Approximate Fluid Capacities

Application	Specification	
	Metric	English
DEXRON®VI GM P/N 88861003 (Canadian P/N 88861004)	2.5 liters	2.6 quarts

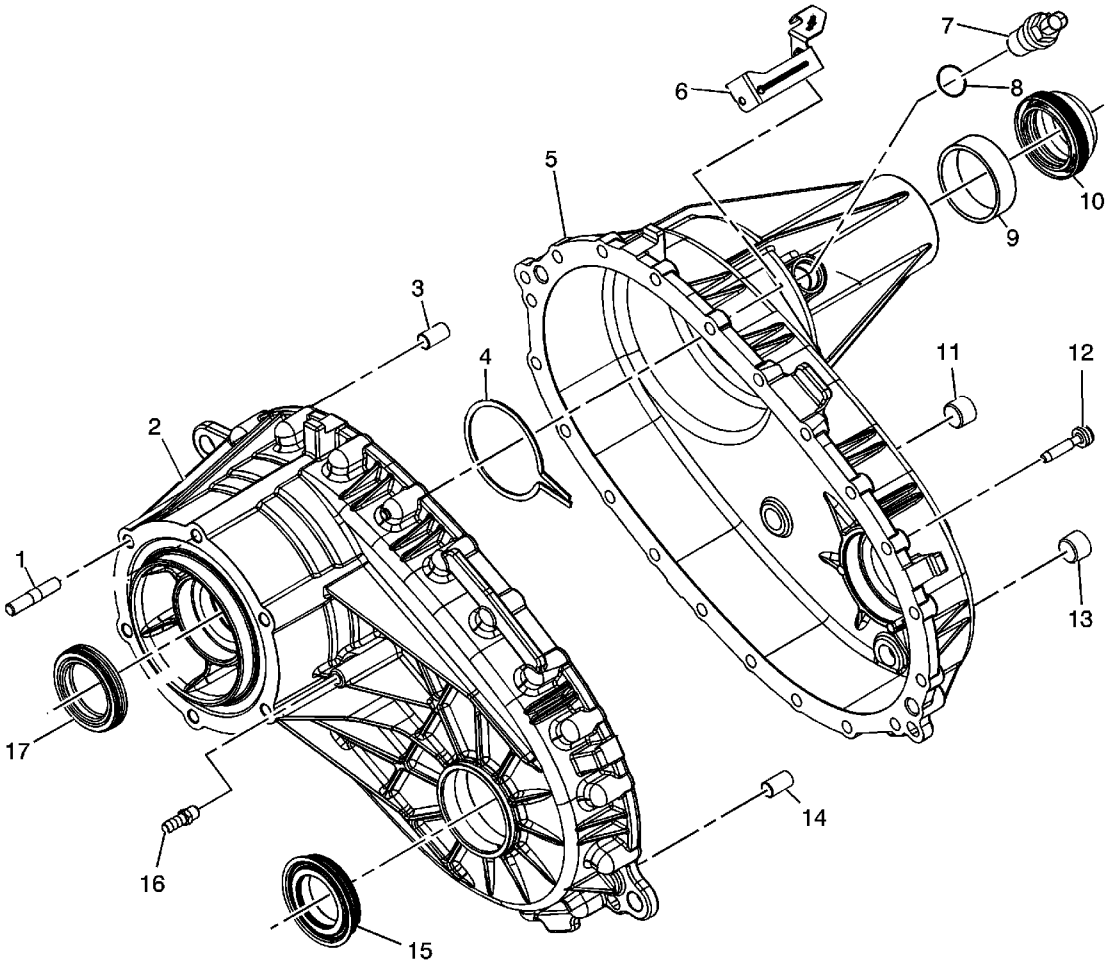
Fastener Tightening Specifications

Application	Specification	
	Metric	English
Adapter Bolts to Transmission	50 N·m	37 lb ft
Adapter Studs	31 N·m	23 lb ft
Case Bolts	21 N·m	15 lb ft
Drain Plug	25 N·m	18 lb ft
Fill Plug	25 N·m	18 lb ft
Mounting Nuts to Transfer Case	50 N·m	37 lb ft
Vehicle Speed Sensors	17 N·m	13 lb ft
Vent	6 N·m	53 lb in

Adhesives, Fluids, Lubricants, and Sealers

Application	Type of Material	GM Part Number	
		United States	Canada
Drain Plug	Pipe Sealant	12346004	10953480
Fill Plug	Pipe Sealant	12346004	10953480
Rear Case Half to Front Case Half	RTV Sealant	12345739	10953541
Vehicle Speed Sensor O-Ring	DEXRON®VI	88861003	88861004
Vent	Pipe Sealant	12346004	10953480

