

Fastener Tightening Specifications

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Application	Specification	
	Metric	English
Clutch Drum Cover Bolts	29 N·m	21 lb ft
Differential Clutch Control Module Screws	15 N·m	11 lb ft
Differential Drain Plug	39 N·m	29 lb ft
Differential Fill Plug	39 N·m	29 lb ft
Differential Front Mounting Nuts	122 N·m	90 lb ft
Differential Rear Housing Support Bushing Bolts	188 N·m	139 lb ft
Differential Side Cover Bolts	29 N·m	21 lb ft
Left Rear Differential Mounting Bolts	29 N·m	21 lb ft

[2009 Saturn VUE - AWD](#) | [VUE, VUE Hybrid \(VIN Z\), Captiva Sport Service Manual](#) | [Driveline/Axle](#) | [Rear Drive Axle](#) | [Specifications](#) | **Document ID: 1853136**

Rear Axle Specifications

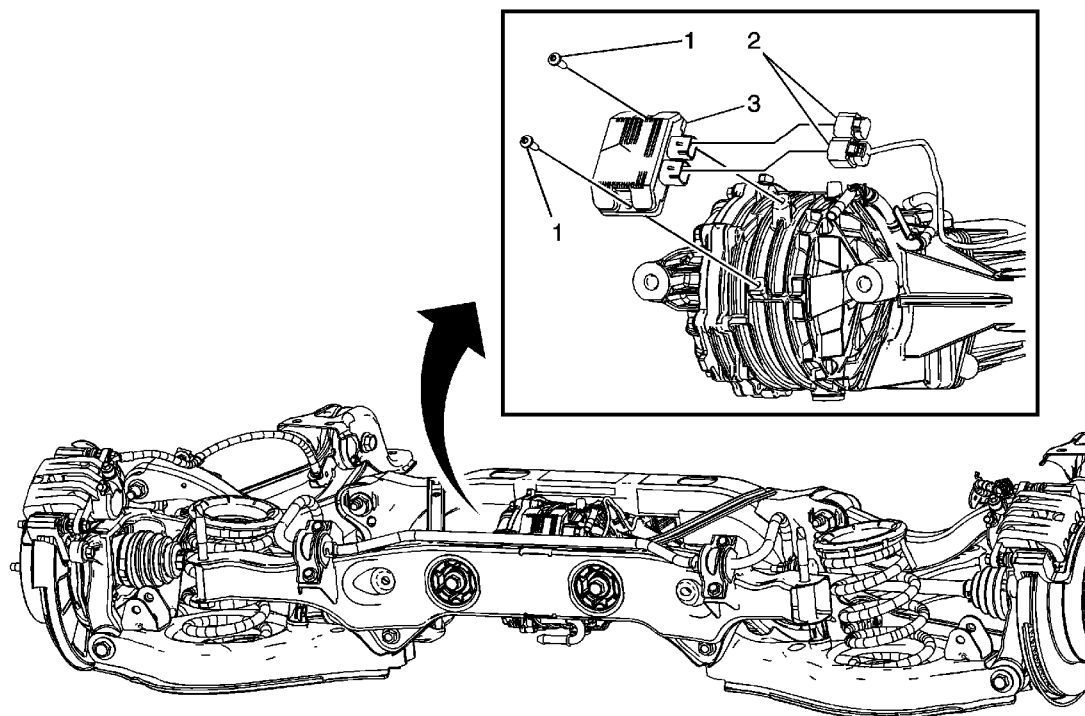
Application	Specification	
	Metric	English
Gear Ratio 3.6L	2.53	2.53
Rear Differential Fill Quantity	500 ml	16.9oz

[2009 Saturn VUE - AWD](#) | [VUE, VUE Hybrid \(VIN Z\), Captiva Sport Service Manual](#) | [Driveline/Axle](#) | [Rear Drive Axle](#) | [Specifications](#) | **Document ID: 1801631**

Adhesives, Fluids, Lubricants, and Sealers

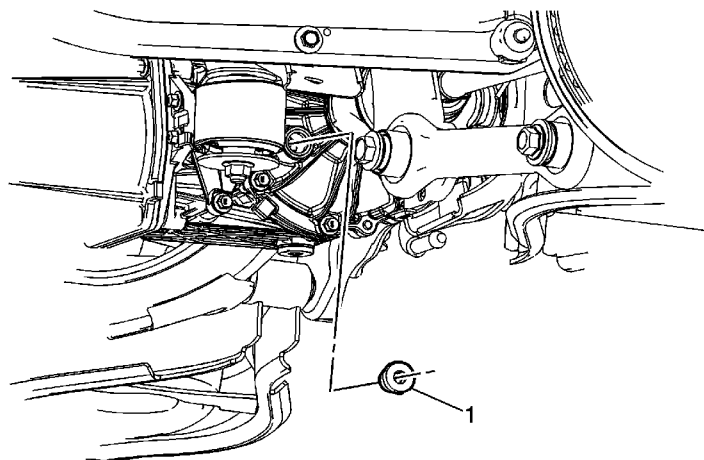
Application	Type of Material	GM Part Number
GM Differential Lubricant	Synthetic Gear Oil 75W-90	89021677 (Canadian P/N 89021678)
Propeller Shaft Mounting Bolts	Threadlocker	88861429 (Canadian P/N 88861430)

