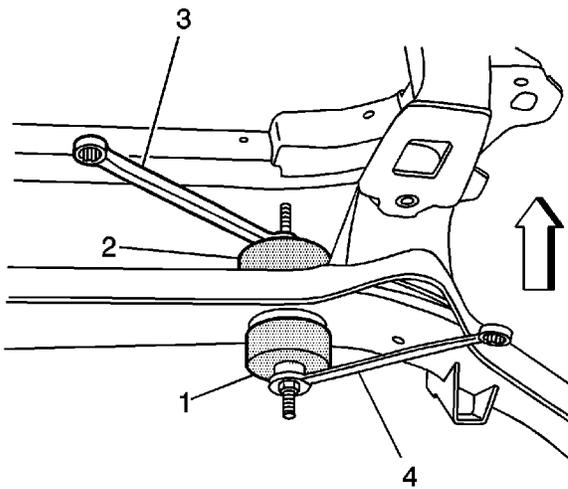
1. Before the installation of the new bushing, use a straight edge draw a line on the new bushing at the 12 and 6 o'clock positions. Ensure that the grooves (1) are at the 12 and 6 o'clock positions.
2. Position the new bushing so that the reference marks on the frame and the bushing are in alignment. This will ensure that the new bushing will be within the 5 degree specification required for the proper alignment of the bushing.

**Important:** The following procedure is to temporarily hold the new bushing in place so that the special tools can be installed for the proper installation. This is NOT to be used to install the bushing.

3. Using a block of wood and a hammer, slightly tap the bushing into the frame.
4. Assemble the threaded rod, bearings and washers as indicated in step 7 in the removal procedure.



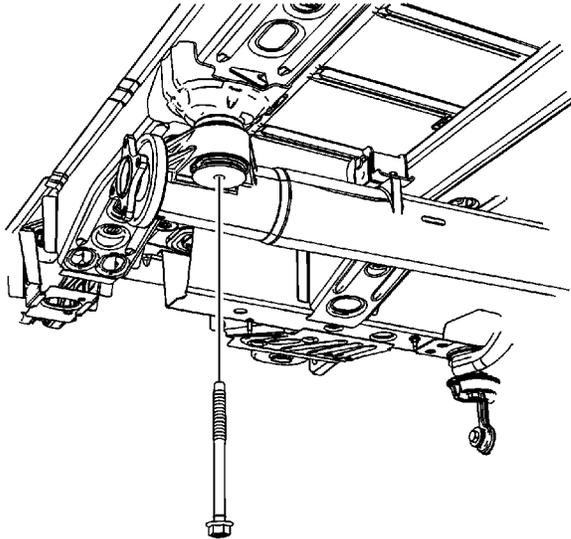
5. Position the J-45725-2 (2) on the inside of the frame.
6. Position J-45725-2A (1) on the outside of the frame.
7. Adjust the nuts so that they are touching the J-45725-2 (1) and the J-45725-2A (2).



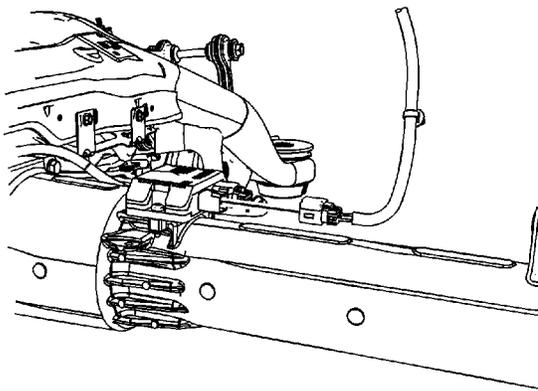
8. While holding the front wrench (2) rotate the rear wrench (1) to install the bushing.
9. Remove the special tools.
10. Install the rear differential assembly. Refer to [Differential Replacement](#) .
11. Lower the vehicle.