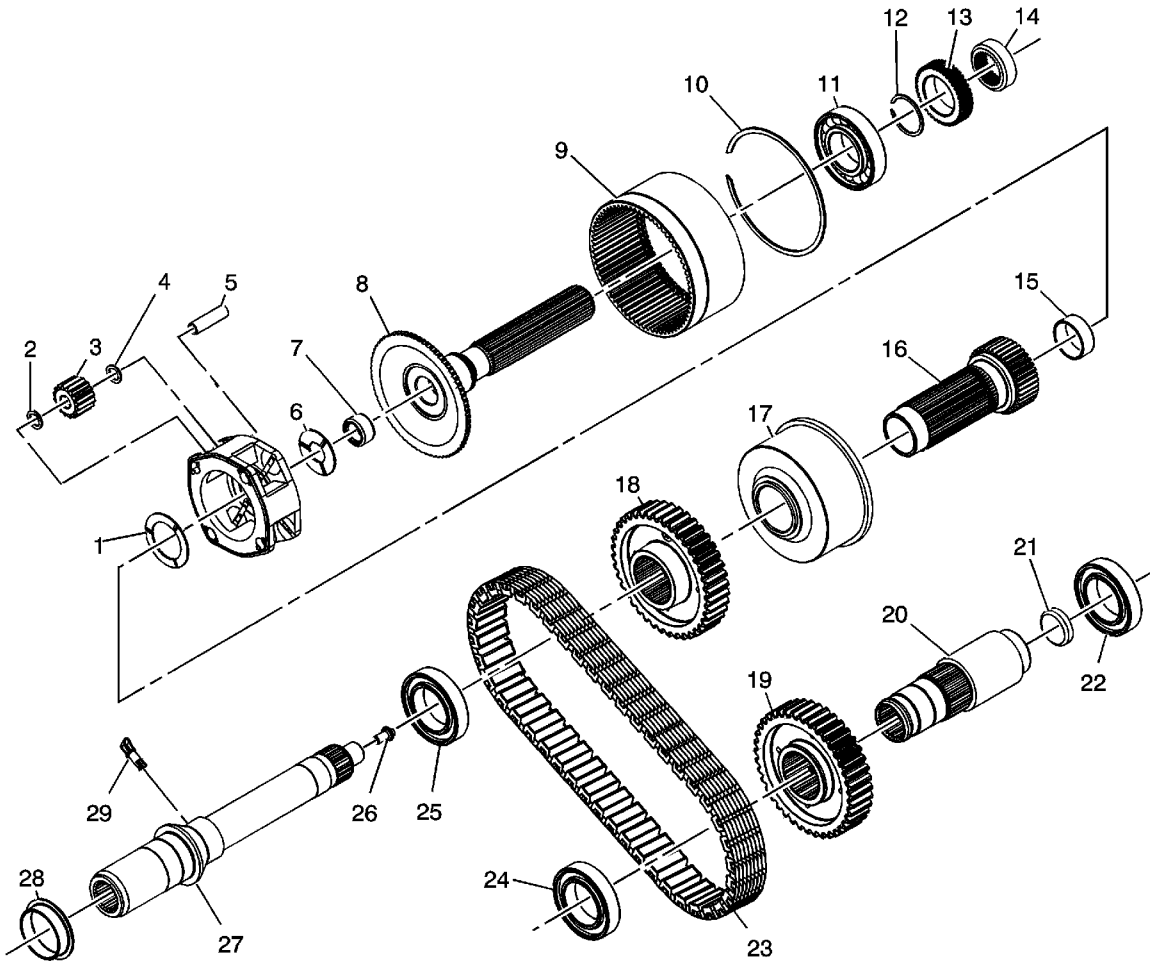
Case Components



(1) Adapter Stud
(2) Front Case Half
(3) Locating Pin
(4) Rear Output Shaft Bearing Outer Retaining Ring
(5) Rear Case Half
(6) Wiring Harness Bracket
(7) Vehicle Speed Sensor (VSS)
(8) VSS O-Ring
(9) Rear Output Shaft Bushing
(10) Rear Output Shaft Seal
(11) Oil Fill Plug

(12) Case Half Bolt
(13) Oil Drain Plug
(14) Locating Pin
(15) Front Output Shaft Seal
(16) Vent
(17) Input Shaft Seal

Internal Components



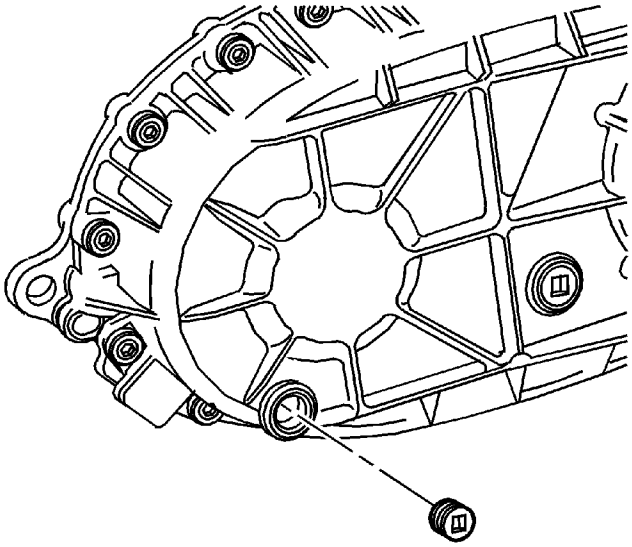
(1) Planetary Carrier Front Thrust Washer
(2) Planetary Pinion Gear Thrust Washer
(3) Planetary Pinion Gear
(4) Planetary Pinion Gear Thrust Washer
(5) Planetary Pinion Gear Shaft
(6) Planetary Carrier Rear Thrust Washer
(7) Input Shaft Rear Support Bearing
(8) Rear Output Shaft
(9) Annulus Gear
(10) Annulus Gear Retaining Ring
(11) Rear Output Shaft Bearing

(12) Rear Output Shaft Bearing Retaining Ring
(13) Speed Reluctor Wheel
(14) Rear Output Shaft Shipping Seal
(15) Sun Gear Bushing
(16) Sun Gear
(17) Viscous Coupling
(18) Drive Sprocket
(19) Driven Sprocket
(20) Front Output Shaft
(21) Front Output Shaft Cup Plug
(22) Front Output Shaft Rear Bearing
(23) Drive Chain
(24) Front Output Shaft Front Bearing
(25) Sun Gear Bearing
(26) Oil Restrictor
(27) Input Shaft
(28) Input Shaft Bushing
(29) Oil Scoop

Transfer Case Fluid Replacement

Removal Procedure

Note: When performing the following service procedures, use only hand tools to remove and install the fill or drain plugs.