Rear Differential Clutch Control Module Replacement



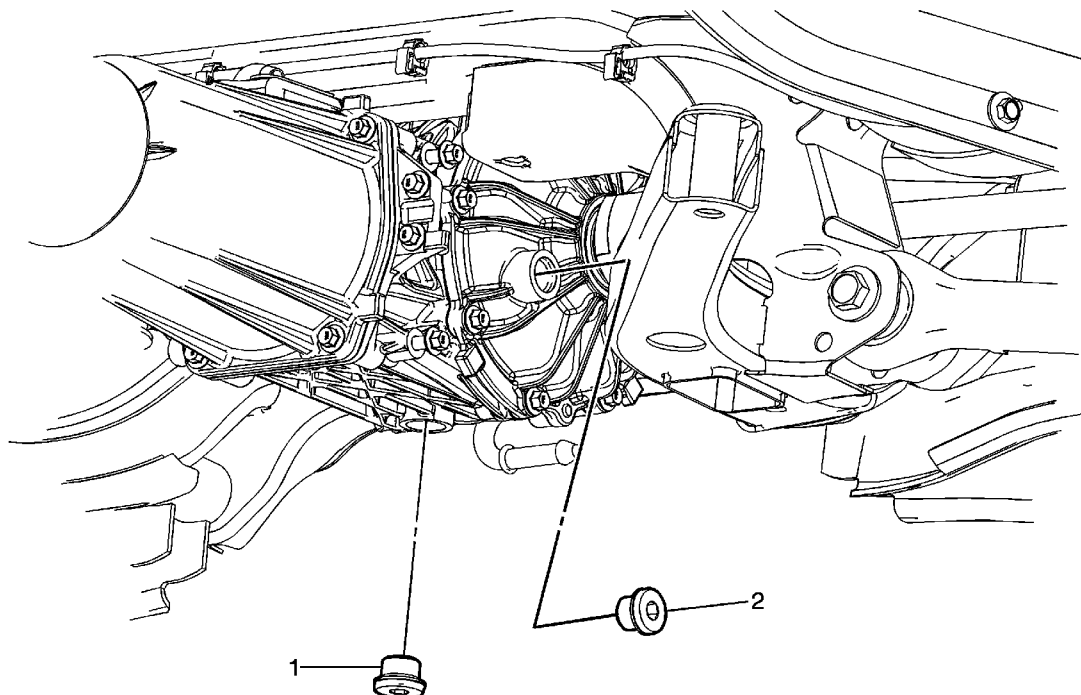
Callout	Component Name
Preliminary Procedures	
<ol style="list-style-type: none">1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle.2. Remove the exhaust system. Refer to Exhaust Muffler Replacement.3. Remove the rear differential assembly. Refer to Differential Replacement.	
1	Clutch Drum Control Module Screw (Qty: 2) Caution: Refer to Fastener Caution in the Preface section. Tighten 15 N·m (133 lb in)
2	Clutch Drum Control Module Connector
3	Clutch Drum Control Module Procedure Program the control module. Refer to Control Module References .

Rear Axle Lubricant Level Inspection



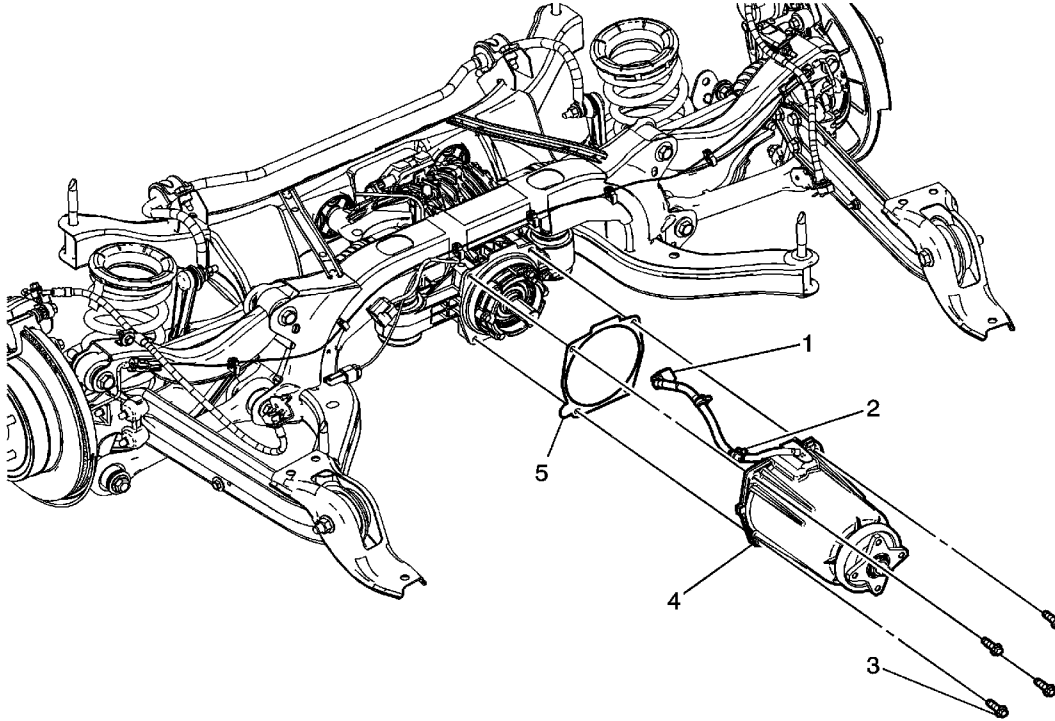
Callout	Component Name
Preliminary Procedure	
Raise the vehicle. Refer to Lifting and Jacking the Vehicle .	
1	<p>Rear Differential Fill Plug</p> <p>Caution: Refer to Fastener Caution in the Preface section.</p> <p>Tip</p> <ul style="list-style-type: none">• The fluid level should be level with the bottom of the threads of the fill hole.• If the fluid level is low, refer to Rear Axle Lubricant Replacement for the proper fill instructions and type of fluid. <p>Tighten 39 N·m (29 lb ft)</p>