## Driveline Torque Tube Replacement

### Removal Procedure



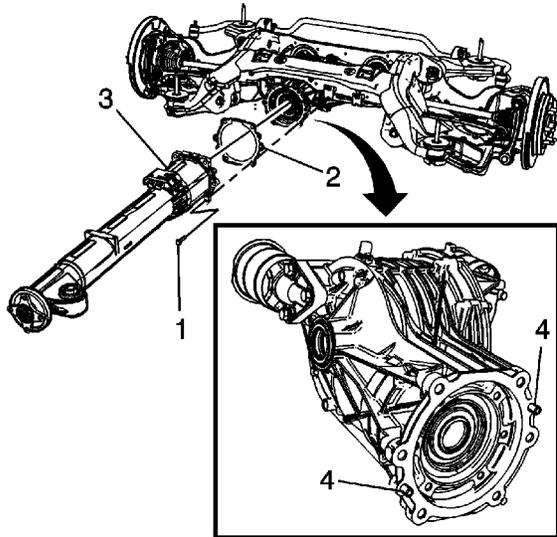
1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Remove the propeller shaft assembly. Refer to [Propeller Shaft Replacement](#).
3. Remove the torque tube mounting bolt.



4. Disconnect the electrical connector from the clutch control module.

**Note:** If removing the torque tube assembly to service the rear differential, the clutch control module does not have to be removed.

5. Remove the clutch control module, if needed. Refer to [Rear Differential Clutch Control Module Replacement](#).



6. Remove the torque tube mounting bolts (1) from the rear differential.

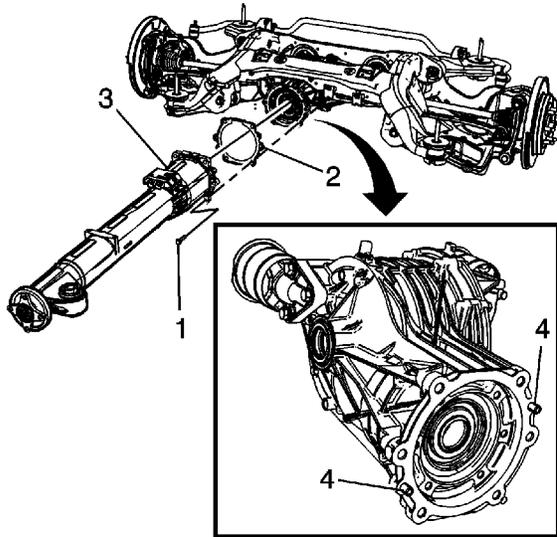
**Note:** DO NOT re-use the old gasket, discard and use NEW only.

7. Remove the torque tube gasket (2) from the rear differential and the alignment pins (4).
8. Remove the torque tube assembly (3) from the rear differential assembly.

**Note:** If any fluid is found in the torque tube, check the condition of pinion oil seal.

9. Remove the torque tube assembly (3) from the vehicle.

## Installation Procedure



1. Install the NEW torque tube gasket (2) to the rear differential assembly.
2. Position torque tube (3) on the alignment pins (4) on the rear differential.
3. Using a suitable jack stand support the torque tube assembly.
4. Hand tighten the torque tube to differential bolts (1) before torquing to specifications.

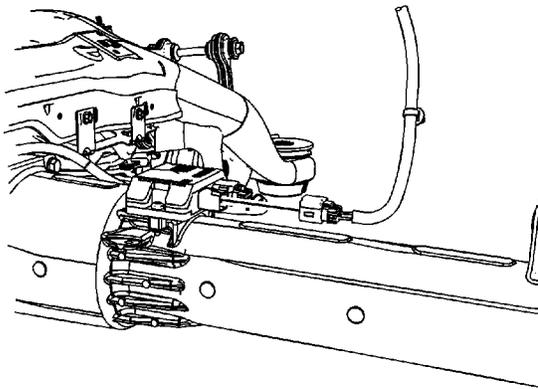
**Caution:** Refer to [Fastener Caution](#) in the Preface section.

5. Torque the mounting bolts (1) to specifications.

#### **Tighten**

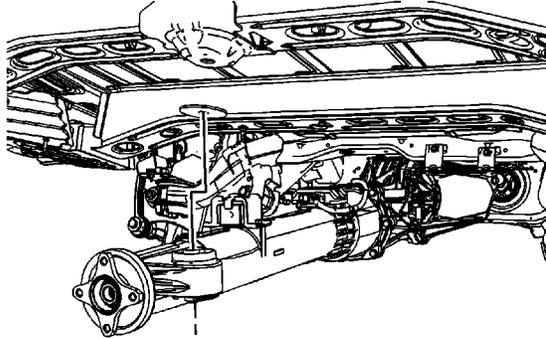
Tighten the bolts to 55 N·m (40 lb ft).

