

## Approximate Fluid Capacities

Application	Specification	
	Metric	English
Synthetic Lubricant - Transfer Case	0.8 liter	0.85 quart

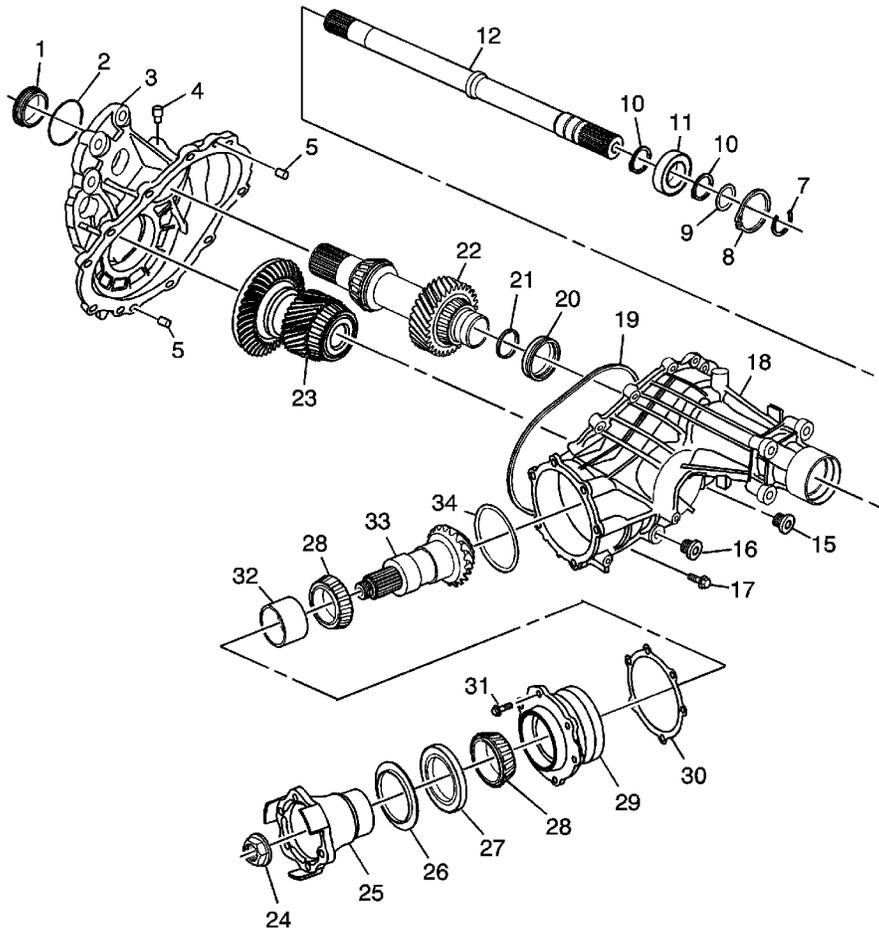
## Fastener Tightening Specifications

Application	Specification	
	Metric	English
Transfer Case Drain Plug	39 N·m	29 lb ft
Transfer Case Fill Plug	39 N·m	29 lb ft
Transfer Case Half Bolts (Qty: 11)	29 N·m	21 lb ft
Transfer Case Rear Output Drive Gear Nut (Qty: 1)	235 N·m	173 lb ft
Transfer Case Rear Output Drive Shaft Housing Bolts (Qty: 6)	29 N·m	21 lb ft

## Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Transfer Case Fill	Synthetic Lubricant	89021677	89021678

## Transfer Case Disassembled View



- (1) Transfer Case Input Shaft Seal - Left
- (2) Transfer Case O-Ring Seal
- (3) Transfer Case - Left
- (4) Transfer Case Vent Assembly
- (5) Transfer Case Half Locating Pin (Qty: 2)
- (5) Transfer Case Half Locating Pin (Qty: 2)
- (7) Half Shaft Retainer
- (8) Front Wheel Drive Retainer
- (9) O-Ring
- (10) Front Wheel Drive Intermediate Shaft Bearing Retainer (Qty: 2)
- (10) Front Wheel Drive Intermediate Shaft Bearing Retainer (Qty: 2)
- (11) Front Wheel Drive Intermediate Shaft Bearing Assembly

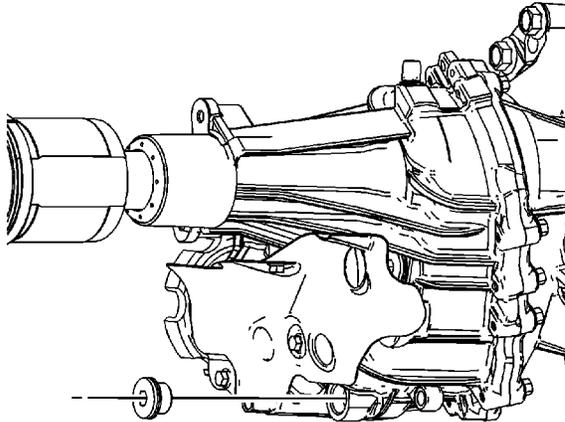
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- (12) Front Wheel Drive Intermediate Shaft
- (15) Transfer Case Fill Plug
- (16) Transfer Case Drain Plug
- (17) Transfer Case Half Bolt (Qty: 11)
- (18) Transfer Case - Right
- (19) Transfer Case Seal
- (20) Transfer Case Input Shaft Seal - Right
- (21) Front Drive Axle Intermediate Shaft Seal Assembly
- (22) Transfer Case Input Shaft
- (23) Transfer Case Rear Output Drive Shaft
- (24) Transfer Case Rear Output Shaft Nut
- (25) Transfer Case Rear Output Shaft Flange
- (26) Transfer Case Rear Output Shaft Oil Slinger
- (27) Transfer Case Rear Output Shaft Seal
- (28) Transfer Case Rear Output Shaft Bearing Assembly (Qty: 2)
- (28) Transfer Case Rear Output Shaft Bearing Assembly (Qty: 2)
- (29) Transfer Case Rear Output Shaft Housing
- (30) Transfer Case Rear Output Shim
- (31) Transfer Case Rear Output Shaft Housing Bolt (Qty: 6)
- (32) Transfer Case Rear Output Shaft Bearing Spacer
- (33) Transfer Case Rear Output Shaft
- (34) Transfer Case Rear Output Shaft Housing Seal O-Ring

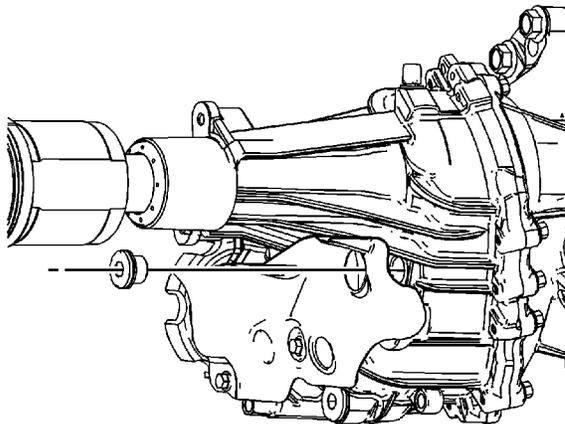
## Transfer Case Fluid Replacement

### Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Remove the exhaust flexible pipe. Refer to [Exhaust Flexible Pipe Replacement](#).



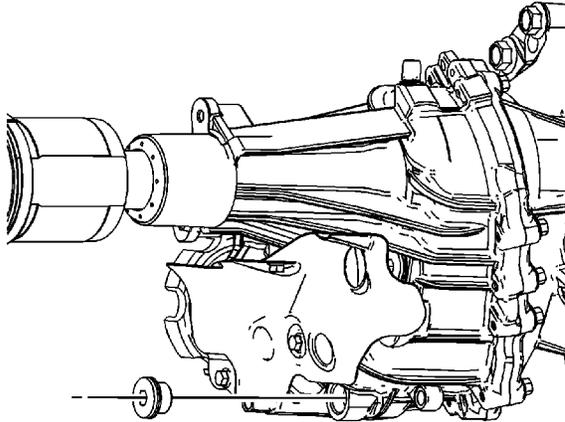
3. Remove the drain plug.



4. Remove the fill plug.

### Installation Procedure

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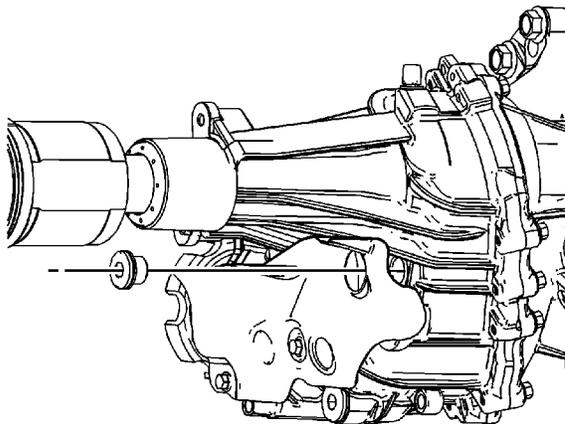
1. Clean the drain plug and apply sealant GM P/N 12346004 (Canadian P/N 10953480) to the threads.