Rear Axle Lubricant Replacement



Callout	Component Name
Preliminary Procedure	
Raise the vehicle. Refer to Lifting and Jacking the Vehicle .	
1	<p>Plug Differential Drain Plug</p> <p>Caution: Refer to Component Fastener Tightening Caution in the Preface section.</p> <p>Tighten 39 N·m (29 lb ft)</p>
2	<p>Differential Fill Plug</p> <p>Tip Fill the differential with GM P/N 89021677 (Canadian P/N 89021678) to the bottom of the fill hole.</p> <p>Tighten 39 N·m (29 lb ft)</p>

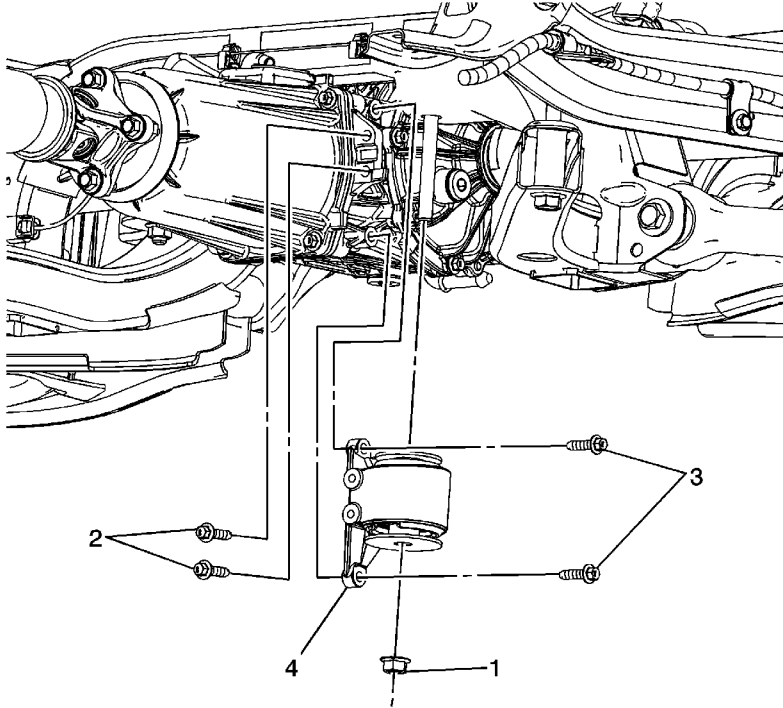
Rear Wheel Drive Module Clutch Housing Replacement



Callout	Component Name
Preliminary Procedures	
<ol style="list-style-type: none">1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.2. Remove the propeller shaft from the differential clutch drum assembly. Refer to Propeller Shaft Replacement.	
1	Electrical Clutch Control Connector
2	Retaining Clip (Qty: 2)
3	Differential Clutch Drum Bolt (Qty: 4) Caution: Refer to Fastener Caution in the Preface section. Tip Relocate the rear portion of the propeller shaft to the side and support it with mechanics wire or equivalent. Tighten 29 N·m (21 lb ft)
	Differential Clutch Drum

4	Procedure Rear differential clutch control module recalibration, refer to Control Module References . Tip The pinion flange, dust cover and pinion nut are serviced with the differential clutch drum assembly.
5	Differential Clutch Drum Gasket Tip Apply a small amount of grease to the gasket to hold it in place.

Differential Carrier Assembly Mount Replacement

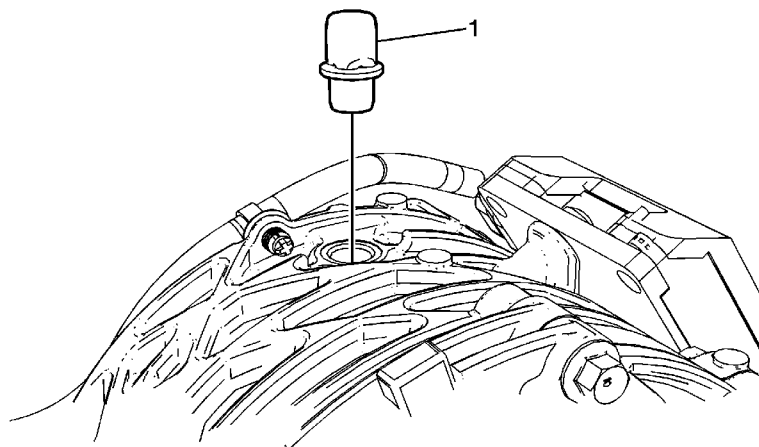


Callout	Component Name
Preliminary Procedure	
Raise the vehicle. Refer to Lifting and Jacking the Vehicle .	
1	<p>Left Rear Differential Mount Nut</p> <p>Caution: Refer to Fastener Caution in the Preface section.</p> <p>Tip Support the rear differential with a jack stand.</p> <p>Tighten 122 N·m (90 lb ft)</p>
2	<p>Left Rear Differential Mount Bolt (Qty: 2)</p> <p>Tighten 29 N·m (21 lb ft)</p>
3	<p>Left Rear Differential Mount Bolt (Qty: 2)</p> <p>Tighten</p>