6. Install the clutch control module, if needed. Refer to [Rear Differential Clutch Control Module Replacement](#).

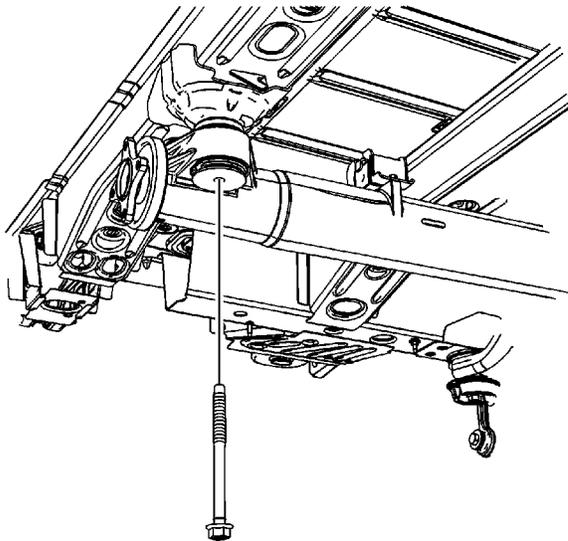




7. Install the electrical connector for the clutch control module.



8. Using the jack stand or the aide of an assistant reposition the torque tube to allow installation of the mounting bolt.



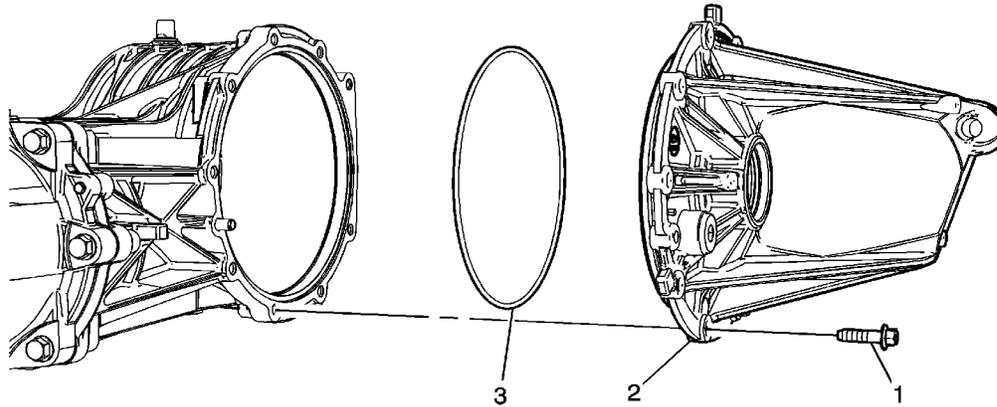
9. Install the torque tube mounting bolt.

#### **Tighten**

Tighten the bolt to 185 N·m (137 lb ft).

10. Install the propeller shaft assembly. Refer to [Propeller Shaft Replacement](#).
11. Remove the support and lower the vehicle.

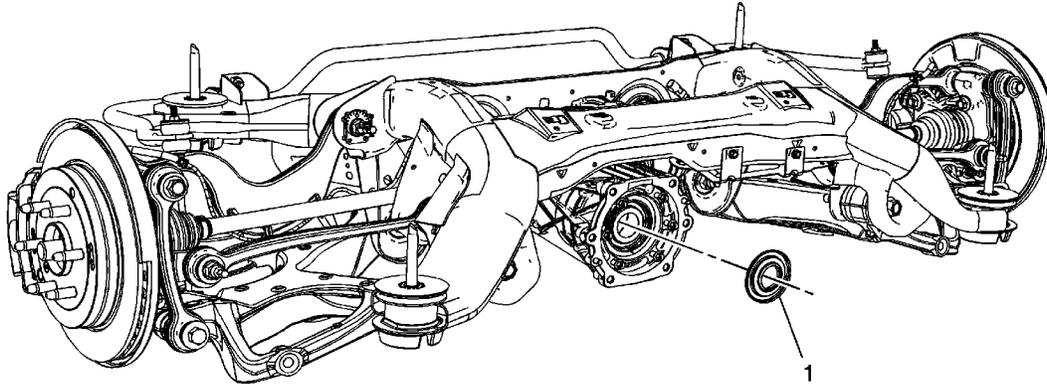
# Differential Carrier Cover and Seal Replacement - Left Side