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

2. Install the drain plug.

#### **Tighten**

Tighten the drain plug to 39 N·m (29 lb ft).



3. Fill the transfer case with lubricant to the bottom of the fill plug, or 540 ml (18.2 oz). Refer

to [Adhesives, Fluids, Lubricants, and Sealers](#) for lubricant recommendation.

4. Clean the fill plug and apply adhesive GM P/N 12345493 (Canadian P/N 10953488) to the threads.
5. Install the fill plug.

### **Tighten**

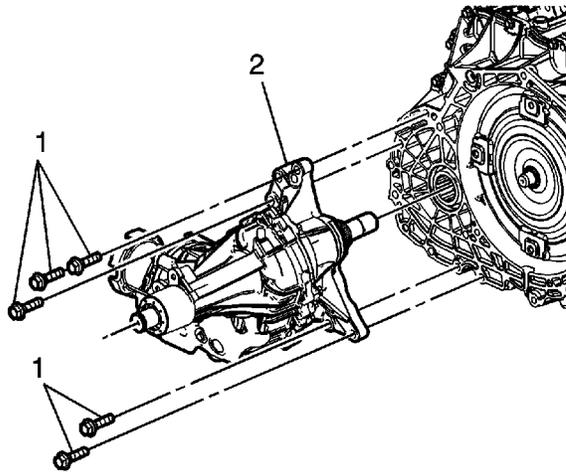
Tighten the fill plug to 39 N·m (29 lb ft).

6. Install the exhaust flexible pipe. Refer to [Exhaust Flexible Pipe Replacement](#).
7. Lower the vehicle.

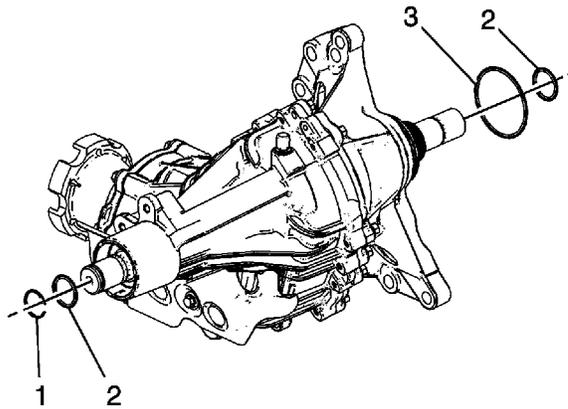
## Transfer Case Assembly Replacement

### Removal Procedure

1. Raise and support the vehicle. Refer to [Lifting and Jacking the Vehicle](#).
2. Drain the transfer case fluid. Refer to [Transfer Case Fluid Replacement](#).
3. Remove the propeller shaft. Refer to [Propeller Shaft Replacement](#).
4. Remove the right wheel drive shaft. Refer to [Front Wheel Drive Shaft Replacement](#).
5. Remove the exhaust flexible pipe. Refer to [Exhaust Flexible Pipe Replacement](#).
6. Support the transaxle with a jackstand.
7. Remove the engine rear mount bracket. Refer to [Engine Rear Mount Replacement](#).

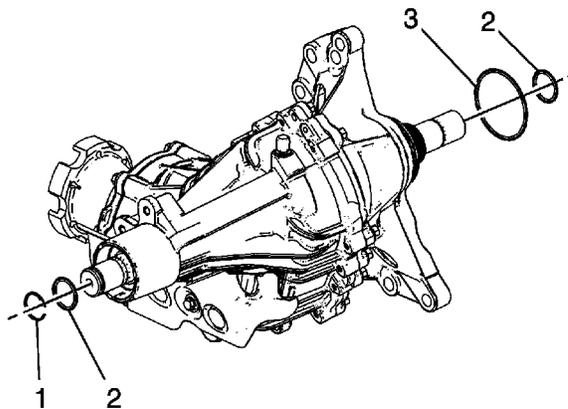


8. Remove the transfer case bolts (1).
9. Remove the transfer case (2).



10. Remove the half shaft retainer (1).
11. Remove the intermediate shaft O-ring seals (2).
12. Remove the transfer case O-ring seal (3).

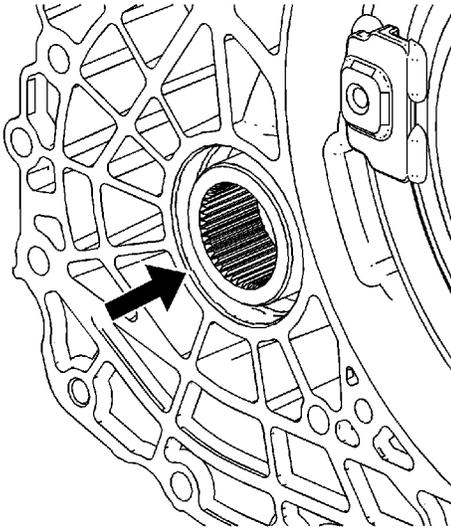
## Installation Procedure



1. Lubricate the O-rings (2, 3) with petroleum jelly.
2. Install the intermediate shaft O-ring seals (2).
3. Install the half shaft retainer (1).
4. Install the transfer case O-ring seal (3).

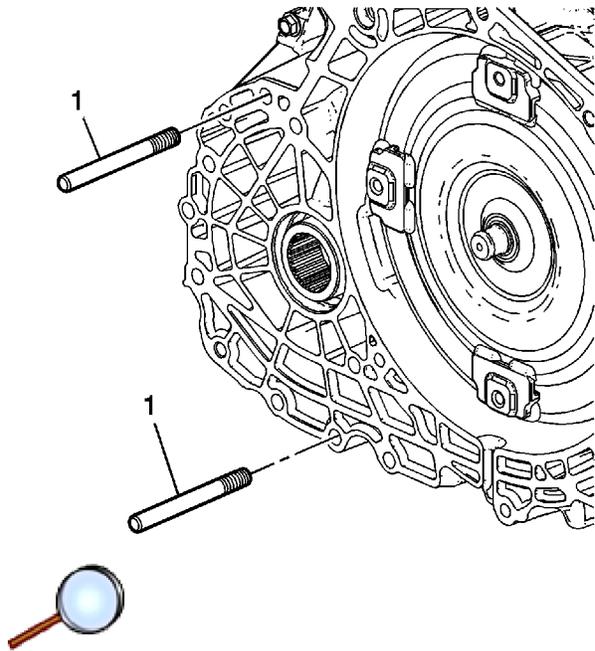
**Note:** Oxidation must be removed from the transmission torque converter housing

differential bore surface before installation of the transfer case. A clean bore will prevent oxidation build up from scuffing or cutting the O-ring seal upon transfer case installation, resulting in a leak.

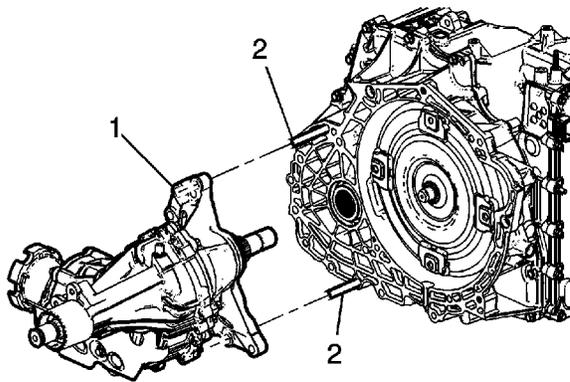


5. Carefully insert a clean soft cloth into the transmission torque converter housing differential bore to prevent debris from entering the transmission.
6. Clean the oxidation from the transmission torque converter housing differential bore surface using steel wool or crocus cloth.
7. Carefully remove any debris and the cloth from the transmission torque converter housing differential bore.

**Note:** Use guide pins to aid in alignment and installation of the transfer case to the transmission. Failure to use guide pins may result in cutting the transfer case O-ring seal during installation of the transfer case causing a fluid leak.

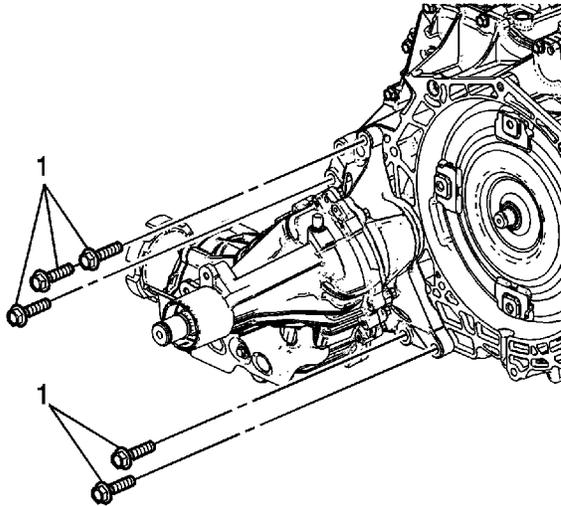


8. Fabricate 2 guide pins by cutting the heads off of 2 bolts M12x1.75x75. chamfer and remove burrs from the cut end of the bolt.
9. Hand thread the guide pins (1) into the transmission upper and lower transfer case mounting bolt holes.