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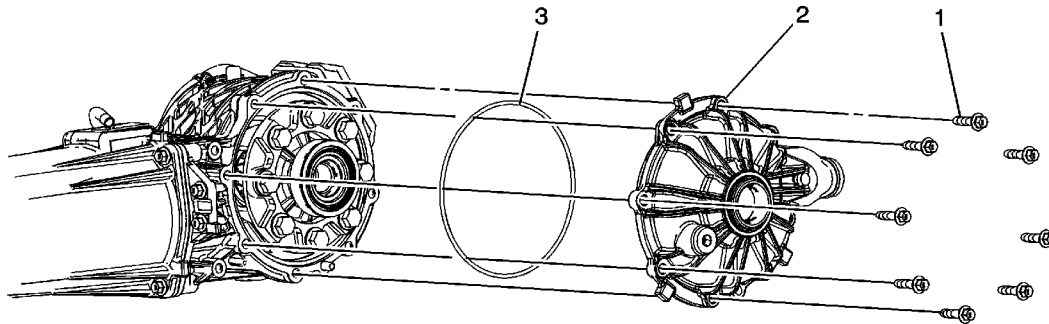
	29 N·m (21 lb ft)
4	Left Rear Differential Mount

Rear Axle Vent Replacement



Callout	Component Name
Preliminary Procedure	
Remove the rear differential assembly from the vehicle. Refer to Differential Replacement .	
1	<p>Rear Differential Vent</p> <p>Procedure</p> <ol style="list-style-type: none">1. Remove any dirt or debris from the vent area.2. Using an appropriate pair of pliers, remove the vent from the rear differential housing. <p>Tip</p> <ul style="list-style-type: none">• The rear differential does not have to be removed from the jack stand to perform this procedure.• When installing the vent, use a deep well socket that fits on the flange of the vent and gently tap the vent into place.

Differential Carrier Cover and Seal Replacement - Left Side



Callout	Component Name
Preliminary Procedure	
Remove the rear differential assembly. Refer to Differential Replacement .	
1	<p>Differential Side Cover Bolt (Qty: 8)</p> <p>Caution: Refer to Fastener Caution in the Preface section.</p> <p>Tip</p> <ul style="list-style-type: none"> Finger tighten the bolts before torquing to specification. Tighten the bolts in a criss cross pattern. <p>Tighten 29 N·m (21 lb ft).</p>
2	<p>Differential Side Cover</p> <p>Tip 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>
3	<p>Differential Side Cover Seal</p> <p>Tip</p> <ul style="list-style-type: none"> 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 seats properly in the differential housing.

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

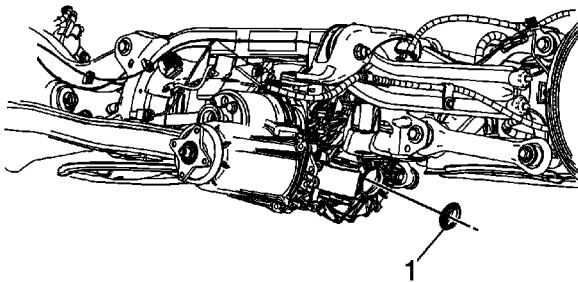
Rear Axle Shaft Seal Replacement - Left Side

Special Tools

- [J 8092](#) Driver Handle
- [J 33832](#) Rear Bearing Installer

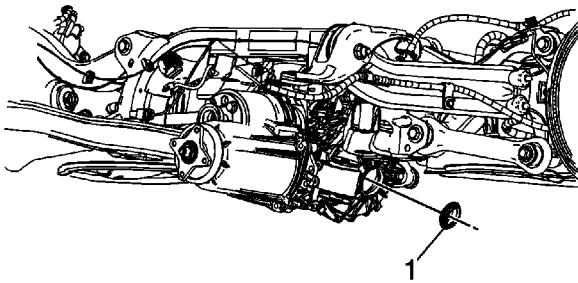
Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Drain the rear differential. Refer to [Rear Axle Lubricant Replacement](#) .
3. Remove the muffler assembly. Refer to [Muffler Replacement](#) .
4. Remove the left rear wheel drive shaft. Refer to [Rear Wheel Drive Shaft Replacement](#) .



5. Using the appropriate tool, remove the axle shaft seal (1).

Installation Procedure



1. Using the [J 8092](#) and the [J 33832](#) , install the axle shaft seal (1).
2. Install the left rear wheel drive shaft. Refer to [Rear Wheel Drive Shaft Replacement](#) .
3. Install the muffler assembly. Refer to [Muffler Replacement](#) .
4. Fill the rear differential with fluid. Refer to [Rear Axle Lubricant Replacement](#) .
5. Remove the support and lower the vehicle.