Callout	Component Name
<h3>Preliminary Procedure</h3>	
<p>Remove the rear differential assembly. Refer to <a href="#">Differential Replacement</a>.</p>	
<p>1</p>	<p>Differential Side Cover Bolt (Qty: 9)</p> <p><b>Caution:</b> Refer to <a href="#">Fastener Caution</a> in the Preface section.</p> <p><b>Tip</b></p> <ul style="list-style-type: none"> <li>• Finger tighten the bolts before torquing to specification.</li> <li>• Tighten the bolts in a criss-cross pattern.</li> </ul> <p><b>Tighten</b> 28 N·m (21 lb ft)</p>
<p>2</p>	<p>Differential Side Cover</p> <p><b>Tip</b> Inspect the differential side cover for any damage. If the side cover is damaged, replace the differential assembly. The side cover is not serviced separately.</p>
<p>3</p>	<p>Differential Side Cover Seal</p> <p><b>Tip</b></p> <ol style="list-style-type: none"> <li>1. Before installing the side cover seal, ensure that the groove for the side cover seal is free of dirt and debris. This will ensure that the seal seat properly in the differential housing.</li> </ol>

2. Apply a small amount of clean oil to the side cover seal.

# Drive Pinion Flange/Yoke and/or Oil Seal Replacement

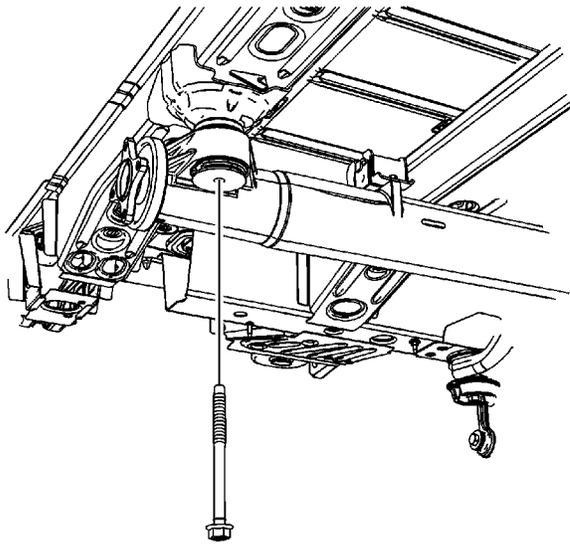


Callout	Component Name
<p><b>Preliminary Procedures</b></p> <ol style="list-style-type: none"> <li>1. Raise and support the vehicle. Refer to <a href="#">Lifting and Jacking the Vehicle</a> .</li> <li>2. Remove the torque tube assembly. Refer to <a href="#">Driveline Torque Tube Replacement</a> .</li> </ol>	
<p>1</p>	<p>Differential Pinion Seal</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Install a sheet metal screw into the seal.</li> <li>2. Attach a pair of pliers or a slider hammer to the screw and remove the seal.</li> <li>3. Inspect the fluid level. Refer to <a href="#">Axle Lubricant Change</a> .</li> </ol> <p><b>Tip</b> The pinion flange, the nut and the dust cover are NOT SERVICED separately. These items are serviced with the torque tube assembly.</p> <p><b>Special Tools</b></p> <p><a href="#">J 44636-1</a> Front Output Shaft Seal Protector</p>

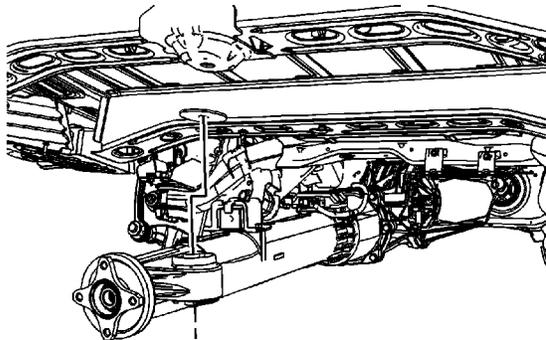
## Differential Replacement

### Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Remove the tires and wheels. Refer to [Tire and Wheel Removal and Installation](#).
3. Drain the rear differential assembly. Refer to [Axle Lubricant Change](#).
4. Remove the rear wheel drive shafts. Refer to [Rear Wheel Drive Shaft and Rear Axle Shaft Seal Replacement](#).
5. Remove the propeller shaft assembly. Refer to [Propeller Shaft Replacement](#).

