

**2018 TRANSMISSION****Power Transfer Unit/Transfer Case - AAM - Equinox & Terrain****SPECIFICATIONS****FASTENER SPECIFICATIONS****Single Use Non-Threaded Fasteners/Components**

| <b>NOTE:</b><br><b>All fasteners/components listed in this table MUST BE DISCARDED and replaced with NEW after removal.</b> |  |
|-----------------------------------------------------------------------------------------------------------------------------|--|
| Application                                                                                                                 |  |
| Power Transfer Unit Actuator Seal O-Ring                                                                                    |  |
| Power Transfer Unit Alignment Sleeve                                                                                        |  |
| Power Transfer Unit Cover Housing Seal                                                                                      |  |
| Power Transfer Unit Face Seal                                                                                               |  |
| Power Transfer Unit Half Shaft Retainer                                                                                     |  |
| Power Transfer Unit Half Shaft Seal O-Ring                                                                                  |  |
| Power Transfer Unit Idler Gear Shaft Tube O-ring - Rear                                                                     |  |
| Power Transfer Unit Input Shaft Seal - Front                                                                                |  |
| Power Transfer Unit Rear Output Shaft Seal                                                                                  |  |
| Power Transfer Unit Propeller Shaft Retainer                                                                                |  |

**Single Use Threaded Fastener/Component Tightening Specifications**

| <b>NOTE:</b><br><b>All fasteners/components listed in this table MUST BE DISCARDED and replaced with NEW after removal.</b> |                                                 |
|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Application                                                                                                                 | Specification                                   |
|                                                                                                                             | Metric (English)                                |
| Power Transfer Unit Drain Plug                                                                                              | 40 N.m (30 lb ft)                               |
| Power Transfer Unit Fill Plug                                                                                               | 40 N.m (30 lb ft)                               |
| Power Transfer Unit Extension Housing Bolt<br>Refer to procedure for tightening sequence and torque values.                 | <b><u>Power Transfer Unit Case Assemble</u></b> |

**Reusable Threaded Fastener Tightening Specifications**

| <b>NOTE:</b><br><b>All fasteners listed in this table can be reused after removal.</b> |                    |
|----------------------------------------------------------------------------------------|--------------------|
| Application                                                                            | Specification      |
|                                                                                        | Metric (English)   |
| Power Transfer Unit Actuator Bolt                                                      | 9 N.m (80 lb in)   |
| Power Transfer Unit Case Bracket @Engine Bolt                                          | 22 N.m (16 lb ft)  |
| Power Transfer Unit Case Bracket @Engine Bolt                                          | 58 N.m (43 lb ft)  |
| Power Transfer Unit Case Bracket @Rear Extension Housing Bolt                          | 22 N.m (16 lb ft)  |
| Power Transfer Unit Case@Transmission Bolt                                             | 100 N.m (74 lb ft) |
| Power Transfer Unit Vent Hose Connector                                                | 20 N.m (15 lb ft)  |

**APPROXIMATE FLUID CAPACITIES**

| Application                                                                            | Specification |         |
|----------------------------------------------------------------------------------------|---------------|---------|
|                                                                                        | Metric        | English |
| Power Transfer Unit (PTU) AAM                                                          |               |         |
| Power Transfer Unit Oil                                                                | 0.5 liters    | .53 qt  |
| <b>NOTE:</b><br><b>Correct fill level is 11 mm (0.43) in below the fill plug hole.</b> |               |         |

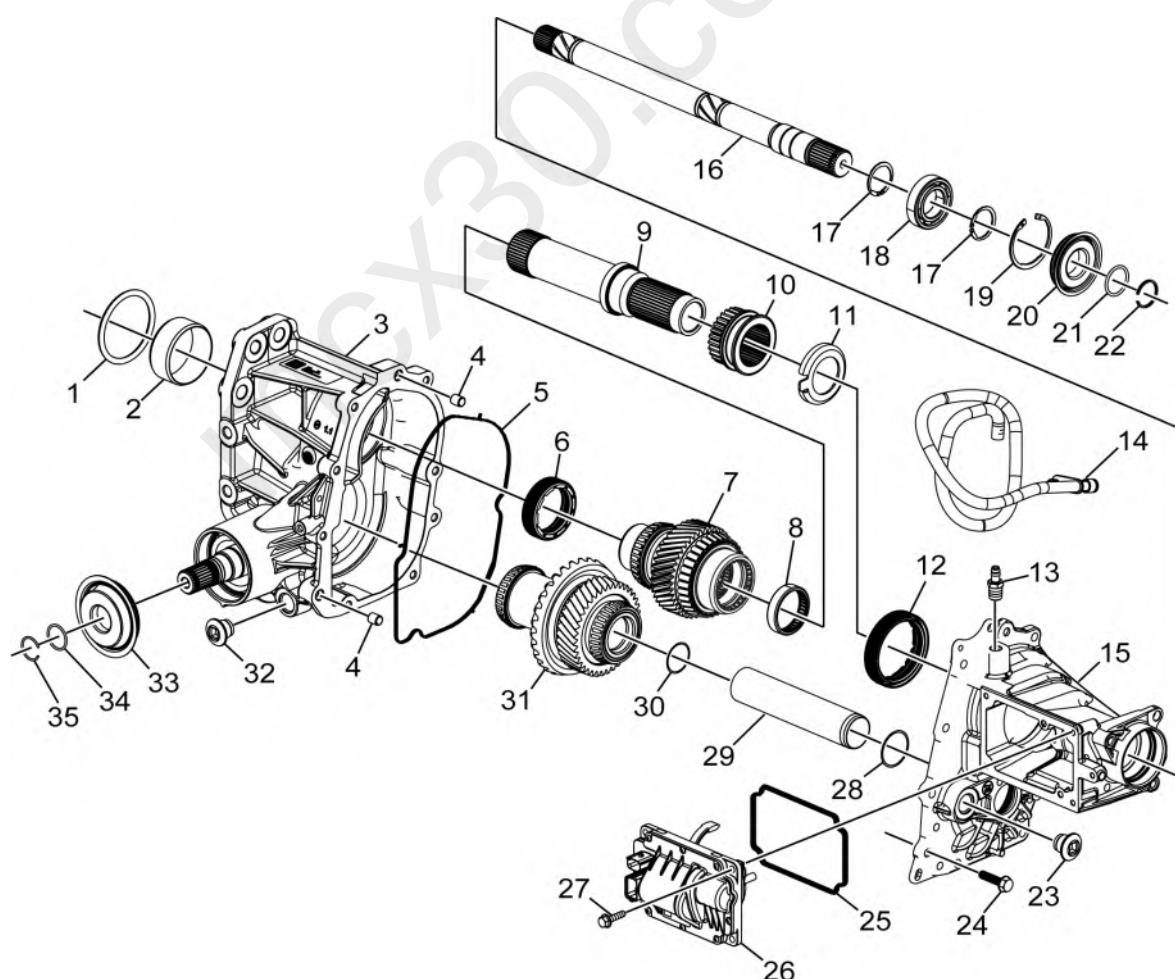
## ADHESIVES, FLUIDS, LUBRICANTS, AND SEALERS

| Application                                         | Type of Material | GM Part Number |          |
|-----------------------------------------------------|------------------|----------------|----------|
|                                                     |                  | United States  | Canada   |
| Extension Housing-to-Main Housing Bolts             | Threadlocker     | 19332211       | 10953488 |
| Intermediate Drive Shaft-to-Axle Half Shaft Splines | Lubricant        | 1051344        | 00993037 |
| Main and Extension Housing Threaded Holes           | Cleaner          | 88862650       | 88901247 |
| Power Transfer Unit Oil                             | Lubricant        | 19351882       | 19351883 |
| Propeller Shaft-to-Rear Output Shaft Splines        | Lubricant        | 1051344        | 00993037 |
| Vent Hose Connector Threads                         | Sealant          | 19333512       | 10953480 |

## COMPONENT LOCATOR

### POWER TRANSFER UNIT CASE DISASSEMBLED VIEW

#### Power Transfer Unit Components



**Fig. 1: Power Transfer Unit Case Disassembled View**

Courtesy of GENERAL MOTORS COMPANY

| Callout | Component Name                       |
|---------|--------------------------------------|
| 1       | Power Transfer Unit Face Seal        |
| 2       | Power Transfer Unit Alignment Sleeve |

| Callout | Component Name                                                           |
|---------|--------------------------------------------------------------------------|
| 3       | Power Transfer Unit Case                                                 |
| 4       | Power Transfer Unit Locating Pin [2x]                                    |
| 5       | Power Transfer Unit Cover Housing Seal                                   |
| 6       | Power Transfer Unit Input Shaft Seal- Front                              |
| 7       | Power Transfer Unit Input Shaft                                          |
| 8       | Power Transfer Unit Pinion Compression Sleeve                            |
| 9       | Power Transfer Unit Shift Actuator Shaft                                 |
| 10      | Power Transfer Unit Shift Actuator Gear                                  |
| 11      | Power Transfer Unit Shift Actuator Locker                                |
| 12      | Power Transfer Unit Input Shaft Seal- Rear                               |
| 13      | Power Transfer Unit Vent Hose Connector                                  |
| 14      | Power Transfer Unit Vent Hose                                            |
| 15      | Power Transfer Unit Extension Housing                                    |
| 16      | Power Transfer Unit Intermediate Drive Shaft                             |
| 17      | Power Transfer Unit Intermediate Drive Shaft Bearing Retaining Ring [2x] |
| 18      | Power Transfer Unit Intermediate Drive Shaft Bearing                     |
| 19      | Power Transfer Unit Intermediate Drive Shaft Clip                        |
| 20      | Power Transfer Unit Cover-to-Intermediate Drive Shaft Seal               |
| 21      | Power Transfer Unit Half Shaft SealO-Ring                                |
| 22      | Power Transfer Unit Half Shaft Retainer Clip                             |
| 23      | Power Transfer Unit Fill Plug                                            |
| 24      | Power Transfer Unit Extension Housing Bolt [9x]                          |
| 25      | Power Transfer Unit Shift Actuator Seal                                  |
| 26      | Power Transfer Unit Shift Actuator                                       |
| 27      | Power Transfer Unit Shift Actuator Bolt [4x]                             |
| 28      | Power Transfer Unit Idler Gear Shaft Tube O-ring - Rear                  |
| 29      | Power Transfer Unit Idler Gear Shaft Access Tube                         |
| 30      | Power Transfer Unit Idler Gear Shaft Tube O-ring - Front                 |
| 31      | Power Transfer Unit Idler Gear Shaft                                     |
| 32      | Power Transfer Unit Drain Plug                                           |
| 33      | Power Transfer Unit Propeller Shaft Seal                                 |
| 34      | Power Transfer Unit Propeller Shaft Seal O-Ring                          |
| 35      | Power Transfer Unit Propeller Shaft Retainer                             |

## DIAGNOSTIC INFORMATION AND PROCEDURES

### SYMPTOMS - POWER TRANSFER UNIT CASE

#### Strategy Based Diagnostics

Review the system operations in order to familiarize yourself with the system functions. Refer to [Power Transfer Unit Case Disassembled View](#), [Power Transfer Unit Case Description and Operation](#), and [Rear Drive Axle Description and Operation](#) . All diagnosis on a vehicle should follow a logical process. Strategy based diagnostics is a uniform approach for repairing all systems. The diagnostic flow may always be used in order to resolve a system condition. The diagnostic flow is the place to start when repairs are necessary. For a detailed explanation, refer to [Strategy Based Diagnosis](#) .

#### Visual/Physical Inspection

- Inspect for aftermarket devices, which could affect the operation of the vehicle. 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 the correct lubricant levels and the proper viscosities.
- Verify the exact operating conditions under which the concern exists. Note factors such as vehicle speed, road conditions, ambient temperature, and other specifics.

- Compare the driving characteristics or sounds, if applicable, to a known good vehicle and ensure you are not trying to correct a normal condition.

## Intermittent

Test the vehicle under the same conditions that the customer reported in order to verify the system is operating properly.

## Symptom List

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

- [Diagnostic System Check - Vehicle](#) .
- [Noisy in Drive](#).
- [Noisy When Coasting](#).
- [Intermittent Noise](#).
- [Constant Noise](#).
- [Power Transfer Unit Case Leak Diagnosis](#).

## NOISY IN DRIVE

| Cause                                                                                      | Correction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inspect for the proper transaxle and gear oil levels prior to performing system diagnosis. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Low gear oil level                                                                         | Inspect the power transfer unit for leaks, repair as required.<br><a href="#">Power Transfer Unit Case Leak Diagnosis</a> , and <a href="#">Adhesives, Fluids, Lubricants, and Sealers</a>                                                                                                                                                                                                                                                                                                                                                      |
| Incorrect gear oil in the power transfer unit                                              | Replace the gear oil.<br><a href="#">Adhesives, Fluids, Lubricants, and Sealers</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Water or contamination within the power transfer unit oil                                  | Flush the contaminated fluid from the unit and replace with new oil.                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Worn propeller shaft constant velocity joints                                              | Replace propeller shaft assembly.<br><a href="#">Two-Piece Propeller Shaft Replacement</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Worn or noisy wheel bearings                                                               | Replace the wheel bearings as required.<br><a href="#">Wheel Bearings Diagnosis</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Worn wheel drive shaft constant velocity joints                                            | Replace the constant velocity joints, as required.<br><a href="#">Front Wheel Drive Half Shaft Replacement - Left Side</a> , <a href="#">Front Wheel Drive Half Shaft Replacement - Right Side (AWD)</a> <a href="#">Front Wheel Drive Half Shaft Replacement - Right Side (M3U, MHG, MNH, MNK with FWD)</a> <a href="#">Front Wheel Drive Half Shaft Replacement - Right Side (M3D, M3H with FWD)</a> , <a href="#">Rear Wheel Drive Shaft Replacement - Left Side</a> , and <a href="#">Rear Wheel Drive Shaft Replacement - Right Side</a> . |

| Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Correction                                                                                                                                                                                                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Bearing noise within the power transfer unit</p> <ul style="list-style-type: none"> <li>• A grinding noise that occurs at a specific engine speed, regardless of transmission gear, is not within the power transfer unit.</li> <li>• A grinding noise that changes as a transmission shift occurs is not within the power transfer unit.</li> <li>• A grinding noise that changes as vehicle speed changes may be also caused by worn wheel bearings.</li> <li>• A grinding noise that changes as the vehicle turns may also be caused by worn wheel bearings and/or tires.</li> </ul> | <ol style="list-style-type: none"> <li>1. Inspect for the proper power transfer unit fluid level. Fill, as required.</li> <li>2. Identify the location of the noise using the <b>J-39570</b> Chassis Ears.</li> <li>3. If the noise continues, inspect the power transfer unit internal components. If damage is present, replace the assembly as required.</li> </ol> |
| <p>Gear set whine noise within the power transfer unit</p> <ul style="list-style-type: none"> <li>• A whine noise that occurs at a specific engine speed, regardless of transmission gear, is not within the power transfer unit.</li> <li>• A whine noise that changes as a transmission shift occurs is not within the power transfer unit.</li> <li>• A whine noise that changes as vehicle speed changes may be also caused by worn wheel bearings.</li> <li>• A whine noise that changes as the vehicle turns may also be caused by worn wheel bearings and/or tires.</li> </ul>      | <ol style="list-style-type: none"> <li>1. Inspect for the proper power transfer unit fluid level. Fill, as required.</li> <li>2. Identify the location of the noise using the <b>J-39570</b> Chassis Ears.</li> <li>3. If the noise continues, inspect the power transfer unit internal components. If damage is present, replace the assembly as required.</li> </ol> |

## NOISY WHEN COASTING

| Cause                                                                                      | Correction                                                                                                                                                                             |
|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inspect for the proper transaxle and gear oil levels prior to performing system diagnosis. |                                                                                                                                                                                        |
| Low gear oil level                                                                         | Inspect the power transfer unit for leaks, repair as required.<br><b><u>Power Transfer Unit Case Leak Diagnosis</u></b> , and <b><u>Adhesives, Fluids, Lubricants, and Sealers</u></b> |
| Incorrect gear oil in the power transfer unit                                              | Replace the gear oil.<br><b><u>Adhesives, Fluids, Lubricants, and Sealers</u></b>                                                                                                      |
| Worn propeller shaft constant velocity joints                                              | Replace propeller shaft assembly.<br><b><u>Two-Piece Propeller Shaft Replacement</u></b>                                                                                               |
|                                                                                            |                                                                                                                                                                                        |

| Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Correction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Worn wheel drive shaft constant velocity joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Replace the constant velocity joints, as required.<br><u>Front Wheel Drive Half Shaft Replacement - Left Side</u> , <u>Front Wheel Drive Half Shaft Replacement - Right Side (AWD)</u> <u>Front Wheel Drive Half Shaft Replacement - Right Side (M3U, MHG, MNH, MNK with FWD)</u> <u>Front Wheel Drive Half Shaft Replacement - Right Side (M3D, M3H with FWD)</u> , <u>Rear Wheel Drive Shaft Replacement - Left Side</u> , and <u>Rear Wheel Drive Shaft Replacement - Right Side</u> . |
| Bearing noise within the power transfer unit <ul style="list-style-type: none"> <li>• A grinding noise that occurs at a specific engine speed, regardless of transmission gear, is not within the power transfer unit.</li> <li>• A grinding noise that changes as a transmission shift occurs is not within the power transfer unit.</li> <li>• A grinding noise that changes as vehicle speed changes may be also caused by worn wheel bearings.</li> <li>• A grinding noise that changes as the vehicle turns may also be caused by worn wheel bearings and/or tires.</li> </ul>                           | <ol style="list-style-type: none"> <li>1. Inspect for the proper power transfer unit fluid level. Fill, as required.</li> <li>2. Identify the location of the noise using the <b>J-39570</b> Chassis Ears.</li> <li>3. If the noise continues, inspect the power transfer unit internal components. If damage is present, replace the assembly as required.</li> </ol>                                                                                                                    |
| Gear set whine noise within the transfer case <ul style="list-style-type: none"> <li>• A whine noise that occurs at a specific engine speed, regardless of transmission gear, is not within the power transfer unit.</li> </ul> <p>A whine noise that changes as a transmission shift occurs is not within the power transfer unit.</p> <ul style="list-style-type: none"> <li>• A whine noise that changes as vehicle speed changes may be also caused by worn wheel bearings.</li> <li>• A whine noise that changes as the vehicle turns may also be caused by worn wheel bearings and/or tires.</li> </ul> | <ol style="list-style-type: none"> <li>1. Inspect for the proper power transfer unit fluid level. Fill, as required.</li> <li>2. Identify the location of the noise using the <b>J-39570</b> Chassis Ears.</li> <li>3. If the noise continues, inspect the power transfer unit internal components. If damage is present, replace the assembly as required.</li> </ol>                                                                                                                    |

## INTERMITTENT NOISE

| Cause                                                                                      | Correction                                                                            |
|--------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Inspect for the proper transaxle and gear oil levels prior to performing system diagnosis. |                                                                                       |
| Incorrect gear oil in the power transfer unit                                              | Replace the gear oil.<br>Refer to <u>Adhesives, Fluids, Lubricants, and Sealers</u> . |
|                                                                                            |                                                                                       |

| Cause                                                                                                       | Correction                                                                |
|-------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Power transfer unit bearing.<br>A chatter or ratcheting type noise during hard acceleration on tight turns. | Confirm noise is coming from the power transfer unit. Repair as required. |

## CONSTANT NOISE

| Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Correction                                                                                                                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inspect for the proper transaxle and gear oil levels prior to performing system diagnosis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                               |
| Low gear oil level                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Inspect the power transfer unit for leaks, repair as required.<br>Refer to <a href="#">Power Transfer Unit Case Leak Diagnosis</a> , and <a href="#">Adhesives, Fluids, Lubricants, and Sealers</a> .                                                                                                                                                         |
| Incorrect gear oil in the power transfer unit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Replace the gear oil.<br>Refer to <a href="#">Adhesives, Fluids, Lubricants, and Sealers</a> .                                                                                                                                                                                                                                                                |
| Worn propeller shaft constant velocity joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Replace propeller shaft assembly.<br>Refer to <a href="#">Two-Piece Propeller Shaft Replacement</a> .                                                                                                                                                                                                                                                         |
| Bearing noise within the power transfer unit <ul style="list-style-type: none"> <li>A grinding noise that occurs at a specific engine speed, regardless of transmission gear, is not within the power transfer unit.</li> <li>A grinding noise that changes as a transmission shift occurs is not within the power transfer unit.</li> <li>A grinding noise that changes as vehicle speed changes may be also caused by worn wheel bearings.</li> <li>A grinding noise that changes as the vehicle turns may also be caused by worn wheel bearings and/or tires.</li> </ul> | <ol style="list-style-type: none"> <li>Inspect for the proper power transfer unit fluid level. Fill, as required.</li> <li>Identify the location of the noise using the <b>J-39570</b> Chassis Ears.</li> <li>If the noise continues, inspect the power transfer unit internal components. If damage is present, replace the assembly as required.</li> </ol> |
| Gear set whine noise within the power transfer unit <ul style="list-style-type: none"> <li>A whine noise that occurs at a specific engine speed, regardless of transmission gear, is not within the power transfer unit.</li> <li>A whine noise that changes as a transmission shift occurs is not within the power transfer unit.</li> <li>A whine noise that changes as vehicle speed changes may be also caused by worn wheel bearings.</li> <li>A whine noise that changes as the vehicle turns may also be caused by worn wheel bearings and/or tires.</li> </ul>      | <ol style="list-style-type: none"> <li>Inspect for the proper power transfer unit fluid level. Fill, as required.</li> <li>Identify the location of the noise using the <b>J-39570</b> Chassis Ears.</li> <li>If the noise continues, inspect the power transfer unit internal components. If damage is present, replace the assembly as required.</li> </ol> |

## POWER TRANSFER UNIT CASE LEAK DIAGNOSIS

| Cause                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Correction                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>DEFINITION: A visible indication of an external fluid leak from the power transfer unit.</p> <p>Review the <a href="#">Symptoms - Power Transfer Unit Case</a>, and <a href="#">Power Transfer Unit Case Description and Operation</a> and perform the necessary inspections. See below for suggested diagnostic method(s).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• <b>GE-28431-6</b> Fluorescent Oil Dye</li> <li>• <b>GE-28428-E</b> High Intensity Black Light Kit</li> </ul> <p>For equivalent regional tools, refer to <a href="#">Special Tools</a>.</p> <p><b>Fluorescent Dye Method</b></p> <ol style="list-style-type: none"> <li>1. Add <b>GE-28431-6</b> Fluorescent dye to the transmission or power transfer unit to determine the source of the leak.</li> <li>2. Operate the vehicle.</li> <li>3. Inspect for the presence of dye within the oil leak using the <b>GE-28428-E</b> High Intensity Black Light Kit. A presence or non-presence of dye within the oil leak will indicate which component is the source of the leak.</li> </ol> <p><b>Powder Method</b></p> <p><b>CAUTION:</b></p> <p><b>Do not clean using brake cleaner or other reactive solvents as these solvents can damage rubber gaskets, seals and bushings.</b></p> <ol style="list-style-type: none"> <li>1. Thoroughly clean the suspected leak area using a rag.</li> <li>2. Apply an aerosol type leak tracing powder to the suspected leak area.</li> </ol> <p><b>NOTE:</b></p> <p><b>Do not drive the vehicle on the freeway as this will splatter oil inhibiting leak diagnosis.</b></p> <ol style="list-style-type: none"> <li>3. Operate the vehicle for 15 - 20 minutes under city driving conditions until normal operating temperatures are reached.</li> <li>4. Shut OFF the engine.</li> <li>5. Inspect the suspected leak area.</li> <li>6. Trace the leak path through the powder in order to find the source of the leak.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Drain plug or fill plug leak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <ol style="list-style-type: none"> <li>1. Inspect for dirty, worn, scored sealing surfaces, or missing drain and/or fill plug sealing washers.</li> <li>2. Replace as required.</li> </ol>                                                                                                                                                                                                                                                                 |
| Restricted or damaged ventilation hose assembly                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Replace the ventilation hose assembly, as required.                                                                                                                                                                                                                                                                                                                                                                                                        |
| Leaking at the power transfer unit left side weep hole                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <ol style="list-style-type: none"> <li>1. Operate the vehicle.</li> <li>2. Inspect for an oil leak at the weep hole location. Refer to <a href="#">Power Transfer Unit Case Description and Operation</a> for the weep hole location.</li> </ol> <p><b>NOTE:</b></p> <p><b>An oil leak at the power transfer unit weep hole location is caused by the power transfer unit input shaft oil seal-front.</b></p> <p>Replace input shaft oil seal - front.</p> |

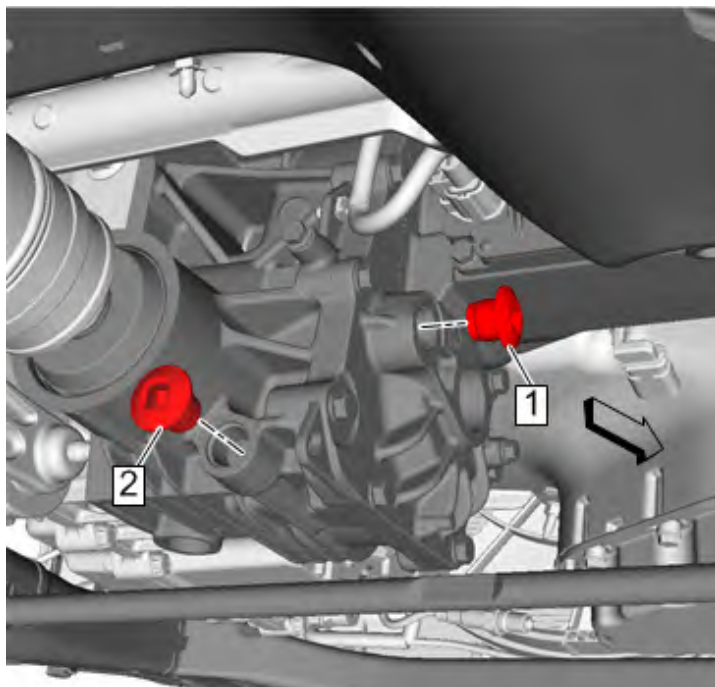
| Cause                                                                                                                                                                                                                       | Correction                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Leaking at the power transfer unit right side weep hole<br>A transmission or gear oil leak at the power transfer unit right side weep hole is caused by the input shaft seal located in the extension housing.              | Replace the input shaft seal-rear.                                                                                                                                                                                                                                                   |
| Leaking ATF at the right side axle shaft-to-intermediate shaft bearing location.                                                                                                                                            | Replace the intermediate drive shaft seal located in the output end of the extension housing.                                                                                                                                                                                        |
| Leaking at rear output shaft area<br>A leak at rear output shaft area is caused by either the rear output shaft seal or the rear output shaft housing O-ring seal.                                                          | Inspect and replace the rear output shaft seal as required.<br>The O-ring is not serviceable on AAM power transfer unit.                                                                                                                                                             |
| Leaking at transaxle assembly-to-transfer case interface<br>A transmission oil leak at the transmission-to-power transfer unit interface may be caused by the transmission-to-power transfer unit O-ring seal or face seal. | <ol style="list-style-type: none"> <li>1. Identify the type of oil leak.</li> <li>2. Replace components as required.</li> </ol> <p><b>NOTE:</b><br/><b>If the leak is transmission or O-ring or face seal related, do not replace the power transfer unit input shaft seals.</b></p> |
| Case half leak at the idler gear shaft tube location                                                                                                                                                                        | Disassemble and replace the idler gear shaft tube O-ring seals as required.                                                                                                                                                                                                          |
| Case half seam leak AAM                                                                                                                                                                                                     | Disassemble and replace the power transfer unit-to-rear extension housing O-ring seal.                                                                                                                                                                                               |
| Leaking through case                                                                                                                                                                                                        | <ul style="list-style-type: none"> <li>• Inspect for a cracked case.</li> <li>• Inspect for case porosity.</li> </ul> <p>Replace the components as required.</p>                                                                                                                     |

## REPAIR INSTRUCTIONS - ON VEHICLE

### POWER TRANSFER UNIT CASE FLUID REPLACEMENT

#### Removal Procedure

1. Raise and suitably support the vehicle. [Lifting and Jacking the Vehicle](#)
2. Remove the power transfer unit heat shield, if equipped. [Power Transfer Unit Heat Shield Replacement \(M3D transmission with LTG engine\)](#)

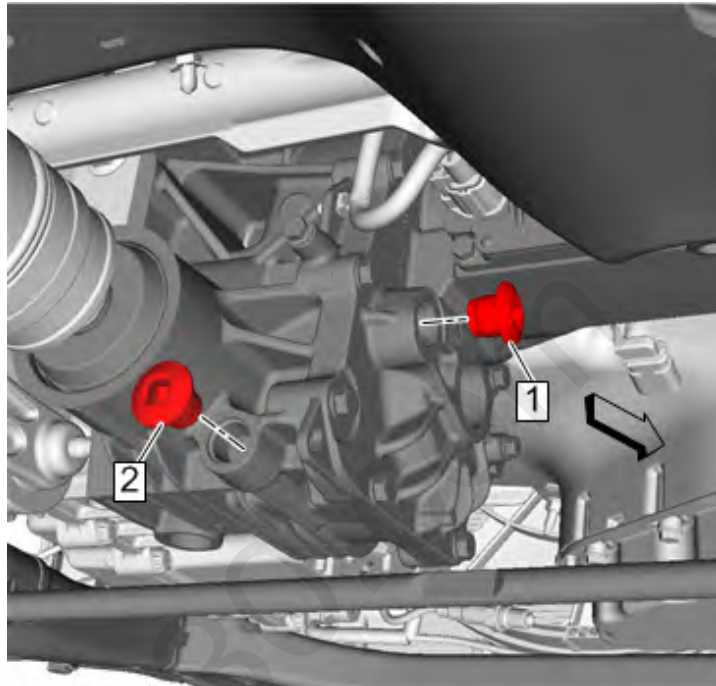


**NOTE:** When performing the following procedure, use only hand tools to remove and install the drain and fill plugs.

**NOTE:** Ensure that an approved drain pan is used when draining the transfer case.

3. Remove and DISCARD the oil drain plug (2) and seal.
4. Remove and DISCARD the fill plug (1) and seal.
5. Allow the transfer case to drain completely.

#### Installation Procedure



**Fig. 3: Oil Drain Plug And Fill Plug**  
Courtesy of GENERAL MOTORS COMPANY

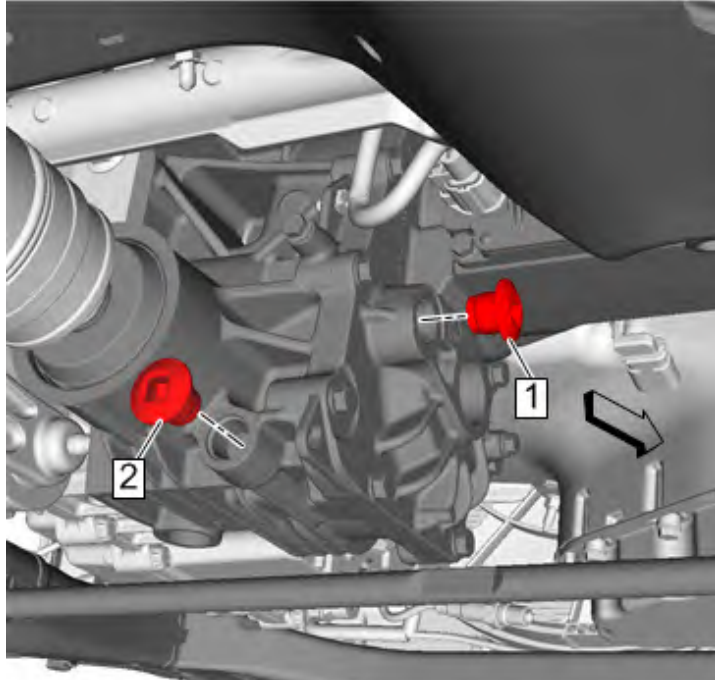
**CAUTION:** Refer to Component Fastener Tightening Caution .

1. Install a NEW drain plug (2) and seal and tighten to 40 N.m (30 lb ft).
2. Fill the transfer case to the bottom of the fill plug hole with the recommended fluid. Adhesives, Fluids, Lubricants, and Sealers, and Approximate Fluid Capacities.
3. Install a NEW fill plug (1) and seal and tighten to 40 N.m (30 lb ft).
4. Install the power transfer unit heat shield, if equipped. Power Transfer Unit Heat Shield Replacement (M3D transmission with LTG engine).
5. Lower the vehicle. Lifting and Jacking the Vehicle

## DRAIN PLUG REPLACEMENT

#### Removal Procedure

1. Raise and suitably support the vehicle. Lifting and Jacking the Vehicle
2. Remove the power transfer unit heat shield, if equipped. Power Transfer Unit Heat Shield Replacement (M3D transmission with LTG engine)



**Fig. 4: Oil Drain Plug And Fill Plug**

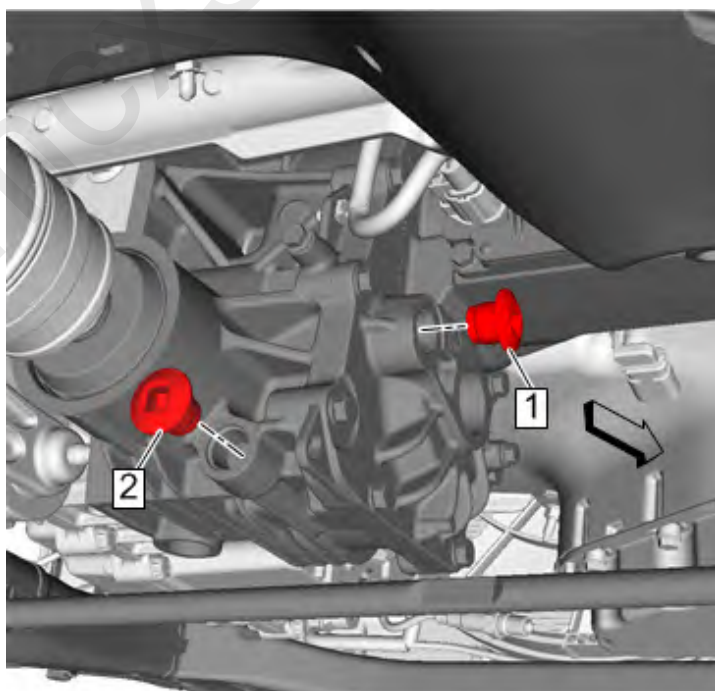
Courtesy of GENERAL MOTORS COMPANY

**NOTE:** When performing the following procedure, use only hand tools to remove and install the drain and fill plugs.

**NOTE:** Ensure that an approved drain pan is used when draining the transfer case.

3. Remove and DISCARD the oil drain plug (2) and seal.
4. Remove and DISCARD the fill plug (1) and seal.
5. Allow the transfer case to drain completely.

#### Installation Procedure



**Fig. 5: Oil Drain Plug And Fill Plug**

Courtesy of GENERAL MOTORS COMPANY

**CAUTION:** Refer to [Component Fastener Tightening Caution](#) .

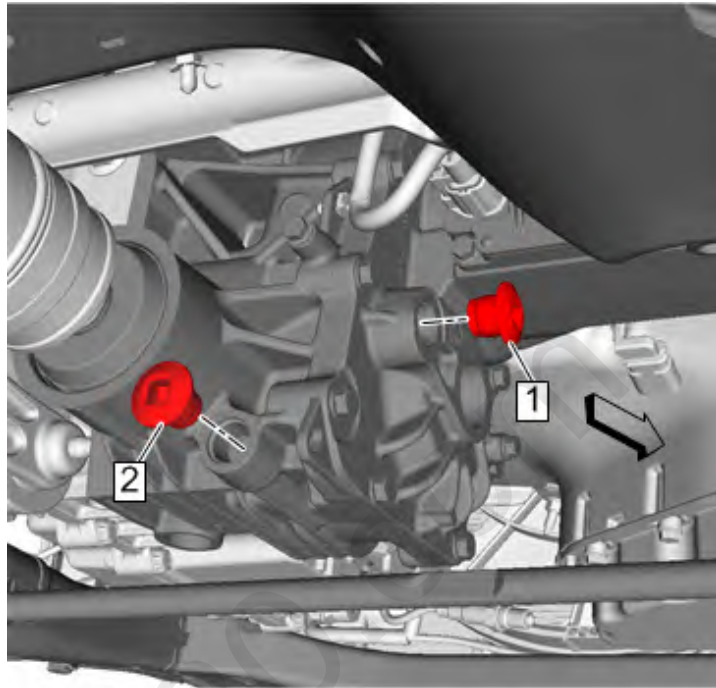
1. Install a NEW drain plug (2) and seal and tighten to 40 N.m (30 lb ft).
2. Fill the transfer case to the bottom of the fill plug hole with the recommended fluid. [Adhesives, Fluids, Lubricants, and Sealers](#), and [Approximate Fluid Capacities](#).