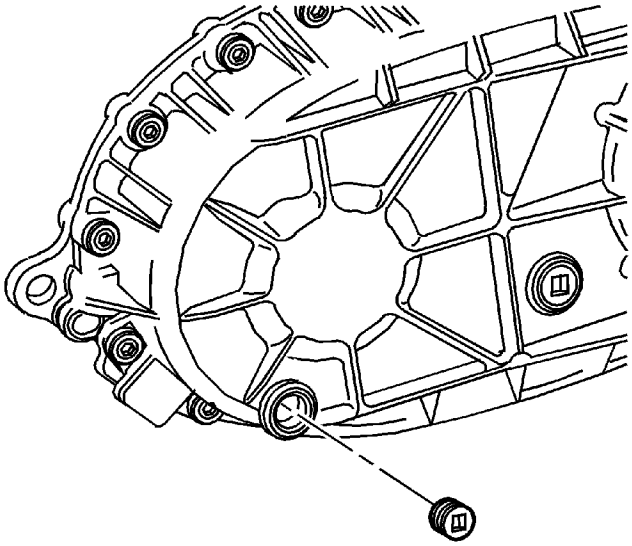
1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle .
2. Remove the fill plug from the transfer case.

   Note: When draining the transfer case, make sure that an approved drain pan is used.

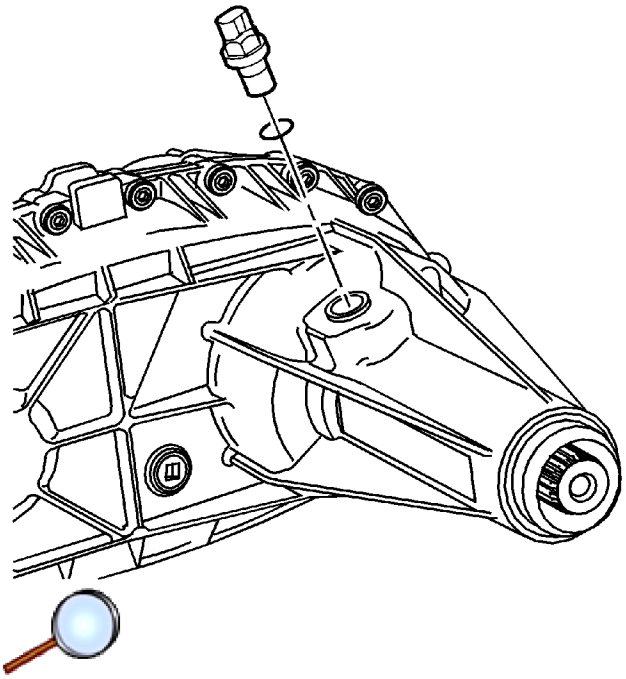
3. Remove the drain plug from the transfer case.

Installation Procedure

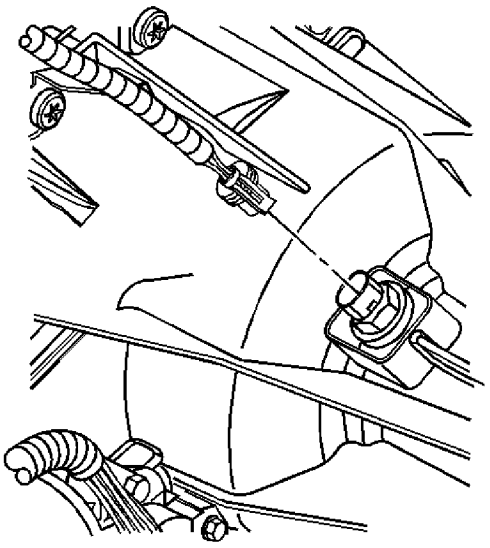
Caution: Refer to Fastener Caution in the Preface section.



1. Apply pipe sealant GM P/N 12346004 (Canadian P/N 10953480) to the threads on the drain plug.
2. Install the drain plug in the transfer case and tighten the drain plug to **25 N·m (18 lb ft)** .
3. Fill the transfer case to the bottom of the fill hole with the proper fluid. Refer to Adhesives, Fluids, Lubricants, and Sealers .
4. Apply pipe sealant GM P/N 12346004 (Canadian P/N 10953480) to the threads on the drain plug.
5. Install the fill plug and tighten to **25 N·m (18 lb ft)**
6. Remove the electrical connector from the speed sensor.