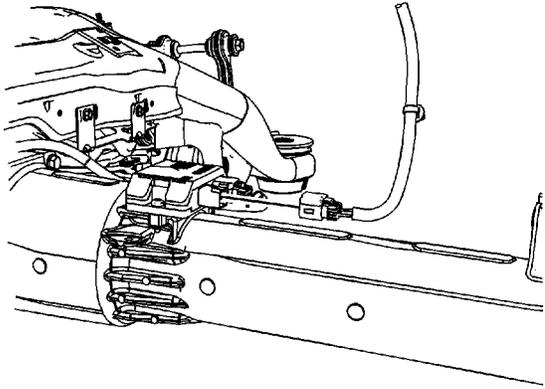


6. Remove the front torque tube mounting bracket bolt.

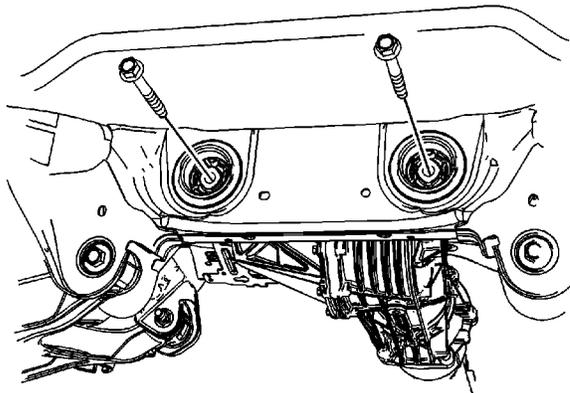




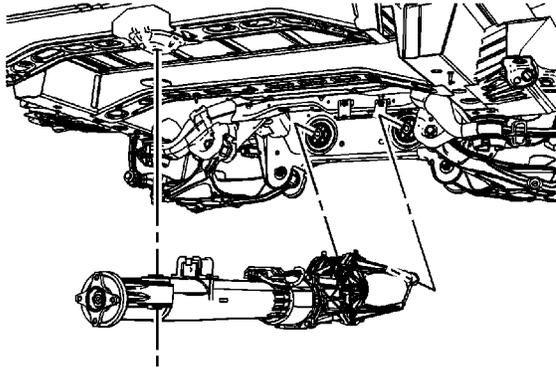
7. Lower the front of the torque tube to gain access to the electronic clutch control module.



8. Disconnect the electrical connector from the electronic clutch control module.
9. Support the torque tube with a jack stand.
10. Support the rear differential assembly with a transmission jack.



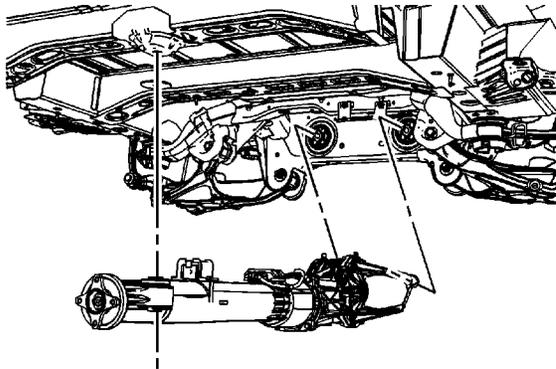
11. Remove the rear differential drive mounting bolts.



12. With the aide of an assistant, remove the rear differential assembly from the vehicle.
13. Remove the torque tube assembly mounting bolts from the rear differential assembly. Refer to [Driveline Torque Tube Replacement](#).

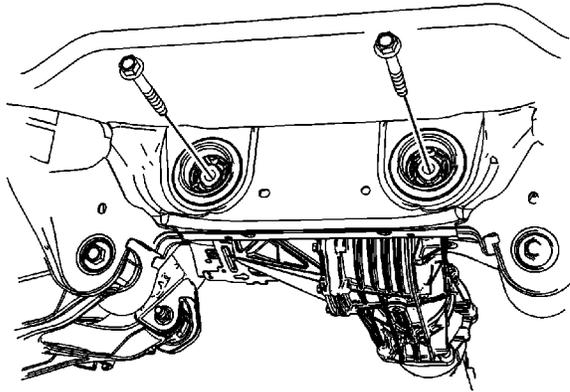
## Installation Procedure

1. Install the torque tube assembly to the rear differential assembly. Refer to [Driveline Torque Tube Replacement](#).



2. Position the rear differential in the vehicle.

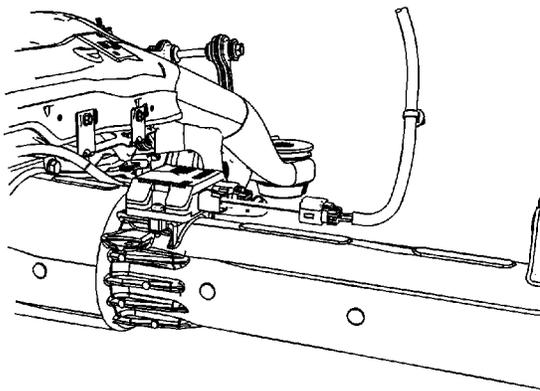
**Caution:** Refer to [Fastener Caution](#) in the Preface section.