3. Install a NEW fill plug (1) and seal and tighten to 40 N.m (30 lb ft).
4. Install the power transfer unit heat shield, if equipped. [Power Transfer Unit Heat Shield Replacement \(M3D transmission with LTG engine\)](#)
5. Lower the vehicle. [Lifting and Jacking the Vehicle](#)

## FILL PLUG REPLACEMENT

### Removal Procedure

1. Raise and suitably support the vehicle. [Lifting and Jacking the Vehicle](#)
2. Remove the power transfer unit heat shield, if equipped. [Power Transfer Unit Heat Shield Replacement \(M3D transmission with LTG engine\)](#)

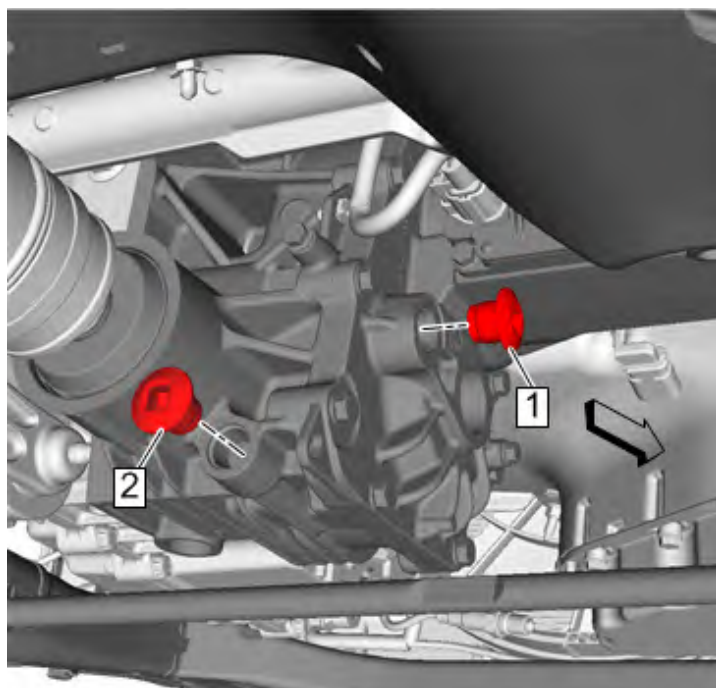


**Fig. 6: Oil Drain Plug And Fill Plug**  
Courtesy of GENERAL MOTORS COMPANY

3. Remove and DISCARD the fill plug (1) and seal.

### Installation Procedure

1. Fill the transfer case to the bottom of the fill plug hole with the recommended fluid. [Adhesives, Fluids, Lubricants, and Sealers](#), and [Approximate Fluid Capacities](#).

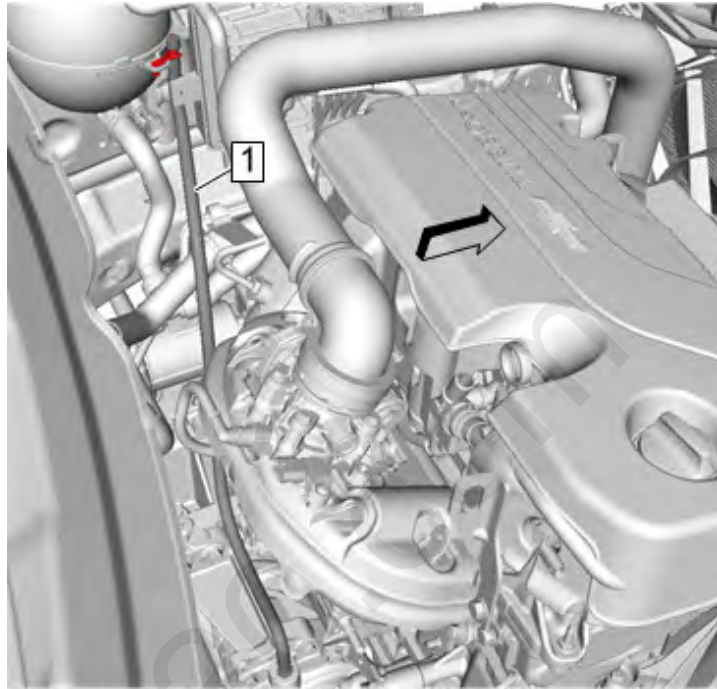


**CAUTION:** Refer to **Component Fastener Tightening Caution** .

2. Install a NEW fill plug (1) and seal and tighten to 40 N.m (30 lb ft).
3. Install the power transfer unit heat shield, if equipped. **Power Transfer Unit Heat Shield Replacement (M3D transmission with LTG engine)**
4. Lower the vehicle. **Lifting and Jacking the Vehicle**

## **POWER TRANSFER UNIT VENT HOSE REPLACEMENT**

### **Removal Procedure**

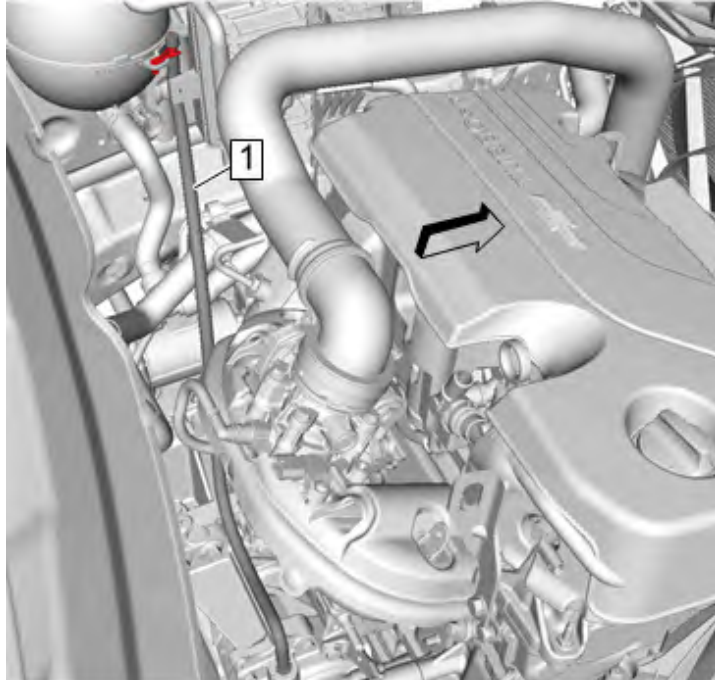


**Fig. 8: Power Transfer Unit Vent Hose**  
Courtesy of GENERAL MOTORS COMPANY

1. Disconnect the power transfer unit vent hose assembly (1) from the radiator surge tank assembly.
2. Raise and support the vehicle. **Lifting and Jacking the Vehicle**
3. Disconnect the power transfer vent hose assembly from the power transfer unit.
4. Remove the power transfer unit vent hose assembly (1) from the vehicle.

### **Installation Procedure**

1. Connect the power transfer unit vent hose assembly to the power transfer unit.
2. Lower the vehicle. **Lifting and Jacking the Vehicle**



**Fig. 9: Power Transfer Unit Vent Hose**

Courtesy of GENERAL MOTORS COMPANY

**NOTE:** Ensure the vent hoses are free of kinks and routed clear of sharp objects.

3. Connect the power transfer unit vent hose assembly (1) to the radiator surge tank assembly.

## **POWER TRANSFER UNIT COVER TO INTERMEDIATE DRIVE SHAFT SEAL REPLACEMENT**

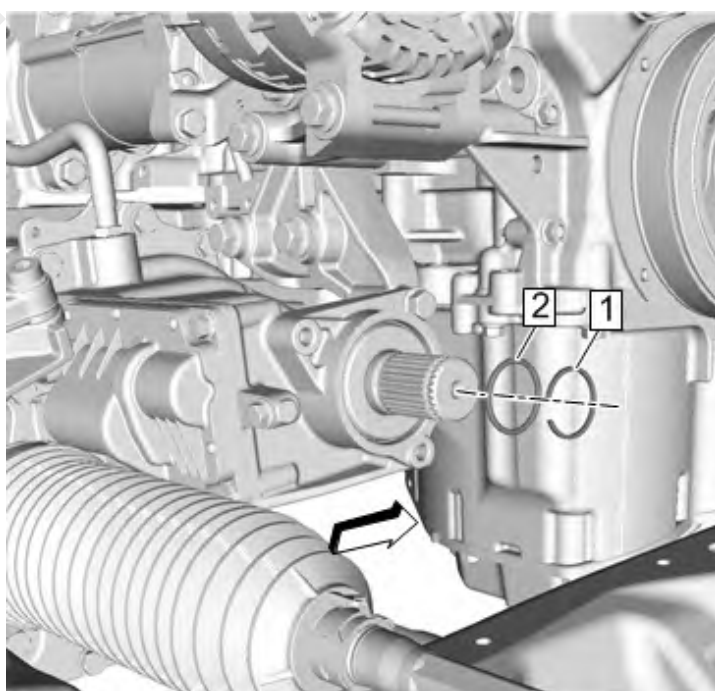
### **Special Tools**

- **DT-305 - 1 Driver Handle**
- **DT-51466 Seal Installer**

Equivalent regional tools: **Special Tools**

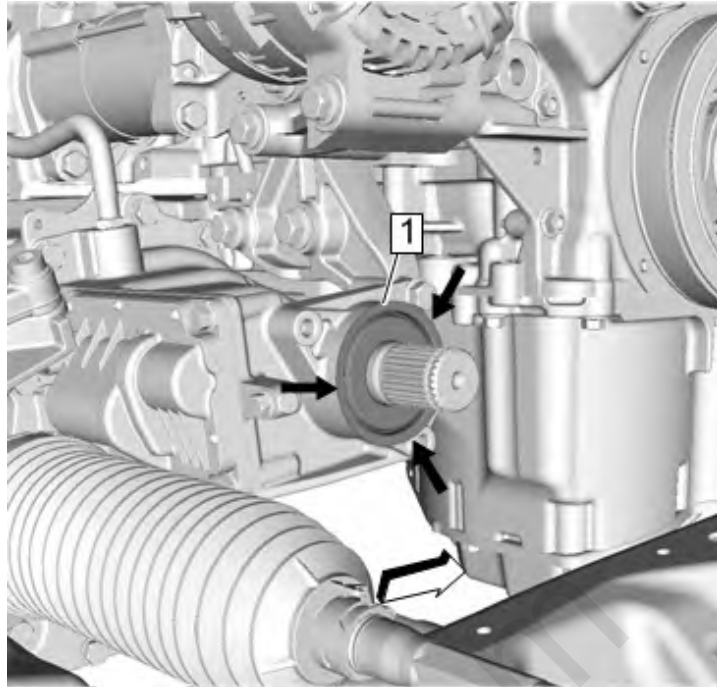
### **Removal Procedure**

1. Remove the right front wheel drive shaft. **Front Wheel Drive Half Shaft Replacement - Right Side (AWD)** **Front Wheel Drive Half Shaft Replacement - Right Side (M3U, MHG, MNH, MNK with FWD)** **Front Wheel Drive Half Shaft Replacement - Right Side (M3D, M3H with FWD)**



**Fig. 10: Wheel Drive Shaft Retainer And Wheel Drive Shaft O-ring**  
Courtesy of GENERAL MOTORS COMPANY

2. Remove and DISCARD the wheel drive shaft retainer (1).
3. Remove and DISCARD the wheel drive shaft O-ring (2).

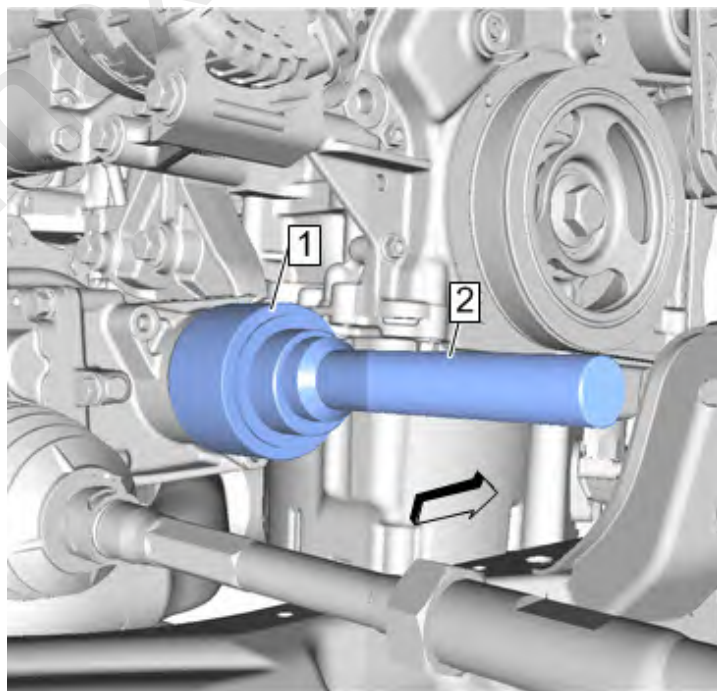


**Fig. 11: Power Transfer Unit Cover To Intermediate Shaft Seal**  
Courtesy of GENERAL MOTORS COMPANY

**NOTE:** Push at OD Flange of the seal as shown to remove from extension housing and shaft.

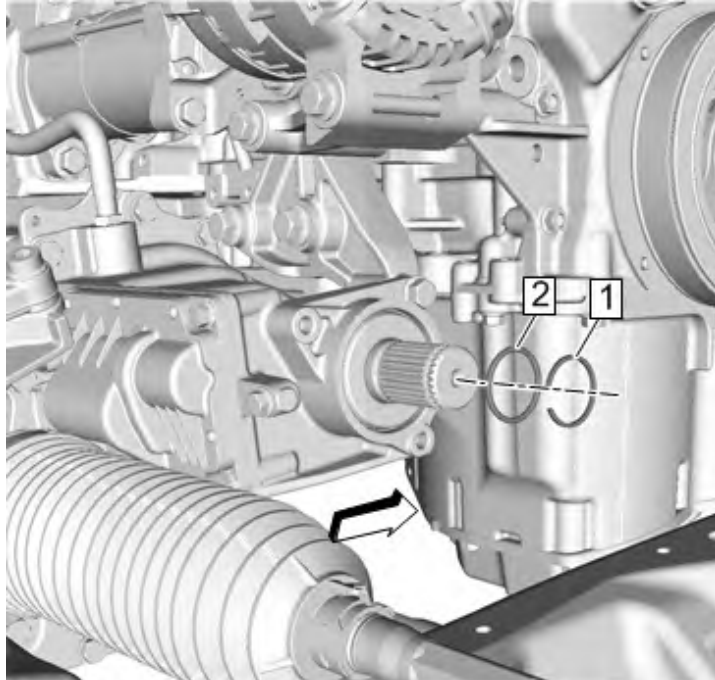
4. Remove and DISCARD the power transfer unit cover to intermediate shaft seal (1).

#### Installation Procedure



**Fig. 12: Seal Installer And Driver Handle**  
Courtesy of GENERAL MOTORS COMPANY

1. Using **DT-51466** Seal Installer (1) and **DT-305 - 1** Driver Handle (2) install the NEW transfer unit output seal.



**Fig. 13: Wheel Drive Shaft Retainer And Wheel Drive Shaft O-ring**  
 Courtesy of GENERAL MOTORS COMPANY

2. Install the NEW wheel drive shaft O-ring (2).
3. Install the NEW wheel drive shaft retainer (1).
4. Install the right front wheel drive shaft. **Front Wheel Drive Half Shaft Replacement - Right Side (AWD)**, **Front Wheel Drive Half Shaft Replacement - Right Side (M3U, MHG, MNH, MNK with FWD)**, **Front Wheel Drive Half Shaft Replacement - Right Side (M3D, M3H with FWD)**

## **OUTPUT SHAFT SEAL REPLACEMENT**

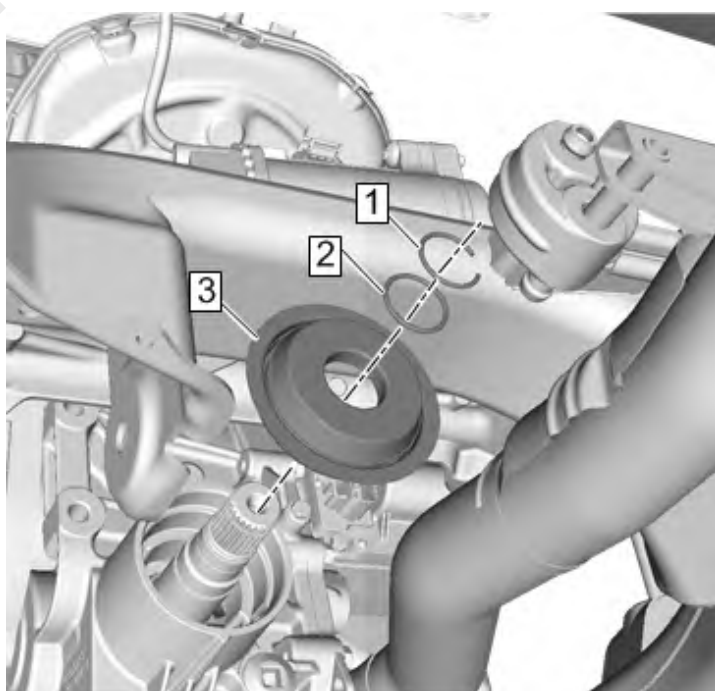
### **Special Tools**

- **DT-305 - 1 Driver Handle**
- **DT-51467 Seal Installer**

Equivalent regional tools: **Special Tools**

### **Removal Procedure**

1. Remove the propeller shaft. **Two-Piece Propeller Shaft Replacement**



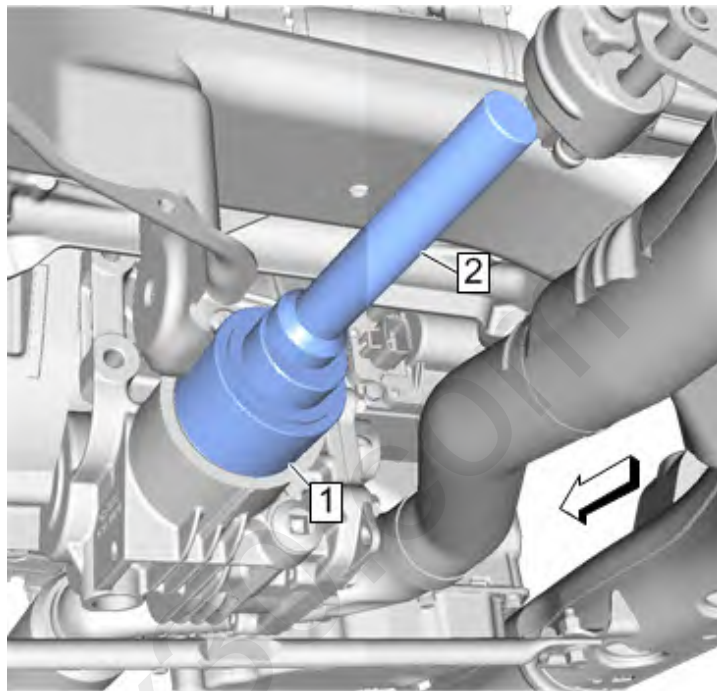
**Fig. 14: Propeller Shaft Retainer And Propeller Shaft O-ring**  
Courtesy of GENERAL MOTORS COMPANY

2. Remove and DISCARD the propeller shaft retainer (1).
3. Remove and DISCARD the propeller shaft O-ring (2).

**NOTE:** Use a suitable flat bladed tool to remove the seal from the housing. Remove the inner part of the seal first and then the outer part of the seal. Use care to prevent damage to the housing seal bore or shaft sealing surface. The seal is to be removed in two pieces.

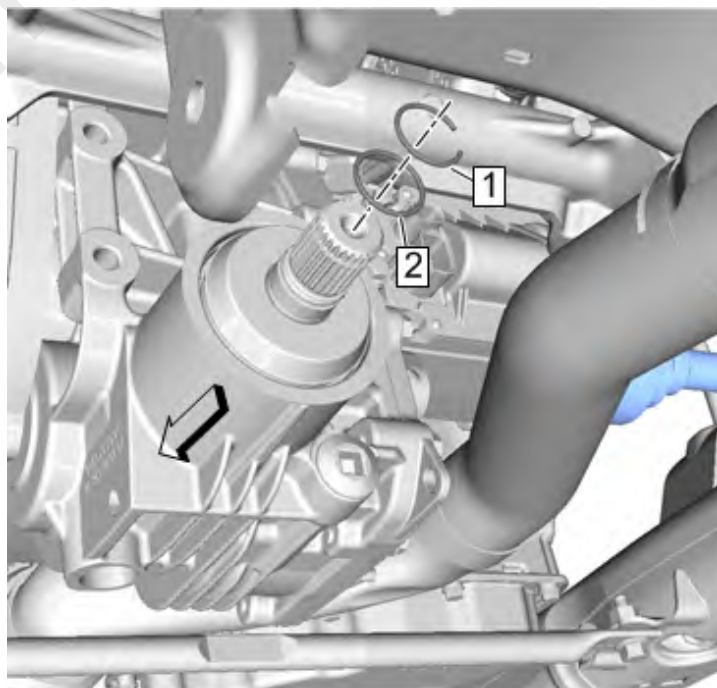
4. Remove and Discard the transfer unit output seal (3).

#### Installation Procedure



**Fig. 15: Seal Installer And Driver Handle**  
Courtesy of GENERAL MOTORS COMPANY

1. Using DT-51467 Seal Installer (1) and DT-305 - 1 Driver Handle (2) install the NEW transfer unit output seal.



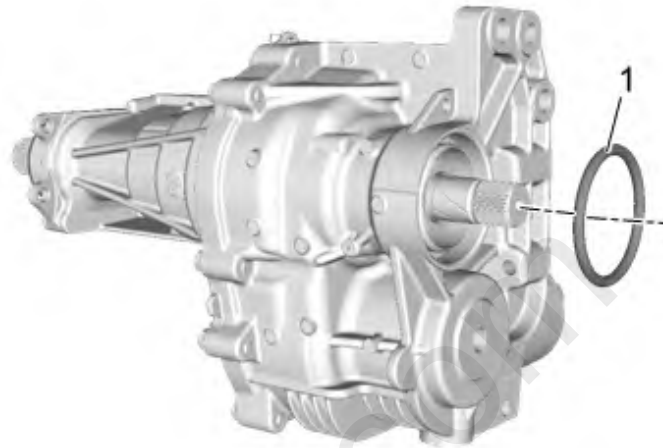
**Fig. 16: Transfer Unit Propeller Shaft O-ring And Retainer**  
Courtesy of GENERAL MOTORS COMPANY

2. Install the NEW transfer unit propeller shaft O-ring (2).
3. Install the NEW transfer unit propeller shaft retainer (1).
4. Install the propeller shaft. [Two-Piece Propeller Shaft Replacement](#)

## **POWER TRANSFER UNIT FACE SEAL REPLACEMENT**

### **Removal Procedure**

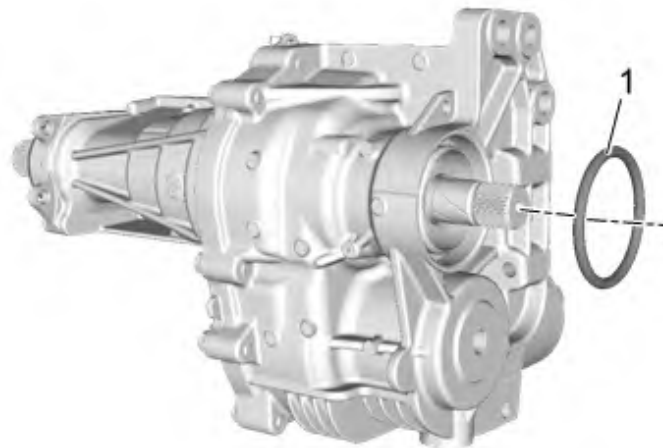
1. Remove the power transfer unit from the vehicle. [Power Transfer Unit Case Replacement \(MNH Transmission with LYX Engine\)](#)[Power Transfer Unit Case Replacement \(M3D Transmission with LTG Engine\)](#)[Power Transfer Unit Case Replacement \(MHG Transmission with LH7 Engine\)](#)



**Fig. 17: Power Transfer Unit Face Seal**  
Courtesy of GENERAL MOTORS COMPANY

2. Remove and Discard the power transfer unit face seal (1) from the power transfer unit.

### **Installation Procedure**



**Fig. 18: Power Transfer Unit Face Seal**  
Courtesy of GENERAL MOTORS COMPANY

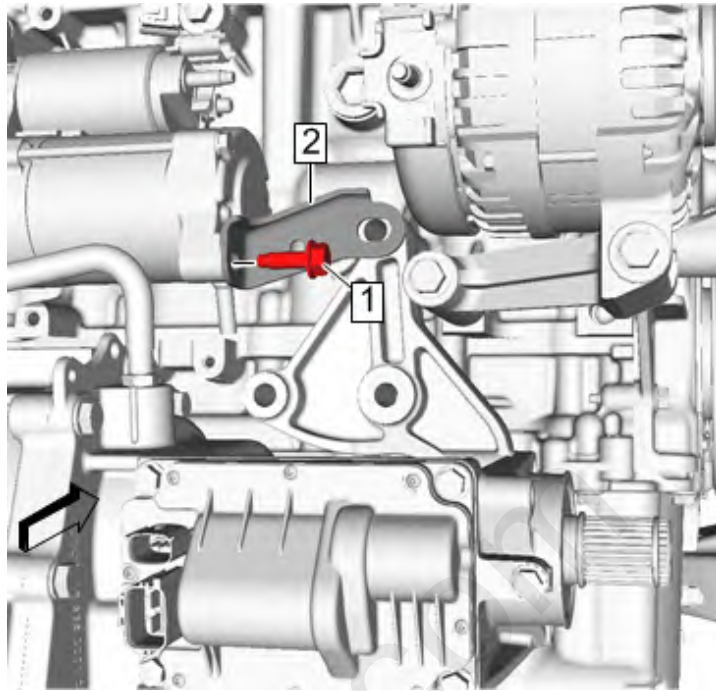
1. Install the NEW power transfer unit face seal (1) to the power transfer unit.

2. Install the power transfer unit case to the vehicle. [Power Transfer Unit Case Replacement \(MNH Transmission with LYX Engine\)](#)[Power Transfer Unit Case Replacement \(M3D Transmission with LTG Engine\)](#)[Power Transfer Unit Case Replacement \(MHG Transmission with LH7 Engine\)](#).

## TRANSMISSION BRACE REPLACEMENT (MNH TRANSMISSION WITH LYX ENGINE)

### Removal Procedure

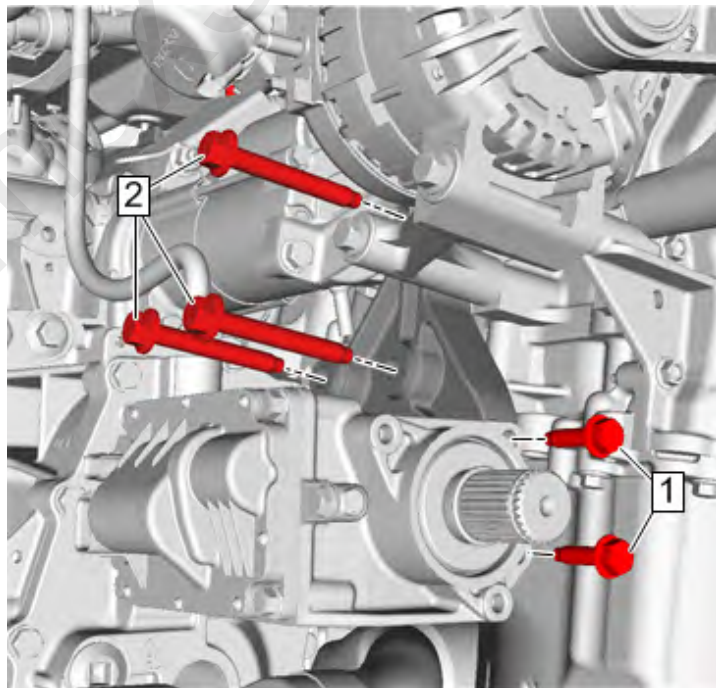
1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)



**Fig. 19: Starter Bracket Bolt**

Courtesy of GENERAL MOTORS COMPANY

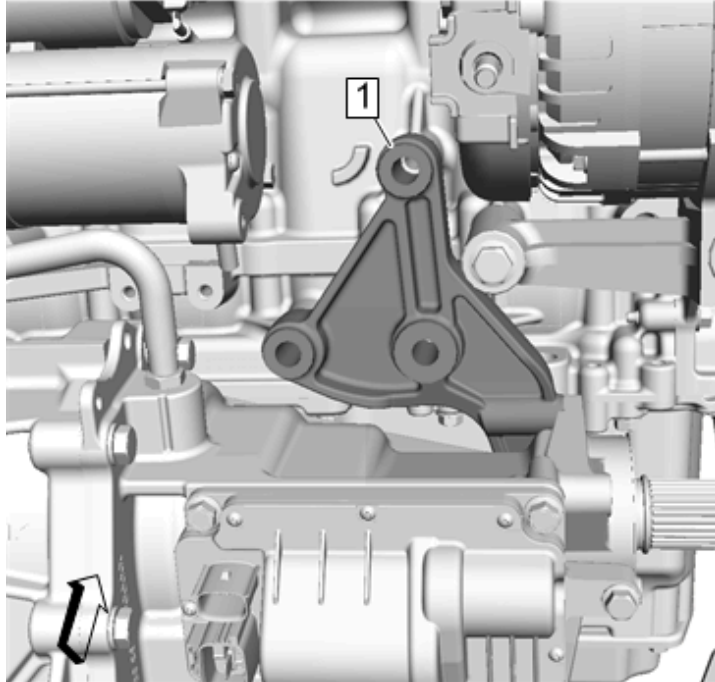
2. Remove the starter bracket bolt (1) from the starter.



**Fig. 20: Power Transfer Case Bolts And Engine Bolts**

Courtesy of GENERAL MOTORS COMPANY

3. Remove the transfer case brace to engine bolts (2) and the starter bracket.
4. Remove the transfer case brace to power transfer case bolts (1).

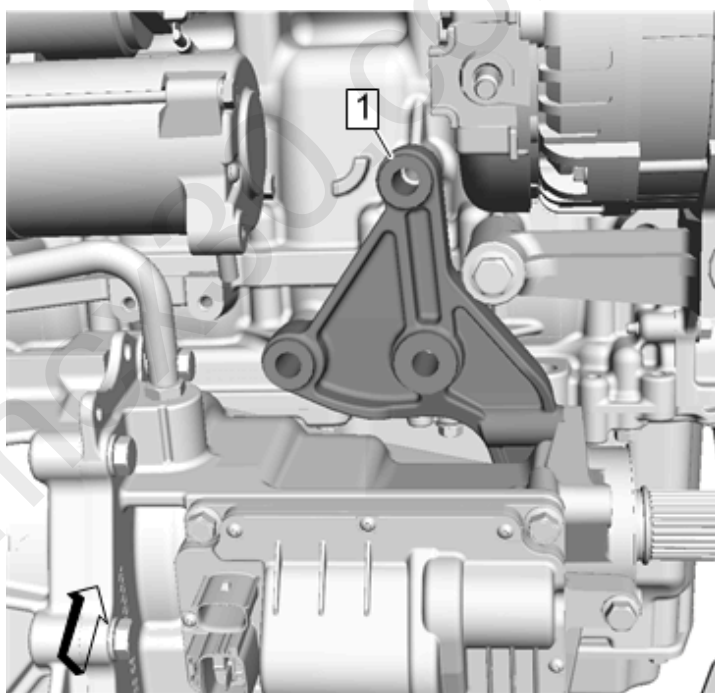


**Fig. 21: Brace**

**Courtesy of GENERAL MOTORS COMPANY**

5. Properly tilt and remove the brace (1) from the vehicle.

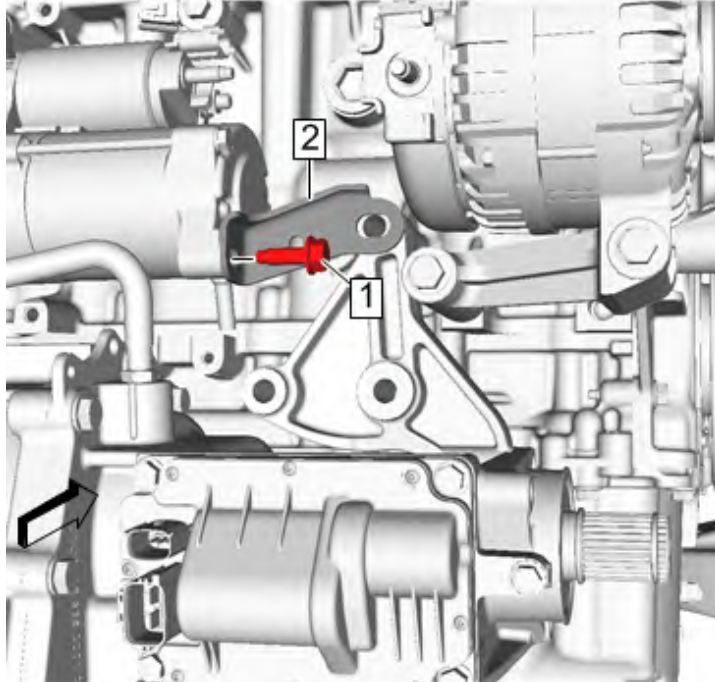
#### **Installation Procedure**



**Fig. 22: Brace**

**Courtesy of GENERAL MOTORS COMPANY**

1. Position the transfer case brace (1) to the engine.

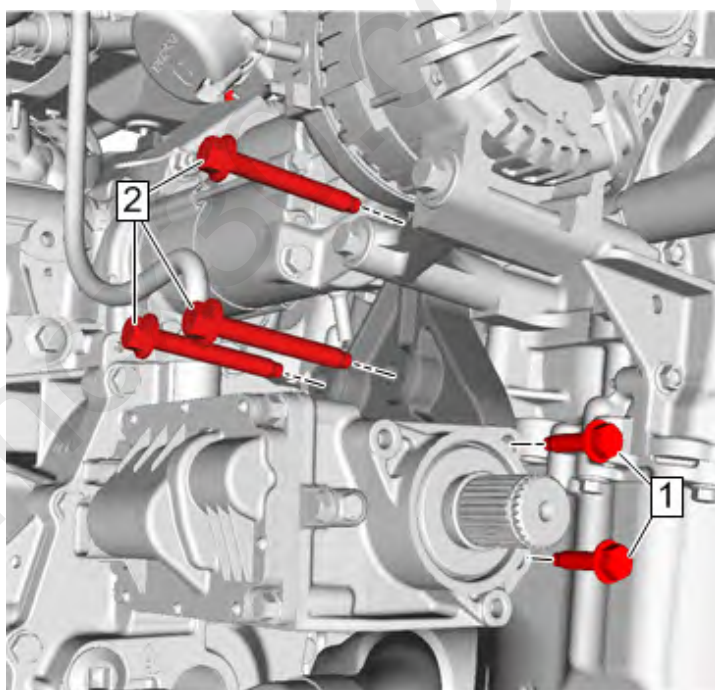


**Fig. 23: Starter Bracket Bolt**

Courtesy of GENERAL MOTORS COMPANY

**CAUTION:** Refer to [Fastener Caution](#) .

2. Install the starter bracket (2) and the bolt (1) to the starter, then tighten starter bracket bolt to 22 N.m (16 lb ft).