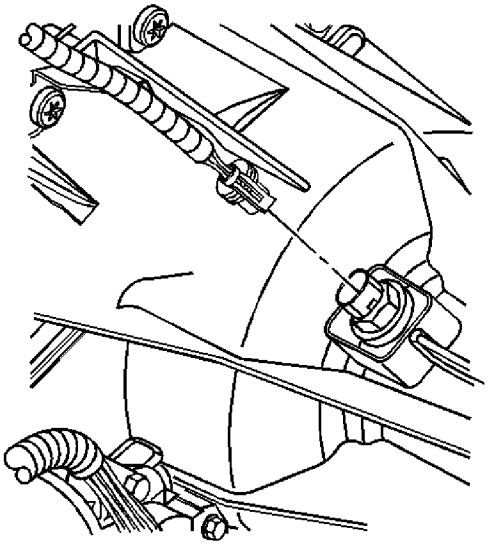
7. Remove the speed sensor and the O-ring from the transfer case.
8. Add 1.0 L (1.06 quarts) of the recommended transfer case fluid through the threaded speed sensor opening. Refer to Adhesives, Fluids, Lubricants, and Sealers .
9. Install the new speed sensor into the transfer case with a new O-ring seal and tighten the right rear speed sensor to **17 N·m (16 lb ft)**



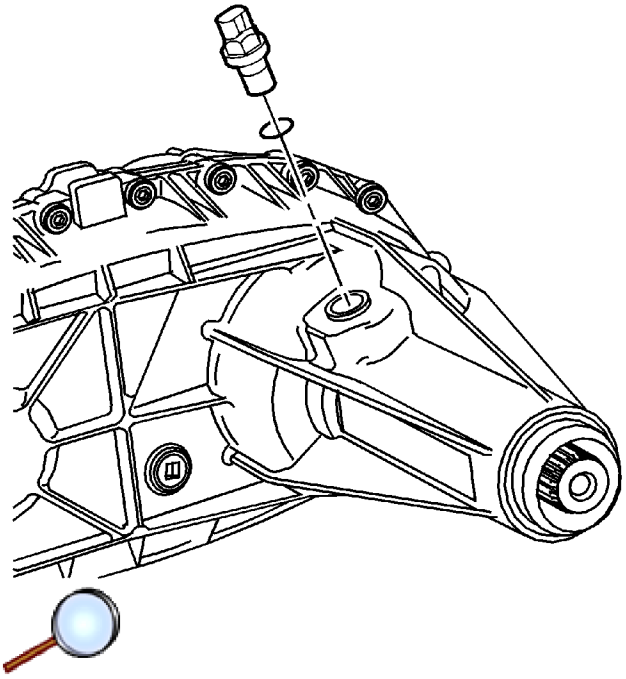
10. Install the electrical connector to the speed sensor.
11. Lower the vehicle.

Transfer Case Speed Sensor Replacement

Removal Procedure



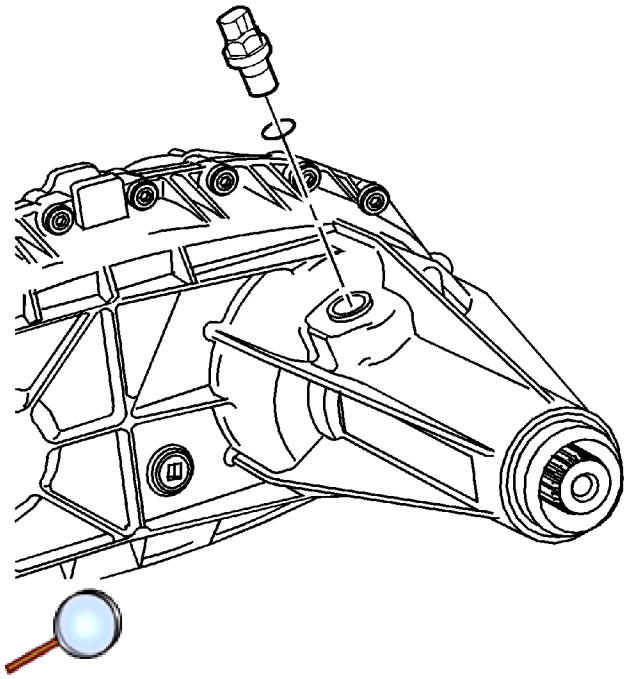
1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the electrical connector from the speed sensor.



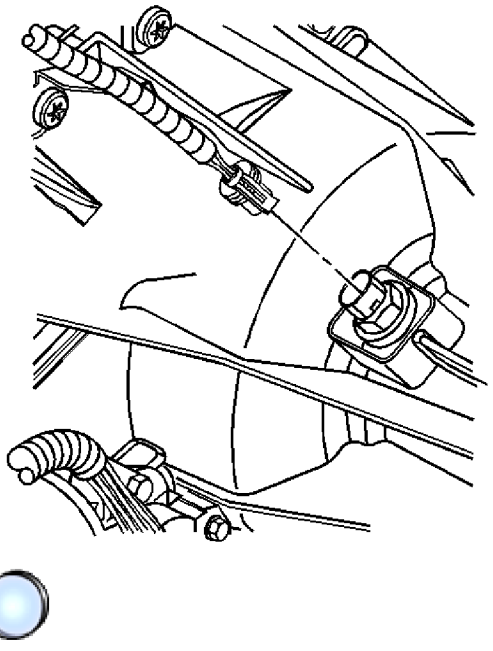
3. Remove the speed sensor and the O-ring from the transfer case.

Installation Procedure

Caution: Refer to Fastener Caution in the Preface section.