10. Install the transfer case (1) to the transmission.
11. Remove the guide pins (2).

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



12. Install the transfer case to transmission bolts (1).

**Tighten**

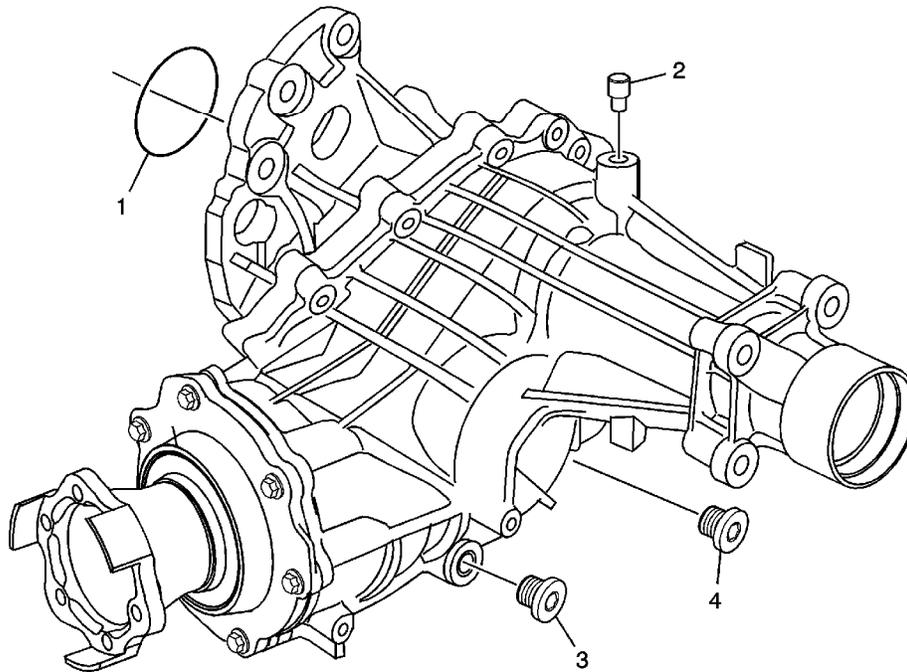
Tighten the bolts to 50 N·m (37 lb ft).

13. Install the engine rear mount bracket. Refer to [Engine Rear Mount Replacement](#).
14. Remove the jackstand from under the transaxle.
15. Install the exhaust flexible pipe. Refer to [Exhaust Flexible Pipe Replacement](#).
16. Install the right wheel drive shaft. Refer to [Front Wheel Drive Shaft Replacement](#).
17. Install the propeller shaft. Refer to [Propeller Shaft Replacement](#).
18. Fill the transfer case with fluid. Refer to [Transfer Case Fluid Replacement](#).
19. Lower the vehicle.

## Transfer Case Disassemble

- Table 1: [Housing O-Ring, Vent Assembly, Drain and Fill Plug Removal](#)
- Table 2: [Intermediate Drive Shaft Removal](#)
- Table 3: [Rear Output Shaft Housing Removal](#)
- Table 4: [Right Transfer Case, Input and Output Drive Shaft Removal](#)
- Table 5: [Rear Output Shaft Housing Disassembly](#)
- Table 6: [Intermediate Drive Shaft Disassembly](#)

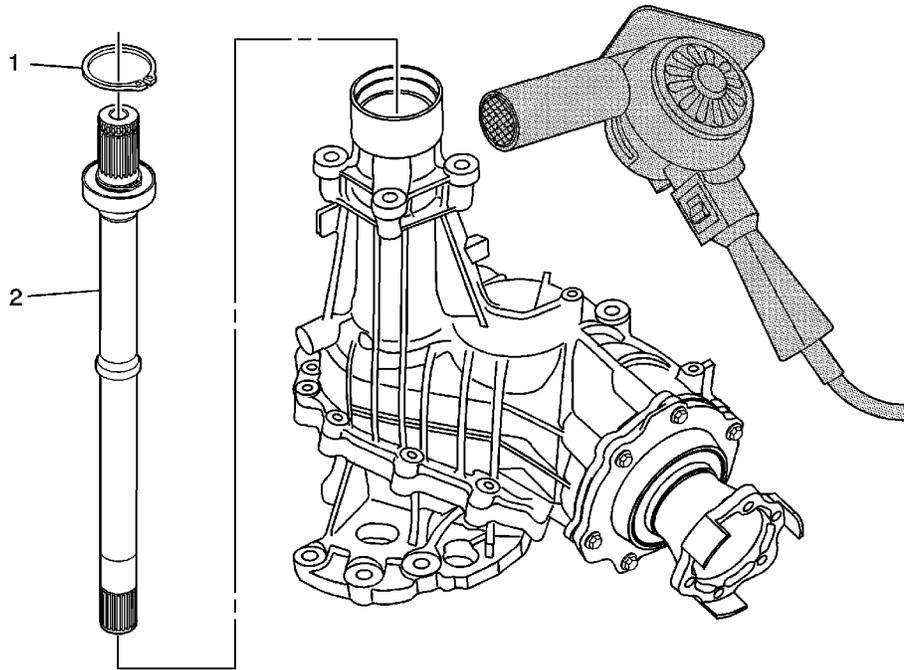
### Housing O-Ring, Vent Assembly, Drain and Fill Plug Removal



### Housing O-Ring, Vent Assembly, Drain and Fill Plug Removal

Callout	Component Name
1	Transfer Case O-Ring Seal
2	Transfer Case Vent Assembly <b>Tip</b> Remove the vent only if damaged or blocked.
3	Transfer Case Drain Plug
4	Transfer Case Fill Plug

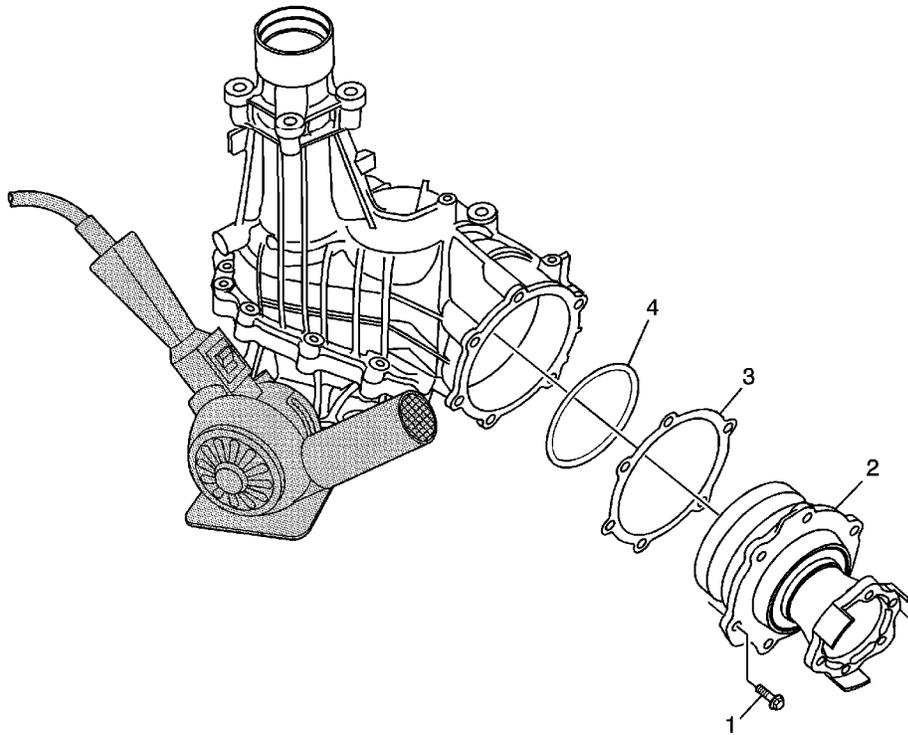
## Intermediate Drive Shaft Removal



### Intermediate Drive Shaft Removal

Callout	Component Name
1	Front Wheel Drive Retainer
2	Front Wheel Drive Intermediate Shaft
	<b>Special Tools</b>
	<a href="#">J 25070</a> Heat Gun - 500-750F
	For equivalent regional tools, refer to <a href="#">Special Tools</a> .