**Fig. 24: Power Transfer Case Bolts And Engine Bolts**

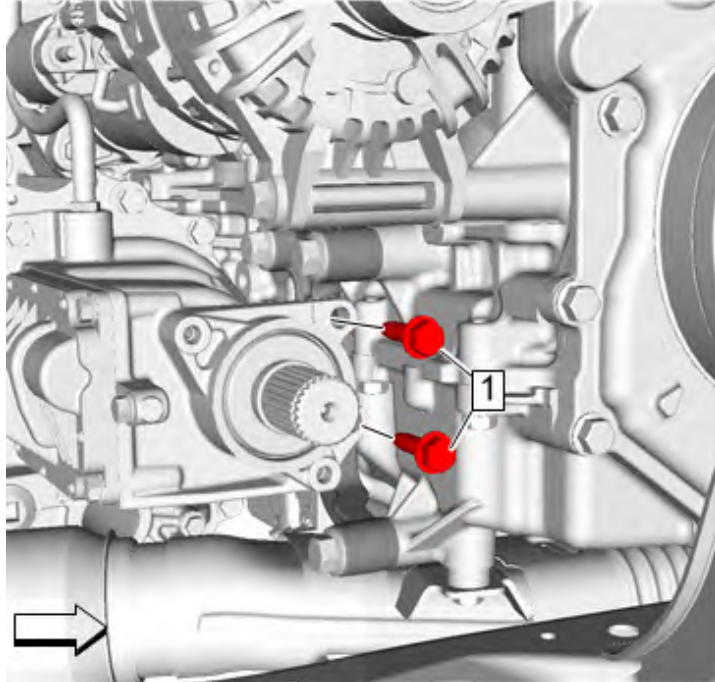
Courtesy of GENERAL MOTORS COMPANY

3. Install the transfer case brace to engine bolts (2) and tighten to 58 N.m (43 lb ft).
4. Install the transfer case brace to power transfer case bolts (1) and tighten to 22 N.m (16 lb ft).
5. Lower the vehicle. [Lifting and Jacking the Vehicle](#)

## **TRANSMISSION BRACE REPLACEMENT (M3D, M3H TRANSMISSION WITH LTG ENGINE)**

### **Removal Procedure**

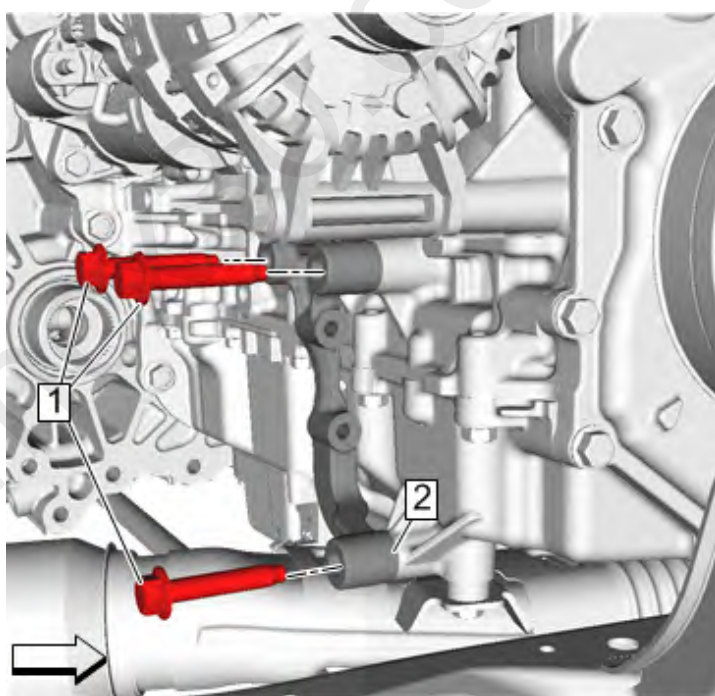
1. Raise and support the vehicle. [Lifting and Jacking the Vehicle](#)



**Fig. 25: Transmission Brace Bolts**

Courtesy of GENERAL MOTORS COMPANY

2. Remove the power transfer unit to transmission brace bolts (1).
3. Remove the power transfer unit from the vehicle. [Power Transfer Unit Case Replacement \(MNH Transmission with LYX Engine\)](#)[Power Transfer Unit Case Replacement \(M3D Transmission with LTG Engine\)](#)[Power Transfer Unit Case Replacement \(MHG Transmission with LH7 Engine\)](#).

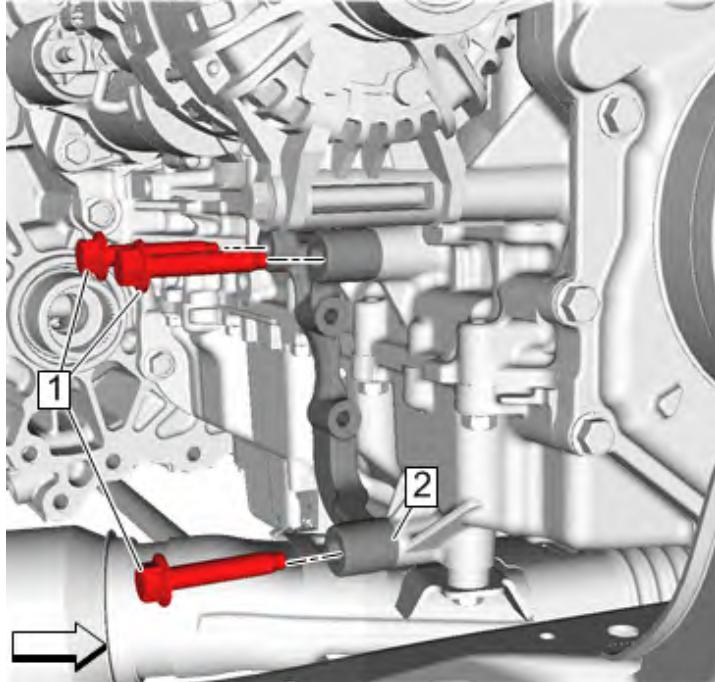


**Fig. 26: Transmission Brace And Engine Bolts**

Courtesy of GENERAL MOTORS COMPANY

4. Remove the transmission to engine bolts (1).
5. Remove the transmission brace (2) from the vehicle.

#### **Installation Procedure**

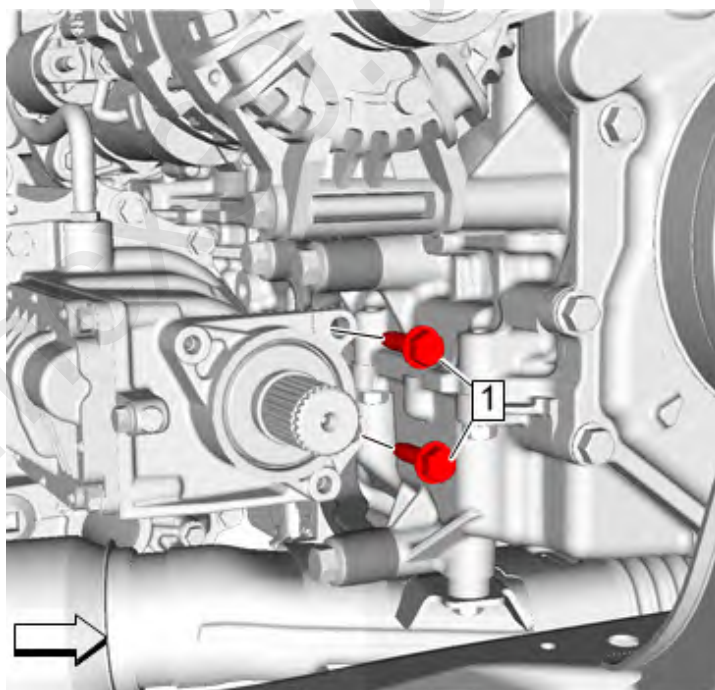


**Fig. 27: Transmission Brace And Engine Bolts**  
Courtesy of GENERAL MOTORS COMPANY

1. Position the transmission brace (2) to the engine.

**CAUTION:** Refer to **Fastener Caution** .

2. Install the transmission brace to engine bolts (1) and tighten to 58 N.m (43 lb ft).



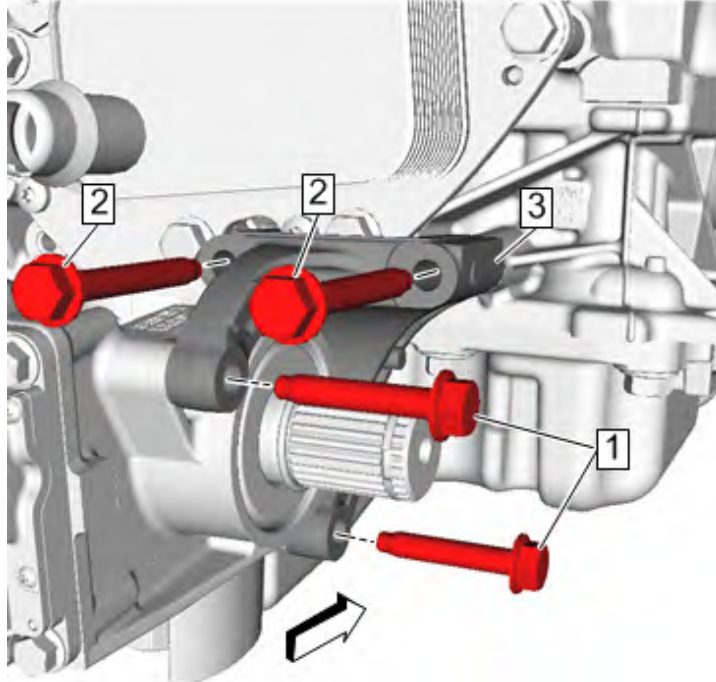
**Fig. 28: Transmission Brace Bolts**  
Courtesy of GENERAL MOTORS COMPANY

3. Install the power transfer unit to transmission brace bolts (1) and tighten to 22 N.m (16 lb ft).
4. Install the power transfer unit to the vehicle. **Power Transfer Unit Case Replacement (MNH Transmission with LYX Engine)****Power Transfer Unit Case Replacement (M3D Transmission with LTG Engine)****Power Transfer Unit Case Replacement (MHG Transmission with LH7 Engine)**
5. Lower the vehicle. **Lifting and Jacking the Vehicle**

## **TRANSMISSION BRACE REPLACEMENT (MHG TRANSMISSION WITH LH7 ENGINE)**

### **Removal Procedure**

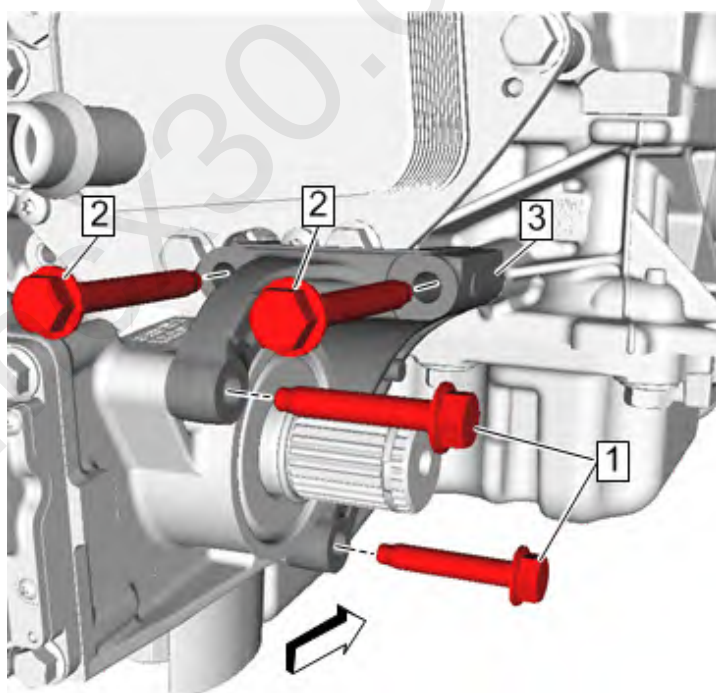
1. Raise and support the vehicle. **Lifting and Jacking the Vehicle**



**Fig. 29: Engine Bolts, Brace And Power Transfer Case Bolts**  
Courtesy of GENERAL MOTORS COMPANY

2. Remove the transfer case brace to engine bolts (2).
3. Remove the transfer case brace to power transfer case bolts (1).
4. Properly tilt and remove the brace (3) from the vehicle.

#### Installation Procedure



**Fig. 30: Engine Bolts, Brace And Power Transfer Case Bolts**  
Courtesy of GENERAL MOTORS COMPANY

1. Position the transfer case brace (3) to the engine.

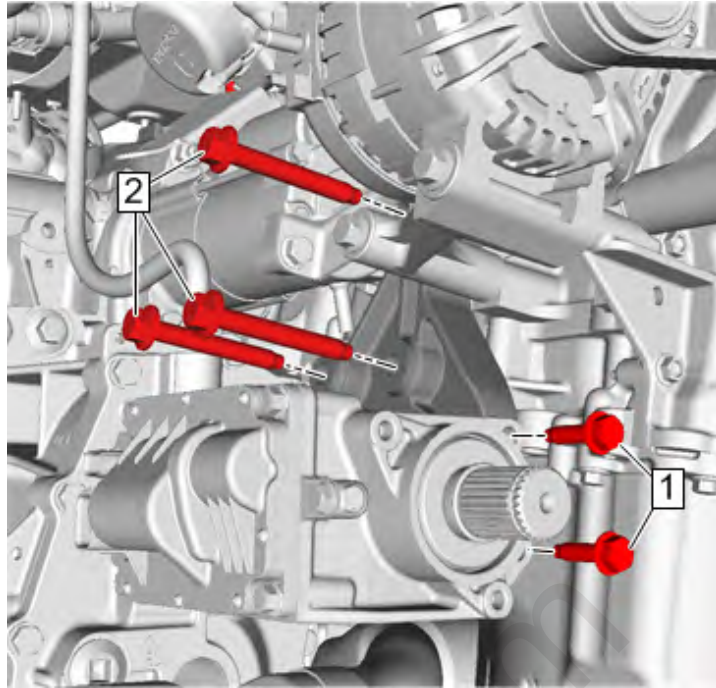
**CAUTION:** Refer to **Fastener Caution** .

2. Install the transfer case brace to engine bolts (2) and tighten to 22 N.m (16 lb ft).
3. Install the transfer case brace to power transfer case bolts (1) and tighten to 22 N.m (16 lb ft).
4. Lower the vehicle. **Lifting and Jacking the Vehicle**

**POWER TRANSFER UNIT CASE REPLACEMENT (MNH TRANSMISSION WITH LYX ENGINE)**

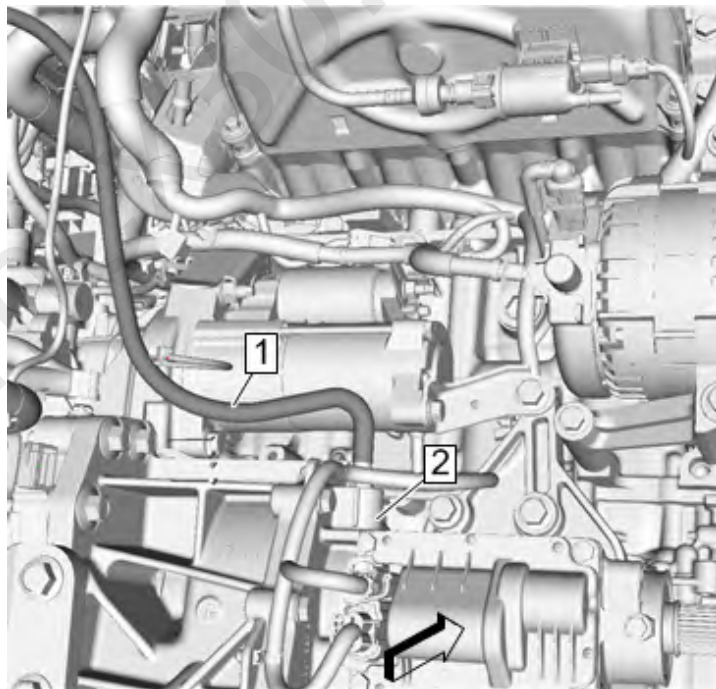
## Removal Procedure

1. Remove the right wheel drive shaft. [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#), [Front Wheel Drive Half Shaft Replacement - Right Side \(M3U, MHG, MNH, MNK with FWD\)](#)
2. Remove the exhaust front pipe. [Exhaust Front Pipe Replacement \(LYX\)](#)



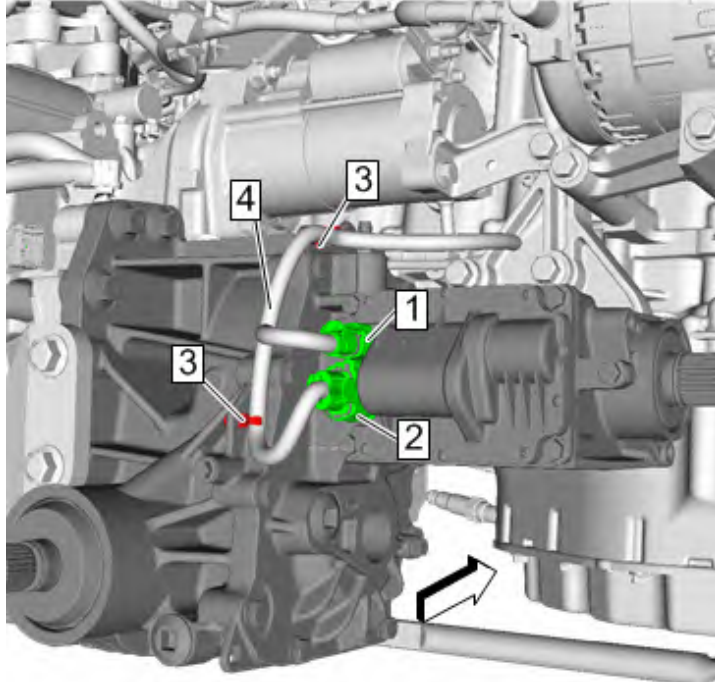
**Fig. 31: Power Transfer Case Bolts And Engine Bolts**  
Courtesy of GENERAL MOTORS COMPANY

3. Remove the transfer case bracket bolts (1).



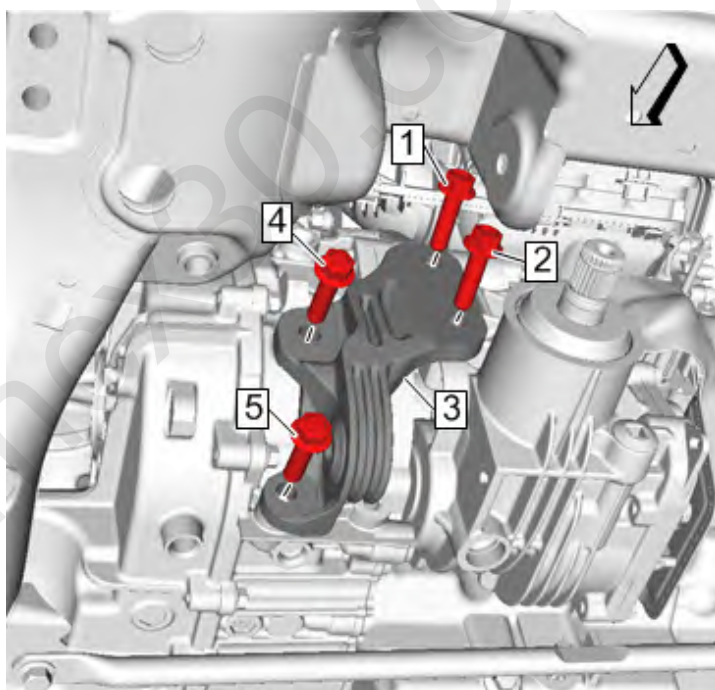
**Fig. 32: Transfer Case Vent Hose And Power Transfer Unit Case**  
Courtesy of GENERAL MOTORS COMPANY

4. Disconnect the transfer case vent hose (1) from the power transfer unit case (2).
5. Disconnect the two piece propeller shaft from the power transfer unit case. [Two-Piece Propeller Shaft Replacement](#)



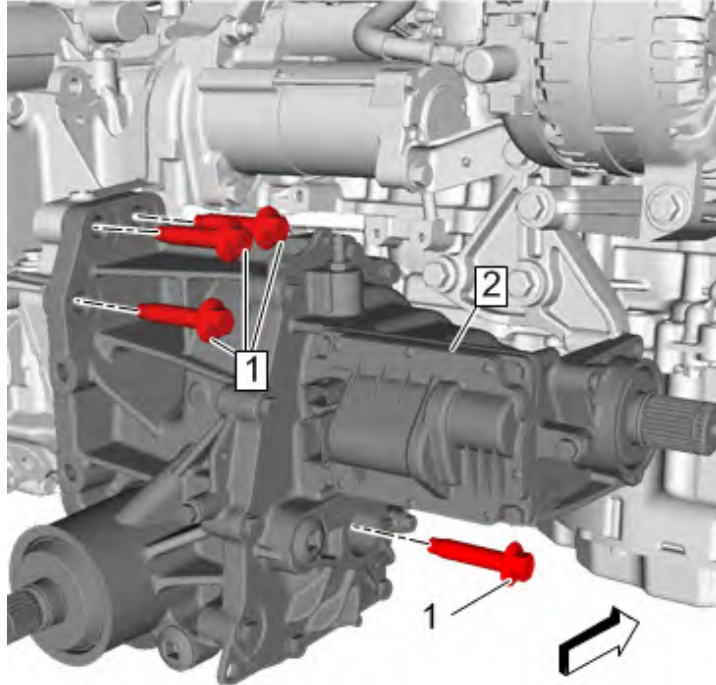
**Fig. 33: Electrical Connectors And Wiring Harness**  
 Courtesy of GENERAL MOTORS COMPANY

6. Disconnect the electrical connectors (1, 2), then remove the wiring harness retainers (3) from the power transfer unit.
7. Position the wiring harness (4) out of the way,



**Fig. 34: Transmission Mount Strut Bracket Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

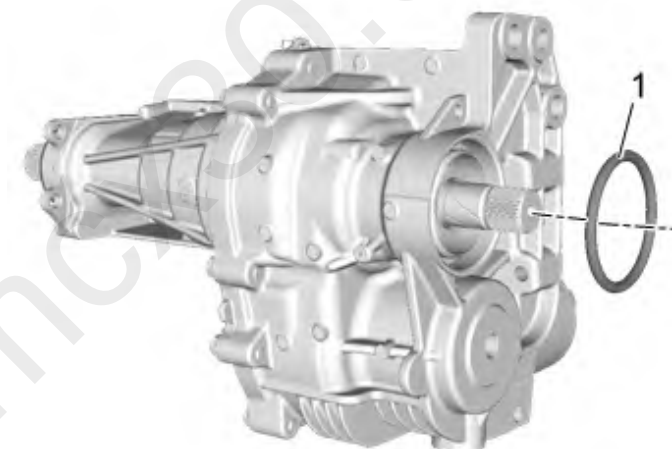
8. Remove the transmission mount strut bracket bolts (1, 2). **Transmission Mount Strut Bracket Replacement (All Wheel Drive) Transmission Mount Strut Bracket Replacement (Front Wheel Drive)**
9. Support the power transfer unit case (2) with a suitable jack, and secure with suitable straps.



**Fig. 35: Power Transfer Unit Case**

**Courtesy of GENERAL MOTORS COMPANY**

10. Remove the remaining power transfer unit case-to-transmission bolts (1).
11. Separate the transfer case (2) from the transmission and remove the power transfer unit case.

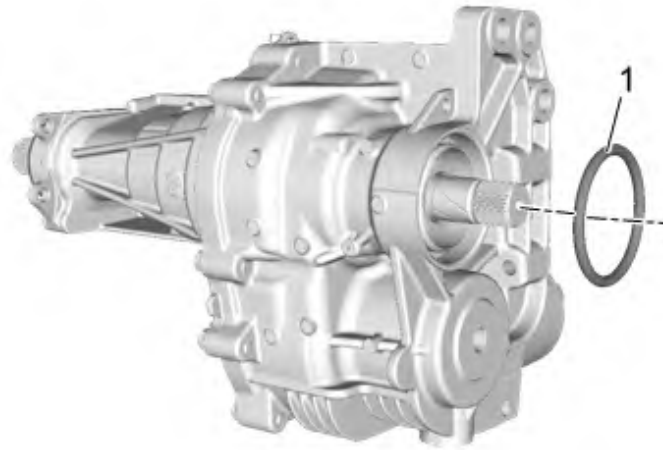


**Fig. 36: Power Transfer Unit Face Seal**

**Courtesy of GENERAL MOTORS COMPANY**

12. Remove and DISCARD the power transfer unit case-to-transmission O-ring.

### **Installation Procedure**

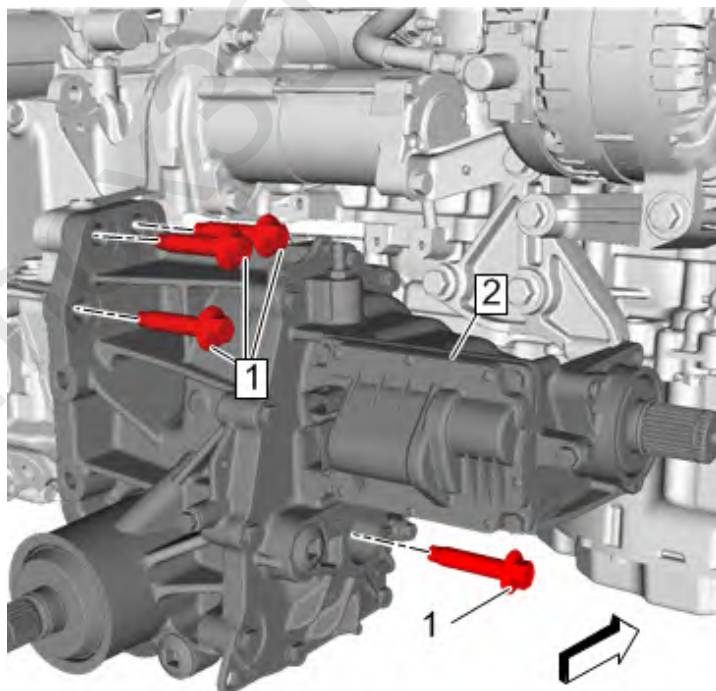


**Fig. 37: Power Transfer Unit Face Seal**

Courtesy of GENERAL MOTORS COMPANY

1. Clean the contact surfaces between the power transfer unit case and the transmission.
2. Install a NEW power transfer unit case-to-transmission O-ring (1).

**CAUTION:** Use care when installing the transfer case assembly to avoid contact with the pinion spline. Contact with the pinion spline may cause damage to the transfer case assembly.



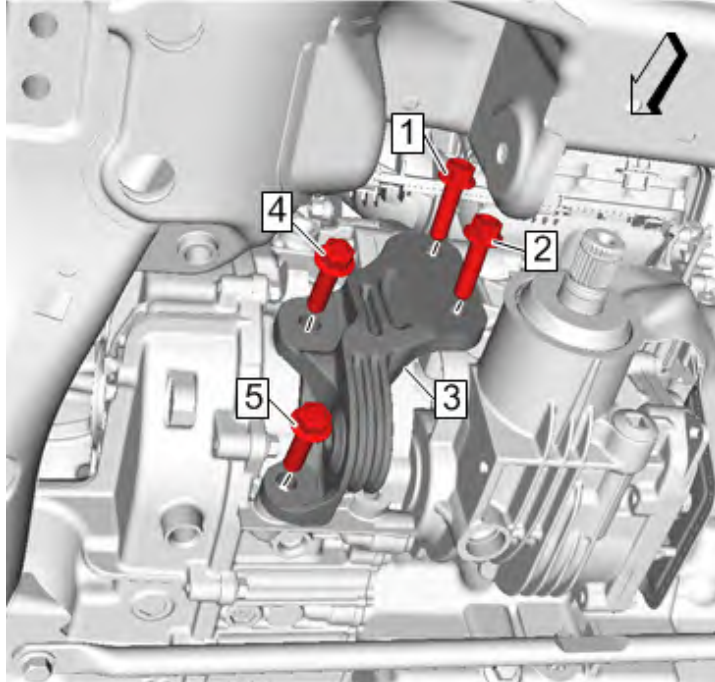
**Fig. 38: Power Transfer Unit Case**

Courtesy of GENERAL MOTORS COMPANY

3. Support the power transfer unit case with a suitable jack, and secure with suitable straps.
4. Raise and align the power transfer unit case in the correct position in relation to the transmission.
5. Install the power transfer unit case (2) to the transmission.

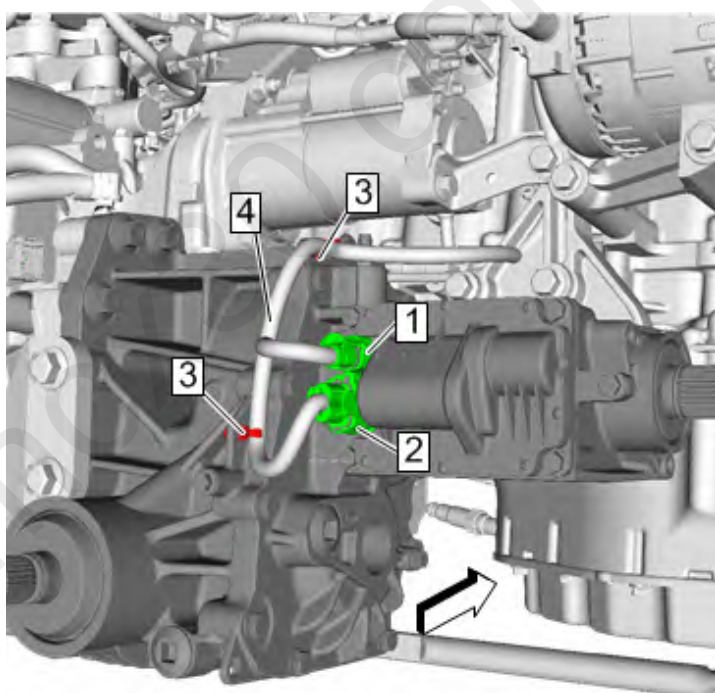
**CAUTION:** Refer to [Fastener Caution](#) .

6. Install the power transfer unit case-to-transmission bolts (1) and tighten to 100 N.m (74 lb ft).



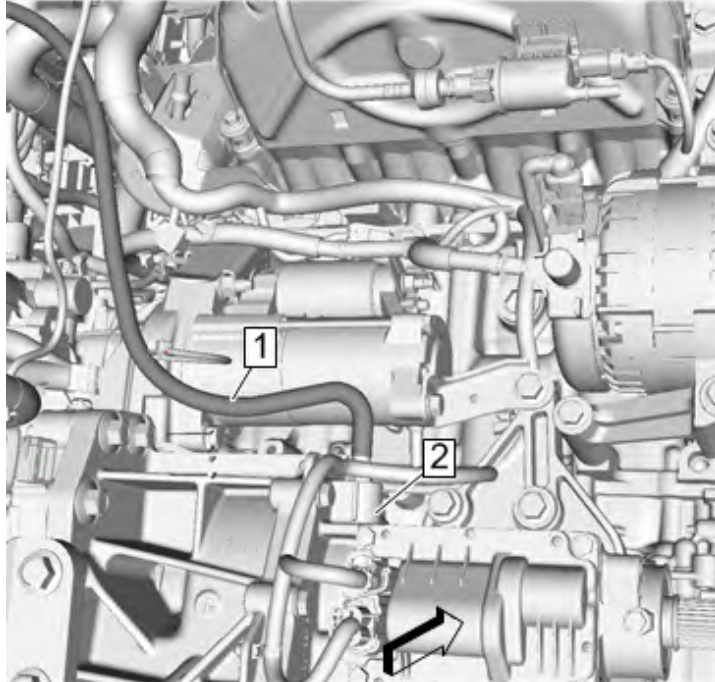
**Fig. 39: Transmission Mount Strut Bracket Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

7. Install the transmission mount strut bracket bolts (1, 2). [Transmission Mount Strut Bracket Replacement \(All Wheel Drive\)](#) [Transmission Mount Strut Bracket Replacement \(Front Wheel Drive\)](#)



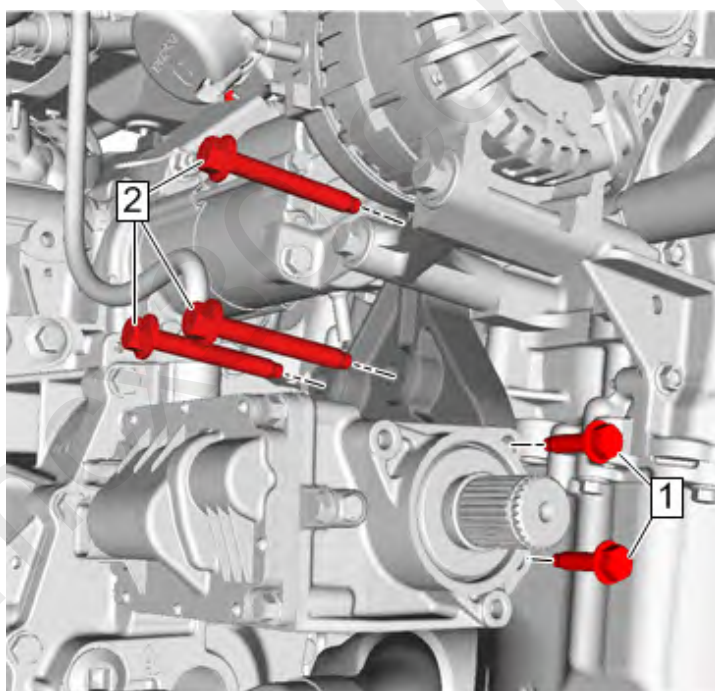
**Fig. 40: Electrical Connectors And Wiring Harness**  
 Courtesy of GENERAL MOTORS COMPANY

8. Connect the electrical connectors (1, 2), then install the wiring harness retainers (3) To the power transfer unit.
9. Connect the two piece propeller shaft to the power transfer unit case. [Two-Piece Propeller Shaft Replacement](#)



**Fig. 41: Transfer Case Vent Hose And Power Transfer Unit Case**  
 Courtesy of GENERAL MOTORS COMPANY

10. Connect the transfer case vent hose (1) to the power transfer unit case (2).



**Fig. 42: Power Transfer Case Bolts And Engine Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

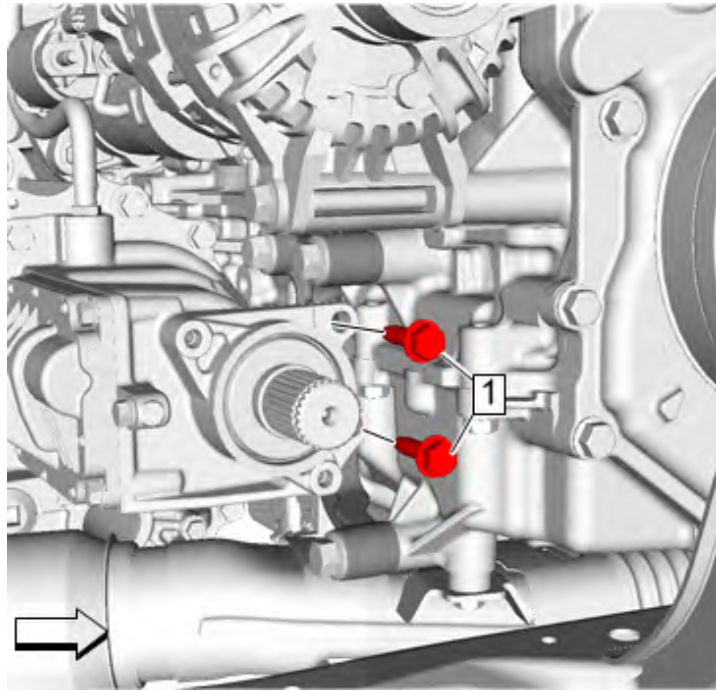
11. Install the transfer case bracket bolts (1) and tighten to 22 N.m (16 lb ft).
12. Install the right wheel drive shaft. [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#) [Front Wheel Drive Half Shaft Replacement - Right Side \(M3U, MHG, MNH, MNK with FWD\)](#)
13. Install the exhaust front pipe. [Exhaust Front Pipe Replacement \(LYX\)](#)
14. Check transmission fluid level. [Transmission Fluid Drain and Fill](#)

## **POWER TRANSFER UNIT CASE REPLACEMENT (M3D TRANSMISSION WITH LTG ENGINE)**

### **Removal Procedure**

1. Remove the right wheel drive shaft. [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#) [Front Wheel Drive Half Shaft Replacement - Right Side \(M3D, M3H with FWD\)](#)
2. Remove the exhaust front pipe. [Exhaust Front Pipe Replacement \(LTG\)](#)

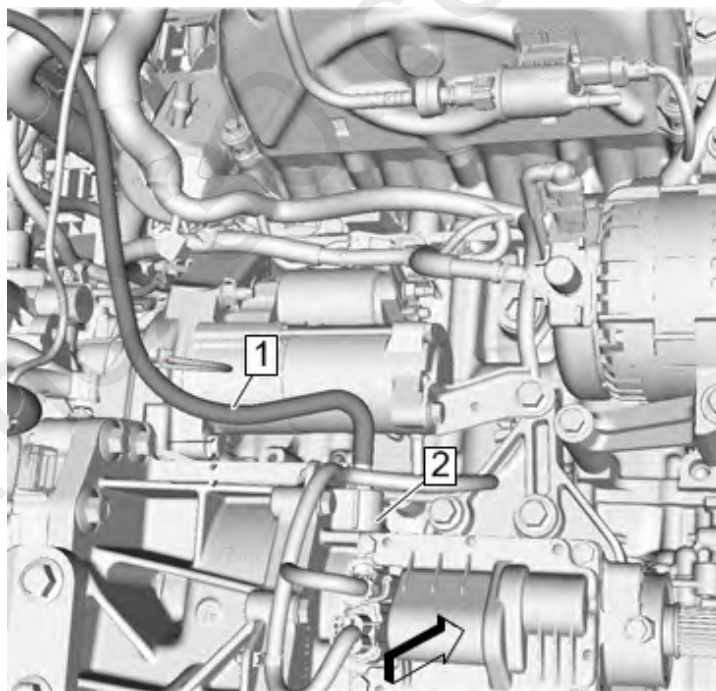
3. Remove the power transfer unit heat shield. [Power Transfer Unit Heat Shield Replacement \(M3D transmission with LTG engine\)](#).