1. Install the new speed sensor into the transfer case with a new O-ring seal. Tighten the right rear speed sensor to **17 N·m (13 lb ft)**.



2. Install the electrical connector to the speed sensor.
3. Lower the vehicle. Refer to Lifting and Jacking the Vehicle.

Front Output Shaft Seal Replacement

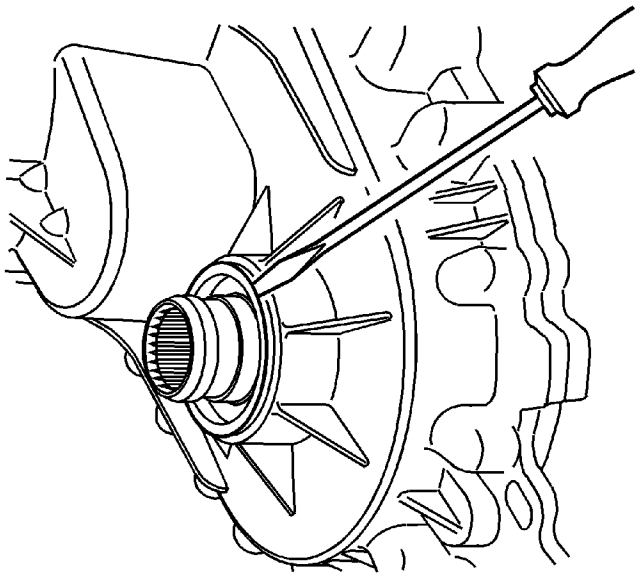
Special Tools

- J 8092 Universal Handle
- J 43484 Front Output Shaft Seal Installer

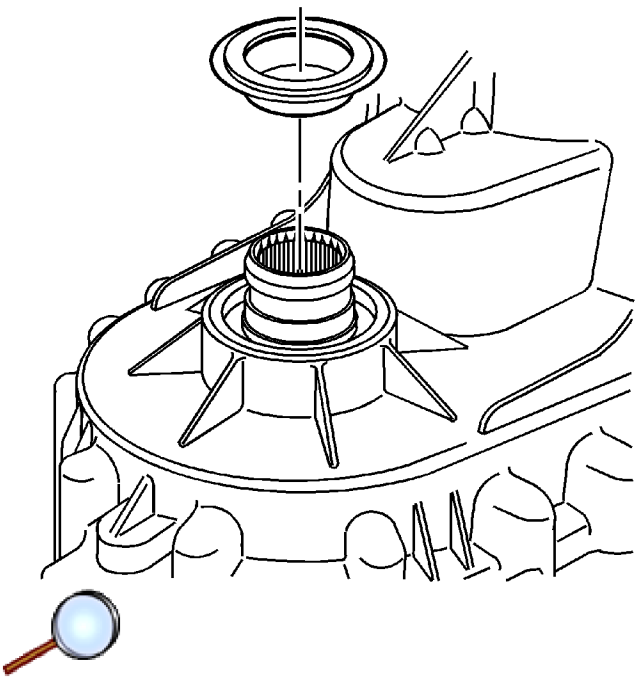
Removal Procedure

Caution: Refer to Transfer Case Seal Removal Caution in the Preface section.

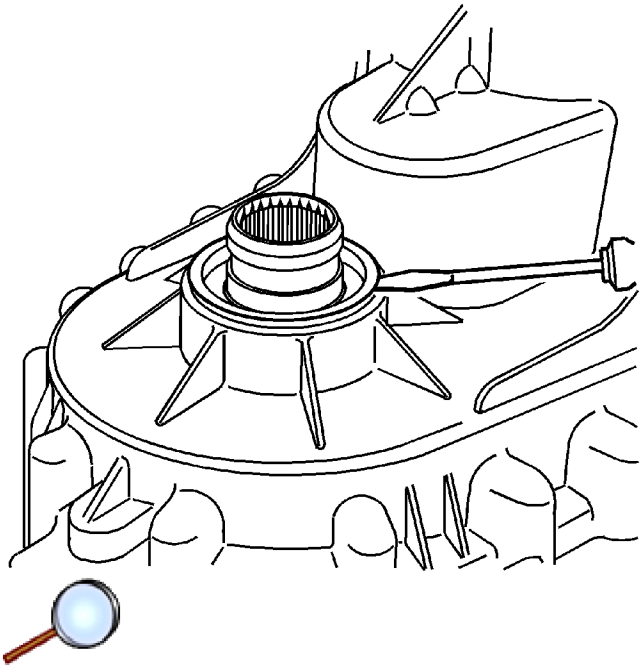
Note: The front output shaft seal is a two piece internal seal. The inner seal is force fit on the front output shaft.



1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the front propeller shaft from the vehicle. Refer to Front Propeller Shaft Replacement.
3. Insert a flat-tipped screw driver in the inner race.
4. Pry the inner race forward.