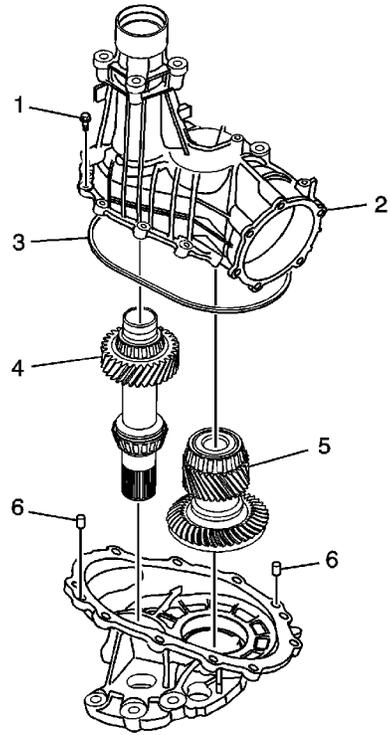
## Rear Output Shaft Housing Removal



### Rear Output Shaft Housing Removal

Callout	Component Name
1	Transfer Case Rear Output Shaft Housing Bolt (Qty: 6)
2	Transfer Case Rear Output Shaft Housing  <b>Tip</b> Locate 2 screwdrivers or prybars to the flange area of the housing to ease removal.  <b>Special Tools</b>  <a href="#">J 25070</a> Heat Gun - 500-750F
3	Transfer Case Rear Output Shim
4	Transfer Case Rear Output Shaft Housing Seal O-Ring  <b>Tip</b> Discard the O-ring after removal.

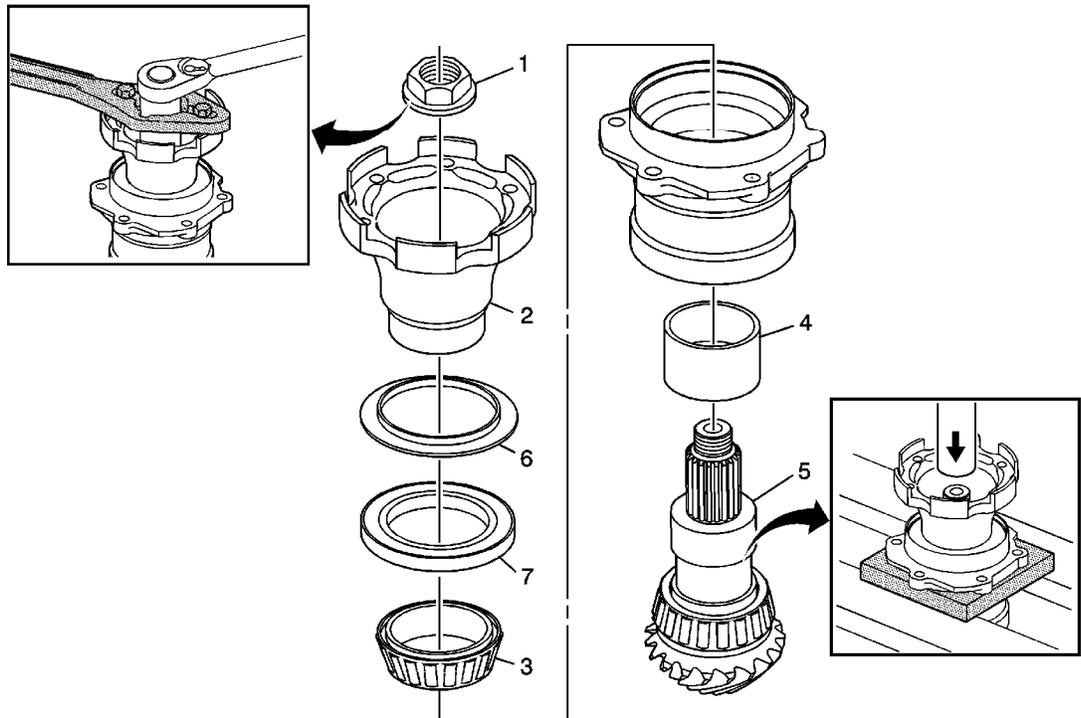
### Right Transfer Case, Input and Output Drive Shaft Removal



### Right Transfer Case, Input and Output Drive Shaft Removal

Callout	Component Name
1	Transfer Case Half Bolt (Qty: 11)
2	Transfer Case - Right
3	Transfer Case Seal
4	Transfer Case Input Shaft
5	Transfer Case Rear Output Drive Shaft
6	Transfer Case Half Locating Pin (Qty: 2) Refer to <a href="#">Transfer Case Cleaning and Inspection</a> . <b>Tip</b> <ul style="list-style-type: none"> <li>• Remove the pins only if damaged.</li> <li>• Inspect the case for similar damage.</li> </ul>

### Rear Output Shaft Housing Disassembly

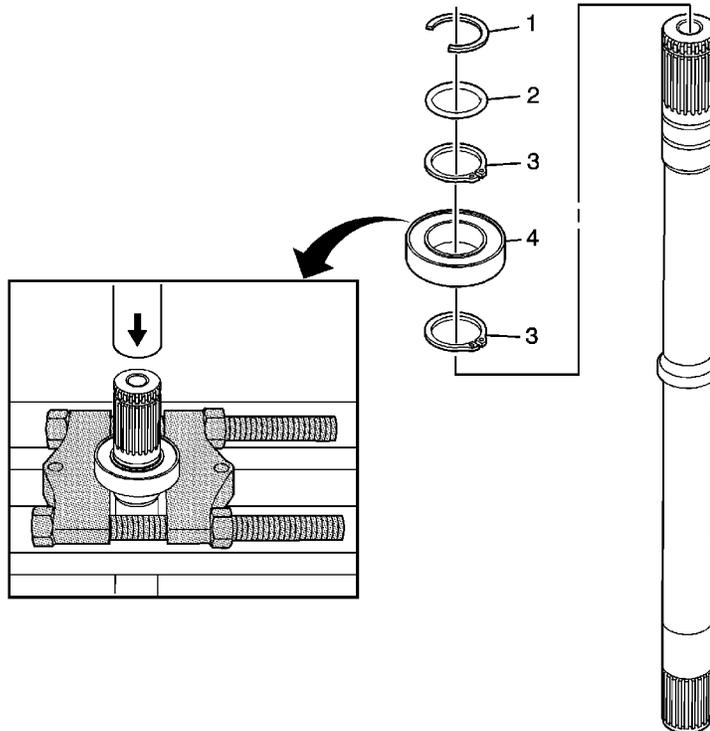


### Rear Output Shaft Housing Disassembly

Callout	Component Name
1	Transfer Case Rear Output Shaft Gear Nut <b>Tip</b> Use a 30 mm socket or <a href="#">J 29873</a> . <b>Special Tools</b> <a href="#">J-08614-A</a> Pinion Flange Holder and Remover
2	Transfer Case Rear Output Shaft Flange <b>Special Tools</b> <a href="#">DT-48145</a> Press Support
3	Transfer Case Rear Output Shaft Bearing Assembly <b>Tip</b> Use a press to remove the output shaft from the housing.
4	Transfer Case Rear Output Shaft Bearing Spacer
5	Transfer Case Rear Output Shaft
6	Transfer Case Rear Output Shaft Oil Slinger Refer to <a href="#">Rear Output Drive Housing Cleaning and Inspection</a> .

	<p><b>Tip</b> Remove the slinger only if damaged.</p>
7	<p>Transfer Case Rear Output Shaft Seal</p> <p><b>Tip</b> Discard the seal after removal.</p>

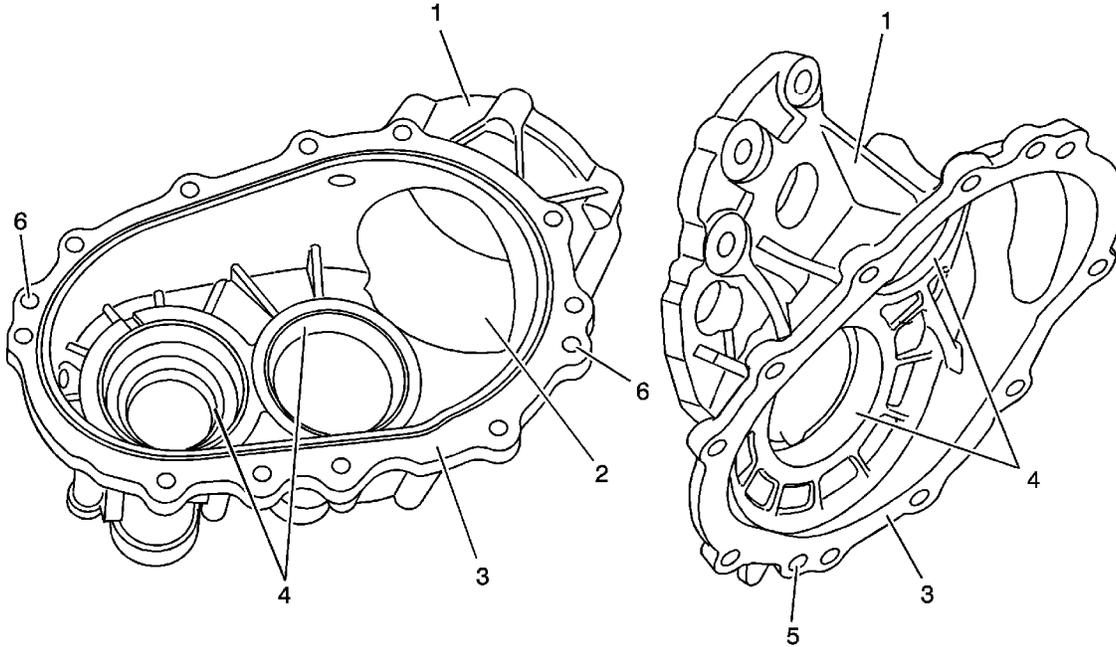
## Intermediate Drive Shaft Disassembly



### Intermediate Drive Shaft Disassembly

Callout	Component Name
1	Half Shaft Retainer
2	O-Ring
3	Front Wheel Drive Intermediate Shaft Bearing Retainer (Qty: 2)
4	<p>Front Wheel Drive Intermediate Shaft Bearing Assembly</p> <p><b>Tip</b> Use a press, with the <a href="#">J 22912-B</a> flat side up, in order to remove the bearing assembly.</p> <p><b>Special Tools</b></p> <p><a href="#">J 22912-B</a> Rear Pinion and Axle Bearing Remover</p>