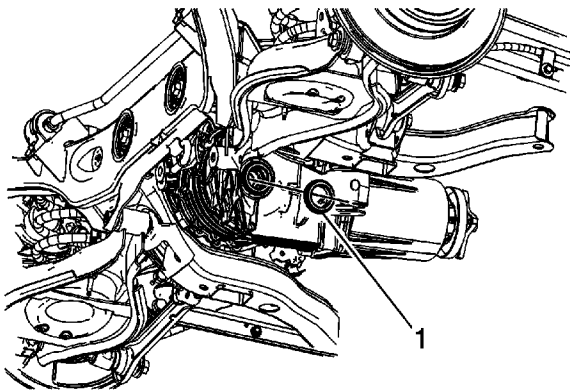
Rear Axle Shaft Seal Replacement - Right Side

Special Tools

- [J 8092](#) Driver Handle
- [J 33832](#) Rear Bearing Installer

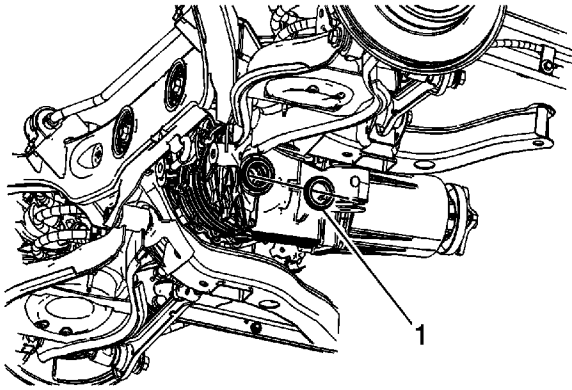
Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#) .
2. Drain the rear differential. Refer to [Rear Axle Lubricant Replacement](#) .
3. Remove the muffler assembly. Refer to [Muffler Replacement](#) .
4. Remove the right rear wheel drive shaft. Refer to [Rear Wheel Drive Shaft Replacement](#) .



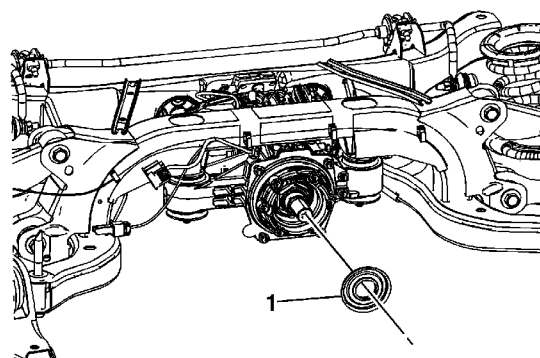
5. Using the appropriate tool, remove the axle shaft seal (1).

Installation Procedure



1. Using the [J 8092](#) and the [J 33832](#) , install the axle shaft seal (1).
2. Install the right rear wheel drive shaft. Refer to [Rear Wheel Drive Shaft Replacement](#) .
3. Install the muffler assembly. Refer to [Muffler Replacement](#) .
4. Fill the rear differential with fluid. Refer to [Rear Axle Lubricant Replacement](#) .
5. Remove the support and lower the vehicle.

Drive Pinion Flange/Yoke and/or Oil Seal Replacement

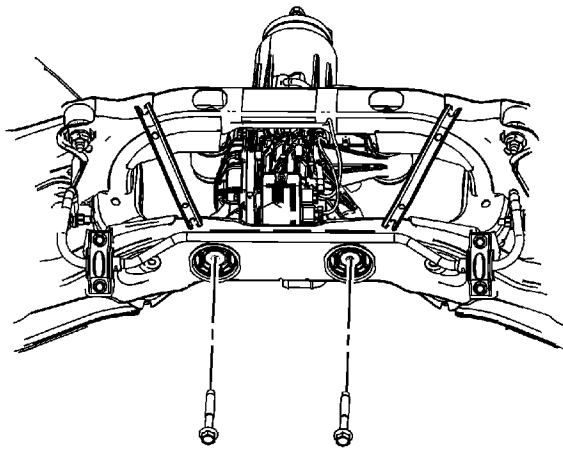


Callout	Component Name
<h3>Preliminary Procedures</h3> <ol style="list-style-type: none">1. Raise and support the vehicle. Refer to Lifting and Jacking the Vehicle .2. Remove the differential clutch drum assembly. Refer to Rear Wheel Drive Module Clutch Housing Replacement .	
1	Differential Pinion Seal
	<h3>Procedure</h3> <ol style="list-style-type: none">1. Install a sheet metal screw into the seal.2. Attach a pair of pliers or a slider hammer to the screw and remove the seal.3. Using the slide hammer or pliers, remove the seal.4. Using the J 44636-1, install the pinion seal.5. Inspect the fluid level. Refer to Rear Axle Lubricant Level Inspection .
	Tip <p>The pinion flange, the nut and the dust cover are NOT SERVICED separately. These items are serviced with the differential clutch drum assembly.</p>
	<h3>Special Tools</h3> <p>J 44636-1 Front Output Shaft Seal Installer</p>