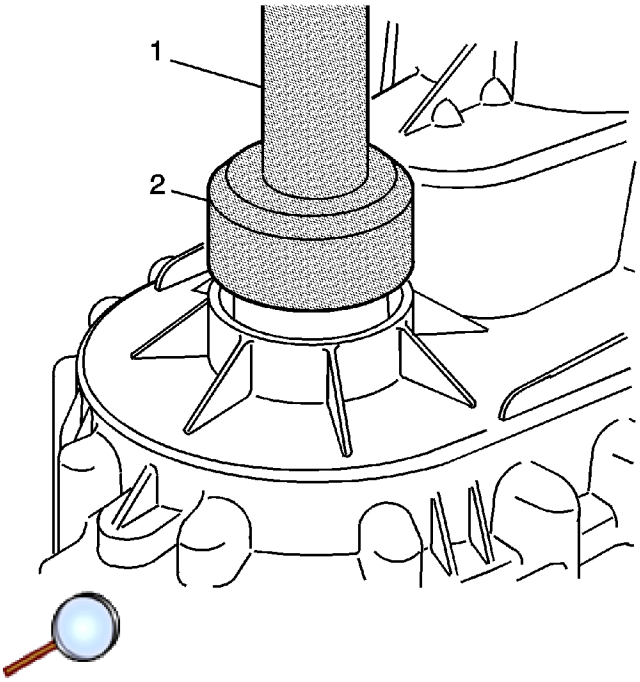


5. Insert a small pry bar in the inner race.
6. Pry the inner part of the seal from the outer seal body.
7. Remove the inner part of the seal.



8. Insert a flat-tipped screw driver or small pry bar in the space between the outer race of the seal and the transfer case.
9. Pry the outer race out of the transfer case.
10. Remove the outer part of the seal.

Installation Procedure



1. Using the J 43484 (2) and the J 8092 (1), install the transfer case output seal.
2. Install the front propeller shaft. Refer to Front Propeller Shaft Replacement.
3. Check the transfer case fluid level. Refer to Transfer Case Fluid Replacement.
4. Lower the vehicle. Refer to Lifting and Jacking the Vehicle.

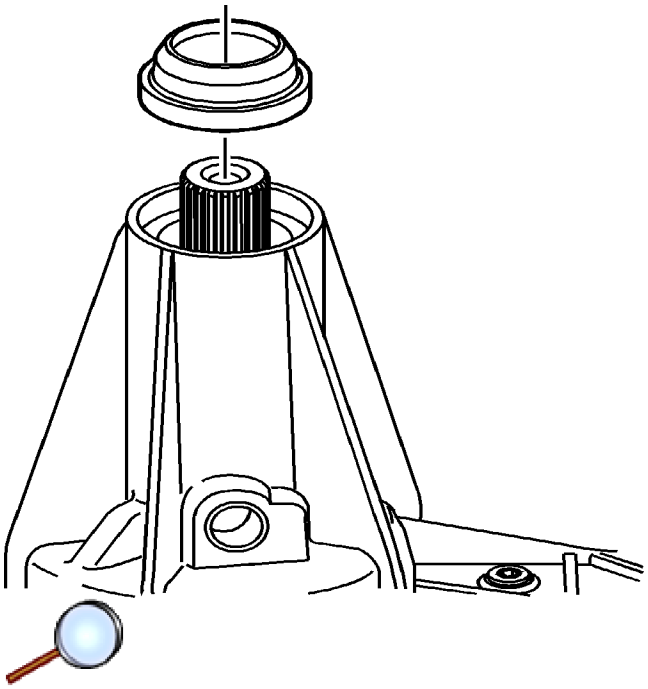
Rear Output Shaft Seal Replacement

Special Tools

J 45756 Rear Output Shaft Seal Installer

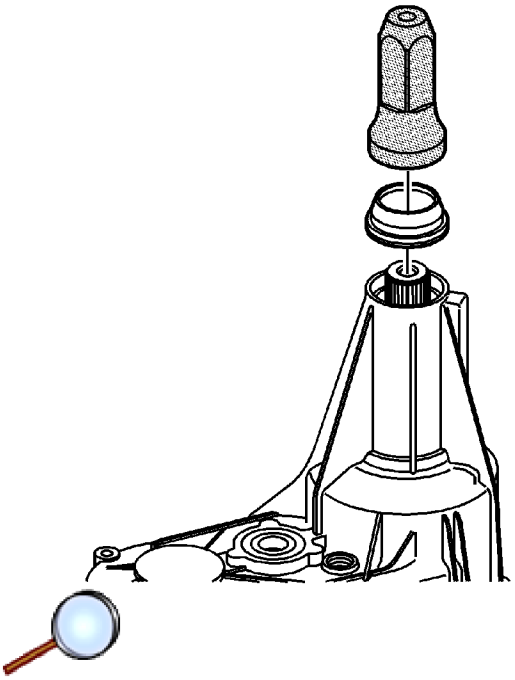
Removal Procedure

Caution: Refer to Transfer Case Seal Removal Caution in the Preface section.



1. Raise and suitably support the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement.
3. Remove the rear output shaft seal by prying it out with a flat tipped screwdriver.

Installation Procedure

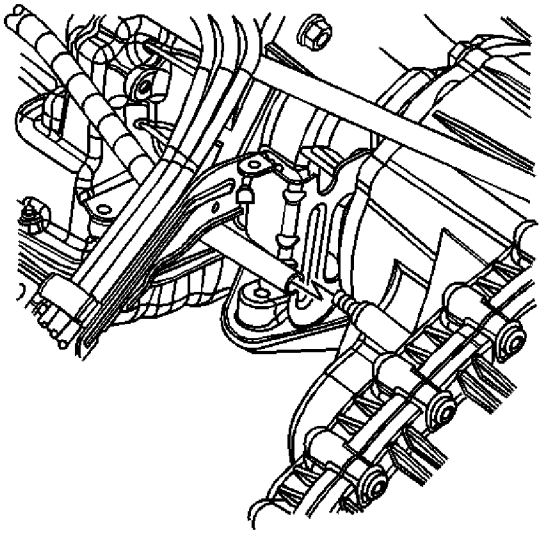


1. Using J 45756 , install a new rear output shaft seal.
2. Install the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement.
3. Check the fluid level. Add fluid, if necessary.
4. Lower the vehicle.