## Transfer Case Cleaning and Inspection

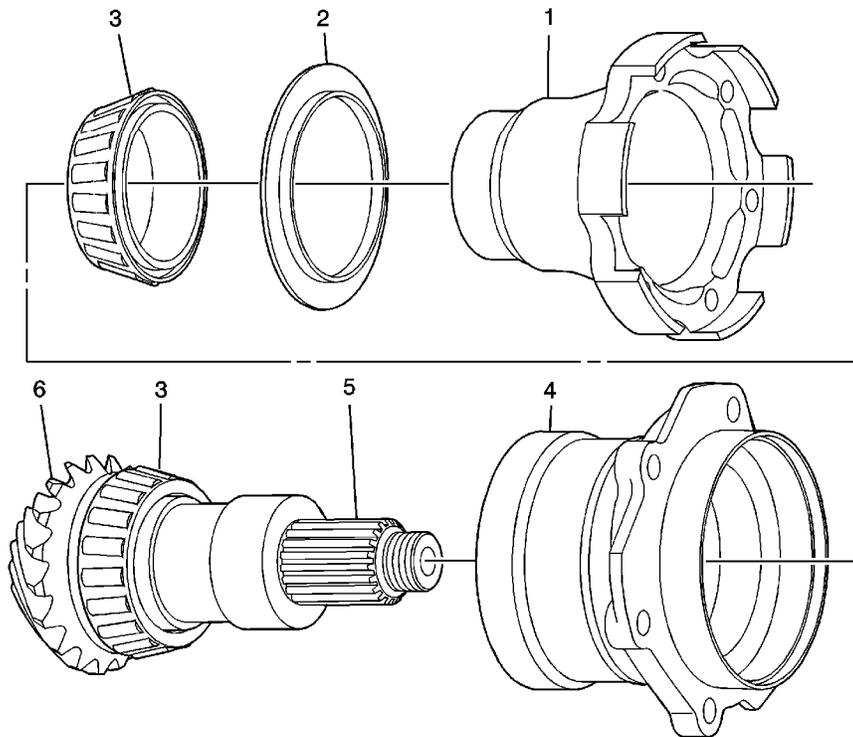


Callout	Component Name
<p><b>Caution:</b> Refer to <a href="#">Machined Surface Damage Caution</a> in the Preface section.</p>	
<p><b>Preliminary Procedures</b></p>	
<ol style="list-style-type: none"> <li>1. Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.</li> <li>2. Clean the left and right transfer case in cleaning solvent and air dry.</li> </ol>	
1	<p>Transfer Case - Left and Right</p> <p><b>Tip</b> Inspect for cracks, broken areas, or other damage. The transfer case assembly must be replaced if damage is found.</p>
2	<p>Transfer Case Rear Output Drive Housing Bore</p> <p><b>Tip</b> Repair small scratches or nicks with light sanding.</p>
3	<p>Case Sealing Surface</p>

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	<b>Tip</b> Repair small scratches or nicks with a soft stone.
4	Transfer Case Bearing Races <b>Tip</b> Replace the transfer case assembly if a bearing has spun or if cracks are detected.
5	Transfer Case Thread Bolt Holes <b>Tip</b> Repair any damaged threads.
6	Transfer Case Half Locating Pin Holes

## Rear Output Drive Housing Cleaning and Inspection

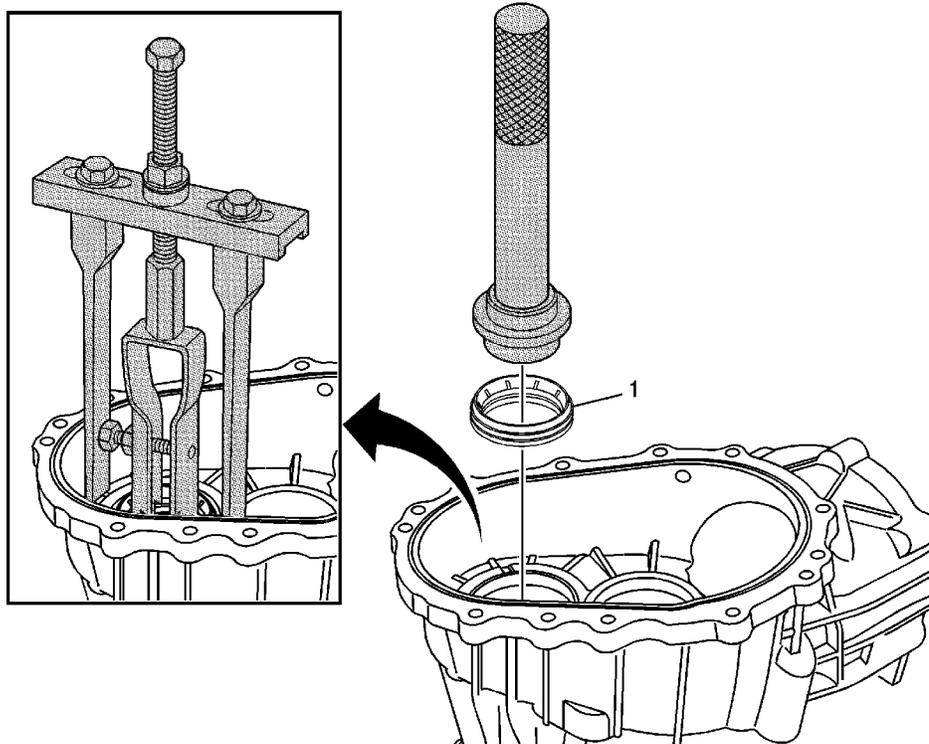


Callout	Component Name
<p><b>Preliminary Procedures</b></p> <ol style="list-style-type: none"> <li>1. Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.</li> <li>2. Clean all components in cleaning solvent and air dry.</li> <li>3. The transfer case rear output drive housing is not serviced. If damage cannot be repaired, the transfer case must be replaced.</li> </ol>	
1	<p>Transfer Case Rear Output Shaft Flange</p> <p><b>Tip</b></p> <ul style="list-style-type: none"> <li>• Replace if flange, threaded holes, or splines are damaged.</li> <li>• Inspect sealing surface for corrosion, excessive wear, or damage.</li> </ul>
2	<p>Transfer Case Rear Output Shaft Oil Slinger</p> <p><b>Tip</b></p> <p>Replace the slinger if damaged, cracked, loose, or distorted.</p>
	<p>Transfer Case Rear Output Shaft Bearing Assembly</p>

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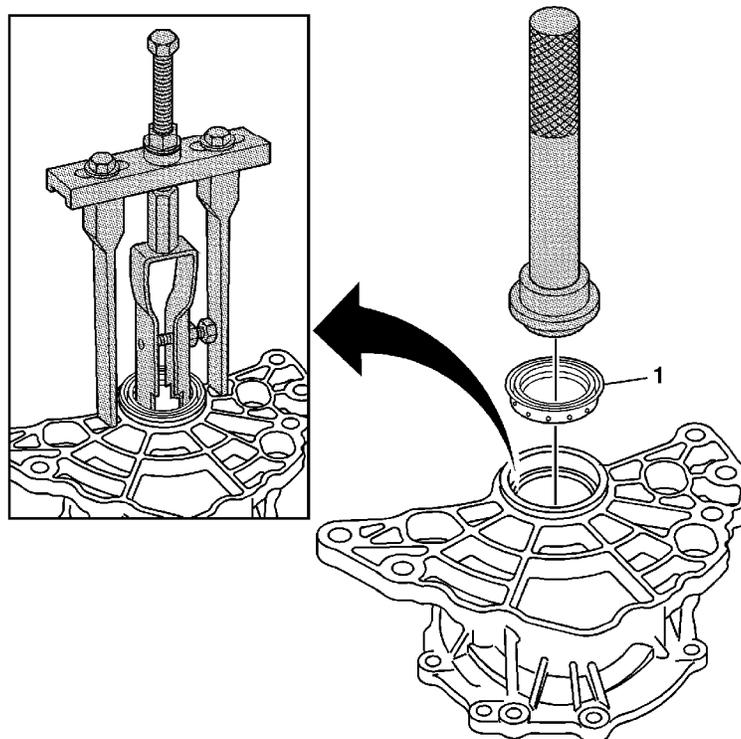
3	<b>Tip</b> Inspect bearings for roughness, spalling, or pitting.
4	Transfer Case Rear Output Shaft Housing <b>Tip</b> <ul style="list-style-type: none"><li>• Inspect for cracks, broken areas, or other damage.</li><li>• Inspect bearing races for roughness, brinelling, or pitting.</li><li>• Inspect the O-ring channel for porosity or damage.</li><li>• Scratches or nicks in other areas may be repaired with light sanding.</li></ul>
5	Transfer Case Rear Output Shaft Splines <b>Tip</b> Inspect for damage and press fit to flange.
6	Transfer Case Rear Output Shaft <b>Tip</b> Inspect for pitting, excessive wear, or damage.