**Fig. 43: Transmission Brace Bolts**

Courtesy of GENERAL MOTORS COMPANY

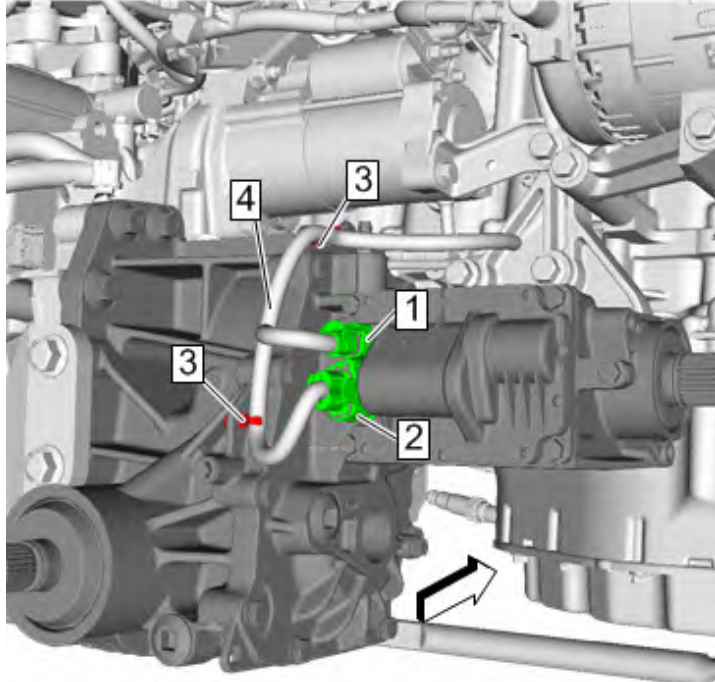
4. Remove the power transfer unit to transmission brace bolts (1).



**Fig. 44: Transfer Case Vent Hose And Power Transfer Unit Case**

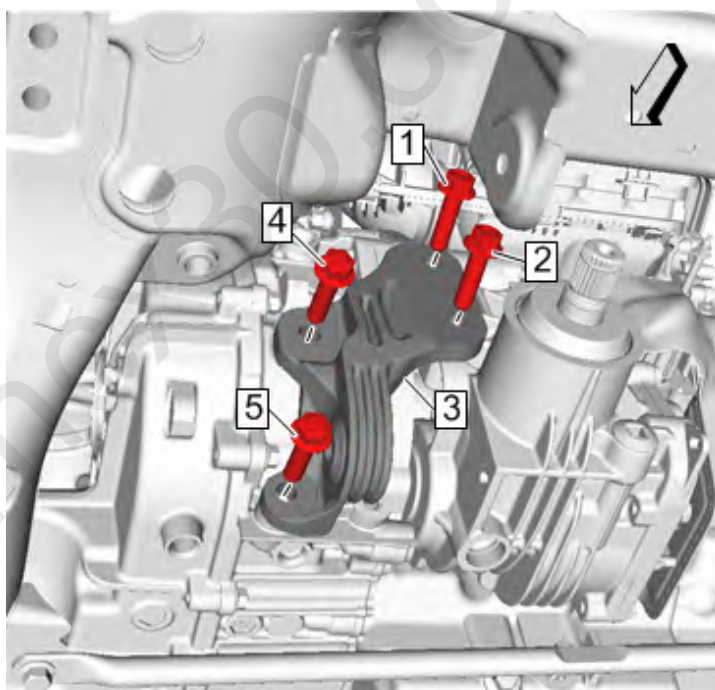
Courtesy of GENERAL MOTORS COMPANY

5. Disconnect the transfer case vent hose (1) from the power transfer unit case (2).
6. Disconnect the two piece propeller shaft from the power transfer unit case. [Two-Piece Propeller Shaft Replacement](#)



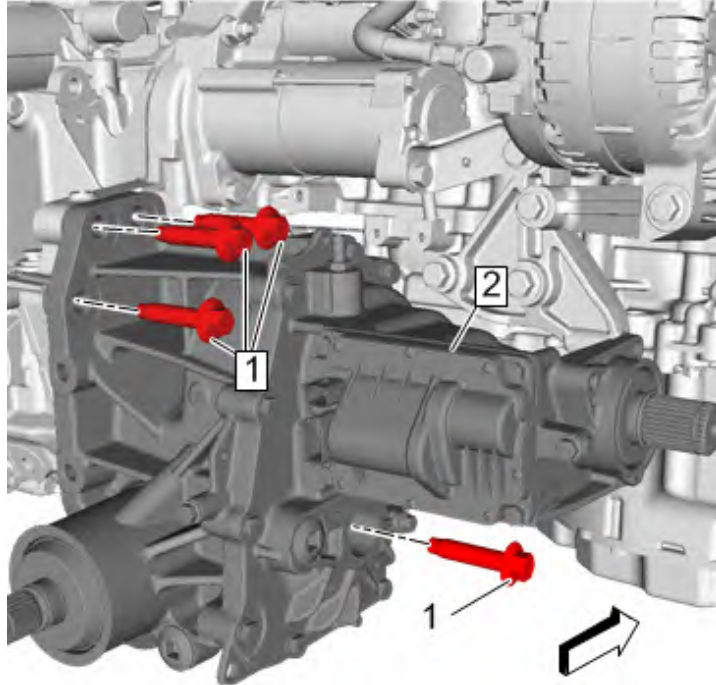
**Fig. 45: Electrical Connectors And Wiring Harness**  
 Courtesy of GENERAL MOTORS COMPANY

7. Disconnect the electrical connectors (1, 2), then remove the wiring harness retainers (3) from the power transfer unit.
8. Position the wiring harness (4) out of the way,



**Fig. 46: Transmission Mount Strut Bracket Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

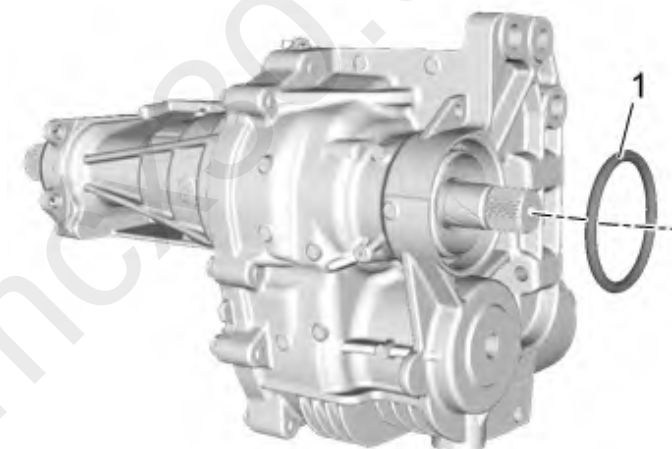
9. Remove the transmission mount strut bracket bolts (1, 2). **Transmission Mount Strut Bracket Replacement (All Wheel Drive) Transmission Mount Strut Bracket Replacement (Front Wheel Drive)**
10. Support the power transfer unit case (2) with a suitable jack, and secure with suitable straps.



**Fig. 47: Power Transfer Unit Case**

**Courtesy of GENERAL MOTORS COMPANY**

11. Remove the remaining power transfer unit case-to-transmission bolts (1).
12. Separate the transfer case (2) from the transmission and remove the power transfer unit case.

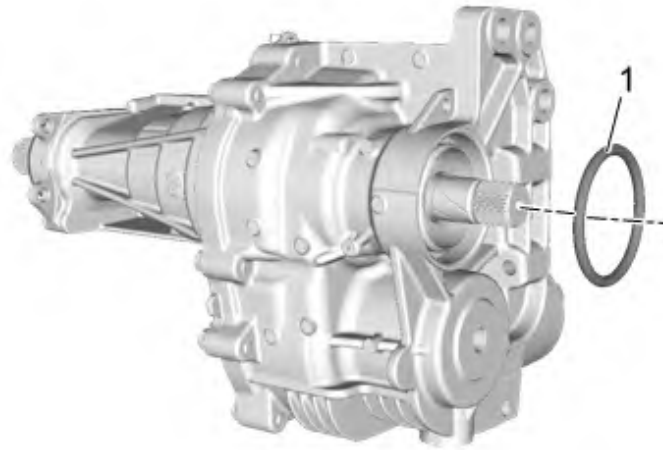


**Fig. 48: Power Transfer Unit Face Seal**

**Courtesy of GENERAL MOTORS COMPANY**

13. Remove and DISCARD the power transfer unit case-to-transmission O-ring.

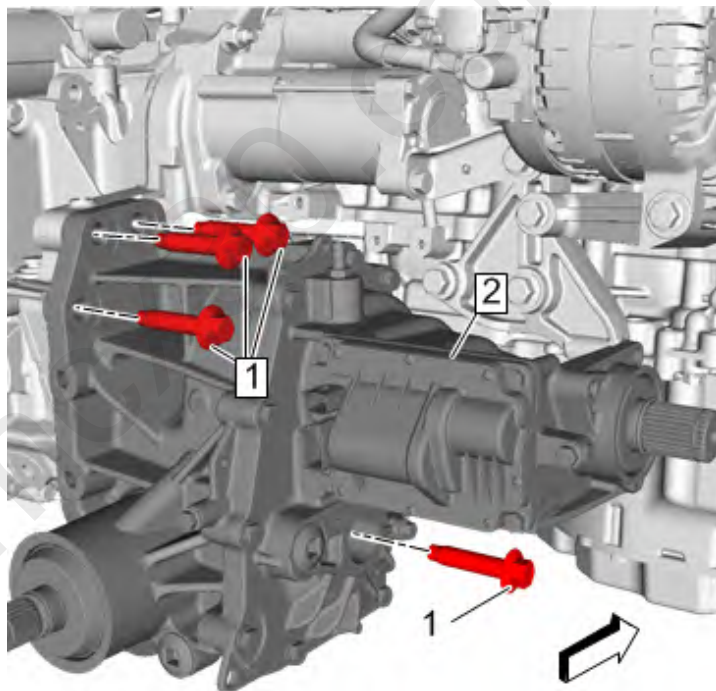
### **Installation Procedure**



**Fig. 49: Power Transfer Unit Face Seal**

Courtesy of GENERAL MOTORS COMPANY

1. Clean the contact surfaces between the power transfer unit case and the transmission.
2. Install a NEW power transfer unit case-to-transmission O-ring (1).



**Fig. 50: Power Transfer Unit Case**

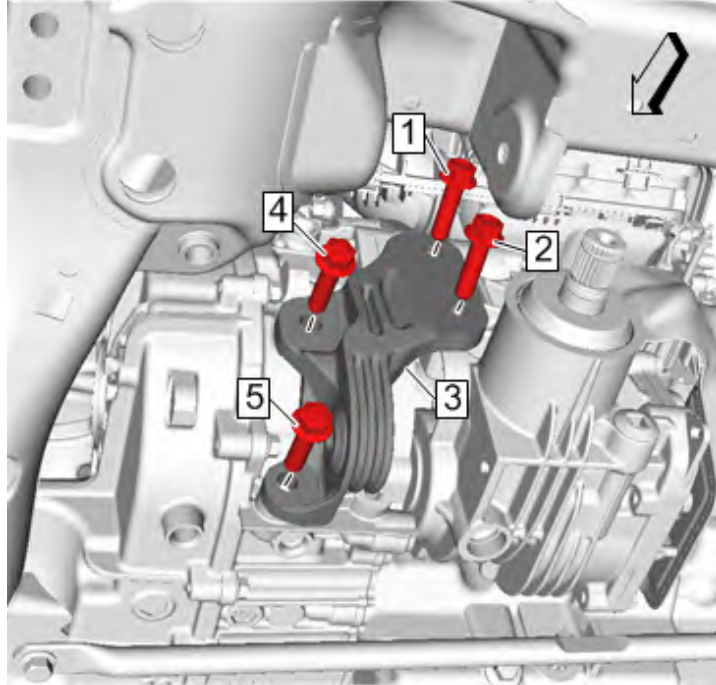
Courtesy of GENERAL MOTORS COMPANY

**CAUTION:** Use care when installing the transfer case assembly to avoid contact with the pinion spline. Contact with the pinion spline may cause damage to the transfer case assembly.

3. Support the power transfer unit case with a suitable jack, and secure with suitable straps.
4. Raise and align the power transfer unit case in the correct position in relation to the transmission.
5. Install the power transfer unit case (2) to the transmission.

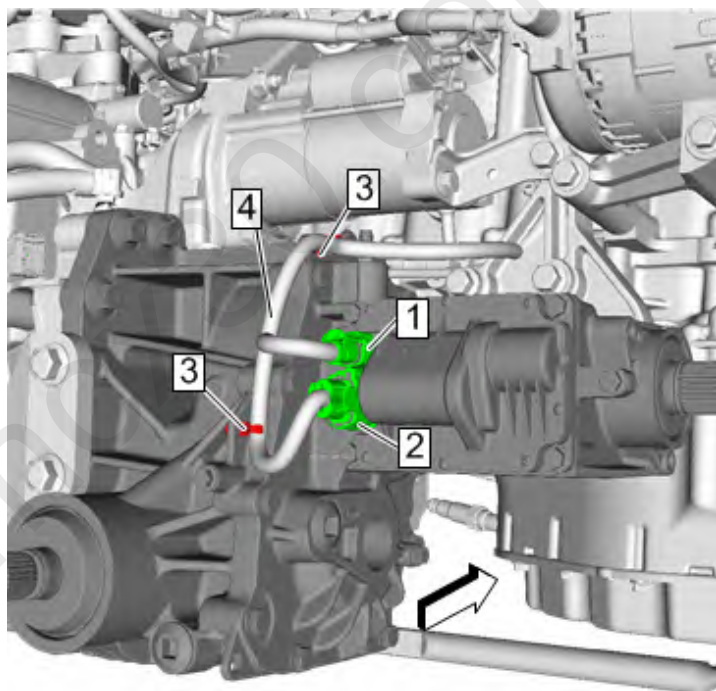
**CAUTION:** Refer to [Fastener Caution](#) .

6. Install the power transfer unit case-to-transmission bolts (1) and tighten to 100 N.m (74 lb ft).



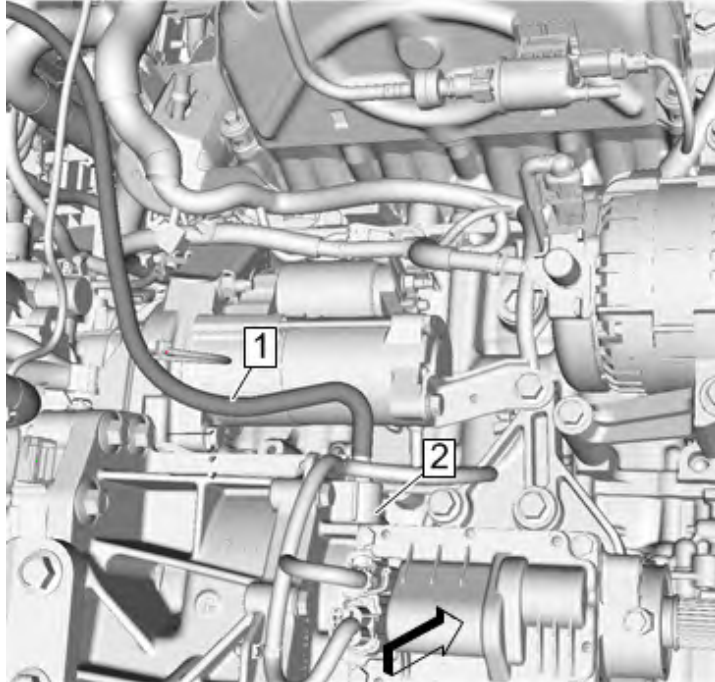
**Fig. 51: Transmission Mount Strut Bracket Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

7. Install the transmission mount strut bracket bolts (1, 2). [Transmission Mount Strut Bracket Replacement \(All Wheel Drive\)](#) [Transmission Mount Strut Bracket Replacement \(Front Wheel Drive\)](#)



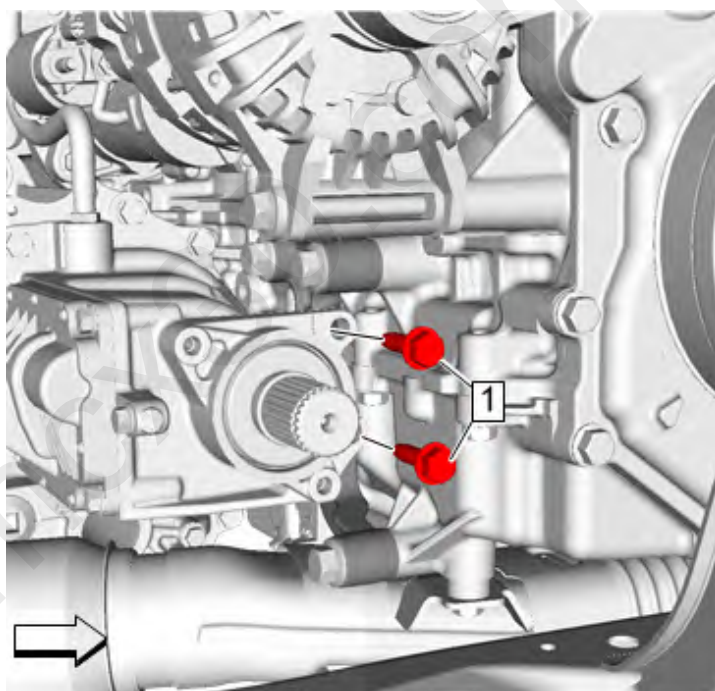
**Fig. 52: Electrical Connectors And Wiring Harness**  
 Courtesy of GENERAL MOTORS COMPANY

8. Connect the electrical connectors (1, 2), then install the wiring harness retainers (3) To the power transfer unit.
9. Connect the two piece propeller shaft to the power transfer unit case. [Two-Piece Propeller Shaft Replacement](#)



**Fig. 53: Transfer Case Vent Hose And Power Transfer Unit Case**  
**Courtesy of GENERAL MOTORS COMPANY**

10. Connect the transfer case vent hose (1) to the power transfer unit case (2).



**Fig. 54: Transmission Brace Bolts**  
**Courtesy of GENERAL MOTORS COMPANY**

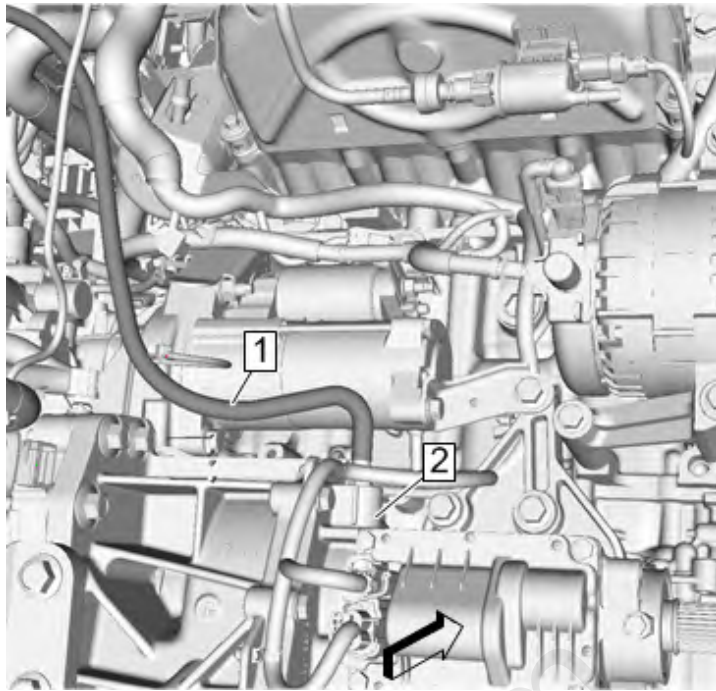
11. Install the power transfer unit to transmission brace bolts (1) and tighten to 22 N.m (16 lb ft).
12. Install the power transfer unit heat shield. [Power Transfer Unit Heat Shield Replacement \(M3D transmission with LTG engine\)](#).
13. Install the right wheel drive shaft. [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#) [Front Wheel Drive Half Shaft Replacement - Right Side \(M3D, M3H with FWD\)](#).
14. Install the exhaust front pipe. [Exhaust Front Pipe Replacement \(LTG\)](#).
15. Check transmission fluid level. [Transmission Fluid Drain and Fill](#)

## **POWER TRANSFER UNIT CASE REPLACEMENT (MHG TRANSMISSION WITH LH7 ENGINE)**

### **Removal Procedure**

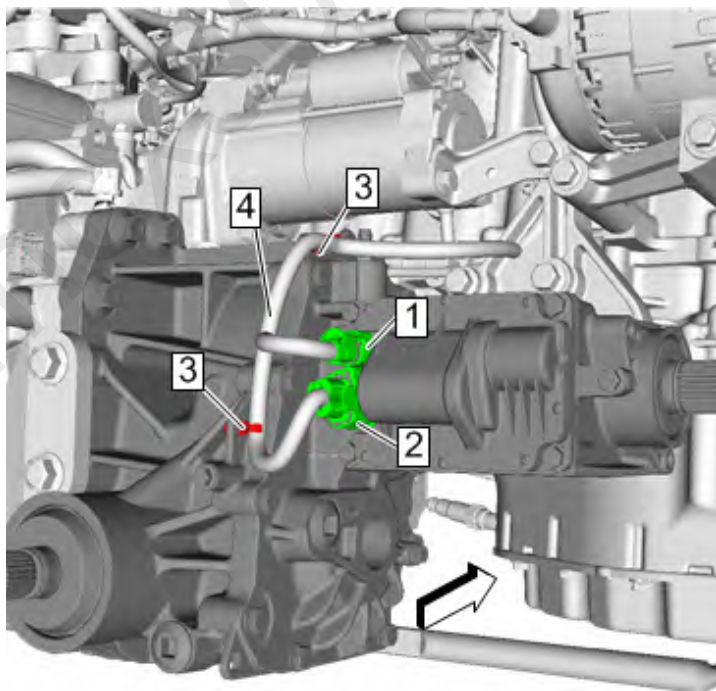
1. Remove the right wheel drive shaft. [Front Wheel Drive Half Shaft Replacement - Right Side \(AWD\)](#) [Front Wheel Drive Half Shaft Replacement - Right Side \(M3U, MHG, MNH, MNK with FWD\)](#).

2. Remove the exhaust front pipe. [Exhaust Front Pipe Replacement \(LTG\)](#)
3. Remove the transmission brace. [Transmission Brace Replacement \(M3D, M3H Transmission with LTG Engine\)](#)



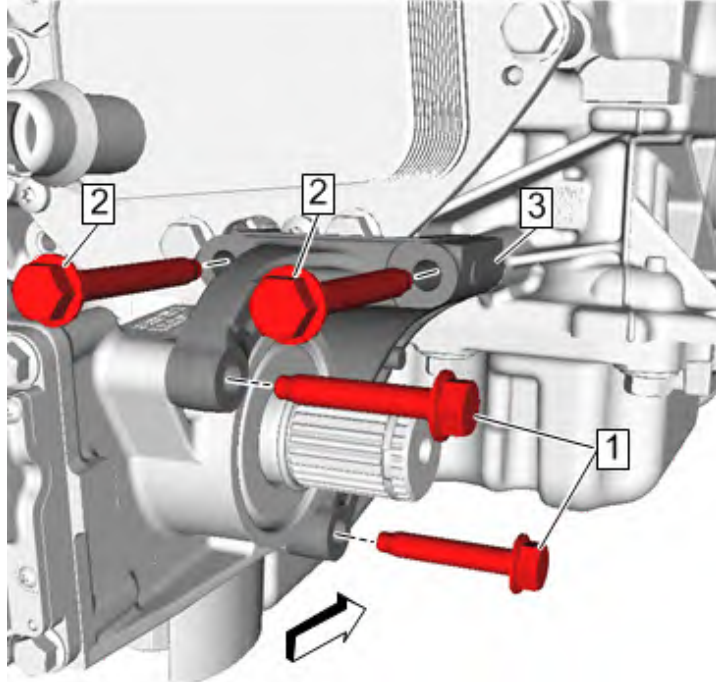
**Fig. 55: Transfer Case Vent Hose And Power Transfer Unit Case**  
Courtesy of GENERAL MOTORS COMPANY

4. Disconnect the transfer case vent hose (1) from the power transfer unit case (2).
5. Disconnect the two piece propeller shaft from the power transfer unit case. [Two-Piece Propeller Shaft Replacement](#)



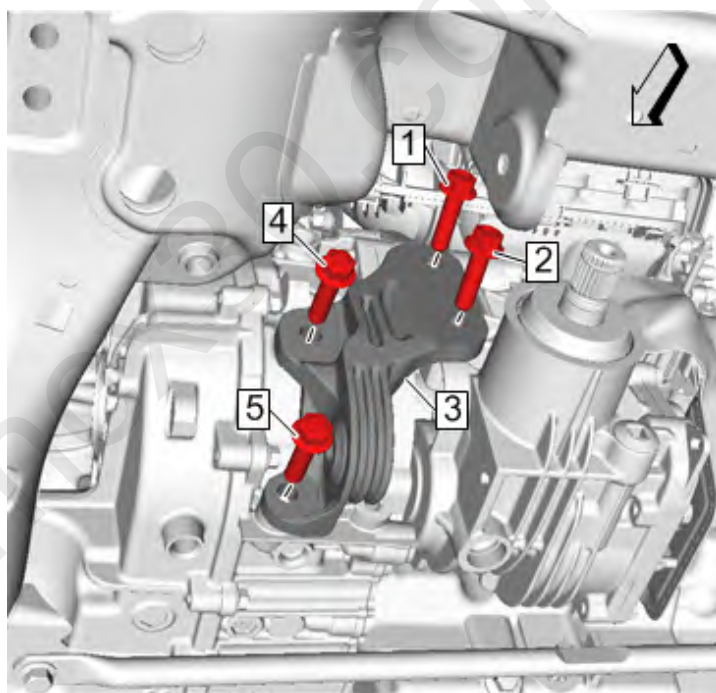
**Fig. 56: Electrical Connectors And Wiring Harness**  
Courtesy of GENERAL MOTORS COMPANY

6. Disconnect the electrical connectors (1, 2), then remove the wiring harness retainers (3) from the power transfer unit.
7. Position the wiring harness (4) out of the way,



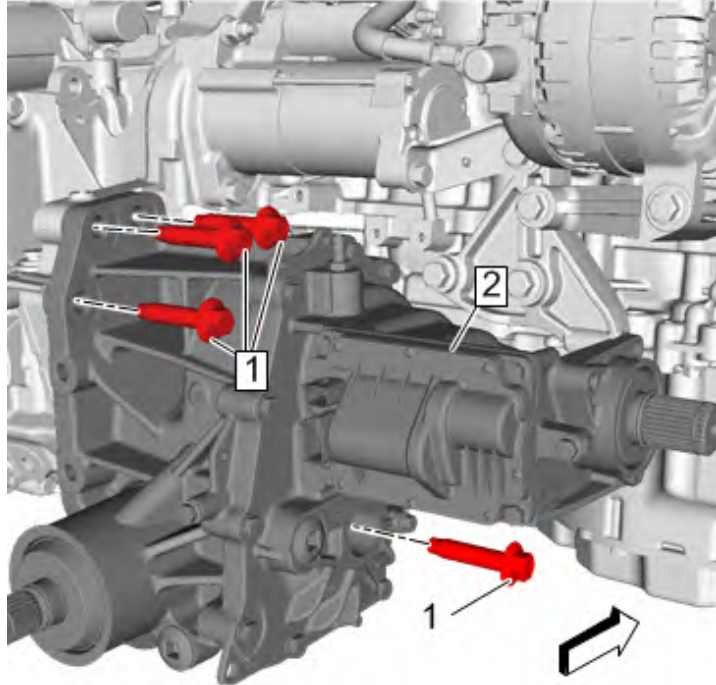
**Fig. 57: Engine Bolts, Brace And Power Transfer Case Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

8. Remove the transmission brace bolts (1, 2).
9. Remove the transmission brace (3) from the engine.



**Fig. 58: Transmission Mount Strut Bracket Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

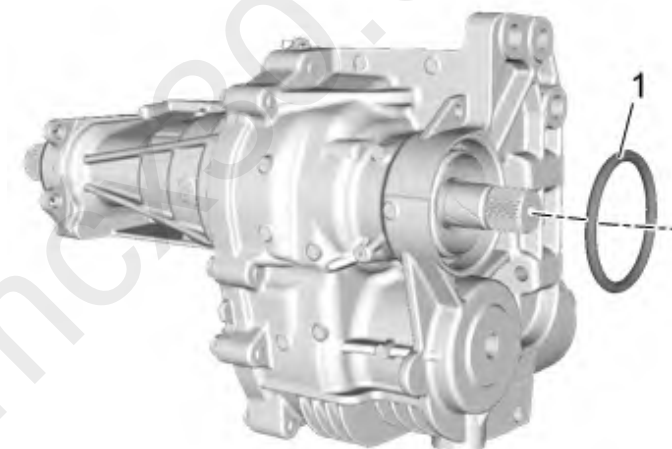
10. Remove the transmission mount strut bracket bolts (1, 2). [Transmission Mount Strut Bracket Replacement \(All Wheel Drive\)](#) [Transmission Mount Strut Bracket Replacement \(Front Wheel Drive\)](#)
11. Support the power transfer unit case (2) with a suitable jack, and secure with suitable straps.



**Fig. 59: Power Transfer Unit Case**

**Courtesy of GENERAL MOTORS COMPANY**

12. Remove the remaining power transfer unit case-to-transmission bolts (1).
13. Separate the transfer case (2) from the transmission and remove the power transfer unit case.

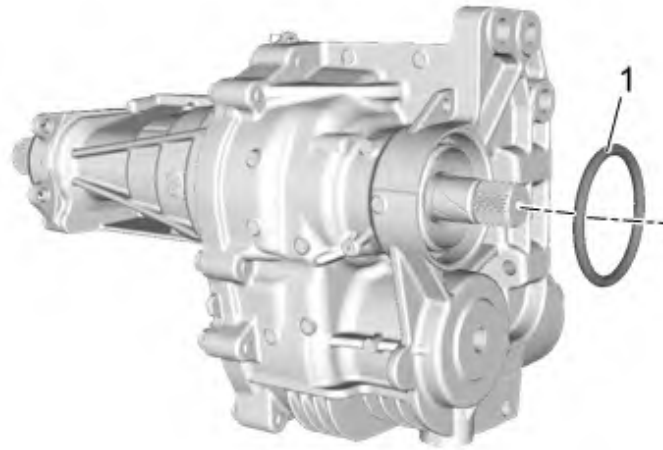


**Fig. 60: Power Transfer Unit Face Seal**

**Courtesy of GENERAL MOTORS COMPANY**

14. Remove and DISCARD the power transfer unit case-to-transmission O-ring.

### **Installation Procedure**



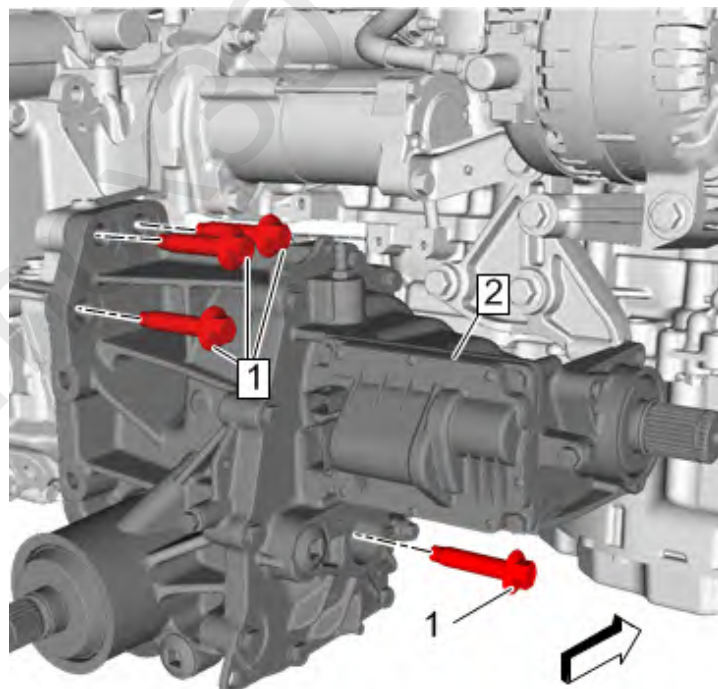
**Fig. 61: Power Transfer Unit Face Seal**

Courtesy of GENERAL MOTORS COMPANY

1. Clean the contact surfaces between the power transfer unit case and the transmission.
2. Install a NEW power transfer unit case-to-transmission O-ring (1).

**CAUTION:**

Use care when installing the transfer case assembly to avoid contact with the pinion spline. Contact with the pinion spline may cause damage to the transfer case assembly.



**Fig. 62: Power Transfer Unit Case**

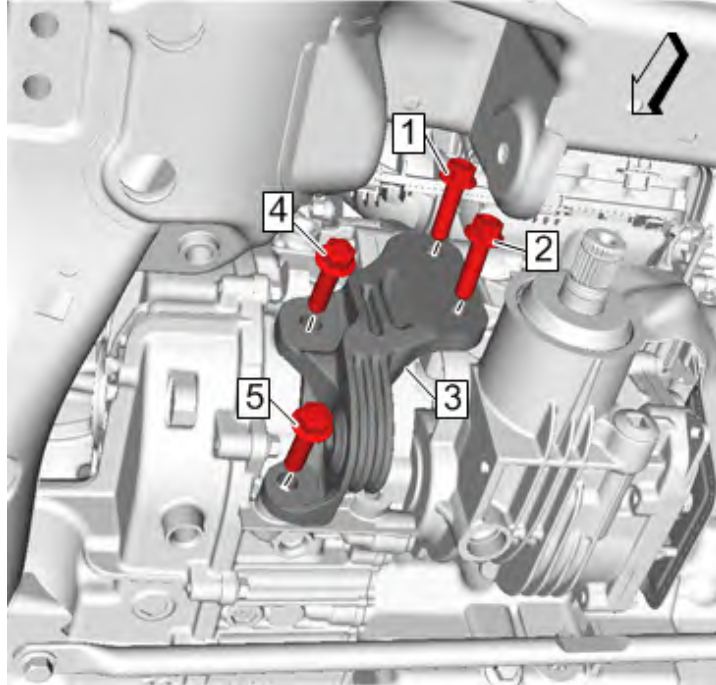
Courtesy of GENERAL MOTORS COMPANY

3. Support the power transfer unit case with a suitable jack, and secure with suitable straps.
4. Raise and align the power transfer unit case in the correct position in relation to the transmission.
5. Install the power transfer unit case (2) to the transmission.

**CAUTION:**

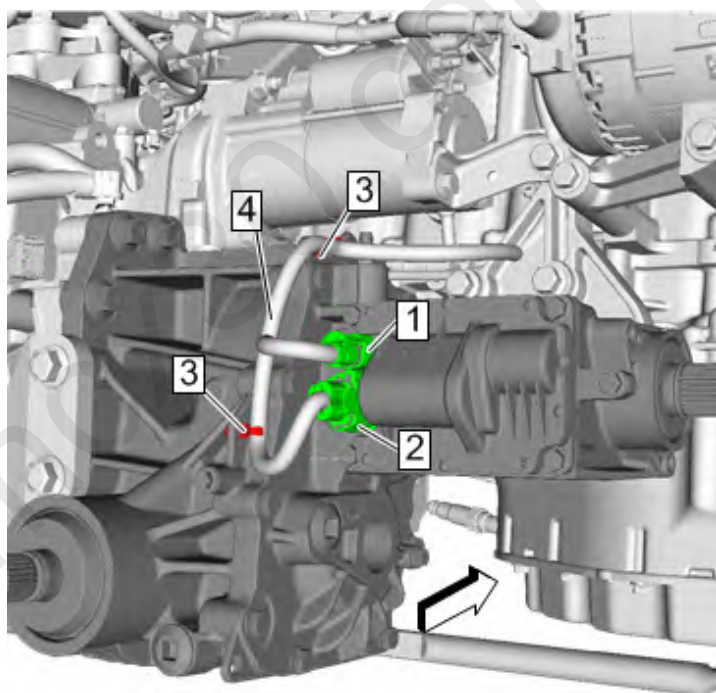
Refer to [Fastener Caution](#) .