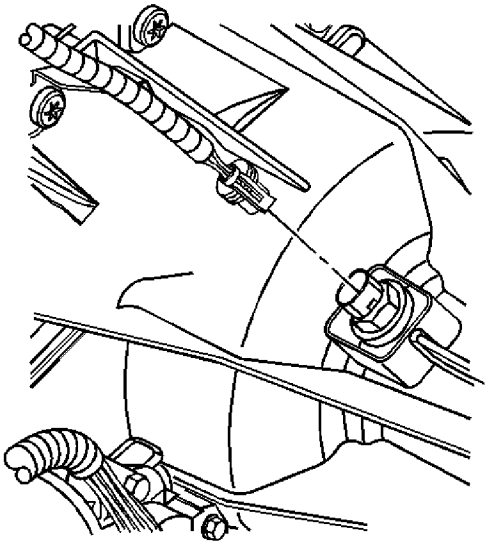
Transfer Case Assembly Replacement

Removal Procedure

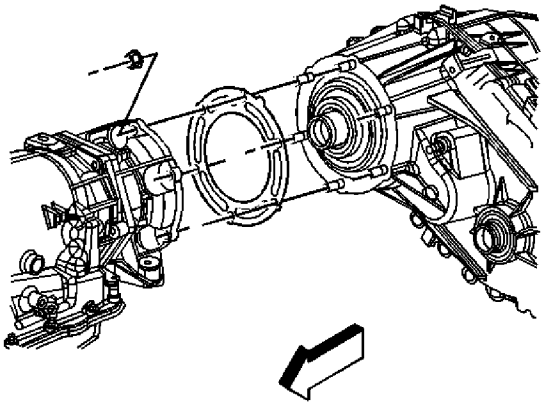
1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the transmission support crossmember. Refer to Transmission Support Crossmember Replacement.
3. Drain the transfer case. Refer to Transfer Case Fluid Replacement.
4. Remove the rear propeller shaft from the transfer case. Refer to One-Piece Propeller Shaft Replacement.
5. Remove the front propeller shaft from the transfer case. Refer to Front Propeller Shaft Replacement.



6. Remove the vent hose from the transfer case.



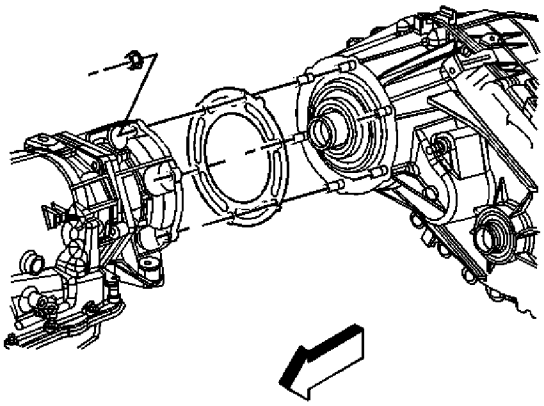
7. Disconnect the electrical connector from the speed sensor.
8. Unclip the fuel lines from the fuel line bracket.
9. Install a suitable transmission jack to the transfer case.
10. Remove the nuts from the transfer case to the adapter.



Note: Pull straight back on the transfer case in order to position the transfer case so that the transfer case can be turned parallel to the transmission.

11. Remove the transfer case from the transfer case adapter.
12. Rotate the transfer case so that the transfer case is perpendicular to the torsion bar mounting bracket.
13. Lower the transfer case.
14. Remove the gasket from the transfer case.
15. Remove the transfer case from the transmission jack.

Installation Procedure



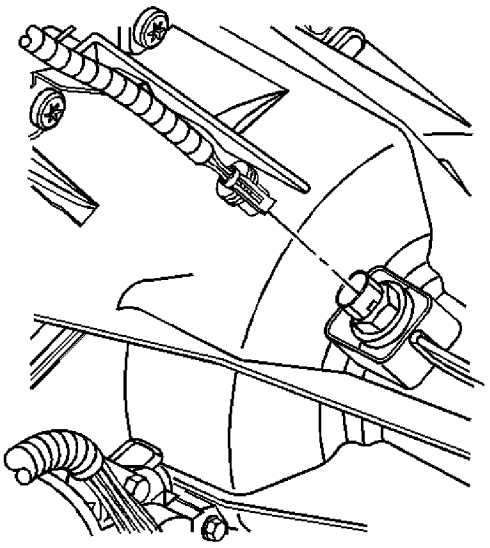
1. Install the transfer case on a suitable transmission jack.

   Note: When installing a new transfer case gasket, ensure that the locator tab is facing up for proper installation. Install the gasket without the use of any type of sealant or of lubricant.