## Input Shaft Seal Replacement - Right



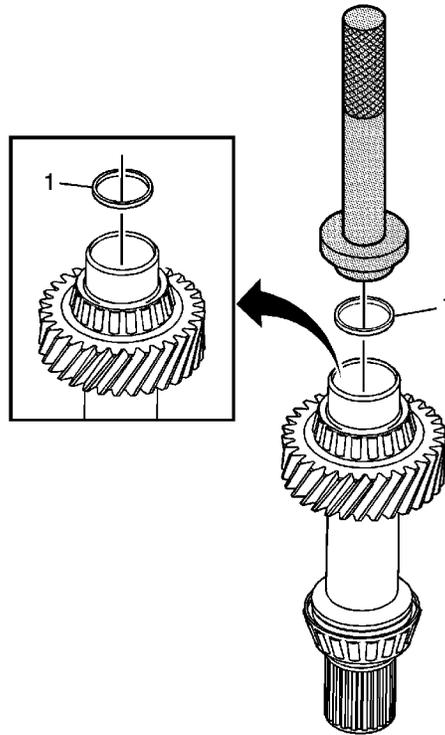
Callout	Component Name
1	<p>Transfer Case Input Shaft Seal - Right</p> <p><b>Caution:</b> Do not use a screwdriver or punch to remove the seal. Using a screwdriver or punch to remove the seal may damage the aluminum housing sealing surface.</p> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• <a href="#">DT-48074</a> Input and Output Shaft Seal Installer</li> <li>• <a href="#">J 8092</a> Driver Handle</li> <li>• <a href="#">J 26941</a> Bushing and Bearing Remover - 3-4 in</li> <li>• <a href="#">J 45124</a> Removal Bridge</li> </ul> <p>For equivalent regional tools, refer to <a href="#">Special Tools</a>.</p>

## Input Shaft Seal Replacement - Left



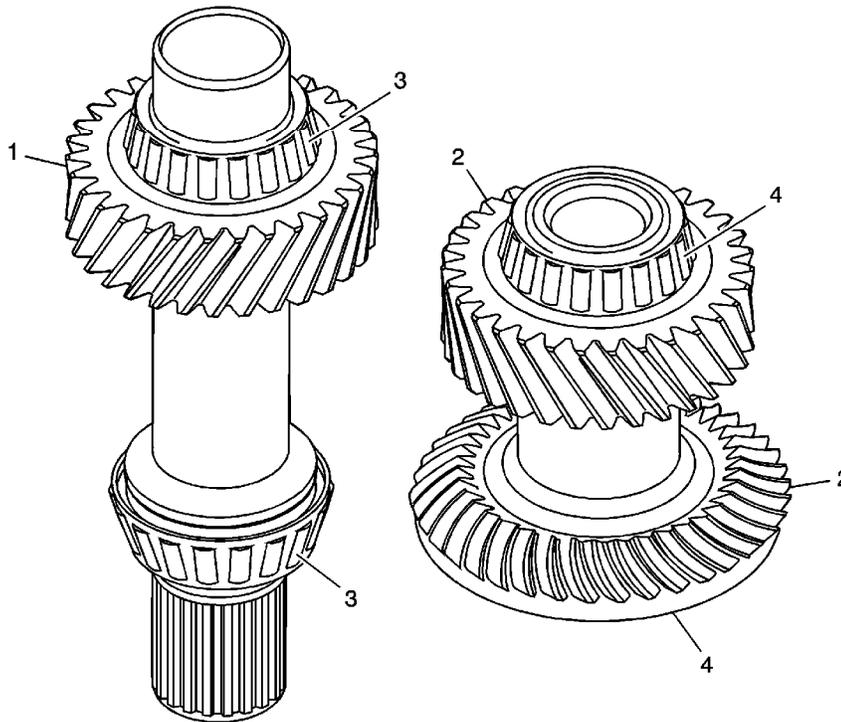
Callout	Component Name
1	<p>Transfer Case Input Shaft Seal - Left</p> <p><b>Caution:</b> Do not use a screwdriver or punch to remove the seal. Using a screwdriver or punch to remove the seal may damage the aluminum housing sealing surface.</p> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• <a href="#">DT-48074</a> Input and Output Shaft Seal Installer</li> <li>• <a href="#">J 8092</a> Driver Handle</li> <li>• <a href="#">J 26941</a> Bushing and Bearing Remover - 3-4 in</li> <li>• <a href="#">J 45124</a> Removal Bridge</li> </ul> <p>For equivalent regional tools, refer to <a href="#">Special Tools</a>.</p>

## Front Drive Axle Inner Shaft Seal Replacement



Callout	Component Name
1	<p>Front Drive Axle Intermediate Shaft Seal Assembly</p> <p><b>Tip</b>  <i>DT-48078</i> seal installer seats the seal to a specific depth. Other installation methods may set the seal to a non-functional depth.</p> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• <i>DT-48078</i> Inner Drive Shaft Seal Installer</li> <li>• <i>J 8092</i> Universal Driver</li> </ul> <p>For equivalent regional tools, refer to <a href="#">Special Tools</a>.</p>

# Input Shaft and Rear Output Drive Shaft Cleaning and Inspection



Callout	Component Name
<p><b>Preliminary Procedures</b></p> <ol style="list-style-type: none"> <li>1. Inspect all components or sub-components and perform any repair procedure necessary to fix the damage. If the damage cannot be repaired, replace the component or sub-component as indicated.</li> <li>2. Clean all components in cleaning solvent and air dry.</li> <li>3. The transfer case input shaft and transfer case rear output drive shaft is not serviced. If damage cannot be repaired, the transfer case must be replaced.</li> </ol>	
1	Transfer Case Input Shaft Gear <b>Tip</b> Inspect for pitting, excessive wear, or damage.
2	Transfer Case Rear Output Drive Shaft Gear <b>Tip</b> Inspect for pitting, excessive wear, or damage.
	Transfer Case Input Shaft Bearing Assembly

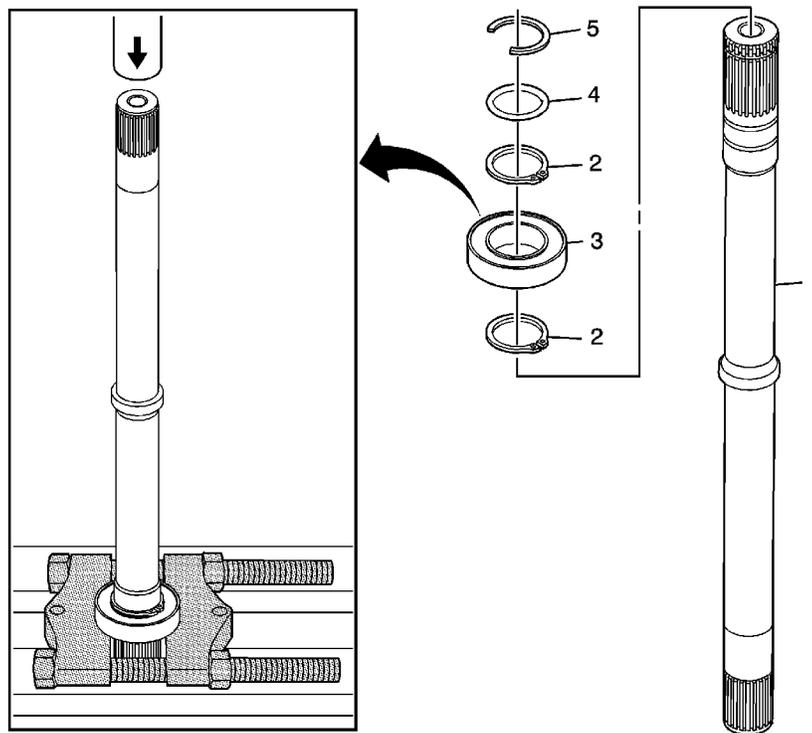
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3	<b>Tip</b> Inspect bearings for roughness, spalling, or pitting.
4	Transfer Case Rear Output Drive Shaft Bearing Assembly <b>Tip</b> Inspect bearings for roughness, spalling, or pitting.