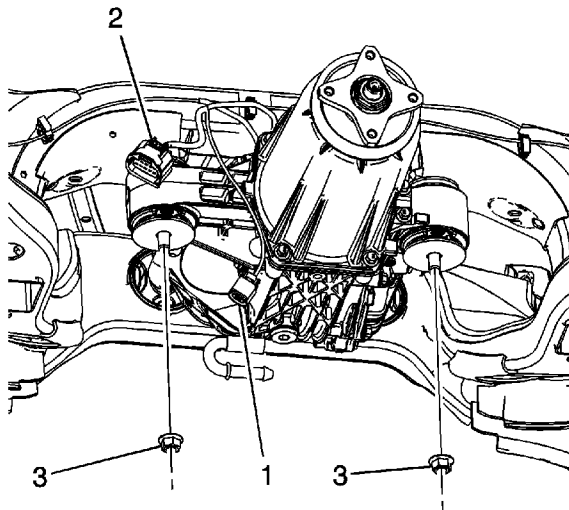
Differential Replacement

Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Drain the rear differential, if needed. Refer to [Rear Axle Lubricant Replacement](#).
3. Remove the exhaust system. Refer to [Exhaust Muffler Replacement](#).
4. Remove the rear wheel drive shafts. Refer to [Rear Wheel Drive Shaft Replacement](#).
5. Remove the propeller shaft from the vehicle. Refer to [Propeller Shaft Replacement](#).
6. Support the rear differential with a transmission jack stand.

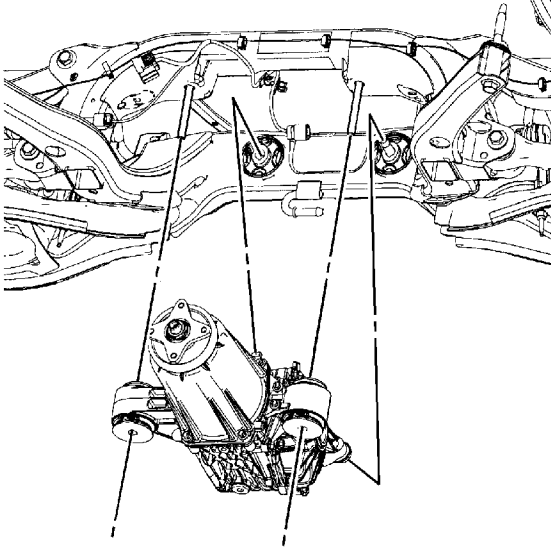


7. Remove the rear differential support bushing bolts.



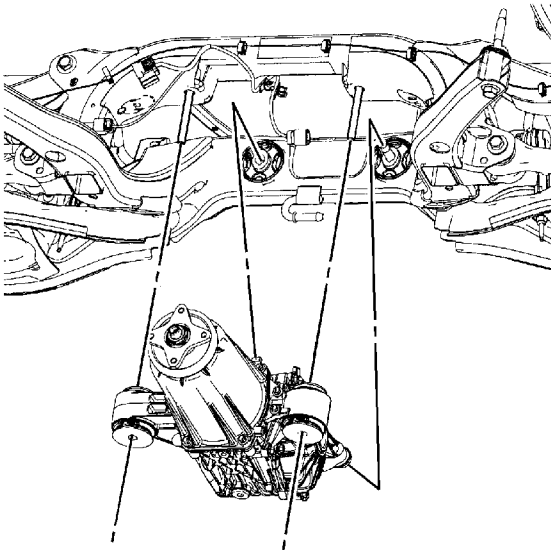


8. Remove the front mounting nuts for the rear differential (3).
9. Lower the rear differential to gain access rear differential clutch control module.
10. Remove the small electrical connector from the control module (1).
11. Remove the large electrical connector from the control module (2).



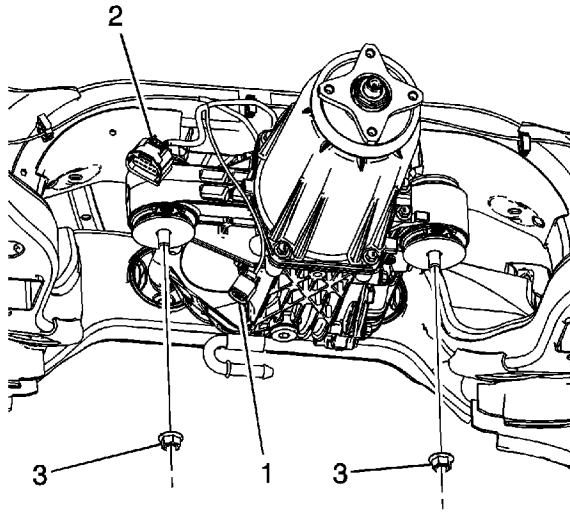
12. Remove the rear differential assembly from the vehicle.

Installation Procedure



Note: When positioning the rear differential assembly in the rear cradle, leave enough room to access the clutch control module.