6. Install the power transfer unit case-to-transmission bolts (1) and tighten to 100 N.m (74 lb ft).



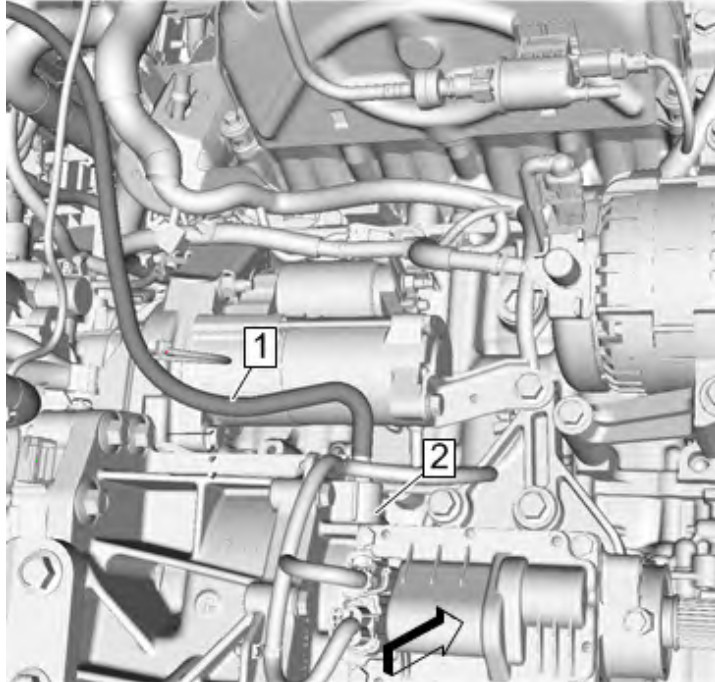
**Fig. 63: Transmission Mount Strut Bracket Bolts**  
 Courtesy of GENERAL MOTORS COMPANY

7. Install the transmission mount strut bracket bolts (1, 2). [Transmission Mount Strut Bracket Replacement \(All Wheel Drive\)](#) [Transmission Mount Strut Bracket Replacement \(Front Wheel Drive\)](#)



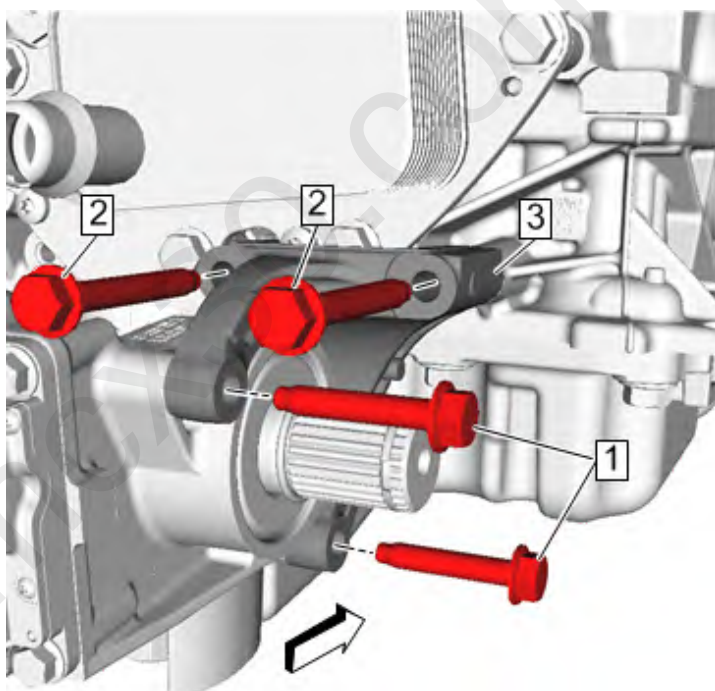
**Fig. 64: Electrical Connectors And Wiring Harness**  
 Courtesy of GENERAL MOTORS COMPANY

8. Connect the electrical connectors (1, 2), then install the wiring harness retainers (3) to the power transfer unit.
9. Connect the two piece propeller shaft to the power transfer unit case. [Two-Piece Propeller Shaft Replacement](#)



**Fig. 65: Transfer Case Vent Hose And Power Transfer Unit Case**  
**Courtesy of GENERAL MOTORS COMPANY**

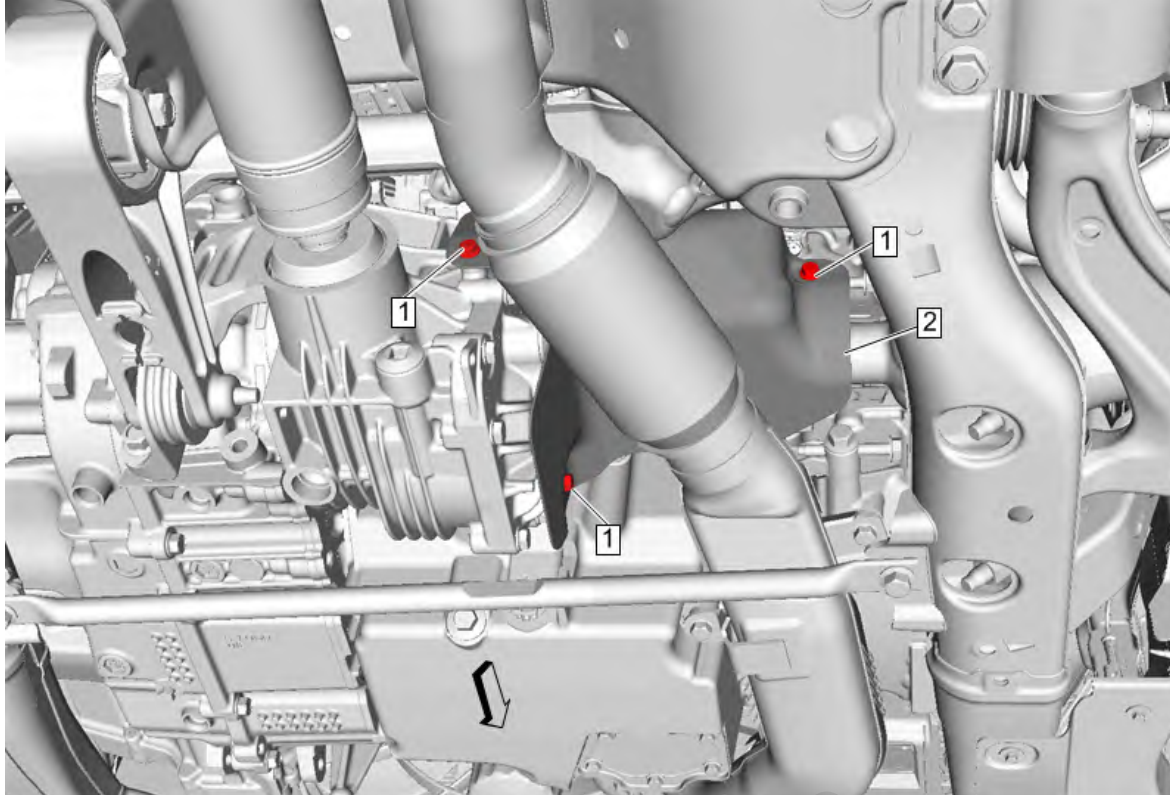
10. Connect the transfer case vent hose (1) to the power transfer unit case (2).



**Fig. 66: Engine Bolts, Brace And Power Transfer Case Bolts**  
**Courtesy of GENERAL MOTORS COMPANY**

11. Position the transmission brace (3) to the engine.
12. Install the transmission brace bolts (1, 2) and tighten to 22 N.m (16 lb ft).
13. Install the right wheel drive shaft. **Front Wheel Drive Half Shaft Replacement - Right Side (AWD)** **Front Wheel Drive Half Shaft Replacement - Right Side (M3D, M3H with FWD)**
14. Install the exhaust front pipe. **Exhaust Front Pipe Replacement (LTG)**
15. Check transmission fluid level. **Transmission Fluid Drain and Fill**

**POWER TRANSFER UNIT HEAT SHIELD REPLACEMENT (M3D TRANSMISSION WITH LTG ENGINE)**



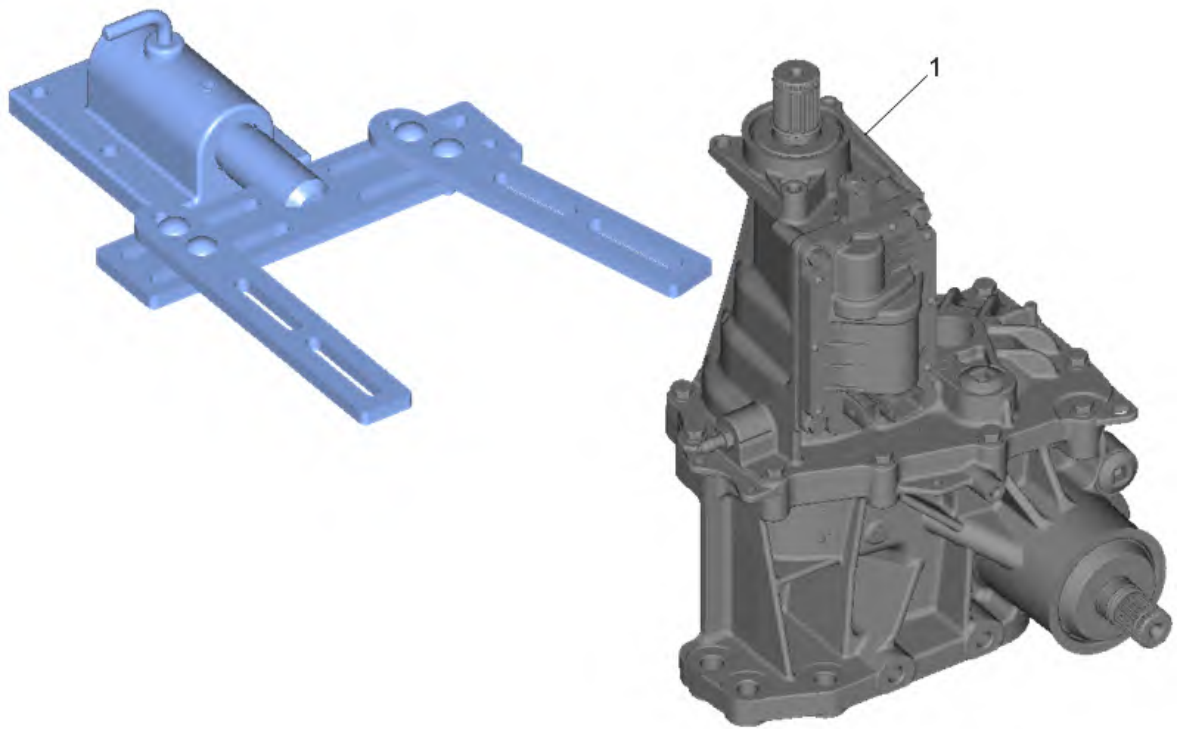
**Fig. 67: Power Transfer Unit Heat Shield**  
 Courtesy of GENERAL MOTORS COMPANY

| Callout                                                                                                               | Component Name                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b><br>Remove the front exhaust pipe. <a href="#">Exhaust Front Pipe Replacement (LTG)</a> . |                                                                                                                                                                |
| 1                                                                                                                     | Power Transfer Unit Heat Shield Fasteners [3x]<br><br><b>CAUTION:</b><br>Refer to <a href="#">Fastener Caution</a> .<br><br><b>Tighten</b><br>9 N.m (80 lb in) |
| 2                                                                                                                     | Power Transfer Unit Heat Shield                                                                                                                                |

## **REPAIR INSTRUCTIONS - OFF VEHICLE**

### **POWER TRANSFER UNIT CASE DISASSEMBLE**

#### **Power Transfer Unit Case Holding Fixture Installation**



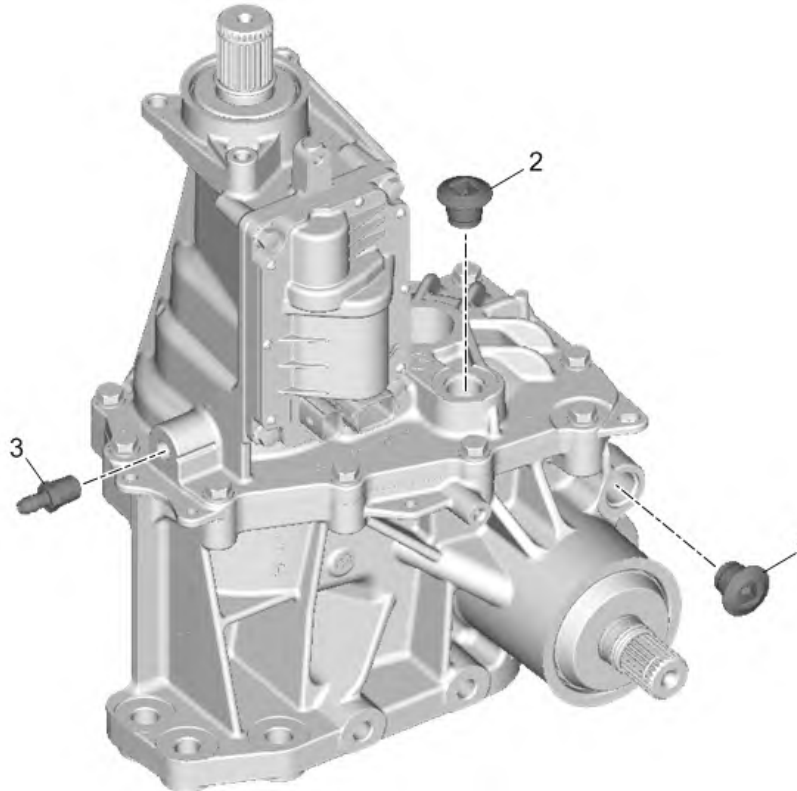
**Fig. 68: Power Transfer Unit Case Holding Fixture**

Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Case Holding Fixture Installation

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Power Transfer Unit Case</p> <p><b>NOTE:</b><br/>Always secure with the pivot pin after rotating.</p> <p><b>NOTE:</b><br/>The power transfer unit can be rotated 360 degrees to facilitate repair.</p> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• DT-3289-20 Holding Fixture</li> <li>• DT-36842 Transaxle Holding Fixture</li> </ul> <p>Equivalent regional tools: Refer to: <a href="#">Special Tools</a>.</p> |

#### Power Transfer Unit Oil Fill Plug, Oil Drain Plug, and Vent Hose Connector Removal



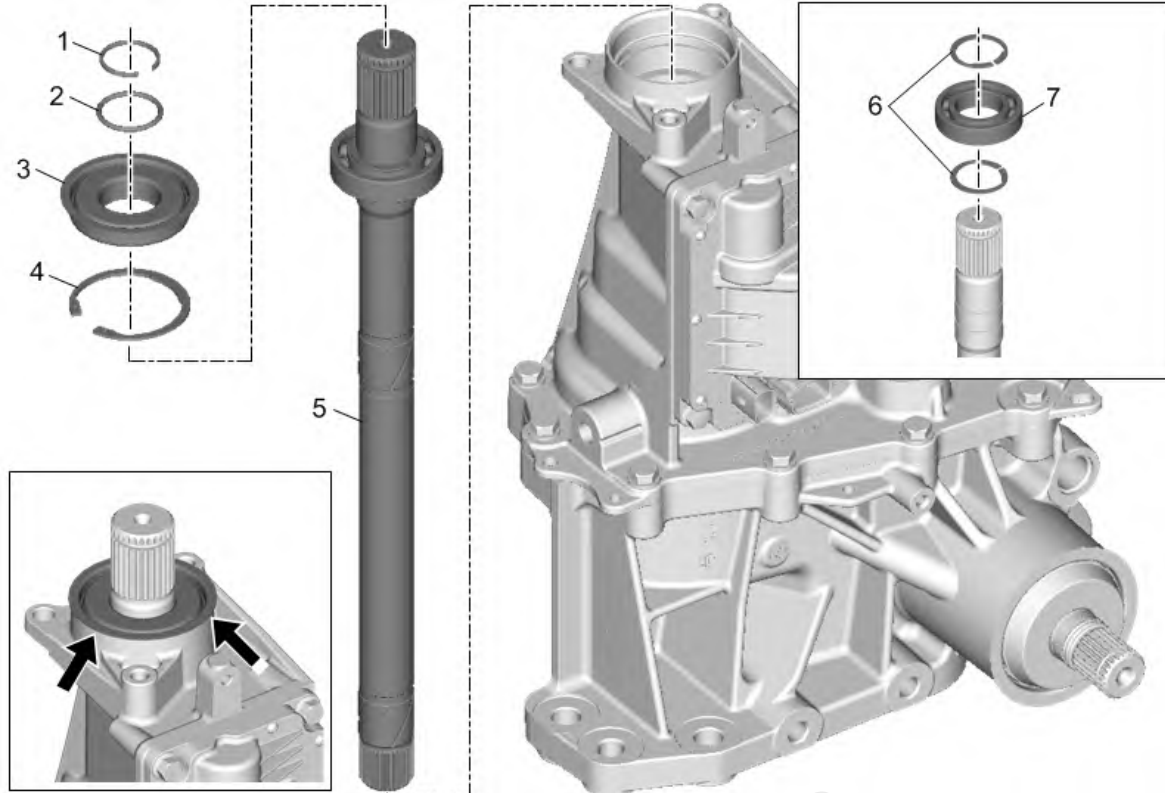
**Fig. 69: Power Transfer Unit Oil Fill Plug, Oil Drain Plug, and Vent Hose Connector**

Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Oil Fill Plug, Oil Drain Plug, and Vent Hose Connector Removal

| Callout | Component Name                                                                                                                                           |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Drain Plug<br><br><b>NOTE:</b><br>The plug and seal are only available as an assembly. Install a NEW plug with seal during assembly. |
| 2       | Power Transfer Unit Fill Plug<br><br><b>NOTE:</b><br>The plug and seal are only available as an assembly. Install a NEW plug with seal during assembly.  |
| 3       | Power Transfer Unit Vent Hose Connector<br><br><b>NOTE:</b><br>Remove the vent hose connector only if replacement is required.                           |

#### Power Transfer Unit Intermediate Drive Shaft Components Removal

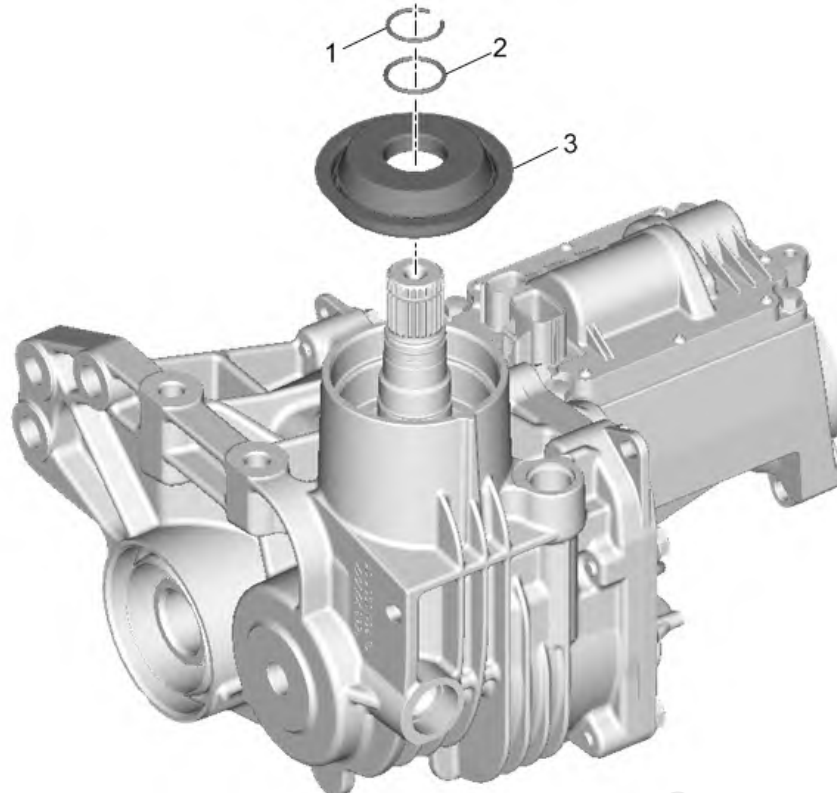


**Fig. 70: Power Transfer Unit Intermediate Drive Shaft Components**

Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Intermediate Drive Shaft Components Removal

| Callout | Component Name                                                                                                                                                                                                                                         |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Half Shaft Retainer Clip<br><b>NOTE:</b><br><b>Remove and DISCARD the retainer.</b>                                                                                                                                                |
| 2       | Power Transfer Unit Half Shaft Seal O-Ring<br><b>NOTE:</b><br><b>Remove and DISCARD the O-ring seal.</b>                                                                                                                                               |
| 3       | Power Transfer Unit Cover to Intermediate Drive Shaft Seal<br><b>NOTE:</b><br><b>Push the OD flange of the seal to remove from extension housing and shaft.</b>                                                                                        |
| 4       | Power Transfer Unit Intermediate Drive Shaft Clip                                                                                                                                                                                                      |
| 5       | Power Transfer Unit Intermediate Drive Shaft Assembly                                                                                                                                                                                                  |
| 6       | Power Transfer Unit Intermediate Drive Shaft Bearing Retaining Ring [2x]<br><b>CAUTION:</b><br><b>Do not nick, scratch or damage the sealing surface. The sealing surface is a machined surface. Damage to the machined surface can cause leakage.</b> |
| 7       | Power Transfer Unit Intermediate Drive Shaft Bearing<br><b>NOTE:</b><br><b>Use a press to remove the bearing from the power transfer unit intermediate drive shaft.</b>                                                                                |



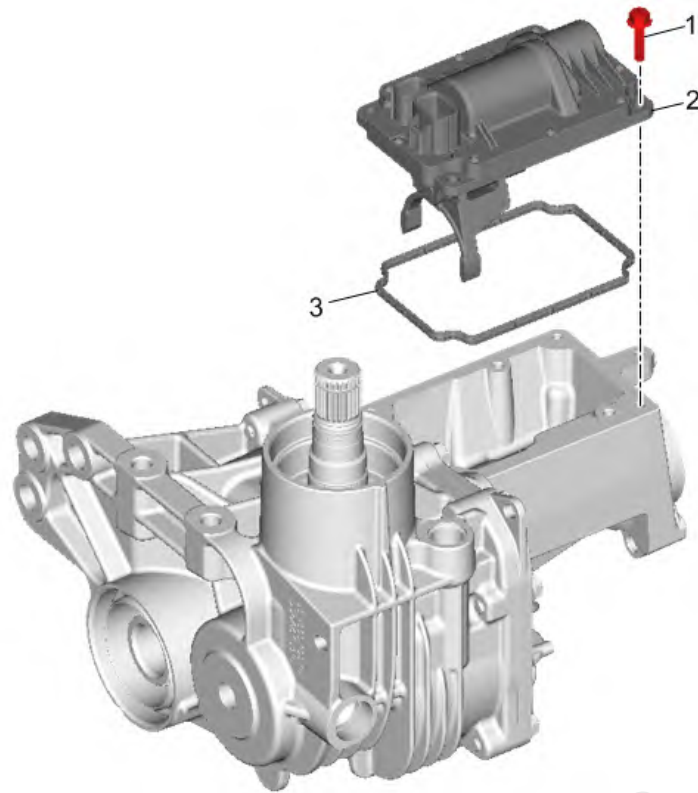
**Fig. 71: Power Transfer Unit Propeller Shaft Seal, O-ring and Retainer**

Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Propeller Shaft Seal, O-ring and Retainer Removal

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Propeller Shaft Retainer<br><br><b>NOTE:</b><br><b>Remove and DISCARD the retainer.</b>                                                                                                                                                                                                                                                                                                         |
| 2       | Power Transfer Unit Propeller Shaft SealO-Ring                                                                                                                                                                                                                                                                                                                                                                      |
| 3       | Power Transfer Unit Propeller Shaft Seal<br><br><b>NOTE:</b> <ul style="list-style-type: none"> <li>• Use a screwdriver to remove the seal from the housing. Remove the inner part of the seal first and then the outer part of the seal. Use care to prevent damage to the housing seal bore or shaft sealing surface. The seal is to be removed in two pieces.</li> <li>• Remove and DISCARD the seal.</li> </ul> |

#### Power Transfer Unit Actuator, Seal and Bolt Removal



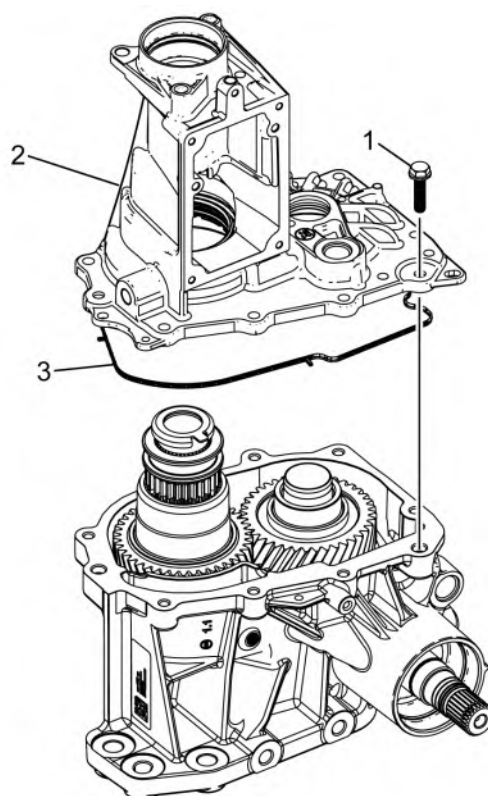
**Fig. 72: Power Transfer Unit Actuator, Seal and Bolt**

Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Actuator, Seal and Bolt Removal

| Callout | Component Name                                                                                     |
|---------|----------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Shift Actuator Bolt [4x]                                                       |
| 2       | Power Transfer Unit Shift Actuator                                                                 |
| 3       | Power Transfer Unit Shift Actuator Seal<br><br><b>NOTE:</b><br><b>Remove and DISCARD the seal.</b> |

#### Power Transfer Unit Extension Housing, Cover Housing Seal and Bolt Removal

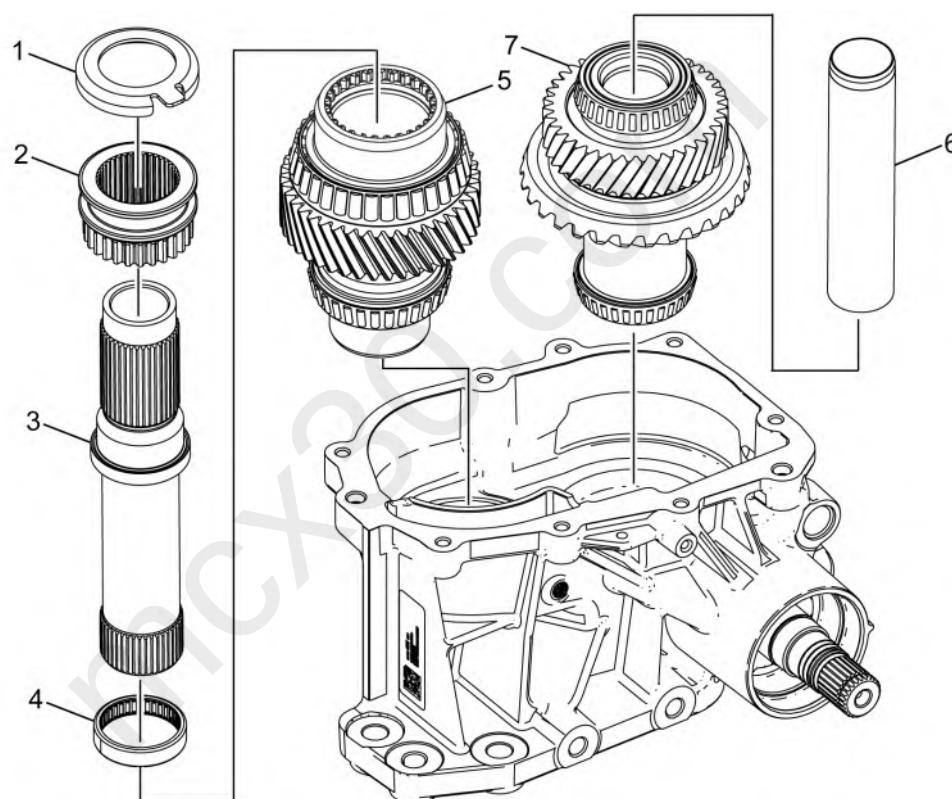


**Fig. 73: Power Transfer Unit Extension Housing, Cover Housing Seal and Bolt**  
 Courtesy of GENERAL MOTORS COMPANY

**Power Transfer Unit Extension Housing, Cover Housing Seal and Bolt Removal**

| Callout | Component Name                                                                                                                                                                                 |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Extension Housing Bolt [10x]<br><br><b>NOTE:</b><br><b>Remove and DISCARD the cover extension housing bolts. Install NEW rear extension housing bolts during assembly.</b> |
| 2       | Power Transfer Unit Extension Housing                                                                                                                                                          |
| 3       | Power Transfer Unit Cover Housing Seal<br><br><b>NOTE:</b><br><b>Remove and DISCARD the seal.</b>                                                                                              |

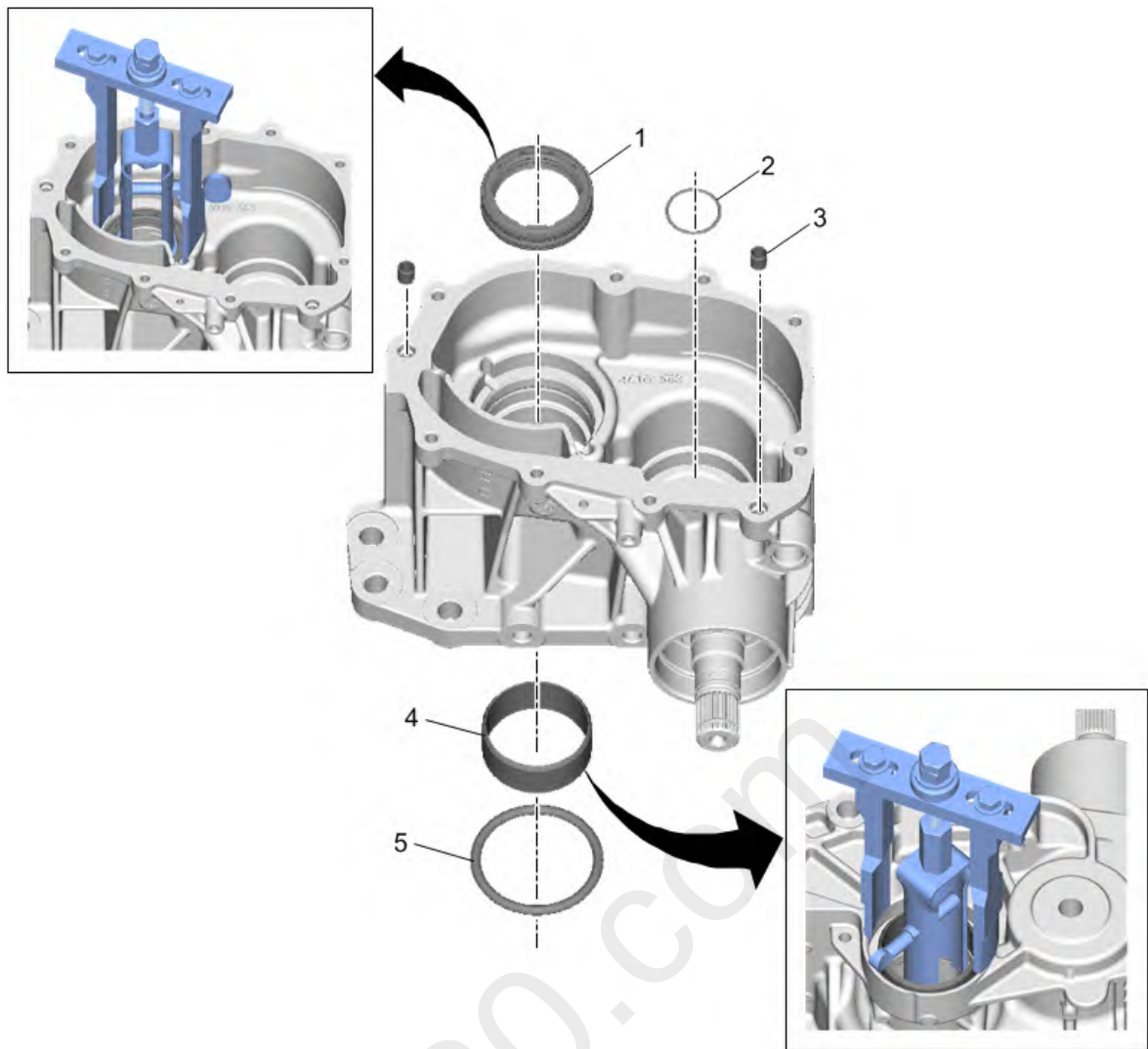
**Power Transfer Unit Input Shaft, Idler Shaft, and Idler Shaft Tube Removal**



**Fig. 74: Power Transfer Unit Input Shaft, Idler Shaft, and Idler Shaft Tube**  
 Courtesy of GENERAL MOTORS COMPANY

**Power Transfer Unit Input Shaft, Idler Shaft, and Idler Shaft Tube Removal**

| Callout | Component Name                                                                                                                                                                                               |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Locker                                                                                                                                                                                   |
| 2       | Power Transfer Unit Shift ActuatorGear                                                                                                                                                                       |
| 3       | Power Transfer Unit Shift ActuatorShaft                                                                                                                                                                      |
| 4       | Power Transfer Unit Pinion Compression Sleeve                                                                                                                                                                |
| 5       | Power Transfer Unit Input Shaft Assembly                                                                                                                                                                     |
| 6       | Power Transfer Unit Idler Gear Shaft Access Tube<br><br><b>NOTE:</b><br><b>The orientation of the tube for assembly. The end of the tube with the knurled OD area is to be facing the extension housing.</b> |
| 7       | Power Transfer Unit Idler Shaft Assembly                                                                                                                                                                     |



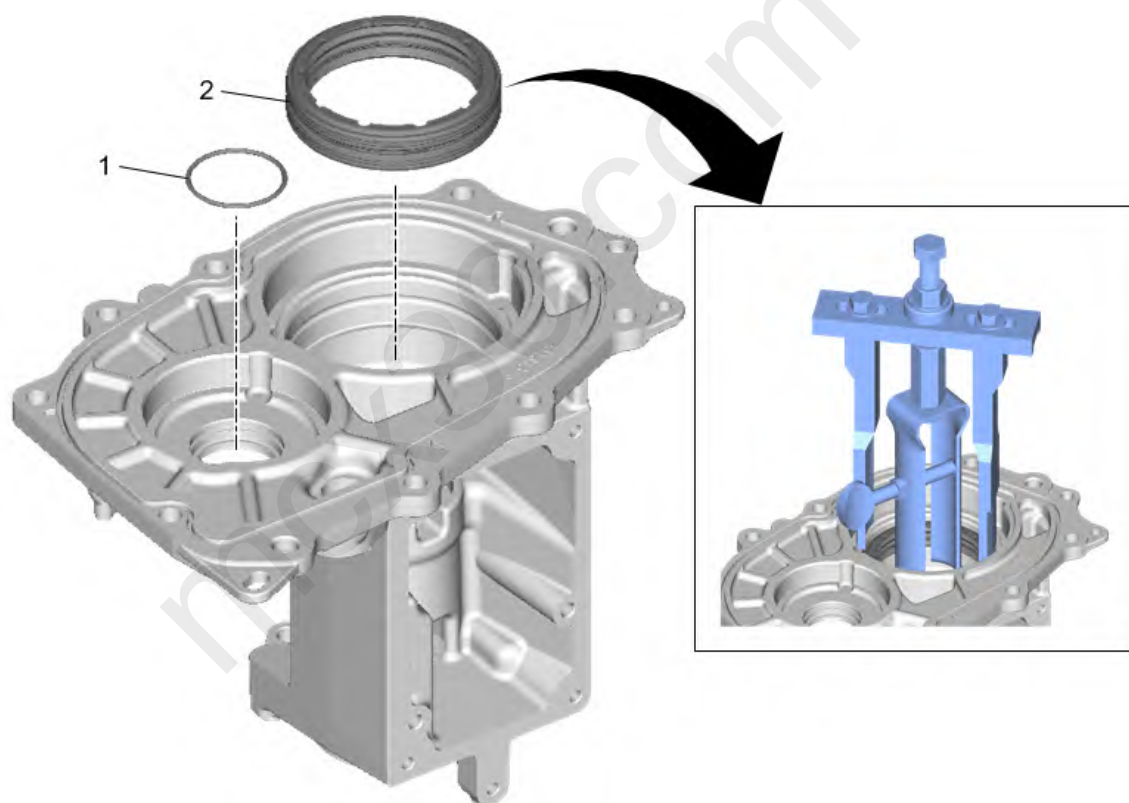
**Fig. 75: Power Transfer Unit Alignment Sleeve, Face Seal, Input Shaft Seal and Idler Gear Shaft Tube O-ring Removal**  
 Courtesy of GENERAL MOTORS COMPANY