## Transfer Case Assemble

- Table 1: [Intermediate Drive Shaft Assembly](#)
- Table 2: [Rear Output Shaft Housing Assembly](#)
- Table 3: [Output Flange Installation](#)
- Table 4: [Right Transfer Case, Input Shaft, and Output Drive Shaft Installation](#)
- Table 5: [Rear Output Shaft Housing Installation](#)
- Table 6: [Intermediate Drive Shaft Installation](#)
- Table 7: [Housing O-Ring, Vent Assembly, Drain and Fill Plug Installation](#)

### Intermediate Drive Shaft Assembly



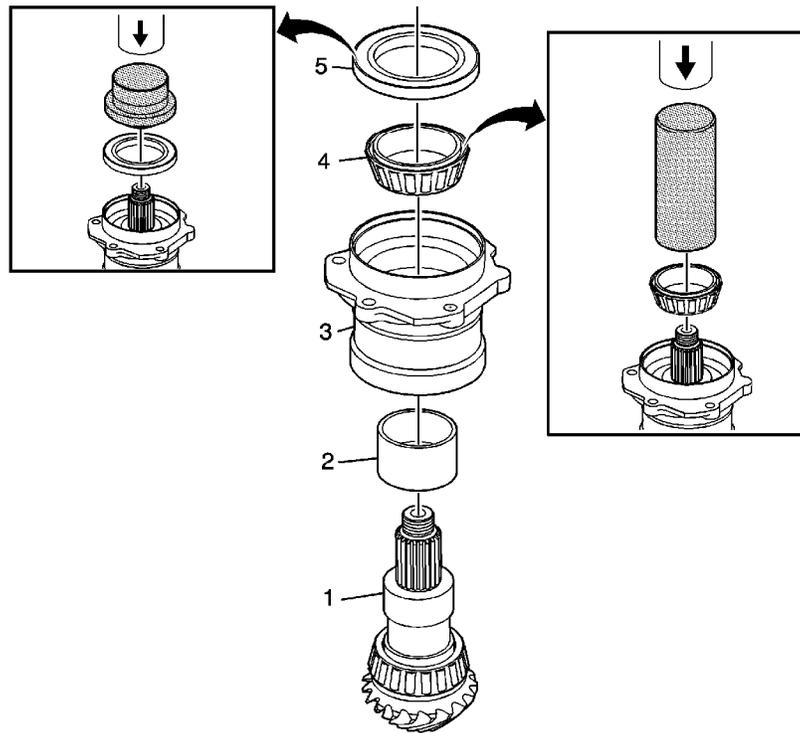
### Intermediate Drive Shaft Assembly

Callout	Component Name
1	Front Wheel Drive Intermediate Shaft
2	Front Wheel Drive Intermediate Shaft Bearing Retainer (Qty: 2)
	Front Wheel Drive Intermediate Shaft Bearing Assembly
	<p><b>Tip</b> Use a press, with the <a href="#">J 22912-B</a> flat side up, in order to install the bearing assembly.</p>

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	<b>Special Tools</b>
3	<a href="#">J 22912-B</a> Rear Pinion and Axle Bearing Remover For equivalent regional tools, refer to <a href="#">Special Tools</a> .
4	O-Ring
5	Half Shaft Retainer

## Rear Output Shaft Housing Assembly

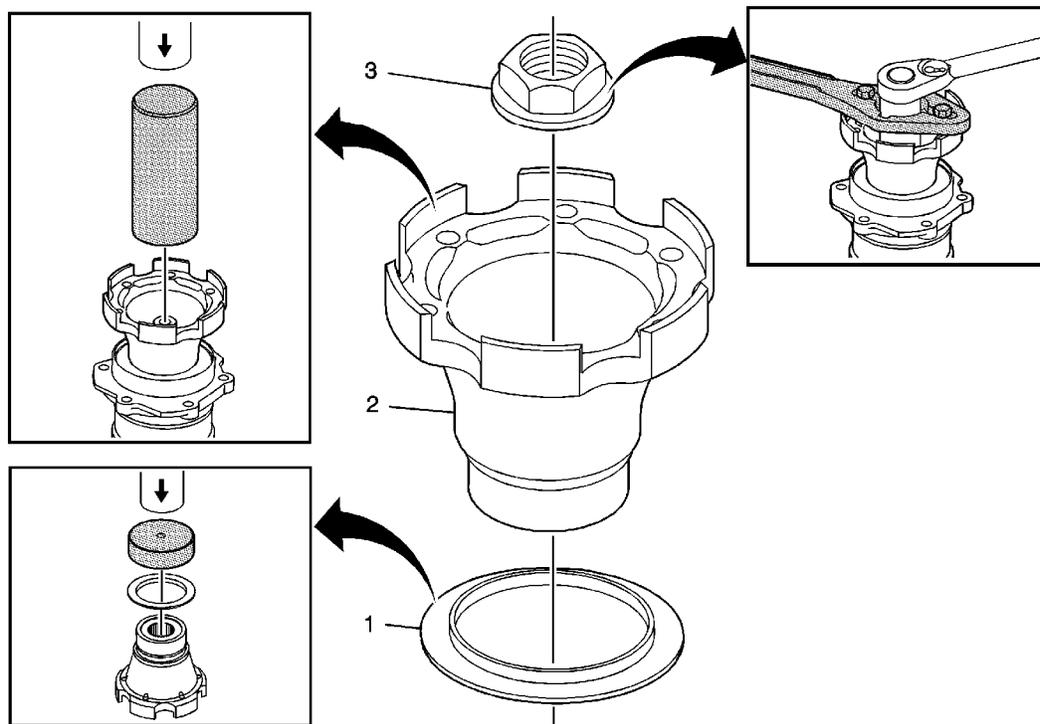


## Rear Output Shaft Housing Assembly

Callout	Component Name
1	Transfer Case Rear Output Shaft
2	Transfer Case Rear Output Shaft Bearing Spacer
3	Transfer Case Rear Output Shaft Housing
4	Transfer Case Rear Output Shaft Bearing Assembly <b>Tip</b> Use a press with the <a href="#">J 5590</a> to install the housing and bearings to the output shaft. <b>Special Tools</b>

	<a href="#">J 5590</a> Pinion Bearing Race Installer - Rear
5	<p>Transfer Case Rear Output Shaft Seal</p> <p><b>Tip</b> Use a press with the <a href="#">DT-48075</a> to install the seal.</p> <p><b>Special Tools</b></p> <p><a href="#">DT-48075</a> Output Shaft Seal Installer</p>

## Output Flange Installation

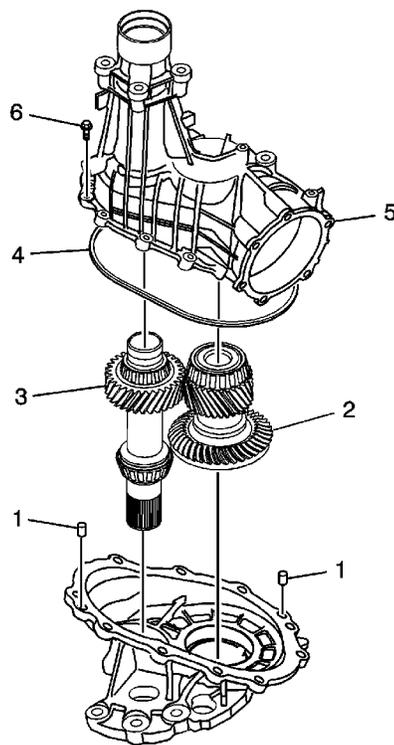


## Output Flange Installation

Callout	Component Name
1	<p>Transfer Case Rear Output Shaft Oil Slinger</p> <p><b>Tip</b> Use a press with the <a href="#">DT-48077</a> in order to install the slinger.</p> <p><b>Special Tools</b></p> <p><a href="#">DT-48077</a> Output Shaft Slinger Installer</p>
	Transfer Case Rear Output Shaft Flange

2	<p><b>Tip</b> Use a press with the <a href="#">J 5590</a> to install the flange.</p> <p><b>Special Tools</b></p> <p><a href="#">J 5590</a> Pinion Bearing Race Installer - Rear</p>
3	<p>Transfer Case Rear Output Shaft Nut</p> <p><b>Caution:</b> Refer to <a href="#">Fastener Caution</a> in the Preface section.</p> <p><b>Tip</b> Use the <a href="#">J-08614-A</a> and a 30 mm socket or the <a href="#">J 29873</a> .</p> <p><b>Tighten</b> 235 N·m (173 lb ft)</p> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• <a href="#">J-08614-A</a> Pinion Flange Holder and Remove</li> <li>• <a href="#">J 29873</a> Injector Nozzle Socket 30 mm</li> </ul>