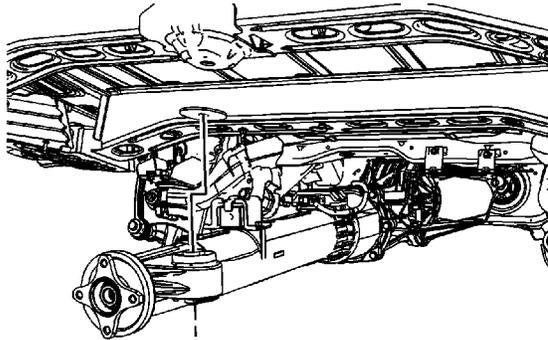
3. Install the rear differential mounting bolts.

**Tighten**

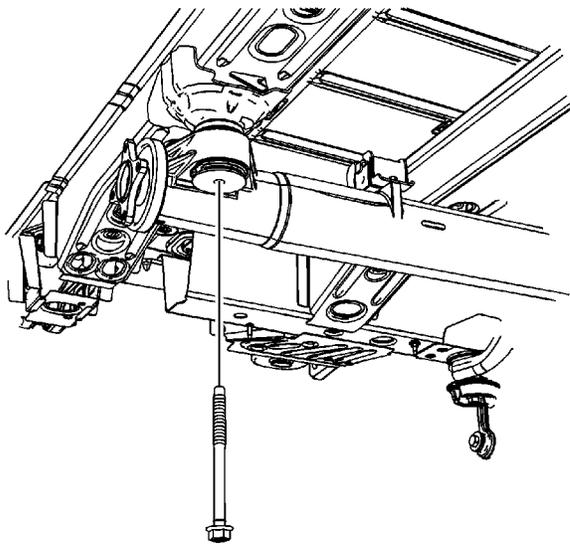
Tighten the bolts to 160 N·m (118 lb ft).



4. Reconnect the electrical connector for the electronic clutch control module.



5. Lift the torque tube into position.



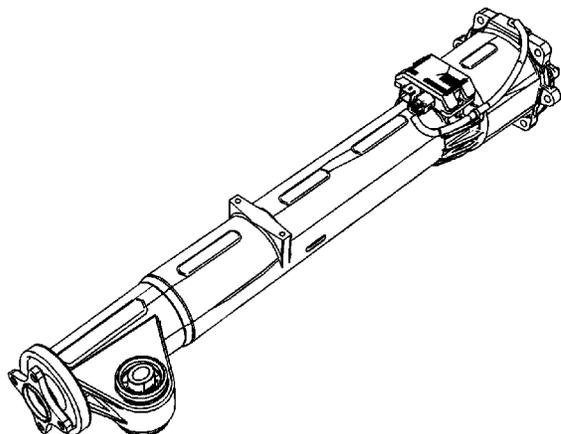
6. Install the torque tube bolt.

#### **Tighten**

Tighten the bolt to 185 N·m (137 lb ft).

7. Install the propeller shaft assembly. Refer to [Propeller Shaft Replacement](#).
8. Refill the rear differential assembly. Refer to [Axle Lubricant Change](#).
9. Install the rear wheel drive shaft. Refer to [Rear Wheel Drive Shaft and Rear Axle Shaft Seal Replacement](#).
10. Install the tires and wheels. Refer to [Tire and Wheel Removal and Installation](#).
11. Remove the support and lower the vehicle.

## Torque Tube Assembly Cleaning and Inspection



**Important:** The internal components of the torque tube assembly are not serviced separately. Replace the tube and internal components as an assembly.

1. Check the torque tube for the following conditions:
  - Damage to the driver flange
  - Cracks or dents on the exterior of the torque tube
  - Operation of all bearings
  - Machine surfaces for abnormal wear
2. If any of the above conditions are found to be present, replace the torque tube assembly.