**Power Transfer Unit Alignment Sleeve, Face Seal, Input Shaft Seal and Idler Gear Shaft Tube O-ring Removal**

| Callout | Component Name                                                                                                                                                                                                                                                                                                                     |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Input Shaft Seal- Front<br><br><b>NOTE:</b><br><b>Remove and DISCARD the seal.</b><br><br><b>Special Tools</b> <ul style="list-style-type: none"> <li>• DT-26941 Bushing and Bearing Remover</li> <li>• DT-45124 Removal Bridge</li> </ul> Equivalent regional tools: Refer to <a href="#">Special Tools</a> . |
| 2       | Power Transfer Unit Idler Gear Shaft Tube O-ring - Front                                                                                                                                                                                                                                                                           |
| 3       | Power Transfer Unit Locating Pin [2x]                                                                                                                                                                                                                                                                                              |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                             |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4       | Power Transfer Unit Alignment Sleeve<br><br><b>NOTE:</b><br>Discard the alignment sleeve if removed. Install a NEW sleeve during assembly.<br><br><b>Special Tools</b> <ul style="list-style-type: none"> <li>• DT-44380 Differential Bearing Puller</li> <li>• DT-45124 Removal Bridge</li> <li>• DT-45124 - 9 Puller Legs</li> </ul> Equivalent regional tools: Refer to <a href="#">Special Tools</a> . |
| 5       | Power Transfer Unit Face Seal<br><br><b>NOTE:</b><br>Remove and DISCARD the seal.                                                                                                                                                                                                                                                                                                                          |

#### Power Transfer Unit Input Shaft Seal and Idler Gear Shaft Tube O-ring Removal



**Fig. 76: Power Transfer Unit Input Shaft Seal and Idler Gear Shaft Tube O-ring**  
 Courtesy of GENERAL MOTORS COMPANY

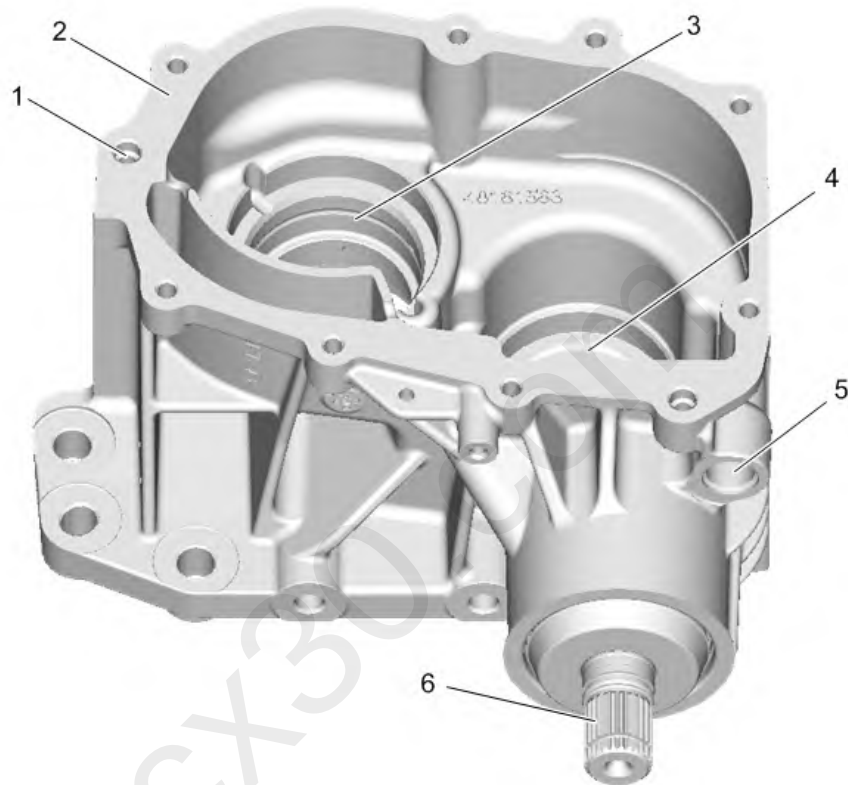
#### Power Transfer Unit Input Shaft Seal and Idler Gear Shaft Tube O-ring Removal

| Callout | Component Name                                                                                 |
|---------|------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Input Shaft Seal- Rear<br><br><b>NOTE:</b><br>Remove and DISCARD the seal. |
|         |                                                                                                |

| Callout | Component Name                                                                                                                                                                                                                                                                        |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2       | Power Transfer Unit Input Shaft Seal - Rear<br><br><b>Special Tools</b> <ul style="list-style-type: none"> <li>• <b>DT-26941</b> Bushing and Bearing Remover</li> <li>• <b>DT-45124</b> Removal Bridge</li> </ul> Equivalent regional tools: Refer to <a href="#">Special Tools</a> . |

## POWER TRANSFER UNIT CASE CLEANING AND INSPECTION

### Power Transfer Unit Case Housing Cleaning and Inspection



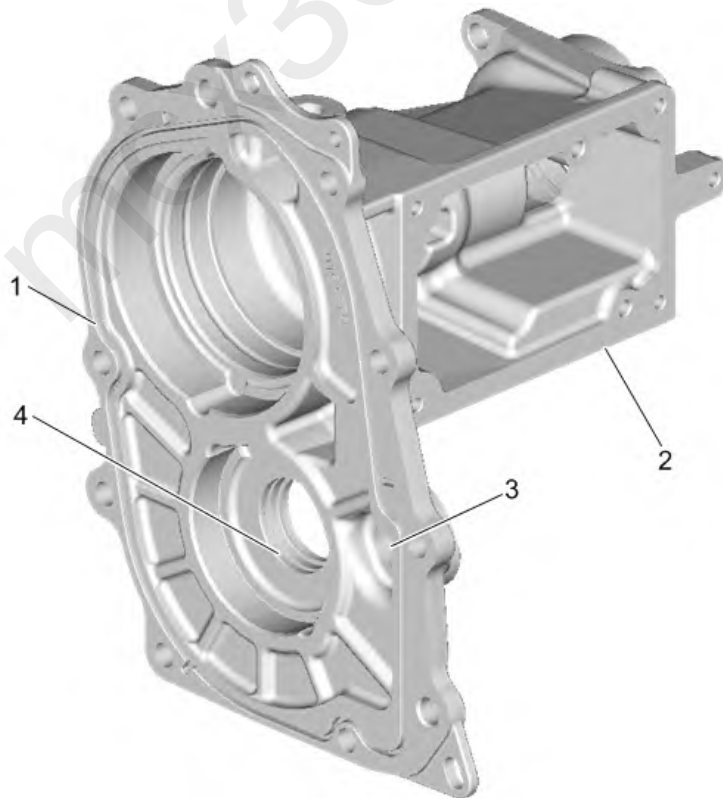
**Fig. 77: Power Transfer Unit Case Housing**  
 Courtesy of GENERAL MOTORS COMPANY

### Power Transfer Unit Case Housing Cleaning and Inspection

| Callout                                                                                                                                                                                                                                                                                             | Component Name                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b> <ul style="list-style-type: none"> <li>• Clean the power transfer unit case housing.</li> <li>• The case halves, internal gears and bearings are not serviceable components. If damage is present, the power transfer unit must be replaced as an assembly.</li> </ul> |                                                                                                                                    |
| 1                                                                                                                                                                                                                                                                                                   | Power Transfer Unit Case Housing Threaded Bolt Holes<br><br><b>NOTE:</b><br><b>Repair any damaged threads.</b>                     |
| 2                                                                                                                                                                                                                                                                                                   | Power Transfer Unit Case Housing Sealing Surfaces<br><br><b>NOTE:</b><br><b>Repair small scratches or nicks with a soft stone.</b> |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3       | Power Transfer Unit Input Shaft Seal Surface<br><br><b>NOTE:</b><br><b>Inspect for thread damage or sealing surface.</b>                                                                                                                                                                                                                                                                                                                                                                                                        |
| 4       | Power Transfer Unit Idler Shaft Tube Seal Surface<br><br><b>NOTE:</b><br><b>Inspect for thread damage or sealing surface.</b>                                                                                                                                                                                                                                                                                                                                                                                                   |
| 5       | Power Transfer Unit Drain Plug Hole<br><br><b>NOTE:</b><br><b>Inspect for thread damage or sealing surface.</b>                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 6       | Power Transfer Unit Rear Output Shaft and Splines<br><b>Procedure</b><br>Rotate the shaft by hand. The shaft should rotate freely with no roughness felt within the bearings. If roughness within bearings is present, replace the power transfer unit as an assembly.<br><br><b>NOTE:</b> <ul style="list-style-type: none"> <li>• Inspect the rear output shaft for end play. If end play is present, replace the power transfer unit as an assembly.</li> <li>• Inspect the splines for damage or excessive wear.</li> </ul> |

#### Power Transfer Unit Case Extension Housing Cleaning and Inspection



**Fig. 78: Power Transfer Unit Case Extension Housing**

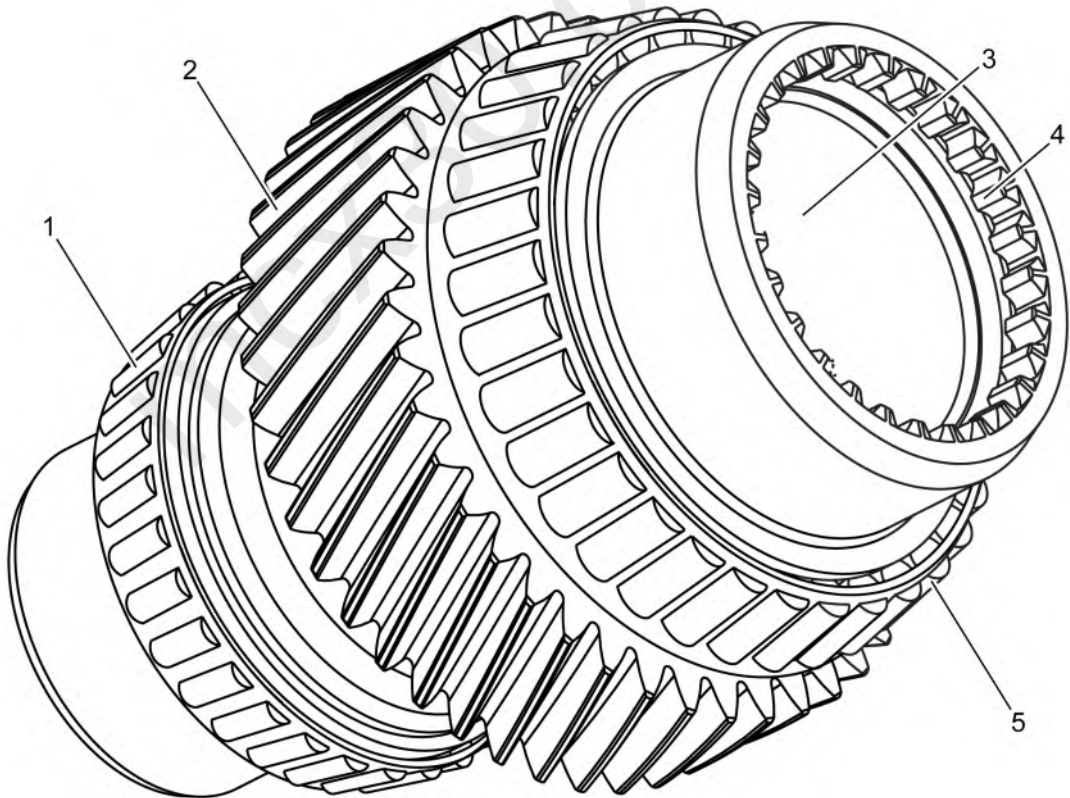
Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Case Extension Housing Cleaning and Inspection

| Callout | Component Name |
|---------|----------------|
|         |                |

| Callout                                                                                                                                                                                                                                                                                                                      | Component Name                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b> <ul style="list-style-type: none"> <li>• Clean the power transfer unit extension housing in cleaning solvent and air dry.</li> <li>• The case halves, internal gears and bearings are not serviceable components. If damage is present, the transfer case assembly must be replaced.</li> </ul> |                                                                                                                                                                                                  |
| 1                                                                                                                                                                                                                                                                                                                            | Power Transfer Unit Case Extension Housing Sealing Surfaces<br><b>NOTE:</b><br><b>Repair small scratches or nicks with a soft stone.</b>                                                         |
| 2                                                                                                                                                                                                                                                                                                                            | Power Transfer Unit Case Extension Housing<br><b>NOTE:</b><br><b>Inspect for excessive wear, cracks, or damage. The power transfer unit case assembly must be replaced if damage is present.</b> |
| 3                                                                                                                                                                                                                                                                                                                            | Power Transfer Unit Case Fill Plug Hole<br><b>NOTE:</b><br><b>Inspect for thread damage or sealing surface.</b>                                                                                  |
| 4                                                                                                                                                                                                                                                                                                                            | Idler Gear Shaft Tube O-ring Sealing Surface                                                                                                                                                     |

#### Power Transfer Unit Input Shaft Cleaning and Inspection



**Fig. 79: Power Transfer Unit Input Shaft**

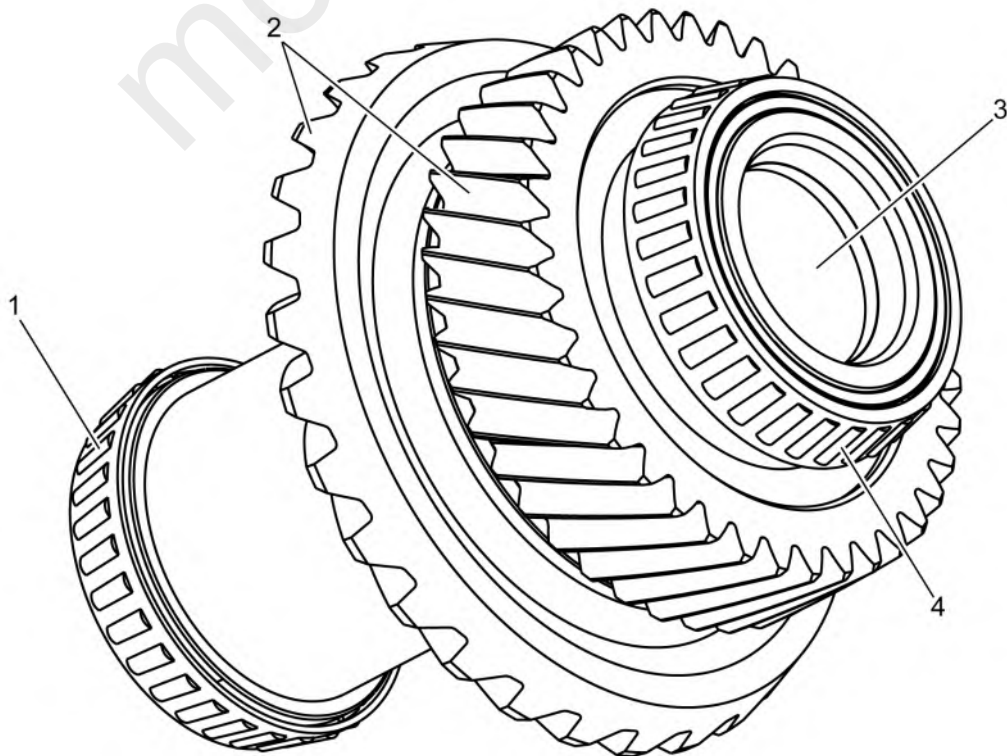
Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Input Shaft Cleaning and Inspection

| Callout | Component Name |
|---------|----------------|
|         |                |

| Callout                                                                                                                                                                                                                                                                                                                            | Component Name                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b> <ul style="list-style-type: none"> <li>• Clean the power transfer unit input shaft in cleaning solvent and air dry.</li> <li>• The case halves, internal gears and bearings are not serviceable components. If damage is present, the power transfer unit must be replaced as an assembly.</li> </ul> |                                                                                                                                                   |
| 1                                                                                                                                                                                                                                                                                                                                  | Power Transfer Unit Input Shaft Bearing - Rear<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>                                    |
| 2                                                                                                                                                                                                                                                                                                                                  | Power Transfer Unit Input Shaft Gear Teeth<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>                                        |
| 3                                                                                                                                                                                                                                                                                                                                  | Power Transfer Unit Input Shaft - Intermediate Drive Shaft Seal Surface<br><b>NOTE:</b><br><b>Inspect for pitting, excessive wear, or damage.</b> |
| 4                                                                                                                                                                                                                                                                                                                                  | Power Transfer Unit Pinion Compression Sleeve Surface<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>                             |
| 5                                                                                                                                                                                                                                                                                                                                  | Power Transfer Unit Input Shaft Bearing - Front<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>                                   |

#### Power Transfer Unit Idler Shaft Cleaning and Inspection

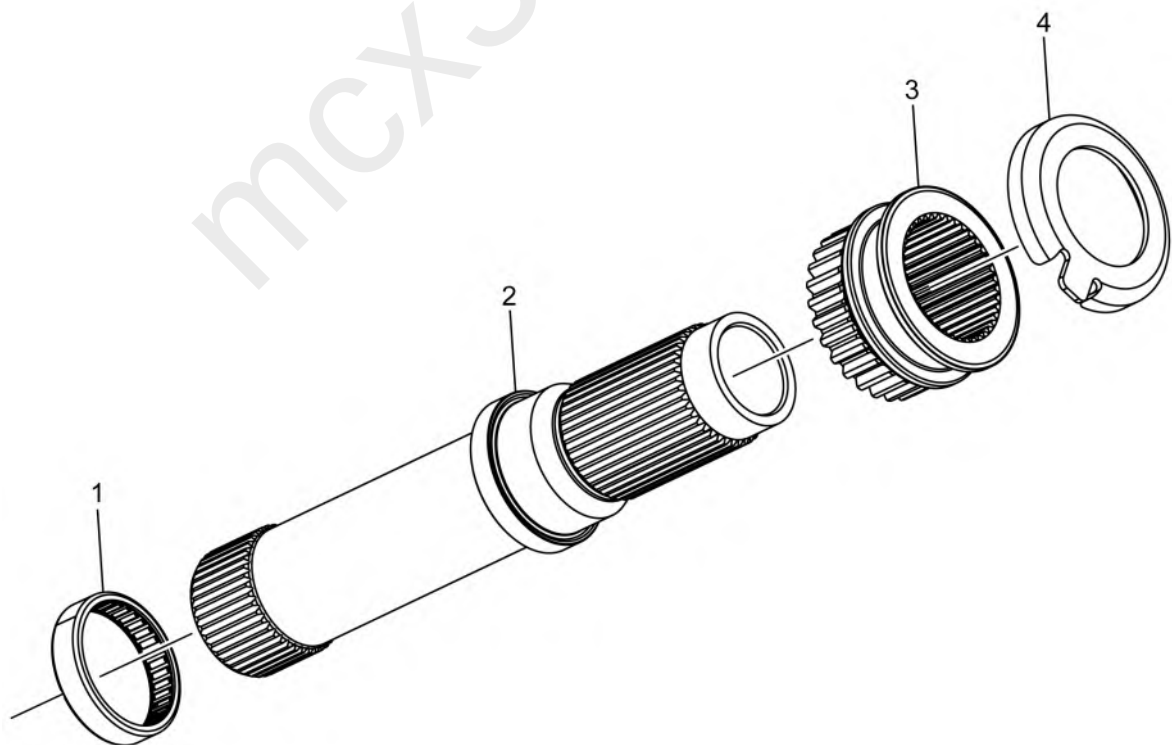


**Fig. 80: Power Transfer Unit Idler Shaft**  
 Courtesy of GENERAL MOTORS COMPANY

## Power Transfer Unit Idler Shaft Cleaning and Inspection

| Callout                                                                                                                                                                                                                                                                                                             | Component Name                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b> <ul style="list-style-type: none"><li>• Clean the power transfer unit idler shaft in cleaning solvent and air dry.</li><li>• The case halves, internal gears and bearings are not serviceable components. If damage is present, the transfer case assembly must be replaced.</li></ul> |                                                                                                                          |
| 1                                                                                                                                                                                                                                                                                                                   | Power Transfer Unit Idler Shaft Bearing - Front<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>          |
| 2                                                                                                                                                                                                                                                                                                                   | Power Transfer Unit Idler Shaft Gear Teeth<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>               |
| 3                                                                                                                                                                                                                                                                                                                   | Power Transfer Unit Idler Gear Shaft Access Tube Surface<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b> |
| 4                                                                                                                                                                                                                                                                                                                   | Power Transfer Unit Idler Shaft Bearing - Rear<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>           |

### Power Transfer Unit Idler Shaft Cleaning and Inspection



**Fig. 81: Power Transfer Unit Idler Shaft**

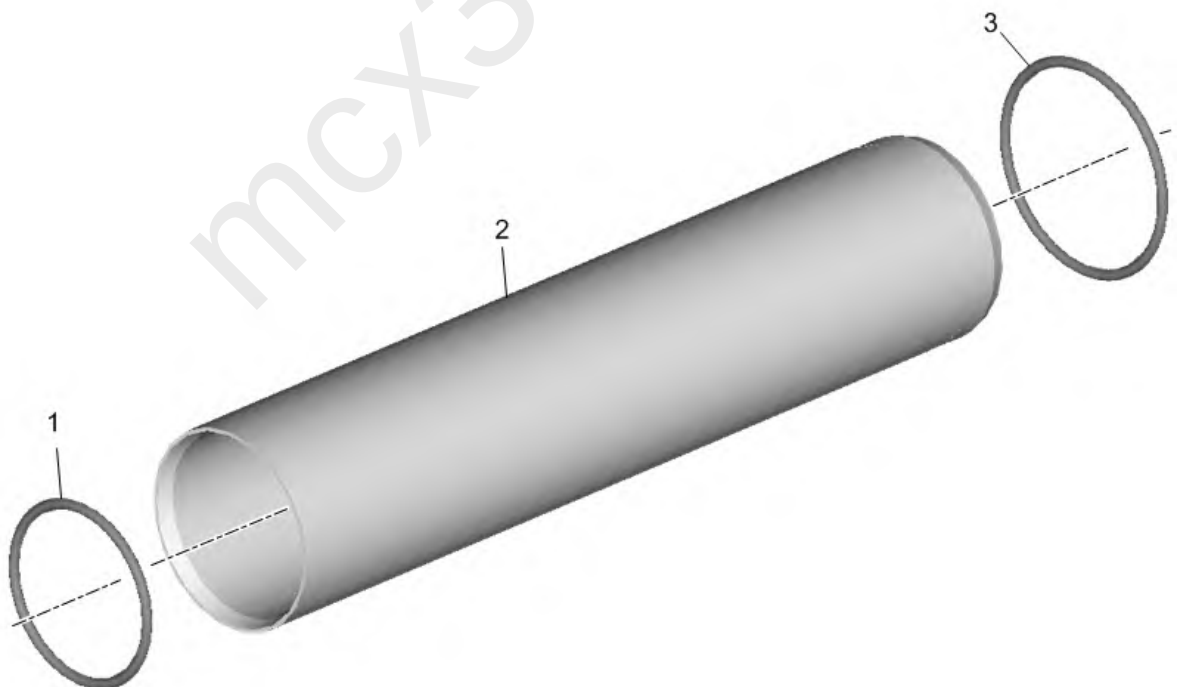
Courtesy of GENERAL MOTORS COMPANY

### Power Transfer Unit Idler Shaft Cleaning and Inspection

| Callout | Component Name |
|---------|----------------|
|         |                |

| Callout                                                                                                                                                                                                                                                                                                                | Component Name                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Preliminary Procedure</b> <ul style="list-style-type: none"> <li>• Clean the power transfer unit idler shaft in cleaning solvent and air dry.</li> <li>• The case halves, internal gears and bearings are not serviceable components. If damage is present, the transfer case assembly must be replaced.</li> </ul> |                                                                                                           |
| 1                                                                                                                                                                                                                                                                                                                      | Power Transfer Unit Shift Sleeve<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>          |
| 2                                                                                                                                                                                                                                                                                                                      | Power Transfer Unit Shift Actuator Shaft<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>  |
| 3                                                                                                                                                                                                                                                                                                                      | Power Transfer Unit Shift Actuator Gear<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b>   |
| 4                                                                                                                                                                                                                                                                                                                      | Power Transfer Unit Shift Actuator Locker<br><b>NOTE:</b><br><b>Inspect for excessive wear or damage.</b> |

#### Power Transfer Unit Idler Shaft Tube Cleaning and Inspection



**Fig. 82: Power Transfer Unit Idler Shaft Tube**  
 Courtesy of GENERAL MOTORS COMPANY

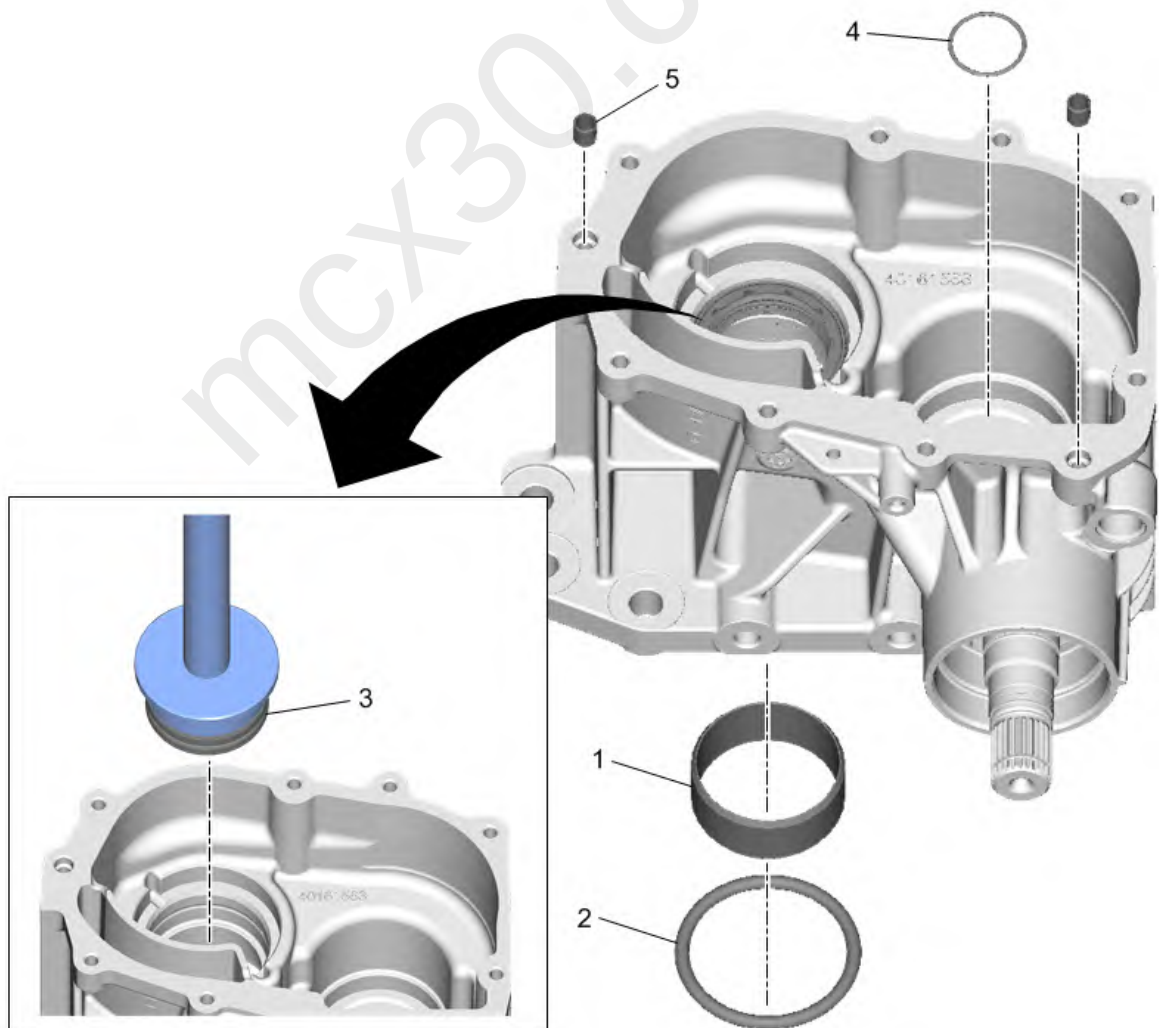
#### Power Transfer Unit Idler Shaft Tube Cleaning and Inspection

| Callout                                                                                                         | Component Name |
|-----------------------------------------------------------------------------------------------------------------|----------------|
| <b>Preliminary Procedure</b><br>Clean the power transfer unit idler shaft tube in cleaning solvent and air dry. |                |



| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Power Transfer Unit Idler Gear Shaft Tube O-ring- Rear</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Install the NEW seal with the notched surface of the seal facing the installer tool.</li> <li>2. Install the seal onto the <b>DT-52000</b> Seal Installer with the metal ID portion of the seal facing the <b>DT-52000</b> Seal Installer.</li> <li>3. Make sure the seal bore is clean and free of oil or dirt.</li> </ol> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• <b>DT-52000</b> Seal Installer</li> <li>• <b>DT-305 - 1</b> Driver Handle</li> </ul> <p>Equivalent regional tools: <b>Special Tools</b></p> |
| 2       | Power Transfer Unit Input Shaft Seal- Rear                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3       | <p>Power Transfer Unit Idler Gear Shaft Access Tube</p> <p><b>NOTE:</b><br/>The tube orientation for assembly. Install the tube with the knurled OD area facing the extension housing.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

**Power Transfer Unit Alignment Sleeve, Face Seal, Input Shaft Seal and Idler Gear Shaft Tube O-ring Installation**

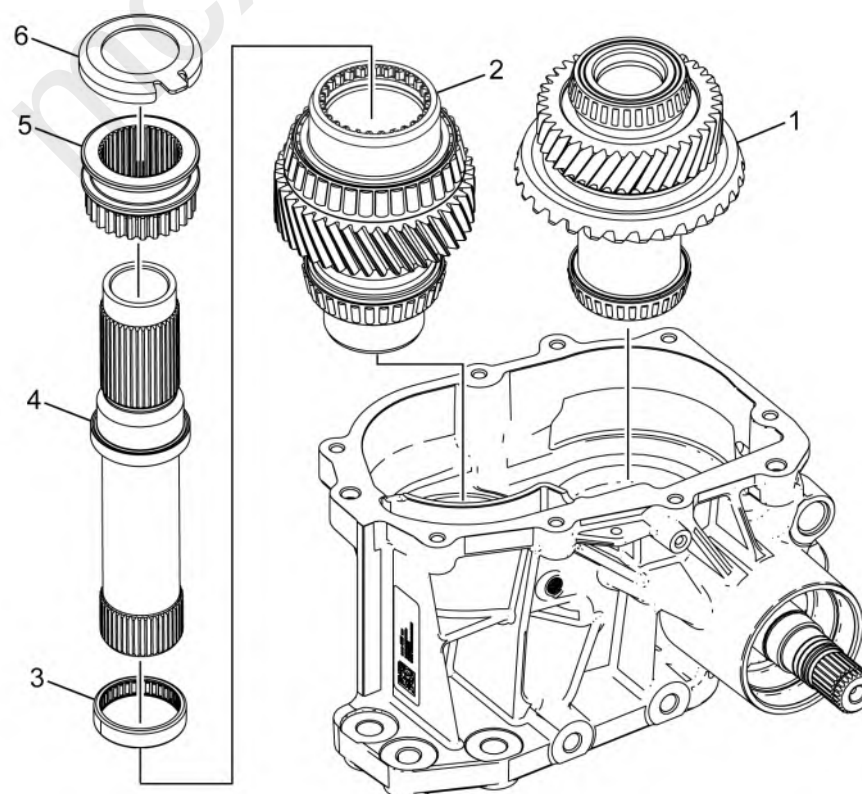


**Fig. 84: Power Transfer Unit Alignment Sleeve, Face Seal, Input Shaft Seal and Idler Gear Shaft Tube O-ring**  
**Courtesy of GENERAL MOTORS COMPANY**

## Power Transfer Unit Alignment Sleeve, Face Seal, Input Shaft Seal and Idler Gear Shaft Tube O-ring Installation

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Alignment Sleeve<br><br><b>Procedure</b> <ul style="list-style-type: none"> <li>• Install a NEW sleeve during assembly.</li> <li>• Use a press to install the sleeve. Install the sleeve with the tapered end facing away from case. Press the sleeve into the housing until it bottoms in the case half bore.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2       | Power Transfer Unit Face Seal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3       | Power Transfer Unit Input Shaft Seal- Front<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Install the NEW seal with the notched surface of the seal facing the installer tool.</li> <li>2. Make sure the seal bore is clean and free of oil or dirt.</li> <li>3. Install the seal onto the <b>DT-51983</b> Seal Installer with the metal ID portion of the seal facing the <b>DT-51466</b> Seal Installer.</li> <li>4. Install the seal into the bore until the tool bottoms against the case half.</li> </ol><br><b>Special Tools</b> <ul style="list-style-type: none"> <li>• <b>DT-51983</b> Seal Installer</li> <li>• <b>DT-305 - 1</b> Driver Handle</li> </ul><br>Equivalent regional tools: <a href="#">Special Tools</a> |
| 4       | Power Transfer Unit Idler Gear Shaft Tube O-ring - Front                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 5       | Power Transfer Unit Locating Pin [2x]<br><b>Procedure</b><br>Install the locating pins as required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### Power Transfer Unit Input Shaft and Idler Shaft Assembly Installation