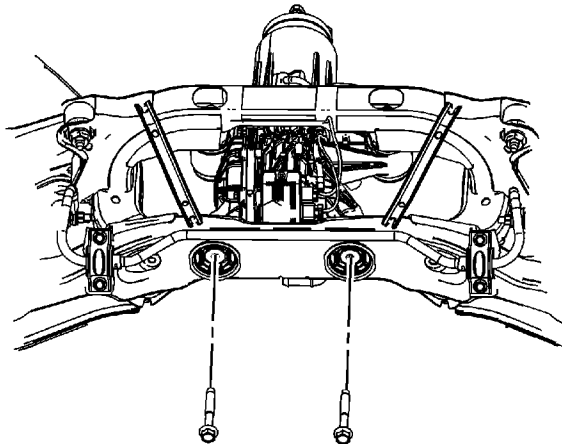
1. Position the rear differential assembly in the rear cradle.



2. Install the small electrical connector (1).
3. Install the large electrical connector (2).

Note: When installing the front mounting bolts tighten by hand.

4. Install the front mounting nuts (3).

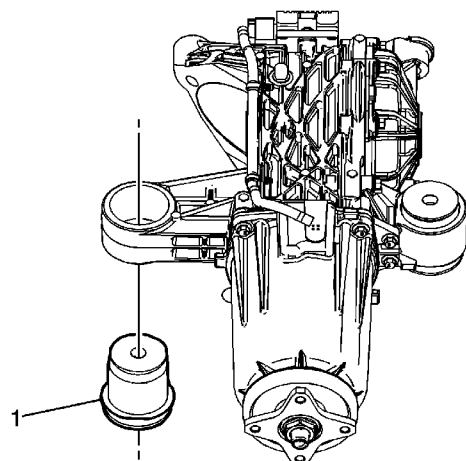


5. Install the rear differential support bushing bolts.
6. Raise the rear differential assembly into place.

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

7. Tighten the front mounting nuts. Tighten the nuts to **122 N·m (90 lb ft)**.
8. Tighten the rear differential support bushing bolts. Tighten the nuts to **188 N·m (139 lb ft)**.
9. Remove the transmission jack stand.
10. Install the propeller shaft. Refer to [Propeller Shaft Replacement](#).
11. Install the rear wheel drive shafts. Refer to [Rear Wheel Drive Shaft Replacement](#).
12. Install the exhaust system. Refer to [Exhaust Muffler Replacement](#).
13. Fill the rear differential assembly with fluid, if drained. Refer to [Rear Axle Lubricant Replacement](#).
14. Lower the vehicle.

Differential Housing Support Bushing Replacement (Front)



Callout	Component Name
Preliminary Procedure	
Remove the Rear Differential Module. Refer to Differential Housing Support Bushing Replacement .	
1	Rear Differential Mount Bushing Tip Use the appropriate tool to remove the bushing.

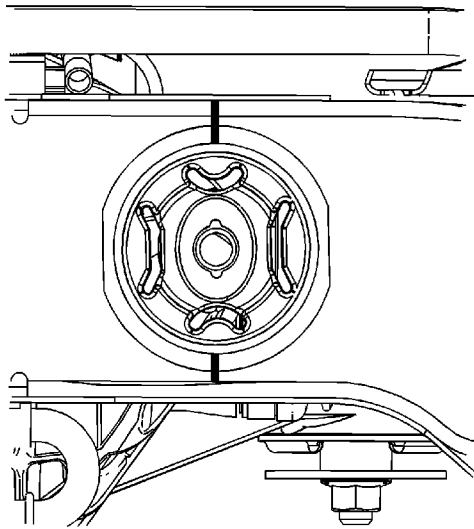
Differential Housing Support Bushing Replacement (Rear)

Tools Required

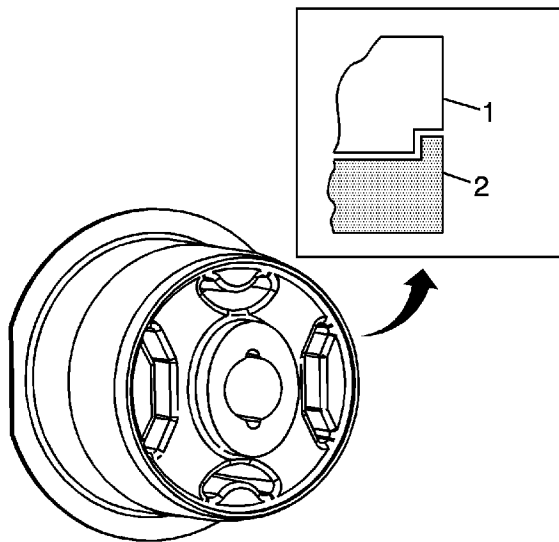
[J-45725](#) Cradle Bushing Replacer

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](#) .



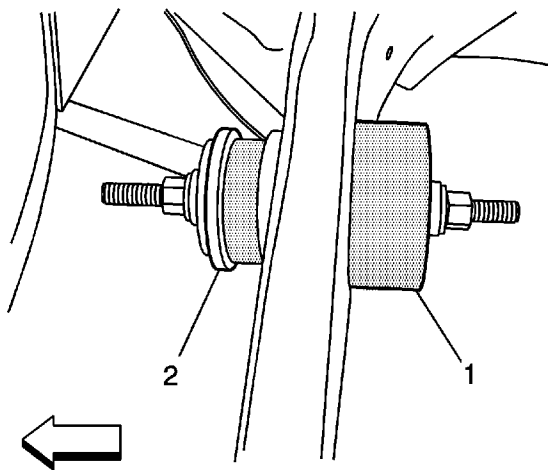
3. Mark a reference point on the frame and old bushing at the 12 and 6 o'clock position to use to alignment the new bushing.