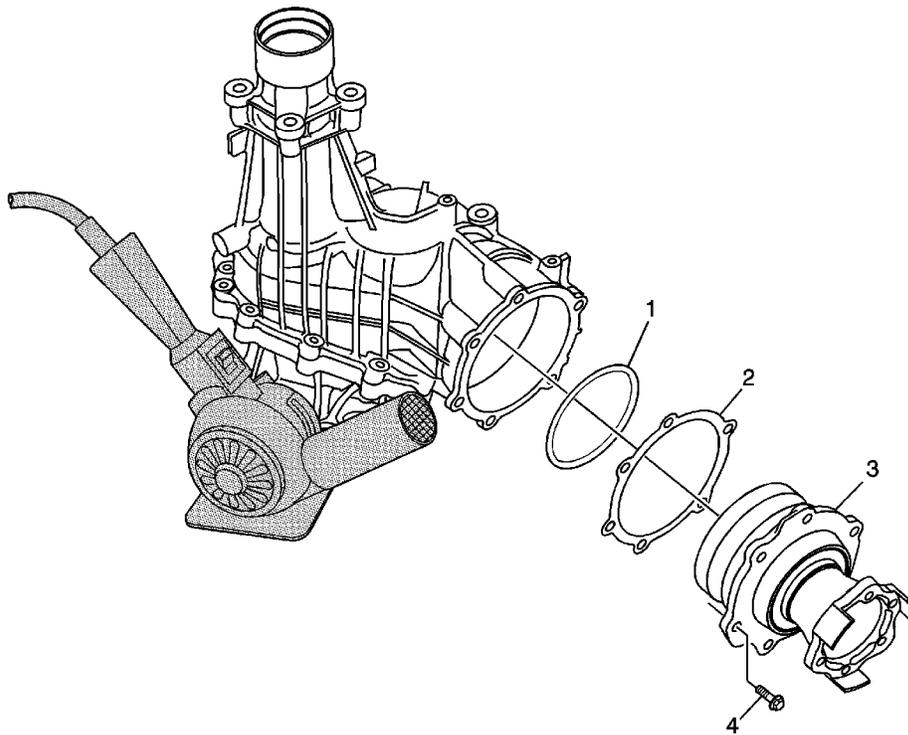
## Right Transfer Case, Input Shaft, and Output Drive Shaft Installation



### Right Transfer Case, Input Shaft, and Output Drive Shaft Installation

Callout	Component Name
1	Transfer Case Half Locating Pin (Qty: 2)
2	Transfer Case Rear Output Drive Shaft
3	Transfer Case Input Shaft <b>Tip</b> Install the input and output shafts as a set with the splines engaged.
4	Transfer Case Seal
5	Transfer Case - Right
6	Transfer Case Half Bolt (Qty: 11) <b>Caution:</b> Refer to <a href="#">Fastener Caution</a> in the Preface section. <b>Tighten</b> 29 N·m (21 lb ft)

### Rear Output Shaft Housing Installation

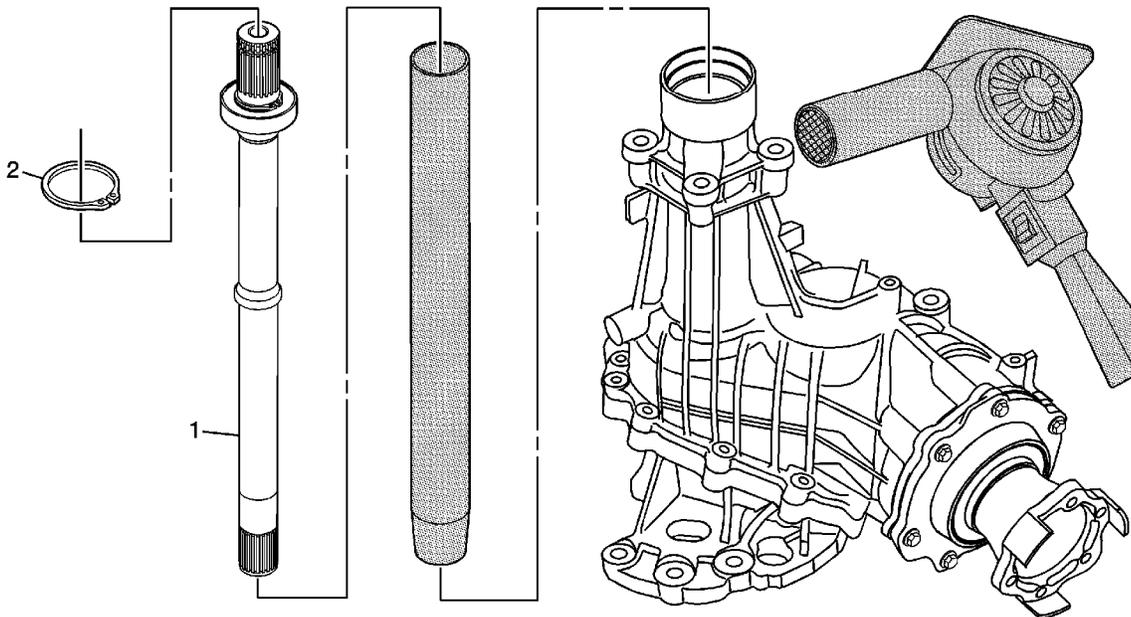


### Rear Output Shaft Housing Installation

Callout	Component Name
1	Transfer Case Rear Output Shaft Housing Seal O-Ring
2	Transfer Case Rear Output Shim

<p>3</p>	<p>Transfer Case Rear Output Shaft Housing</p> <p><b>Caution:</b> Do not use a drive hammer when the splines are not engaged. Use of a drive hammer when the splines are not engaged will damage the output shaft teeth.</p> <p><b>Tip</b></p> <ul style="list-style-type: none"> <li>• Use of a heat gun allows easy alignment of the bolt holes to the housing during assembly.</li> <li>• Rotate the pinion gear during assembly to engage the gear teeth.</li> </ul> <p><b>Special Tools</b></p> <p><a href="#">J 25070</a> Heat Gun - 500-750F</p>
<p>4</p>	<p>Transfer Case Rear Output Shaft Housing Bolt (Qty: 6)</p> <p><b>Caution:</b> Refer to <a href="#">Fastener Caution</a> in the Preface section.</p> <p><b>Tighten</b> 29 N·m (21 lb ft)</p>

## Intermediate Drive Shaft Installation

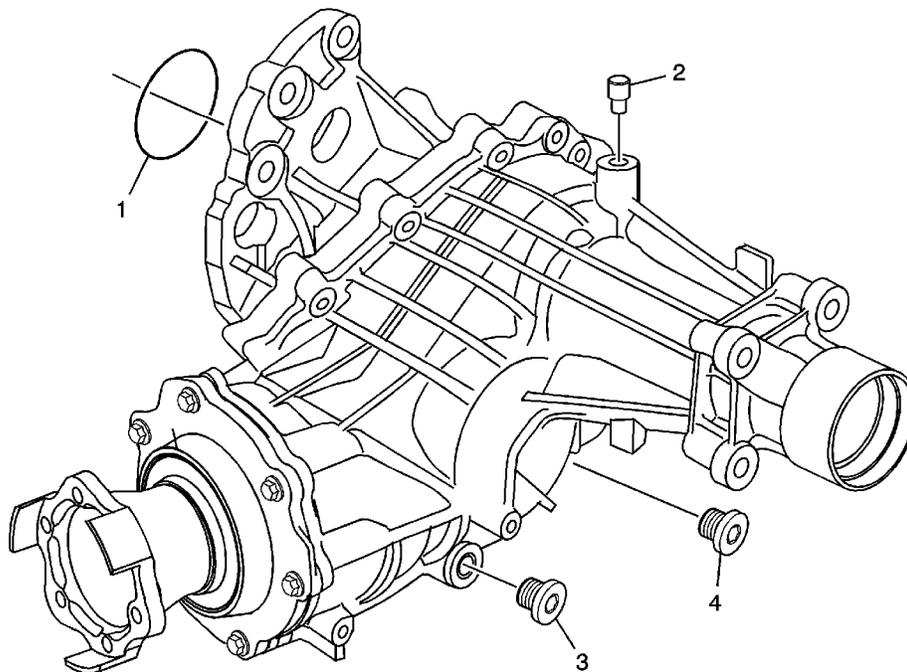


## Intermediate Drive Shaft Installation

Callout	Component Name
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1	<p>Front Wheel Drive Intermediate Shaft</p> <p><b>Caution:</b> DT-48094 must be used over the intermediate shaft prior to installation in order to protect the intermediate shaft seal from damage.</p> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• <a href="#">DT-48094</a> Inner Drive Shaft Seal Protector</li> <li>• <a href="#">J 25070</a> Heat Gun - 500-750F</li> </ul>
2	Front Wheel Drive Retainer

## Housing O-Ring, Vent Assembly, Drain and Fill Plug Installation



### Housing O-Ring, Vent Assembly, Drain and Fill Plug Installation

Callout	Component Name
1	Transfer Case O-Ring Seal
2	Transfer Case Vent Assembly <b>Tip</b> Replace the vent if damaged or blocked.
3	Drain Plug <b>Caution:</b> Refer to <a href="#">Fastener Caution</a> in the Preface section.

	<b>Tighten</b> <b>39 N·m (29 lb ft)</b>
4	Fill Plug <b>Tighten</b> <b>39 N·m (29 lb ft)</b>