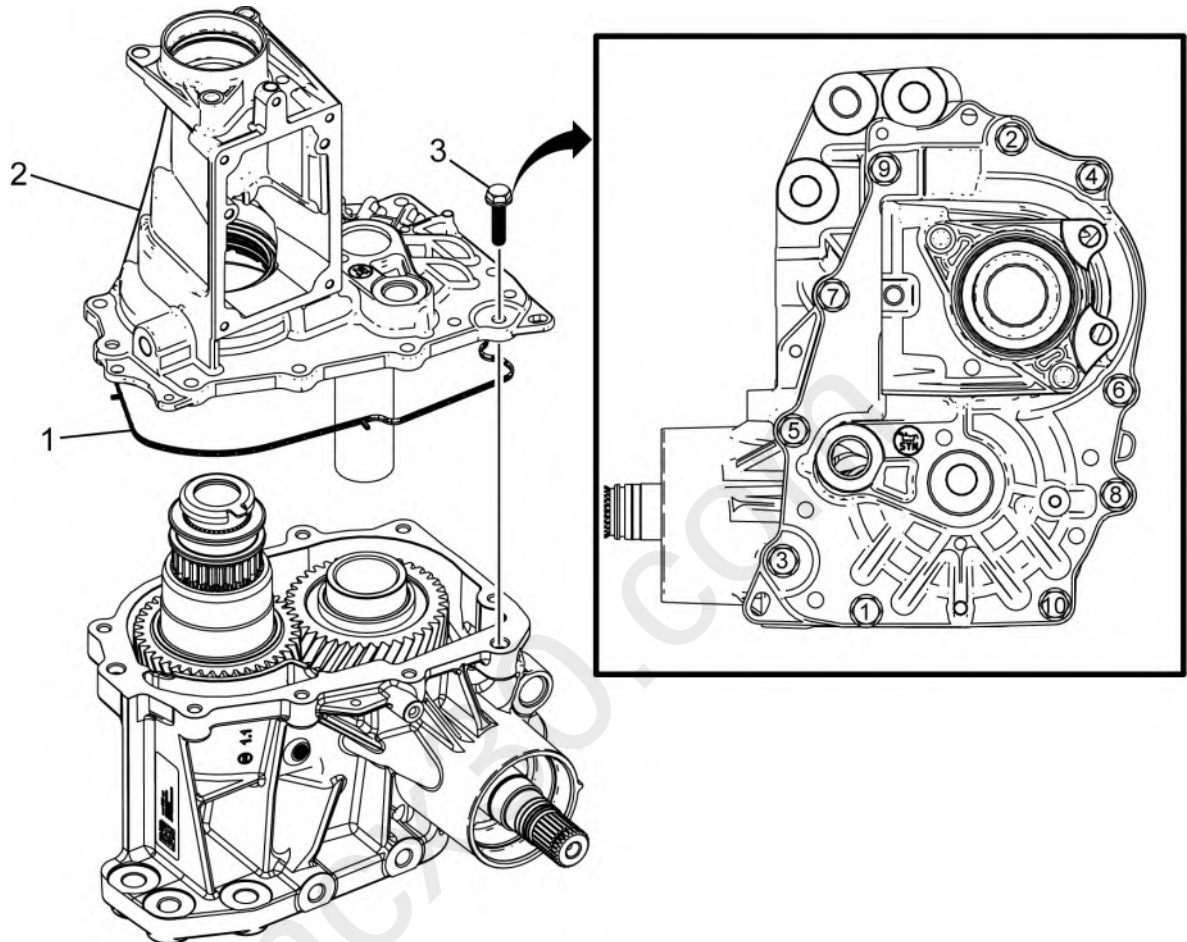


**Fig. 85: Power Transfer Unit Input Shaft and Idler Shaft Assembly.**  
Courtesy of GENERAL MOTORS COMPANY

### Power Transfer Unit Input Shaft and Idler Shaft Assembly Installation

| Callout | Component Name                                |
|---------|-----------------------------------------------|
| 1       | Power Transfer Unit Idler Shaft Assembly      |
| 2       | Power Transfer Unit Input Shaft Assembly      |
| 3       | Power Transfer Unit Pinion Compression Sleeve |
| 4       | Power Transfer Unit Shift ActuatorShaft       |
| 5       | Power Transfer Unit Shift ActuatorGear        |
| 6       | Power Transfer Unit Locker                    |

### Power Transfer Unit Extension Housing, Cover Housing Seal and Bolt Installation



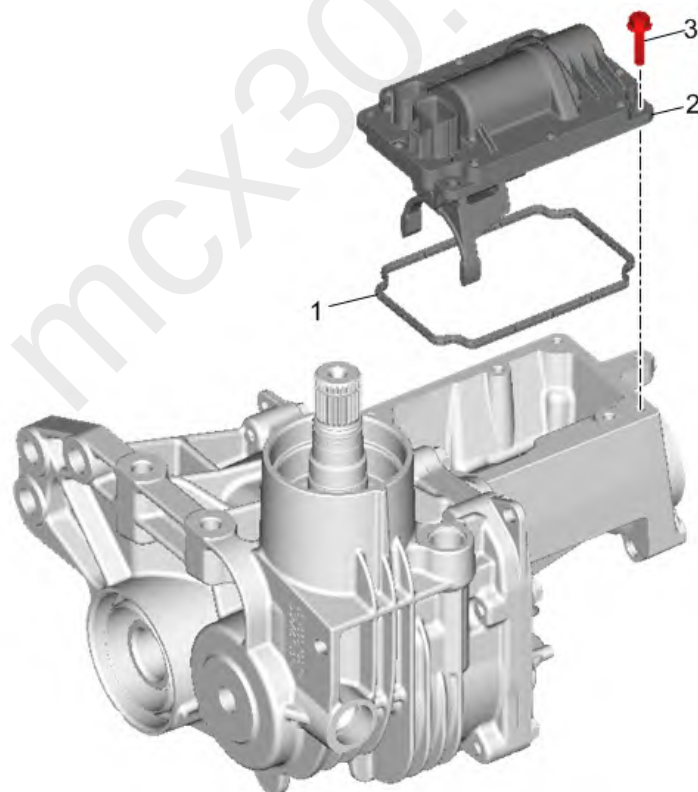
**Fig. 86: Power Transfer Unit Extension Housing, Cover Housing Seal and Bolt**  
Courtesy of GENERAL MOTORS COMPANY

### Power Transfer Unit Extension Housing, Cover Housing Seal and Bolt Installation

| Callout | Component Name                                                                                                                                                                                                                                                                |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Cover Housing Seal<br><br><b>Procedure</b><br><br>1. Do NOT reuse the housing seal. Install a NEW seal during assembly.<br>2. Inspect the extension housing and main housing seal surfaces to ensure they are clean and free of damage prior to assembly. |
| 2       | Power Transfer Unit Extension Housing                                                                                                                                                                                                                                         |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3       | <p>Power Transfer Unit Extension Housing Bolt [10x]</p> <p><b>CAUTION:</b><br/>Refer to <a href="#">Fastener Caution</a> .</p> <p><b>CAUTION:</b><br/>This vehicle is equipped with torque-to-yield or single use fasteners. Install a NEW torque-to-yield or single use fastener when installing this component. Failure to replace the torque-to-yield or single use fastener could cause damage to the vehicle or component.</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Install NEW cover extension housing bolts during assembly.</li> <li>2. Clean the internal threads (no residual pre-applied adhesive allowed)</li> <li>3. Use brand NEW bolts / screws without pre-applied adhesive</li> <li>4. Apply threadlocker to the threads of the NEW bolts. <a href="#">Adhesives, Fluids, Lubricants, and Sealers</a></li> </ol> <p><b>Tighten in sequence</b></p> <ol style="list-style-type: none"> <li>1. First Pass: 25 N.m (18 lb ft)</li> <li>2. Final Pass: 48 degrees</li> </ol> |

#### Power Transfer Unit Actuator, Seal and Bolt Installation



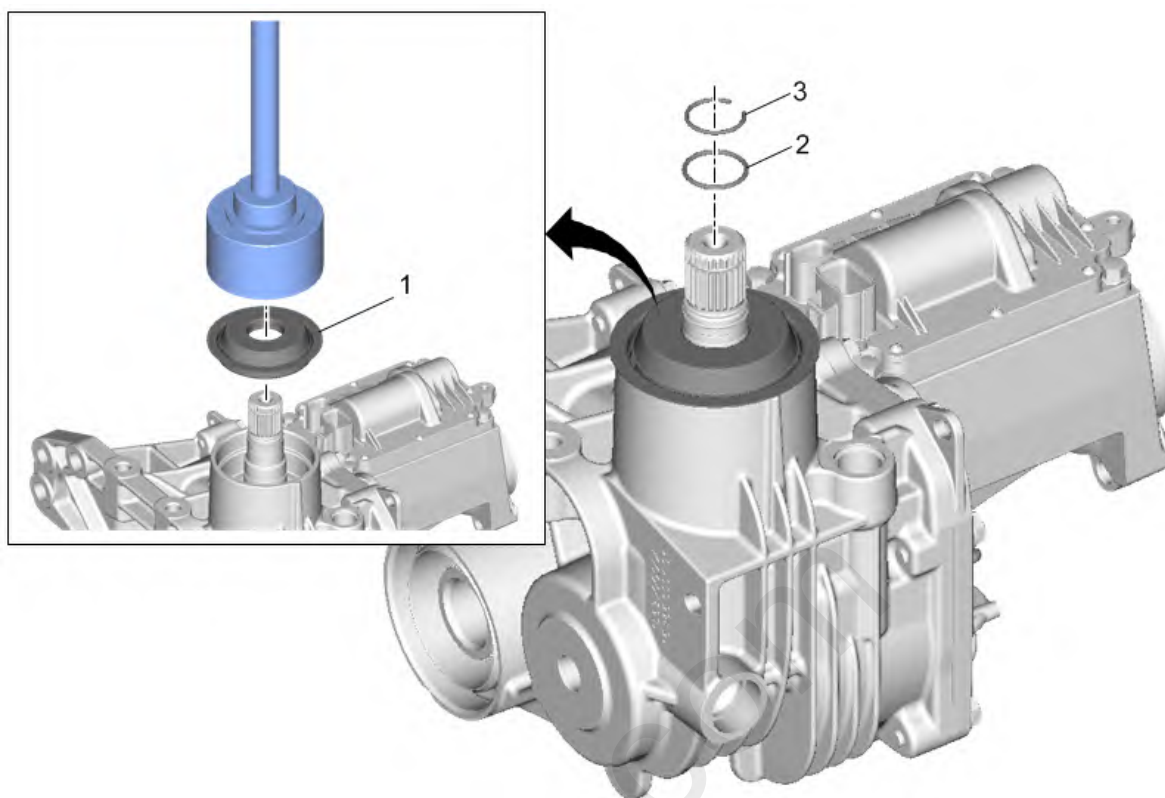
**Fig. 87: Power Transfer Unit Actuator, Seal and Bolt**  
Courtesy of GENERAL MOTORS COMPANY

#### Power Transfer Unit Actuator, Seal and Bolt Installation

| Callout | Component Name                                                                                 |
|---------|------------------------------------------------------------------------------------------------|
| 1       | <p>Power Transfer Unit Shift Actuator Seal</p> <p><b>Procedure</b><br/>Install a NEW seal.</p> |
| 2       | Power Transfer Unit Shift Actuator                                                             |

| Callout | Component Name                                                                     |
|---------|------------------------------------------------------------------------------------|
| 3       | Power Transfer Unit Shift Actuator Bolt [4x]<br><b>Tighten</b><br>9 N.m (80 lb in) |

### Power Transfer Unit Propeller Shaft Seal, O-ring and Retainer Installation



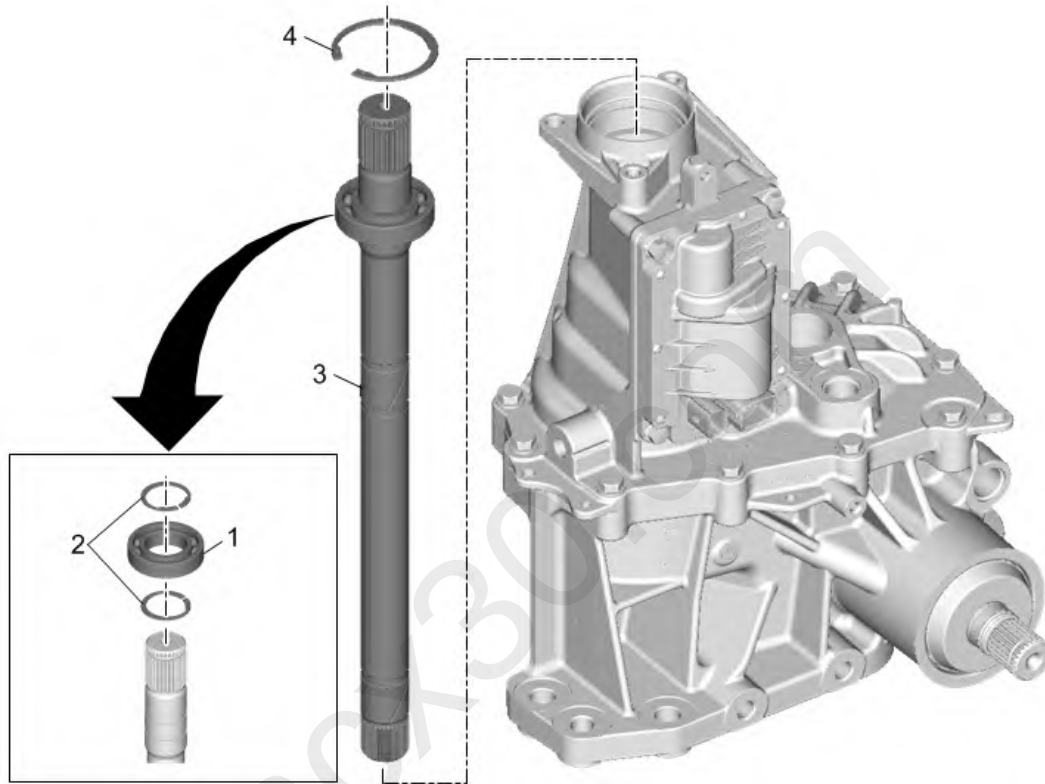
**Fig. 88: Power Transfer Unit Propeller Shaft Seal, O-ring and Retainer**  
Courtesy of GENERAL MOTORS COMPANY

### Power Transfer Unit Propeller Shaft Seal, O-ring and Retainer Installation

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                           |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Propeller Shaft Seal<br><br><b>Procedure</b> <ol style="list-style-type: none"> <li>1. Install a NEW seal.</li> <li>2. Make sure the seal bore is clean and free of oil or dirt.</li> </ol> <b>Special Tools</b> <ul style="list-style-type: none"> <li>• DT-51467 - A Seal Installer</li> <li>• DT-305 - 1 Driver Handle</li> </ul> Equivalent regional tools: <b>Special Tools</b> |
| 2       | Power Transfer Unit Propeller Shaft SealO-Ring<br><b>Procedure</b><br>Install a NEW seal.                                                                                                                                                                                                                                                                                                                |

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3       | Power Transfer Unit Propeller Shaft Retainer <p><b>Procedure</b></p> <ul style="list-style-type: none"> <li>When installing a NEW half shaft retaining clip, open the clip only as far as necessary to fit the clip over the shaft. Opening the clip too far will damage it.</li> <li>Start one end of the clip in the shaft groove and slowly push the clip onto and over the shaft.</li> <li>Do NOT reuse the half shaft retaining clip.</li> <li>Install a NEW retainer.</li> </ul> |

### Power Transfer Unit Intermediate Drive Shaft Components Installation

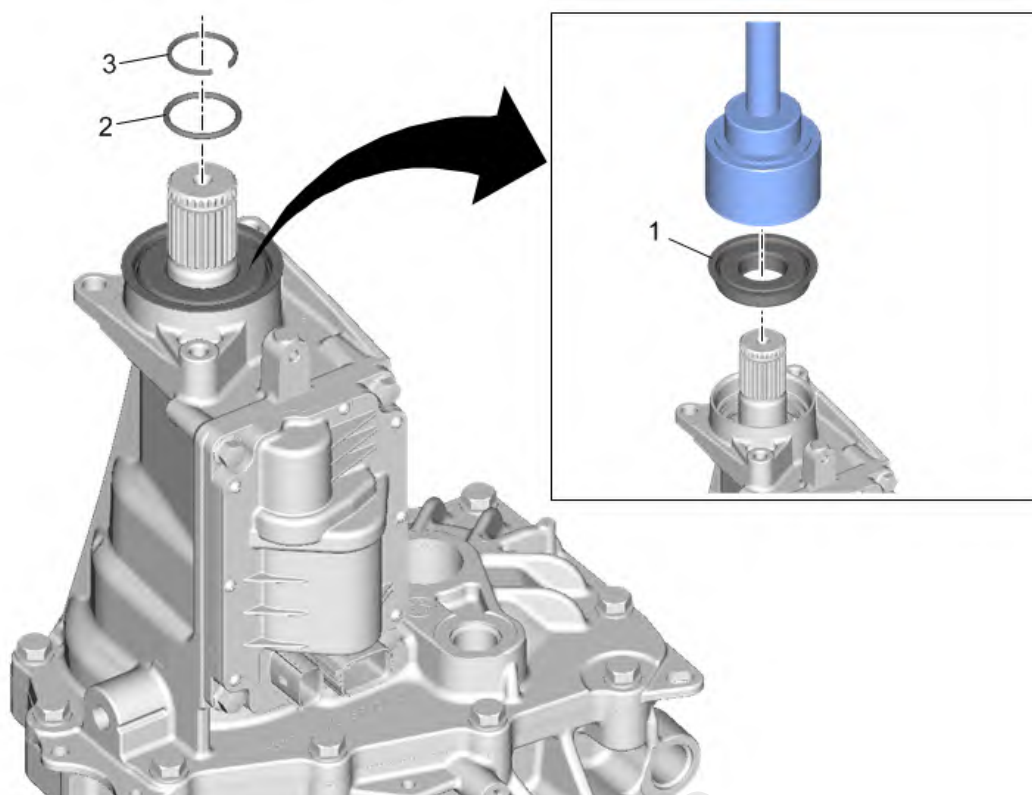


**Fig. 89: Power Transfer Unit Intermediate Drive Shaft Components**  
Courtesy of GENERAL MOTORS COMPANY

### Power Transfer Unit Intermediate Drive Shaft Components Installation

| Callout | Component Name                                                                                                                                                                                                                                       |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Intermediate Drive Shaft Bearing Retaining Ring [2x] <p><b>CAUTION:</b><br/>Do not nick, scratch or damage the sealing surface. The sealing surface is a machined surface. Damage to the machined surface can cause leakage.</p> |
| 2       | Power Transfer Unit Intermediate Drive Shaft Bearing <p><b>NOTE:</b><br/>Use a press to install the bearing to the shaft.</p>                                                                                                                        |
| 3       | Power Transfer Unit Intermediate Drive Shaft Assembly                                                                                                                                                                                                |
| 4       | Power Transfer Unit Intermediate Drive Shaft Clip                                                                                                                                                                                                    |

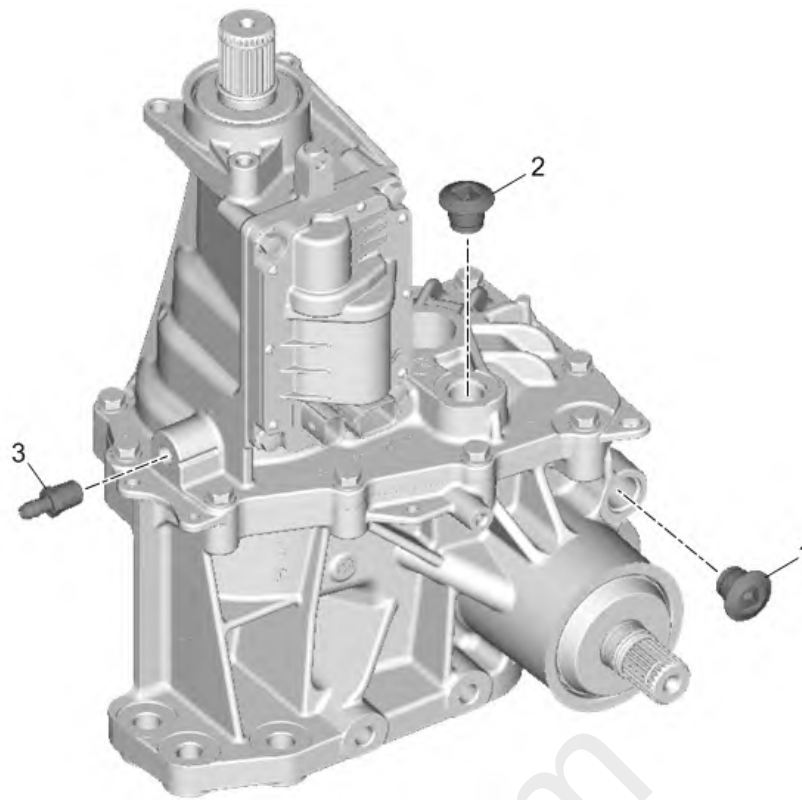
### Power Transfer Unit Cover-to-Intermediate Drive Shaft Seal, Half Shaft O-ring Seal and Retainer Installation



**Fig. 90: Power Transfer Unit Cover-to-Intermediate Drive Shaft Seal, Half Shaft O-ring Seal and Retainer**  
 Courtesy of GENERAL MOTORS COMPANY

**Power Transfer Unit Cover-to-Intermediate Drive Shaft Seal, Half Shaft O-ring Seal and Retainer Installation**

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <p>Power Transfer Unit Cover to Intermediate Drive Shaft Seal</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Install a NEW seal.</li> <li>2. Lubricate the OD area of the seal with a light film of grease or oil prior to installation.</li> </ol> <p><b>Special Tools</b></p> <ul style="list-style-type: none"> <li>• DT-51466 Seal Installer</li> <li>• DT-305 - 1 Driver Handle</li> </ul> <p>Equivalent regional tools: <b>Special Tools</b></p> |
| 2       | <p>Power Transfer Unit Propeller Shaft SealO-Ring</p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Do NOT reuse the O-ring.</li> <li>2. Install a NEW O-ring seal.</li> </ol>                                                                                                                                                                                                                                                                            |
| 3       | <p>Power Transfer Unit Propeller Shaft Retainer</p> <p><b>CAUTION:</b></p> <p><b>When installing a new bearing retaining ring, open the ring only as far as necessary to fit the ring over the shaft. Opening the ring too far will damage it.</b></p> <p><b>Procedure</b></p> <ol style="list-style-type: none"> <li>1. Do NOT reuse the intermediate shaft retaining clip.</li> <li>2. Install a NEW clip.</li> </ol>                                                       |

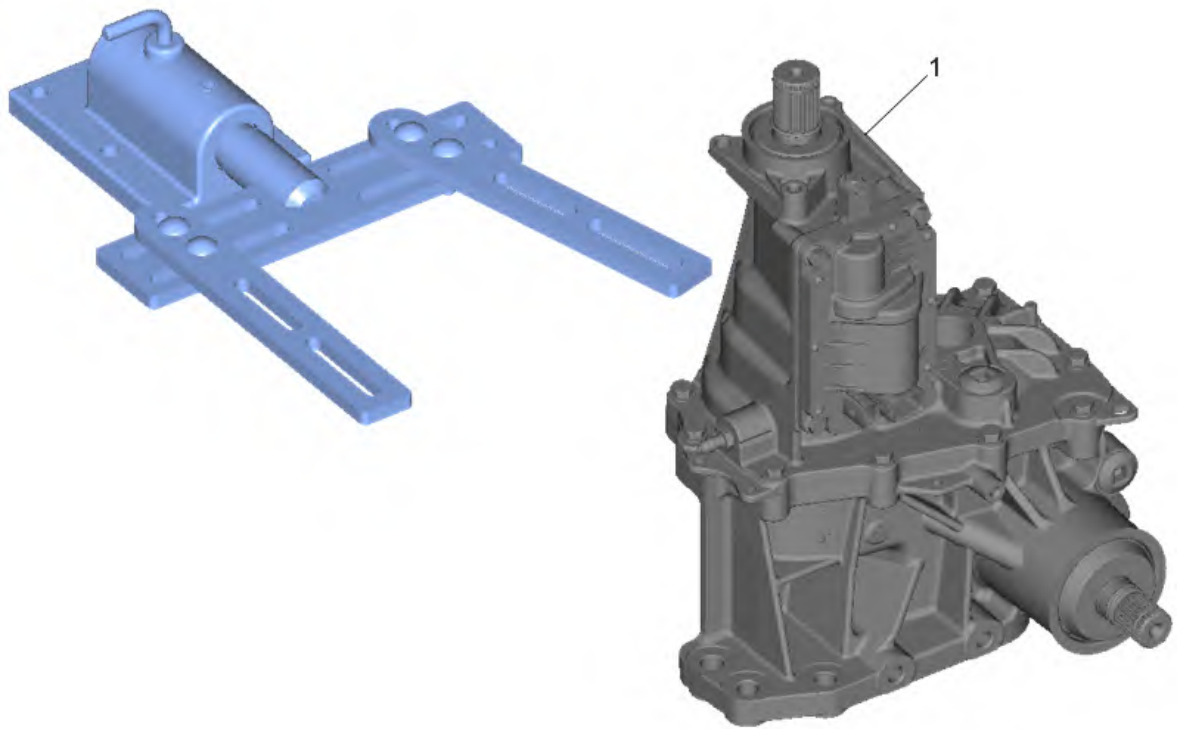


**Fig. 91: Power Transfer Unit Oil Fill Plug, Oil Drain Plug, and Vent Hose Connector**  
 Courtesy of GENERAL MOTORS COMPANY

**Power Transfer Unit Oil Fill Plug, Oil Drain Plug, and Vent Hose Connector Installation**

| Callout | Component Name                                                                                                                                                                                                                                                                                                                                              |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Drain Plug<br><br><b>NOTE:</b><br>The plug and seal are only available as an assembly. Install a NEW plug with seal during assembly.<br><br><b>Tighten</b><br>40 N.m (30 lb ft)                                                                                                                                                         |
| 2       | Power Transfer Unit Fill Plug<br><b>Procedure</b><br>Tighten the oil fill plug only after the assembly has been filled with fluid. <u>Adhesives, Fluids, Lubricants, and Sealers</u> .<br><br><b>NOTE:</b><br>The plug and seal are only available as an assembly. Install a NEW plug with seal during assembly.<br><br><b>Tighten</b><br>40 N.m (30 lb ft) |
| 3       | Power Transfer Unit Vent Hose Connector<br><b>Procedure</b><br>Apply sealant to the threads of the connector. <u>Adhesives, Fluids, Lubricants, and Sealers</u><br><b>Tighten</b><br>20 N.m (15 lb ft)                                                                                                                                                      |

**Power Transfer Unit Case Holding Fixture Removal**



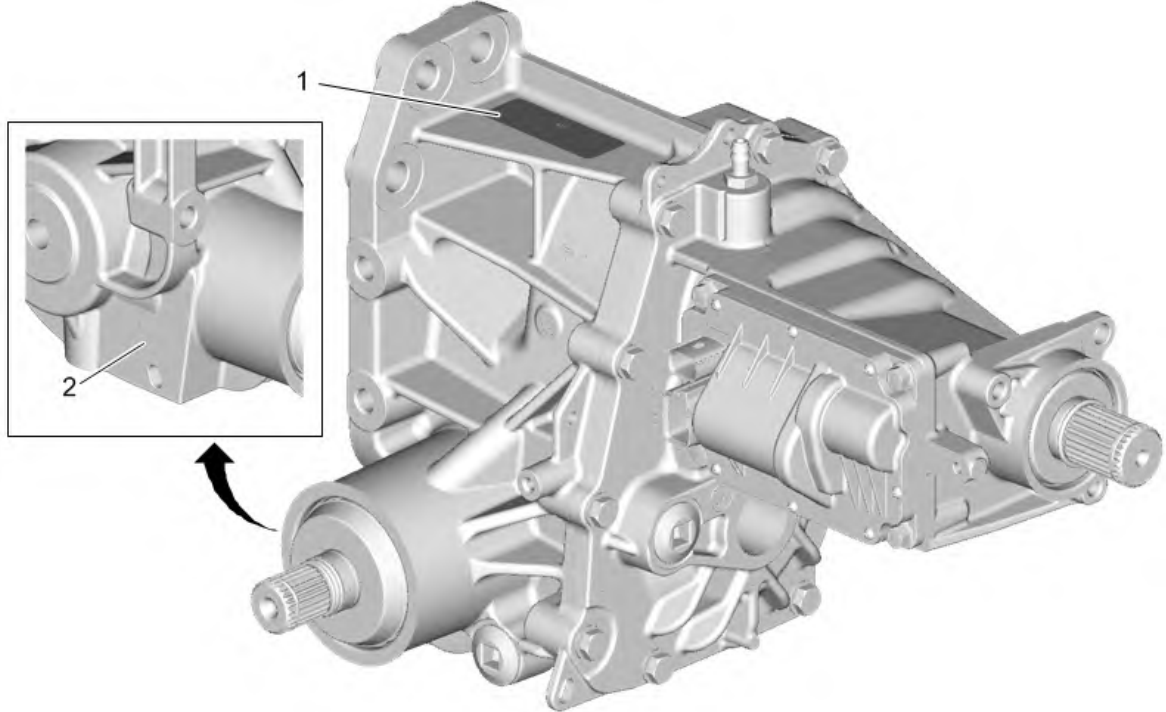
**Fig. 92: Power Transfer Unit Case Holding Fixture**  
**Courtesy of GENERAL MOTORS COMPANY**

**Power Transfer Unit Case Holding Fixture Removal**

| Callout | Component Name                                                                                                                                                                                                                                  |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Power Transfer Unit Case<br><br><b>Special Tools</b> <ul style="list-style-type: none"> <li>• <b>DT-3289-20</b> Holding Fixture</li> <li>• <b>DT-36842</b> Transaxle Holding Fixture</li> </ul> Equivalent regional tools: <b>Special Tools</b> |

**DESCRIPTION AND OPERATION**

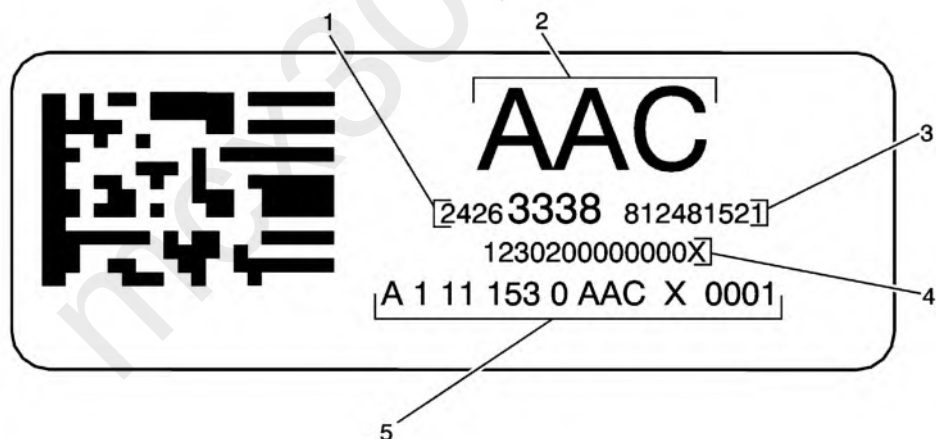
**POWER TRANSFER UNIT CASE IDENTIFICATION**



**Fig. 93: Power Transfer Unit Case**  
**Courtesy of GENERAL MOTORS COMPANY**

The power transfer unit primary identification label (1) is located on the rear extension housing. The power transfer unit secondary identification stamping (2) is located on the bottom of the main housing.

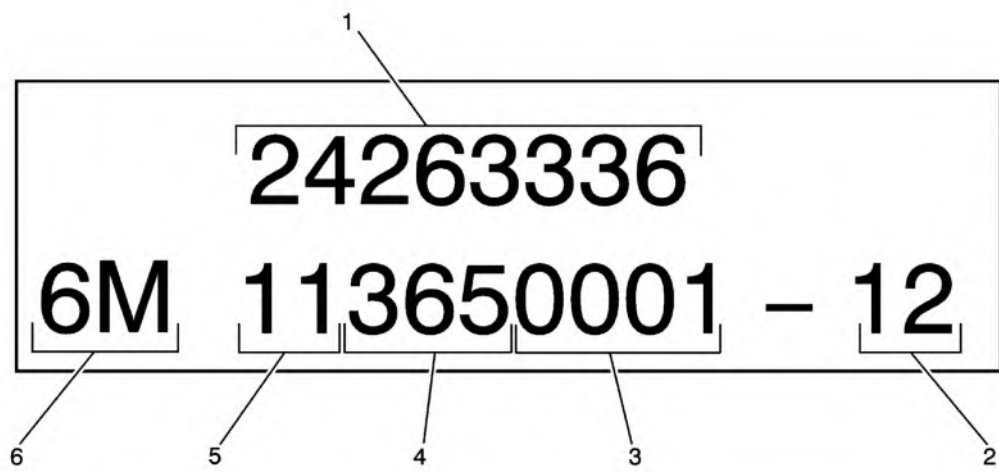
**Transfer Case Primary Identification Label**



**Fig. 94: Transfer Case Primary Identification Label Contents**  
**Courtesy of GENERAL MOTORS COMPANY**

1. GM Part Number
2. Broadcast Code
3. Supplier Manufacturing Location
4. VPPS
5. Broadcast Code / Trace Code

**Transfer Case Secondary Identification Stamping**

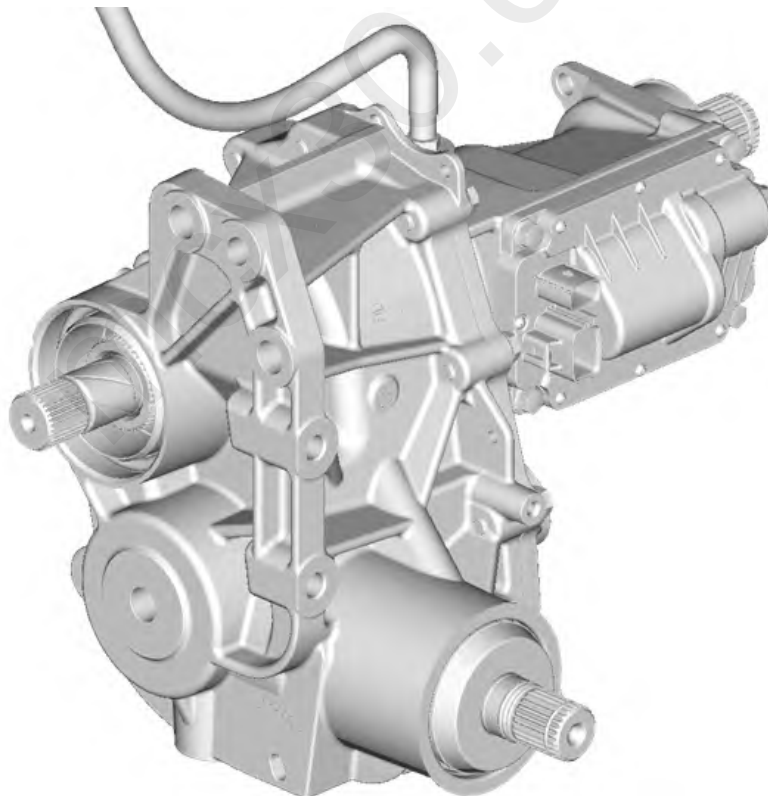


**Fig. 95: Transfer Case Secondary Identification Stamping**  
 Courtesy of GENERAL MOTORS COMPANY

1. GM Part Number
2. Build Hour
3. Daily Build Count
4. Day of the Year
5. Model Year
6. BOM Code

## **POWER TRANSFER UNIT CASE DESCRIPTION AND OPERATION**

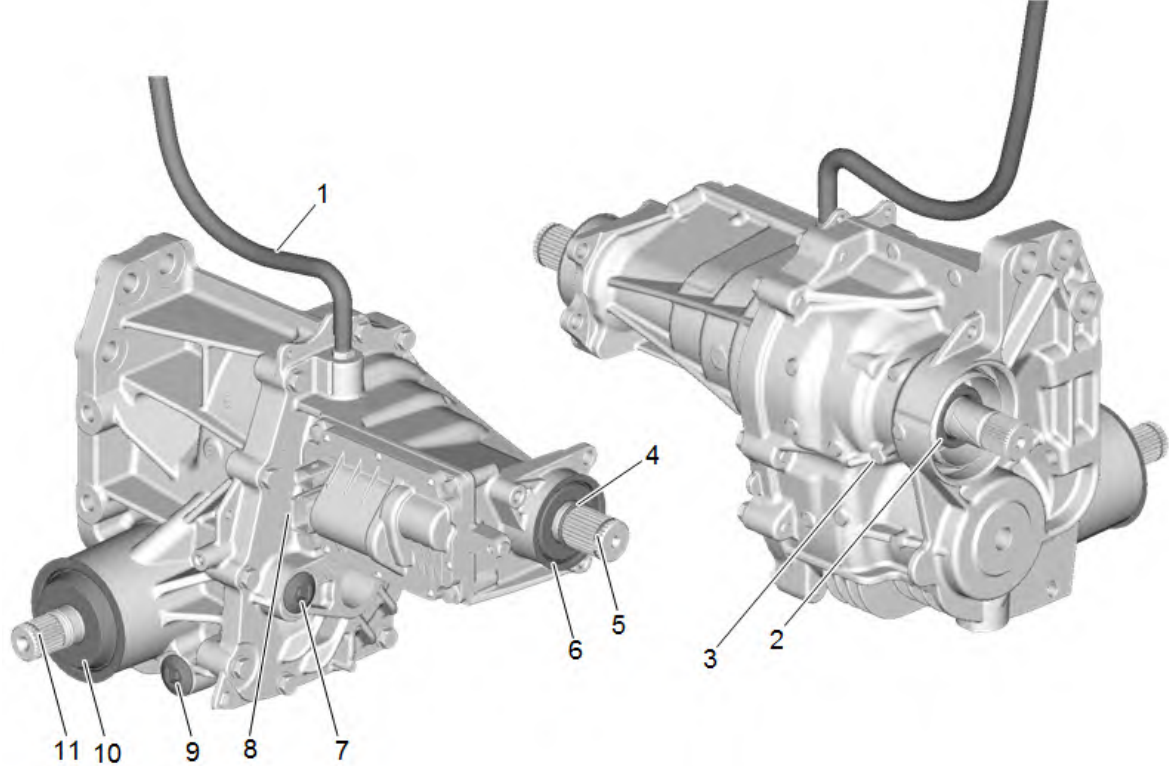
### **General Description**



**Fig. 96: Power Transfer Unit Case**  
 Courtesy of GENERAL MOTORS COMPANY

The power transfer unit is positioned in the right side of the vehicle and mounts to the transmission and the engine. The primary function of the power transfer unit is to receive power from the transmission and transfer it using helical and hypoid gear sets through the propeller shaft to the rear differential. The power transfer unit main housing, extension housing, and rear output shaft housing are of a cast aluminum design.