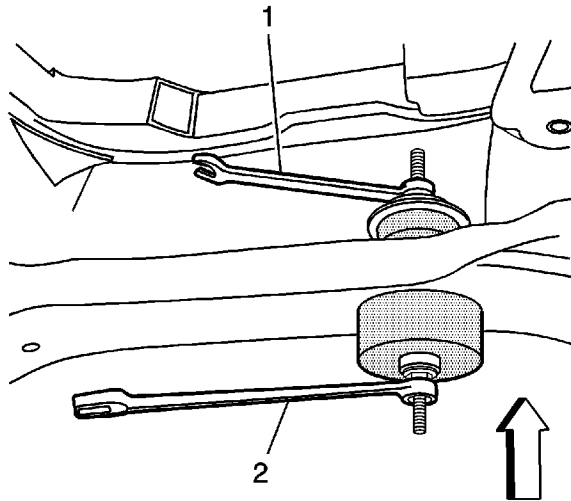
4. Position the J-45725-1A (1) on the bushing (2).
5. Position the J-45725-2A (1) on the frame.

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

6. Install the threaded rod, bearing and washers.

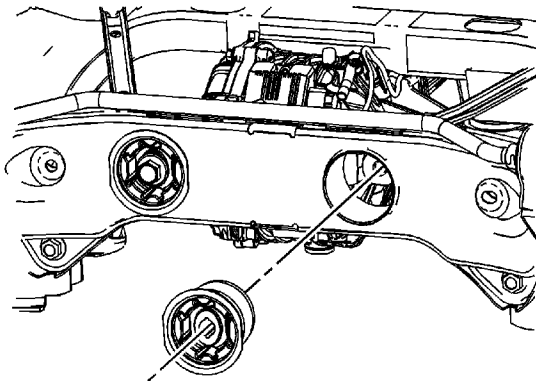


7. Adjust the nuts so that they are touching the J-45725-1A (2) and the J-45725-2A (1).
8. Install the proper size wrenches on the nuts.



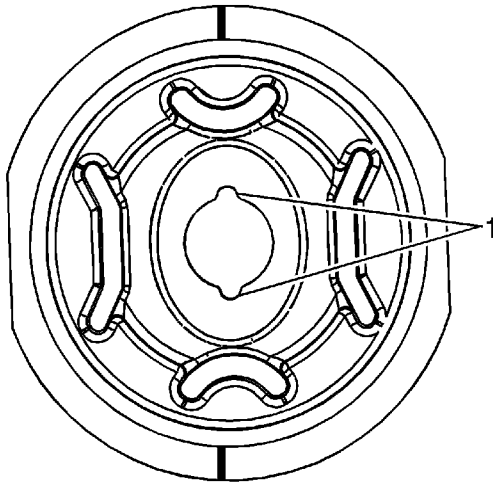
Important: In the following service procedure, use only HAND TOOLS when using the J-45725.

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

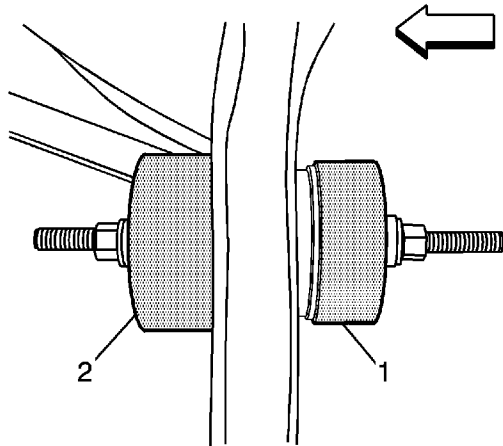


Important: Failure to perform the following service procedure prior to the installation of the new bushing, could cause premature failure of the bushing.

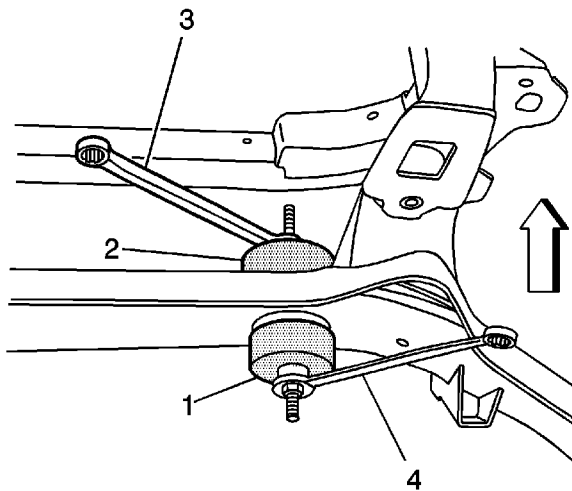
1. Before the installation of the new bushing, use a straight edge draw a line on the new bushing at the 12 and 6 o'clock positions. Ensure that the grooves (1) are at the 12 and 6 o'clock positions.
2. Position the new bushing so that the reference marks on the frame and the bushing are in alignment. This will ensure that the new bushing will be within the $\pm 5^\circ$ 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-45725-4 (2) on the inside of the frame.
6. Position J-45725-1A (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.