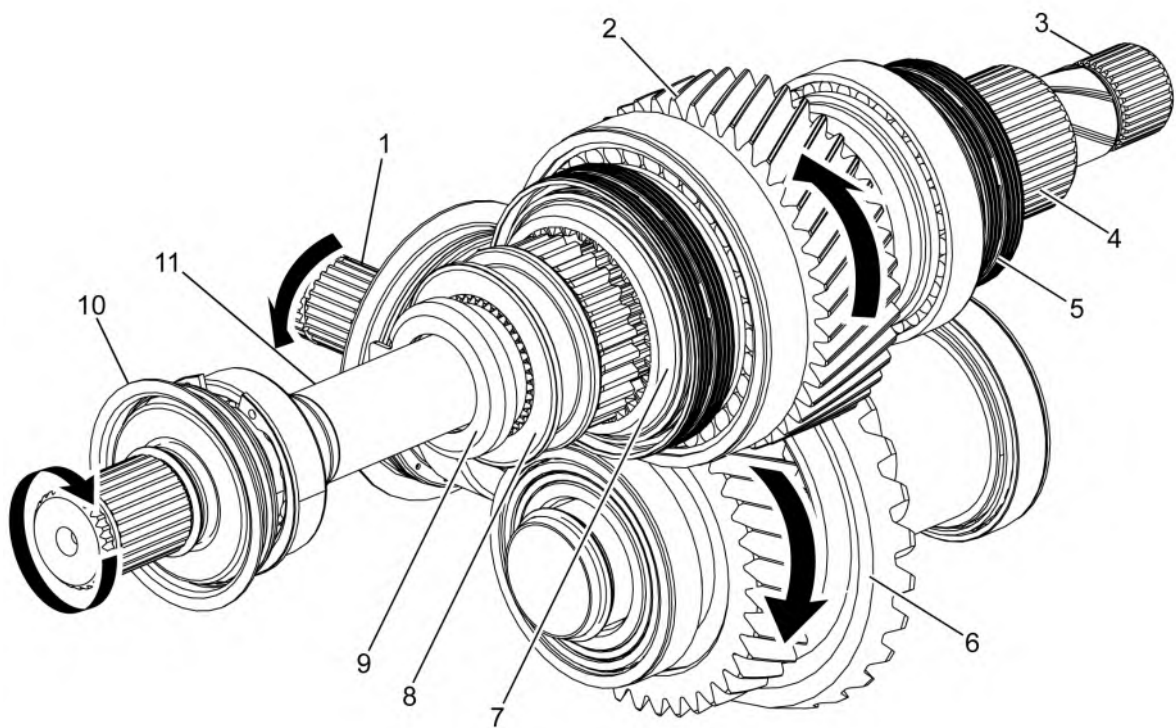
### **External Components**



**Fig. 97: Power Transfer Unit Case External Components**  
**Courtesy of GENERAL MOTORS COMPANY**

1. Power Transfer Unit Vent Hose
2. Power Transfer Unit Shift Actuator Shaft
3. Power Transfer Unit Left Side Weep Hole
4. Power Transfer Unit Half Shaft Seal
5. Power Transfer Unit Half Shaft Retainer Clip
6. Power Transfer Unit Cover to Intermediate Drive Shaft Seal
7. Power Transfer Unit Fill Plug
8. Power Transfer Unit Right Side Weep Hole
9. Power Transfer Unit Drain Plug
10. Power Transfer Unit Propeller Shaft Seal
11. Power Transfer Unit Propeller Shaft Seal

#### **Internal Components**



**Fig. 98: Power Transfer Unit Case Internal Components**

**Courtesy of GENERAL MOTORS COMPANY**

The OD splines of the input shaft (4) are mated to the ID splines of the transmission output shaft. Power and torque are transferred from the input shaft (2) to the idler shaft (6) via a helical gear set. A second gear set, the hypoid gear set transfers power and torque from the idler shaft to the rear output shaft (1). The propeller shaft is mated to the rear output shaft providing power and torque to the rear drive axle. The OD splines of the intermediate drive shaft (3) mate to the ID splines of the transmission carrier assembly and provide power and torque to the right front axle shaft and wheel.

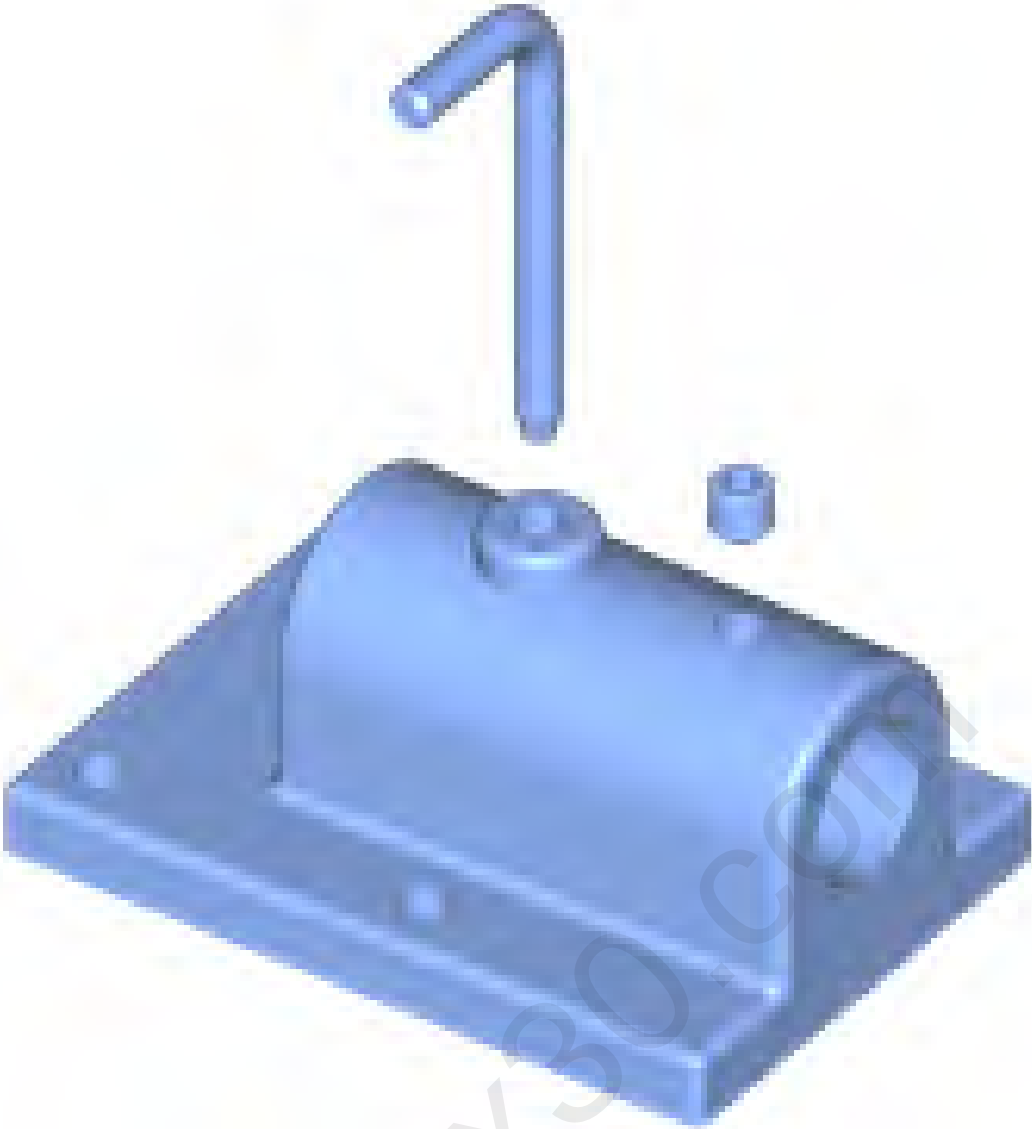
Gear tooth clearances and bearing preloads are maintained by shims located behind the bearing races. The housings, internal gears, and bearings are not serviceable components. If housing, gear set, or bearing damage occurs, the assembly must be replaced.

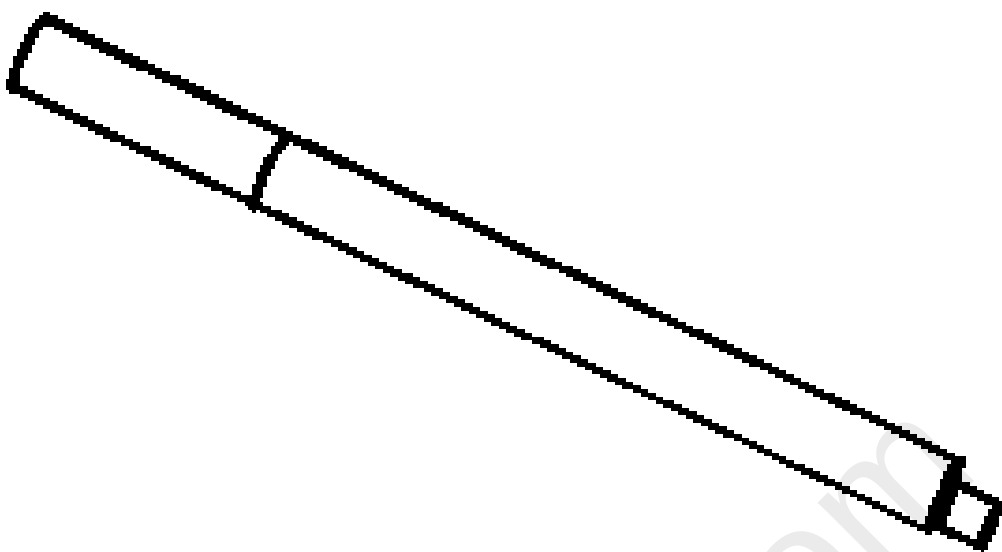
1. Power Transfer Unit Rear Output Shaft
2. Power Transfer Unit Input Shaft
3. Power Transfer Unit Intermediate Drive Shaft-to-Transmission Splines
4. OD Splines of the Input Shaft
5. Power Transfer Unit Input Shaft Seal- Front
6. Power Transfer Unit Idler Shaft
7. Power Transfer Unit Input Shaft Seal- Rear
8. Power Transfer Unit Shift Actuator Gear
9. Power Transfer Unit Shift Actuator Locker
10. Power Transfer Unit Cover-to-Intermediate Drive Shaft Seal-at-Extension Housing
11. Power Transfer Unit Intermediate Drive Shaft

## **SPECIAL TOOLS AND EQUIPMENT**

### **SPECIAL TOOLS**

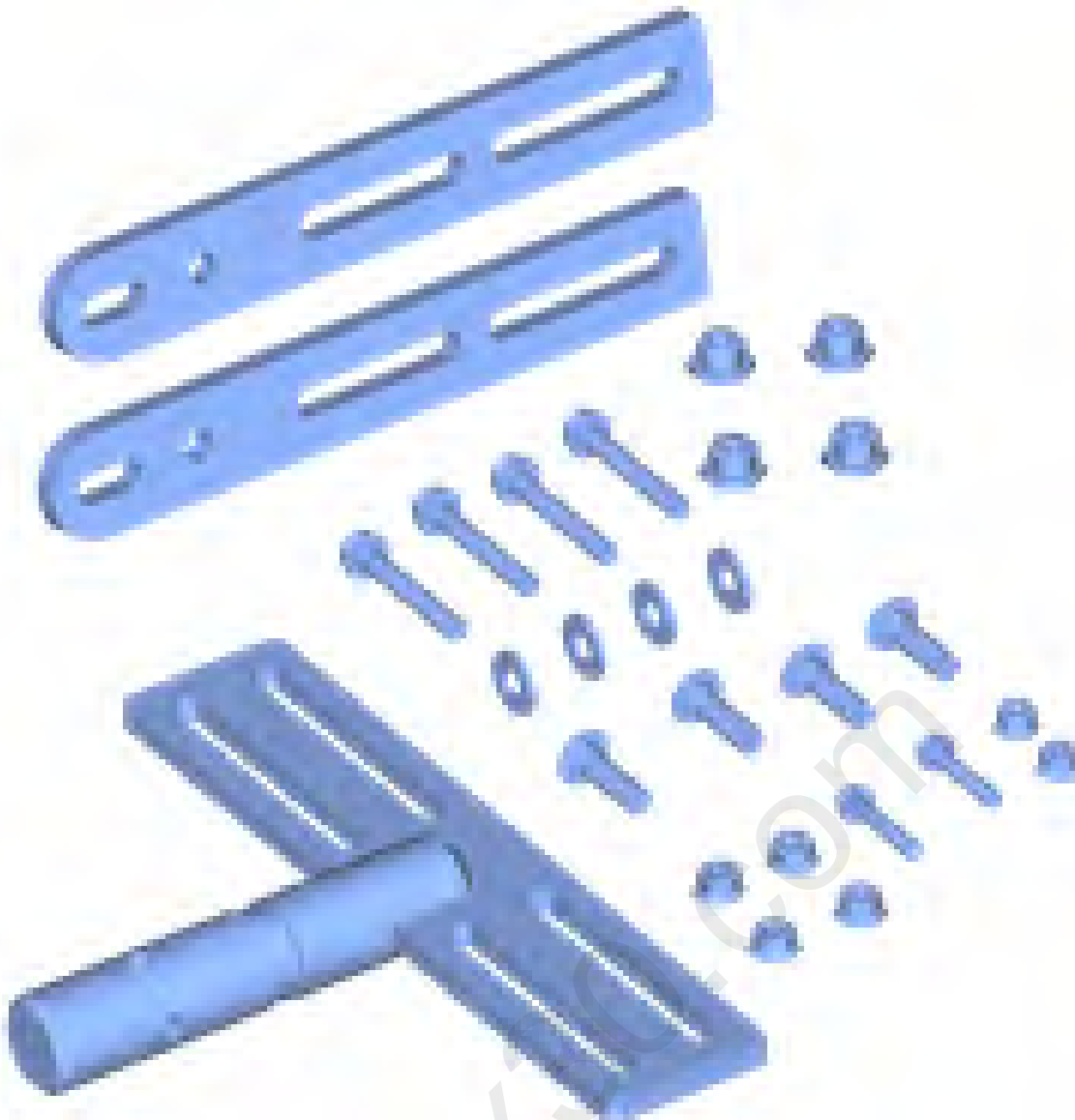
| Illustration | Tool Number/Description |
|--------------|-------------------------|
|              |                         |

| Illustration                                                                        | Tool<br>Number/Description                                                    |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
|  | <p>DT - 113 - 2 - A<br/>J - 03289-20<br/>KM - 113-2-A<br/>Holding Fixture</p> |

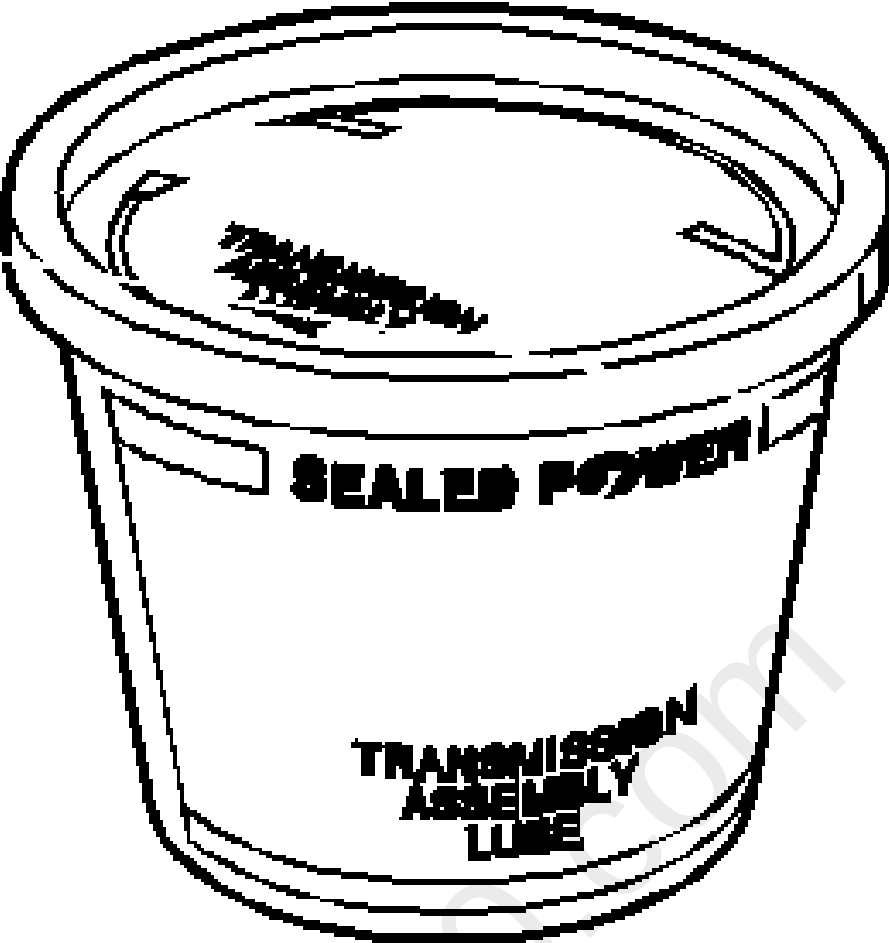
| Illustration                                                                                                                                                                                                                                                                                                                           | Tool<br>Number/Description                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|
|  <p>A line drawing of a driver handle, a long cylindrical tool with a hexagonal base. The handle is shown at an angle, with a small section near the base highlighted. A large, light gray watermark 'mcx30.com' is diagonally across the image.</p> | <p>DT-305-1<br/>J-42176<br/>KM-305-1<br/>Driver Handle</p> |
|                                                                                                                                                                                                                                                                                                                                        |                                                            |

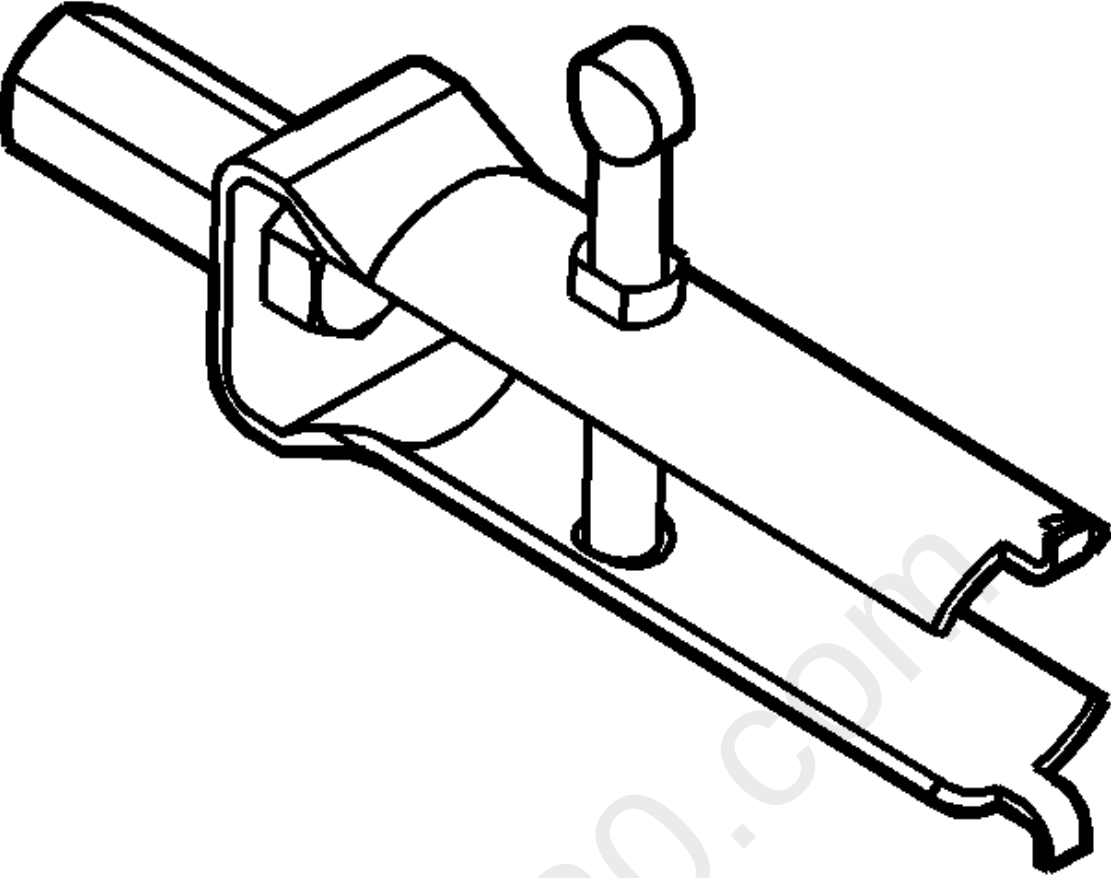
| Illustration                                                                       | Tool<br>Number/Description                                                      |
|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
|  | <p>DT - 26941<br/>J - 26941<br/>Bushing and Bearing<br/>Remover - 3 - 4 in.</p> |
|                                                                                    |                                                                                 |

| Illustration                                                                       | Tool<br>Number/Description                                                  |
|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
|  | <p>DT - 29369 - 1<br/>J - 29369 - 1<br/>Bushing and Bearing<br/>Remover</p> |
|                                                                                    |                                                                             |

| Illustration                                                                       | Tool<br>Number/Description                                        |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------|
|  | <p>DT - 36842<br/>J - 36842<br/>Transaxle Holding<br/>Fixture</p> |

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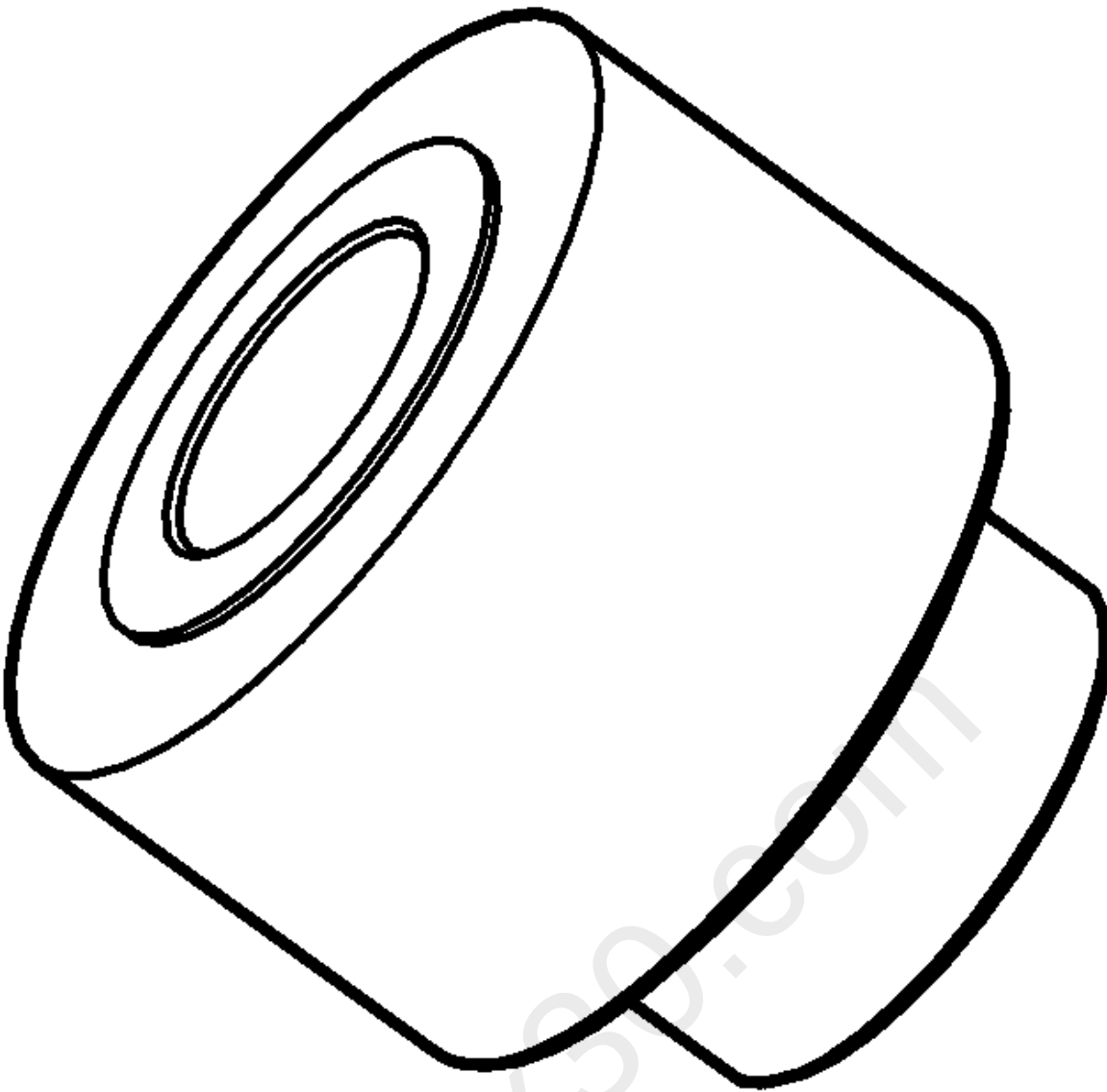
| Illustration                                                                        | Tool<br>Number/Description                                      |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|
|  | <p>DT - 36850<br/>J - 36850<br/>Transjel Lubricant</p>          |
|                                                                                     | <p>DT-44380<br/>J-44380<br/>Differential Bearing<br/>Puller</p> |

| Illustration                                                                        | Tool<br>Number/Description |
|-------------------------------------------------------------------------------------|----------------------------|
|  |                            |

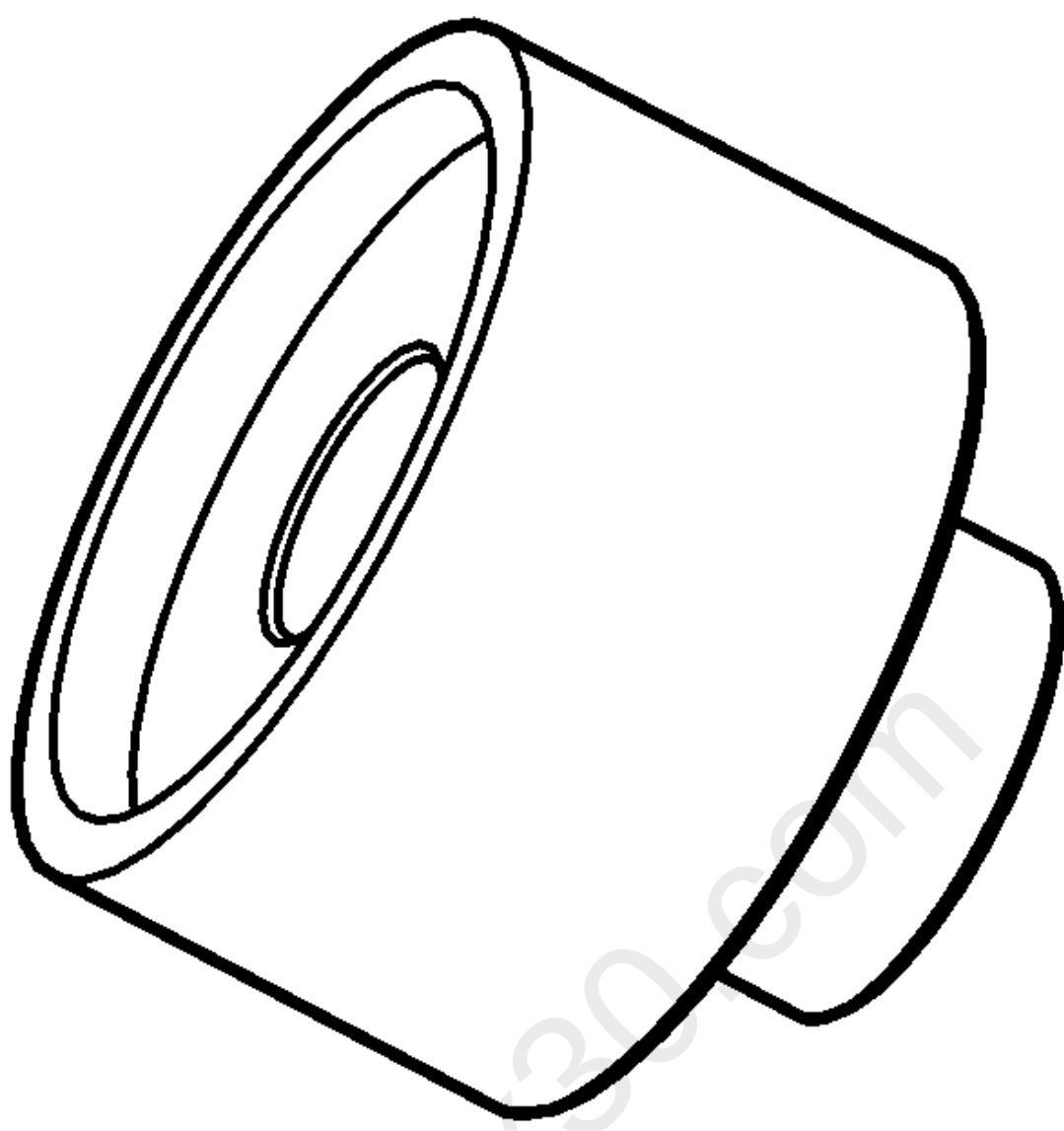
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| Illustration                                                                       | Tool<br>Number/Description                                                   |
|------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
|  | <p data-bbox="1347 613 1554 719">DT-45124<br/>J-45124<br/>Removal Bridge</p> |
|                                                                                    |                                                                              |

| Illustration                                                                                                                                                                                                                                                                                                                                                                                                                                      | Tool<br>Number/Description                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|
|  <p>Two blue 3D models of puller legs are shown side-by-side. The model on the left is a front view, showing an L-shaped profile with a hexagonal top. The model on the right is a side view, showing the same L-shaped profile from a different angle, also with a hexagonal top. A large, light gray watermark 'mcx39.com' is diagonally across the image.</p> | <p>DT-45124 - 9<br/>J-45124 - 9<br/>Puller Leg</p> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                    |

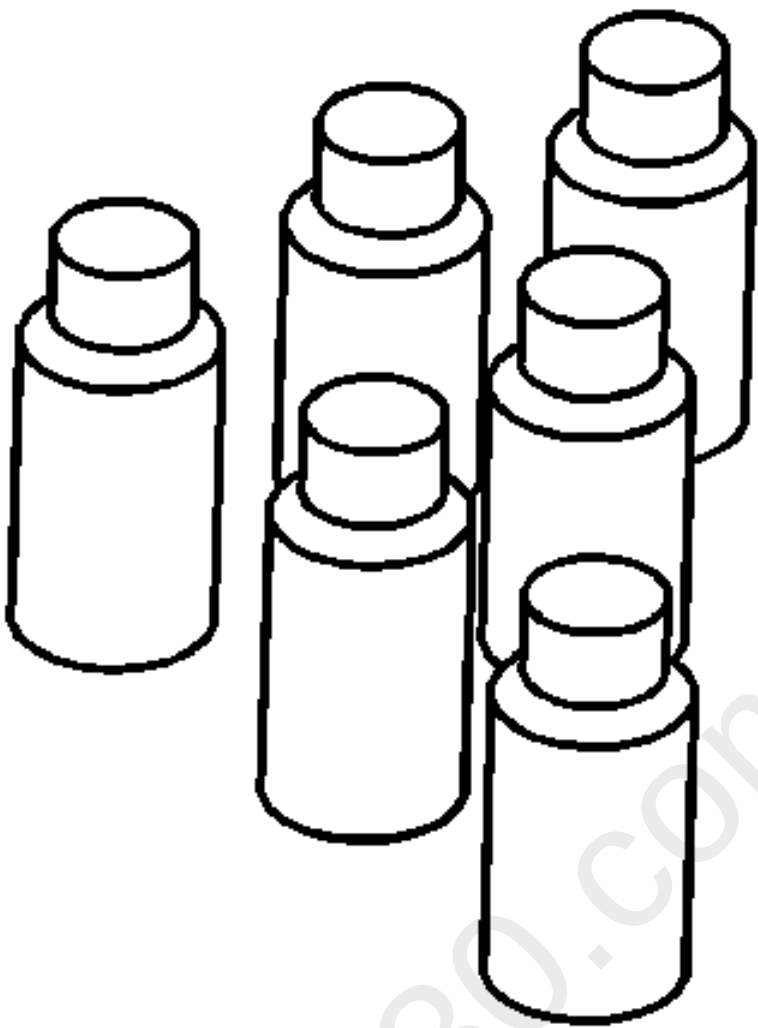
| Illustration                                                                       | Tool<br>Number/Description   |
|------------------------------------------------------------------------------------|------------------------------|
|  | DT - 51466<br>Seal Installer |

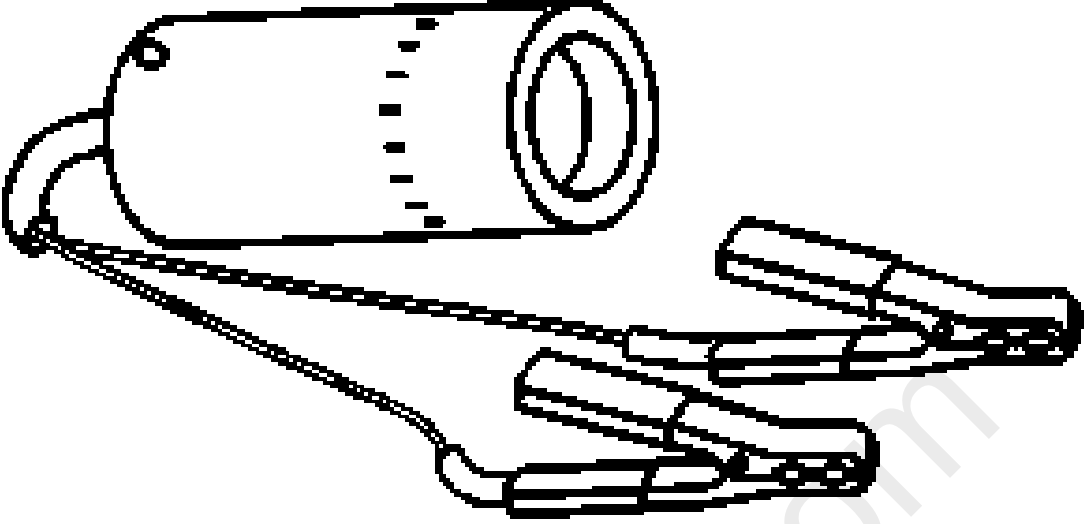
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| Illustration                                                                       | Tool<br>Number/Description       |
|------------------------------------------------------------------------------------|----------------------------------|
|  | DT - 51467 - A<br>Seal Installer |
|                                                                                    |                                  |

| Illustration                                                                                                                                                                                                                                                             | Tool<br>Number/Description   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|  A 3D rendering of a blue, conical mechanical seal installer. The tool has a flared, multi-layered design with a central opening. A watermark 'mcx30.com' is visible across the image. | DT - 51983<br>Seal Installer |
|                                                                                                                                                                                                                                                                          |                              |

| Illustration                                                                       | Tool<br>Number/Description                                                 |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
|  | <p>DT - 52000<br/>Seal Installer</p>                                       |
|                                                                                    | <p>GE-28431 - 6<br/>J - 28431 - 6<br/>Florescent Oil Dye -<br/>6 1 oz.</p> |

| Illustration                                                                        | Tool<br>Number/Description |
|-------------------------------------------------------------------------------------|----------------------------|
|  |                            |
|                                                                                     |                            |

| Illustration                                                                       | Tool<br>Number/Description                                         |
|------------------------------------------------------------------------------------|--------------------------------------------------------------------|
|  | <p>GE-42220<br/>J-42220<br/>High-Intensity Black<br/>Light Kit</p> |