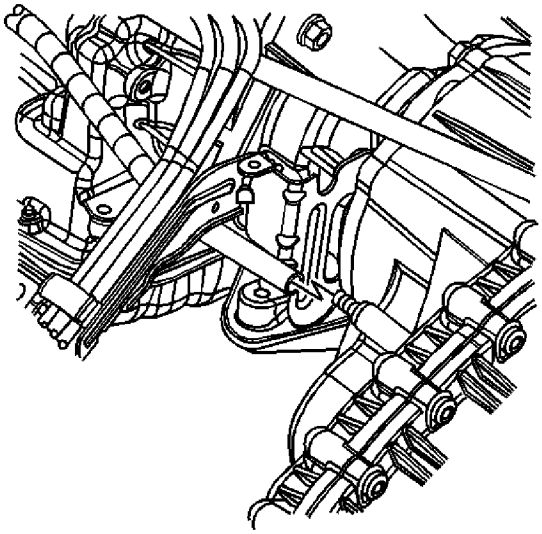
2. Install a new transfer case adapter gasket.
3. Rotate the transfer case so that the transfer case is parallel to the torsion bar mounting bracket.
4. Raise the transfer case into position.
5. Rotate the transfer case so that the transfer case is aligned with the adapter.
6. Install the transfer case on the adapter.

   Caution: Refer to Fastener Caution in the Preface section.

7. Install the mounting nuts for the transfer case and tighten to **50 N·m (37 lb ft)**.
8. Install the transmission support crossmember. Refer to Transmission Support Crossmember Replacement.
9. Remove the transmission jack.



10. Install the electrical connector to the speed sensor.

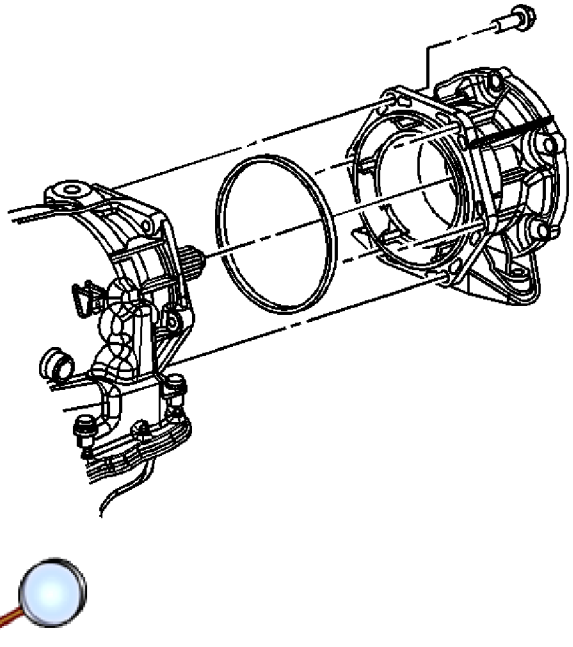


11. Install the vent hose to the vent tube.
12. Install the fuel lines to the fuel line bracket.
13. Install the front propeller shaft. Refer to Front Propeller Shaft Replacement.
14. Install the rear propeller shaft. Refer to One-Piece Propeller Shaft Replacement.
15. Fill the transfer case with the proper transfer case fluid. Refer to Transfer Case Fluid Replacement.
16. Lower the vehicle. Refer to Lifting and Jacking the Vehicle.

Adapter Replacement

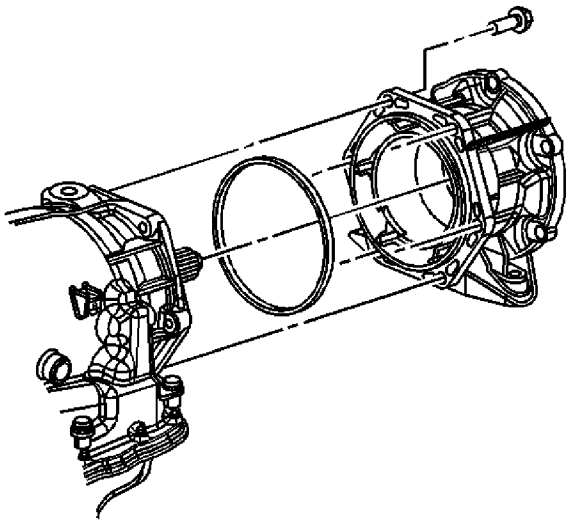
Removal Procedure

1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the transfer case from the vehicle. Refer to Transfer Case Assembly Replacement.



3. Remove the mounting bolts from the adapter to the transmission.
4. Remove the adapter from the transmission.
5. Remove the seal between the transfer case and the adapter.
6. Remove the transfer case to the adapter gasket.

Installation Procedure



Note: Always use a new gasket and seal for the adapter. Do not use any type of sealant or adhesive in place of or with the gasket or the seal.

1. Install the new seal on the adapter.

   Note: The transfer case adapter must be installed so that the adapter is evenly seated to the transmission before installing the retaining nuts.

2. Install the adapter to the transmission.

   Caution: Refer to Fastener Caution in the Preface section.

3. Install the adapter mounting bolts to the transmission and tighten to **50 N·m (37 lb ft)**.

   Note: The locating tab on the gasket should always be pointing up.

4. Install the new gasket to the adapter.
5. Install the transfer case to the adapter. Refer to Transfer Case Assembly Replacement.
6. Install the transmission support crossmember. Refer to Transmission Support Crossmember Replacement.
7. Remove the transmission jack from the transmission.
8. Check the fluid level of the transfer case. Refer to Transfer Case Fluid Replacement.
9. Lower the vehicle. Refer to Lifting and Jacking the Vehicle.

Input Shaft Seal Replacement

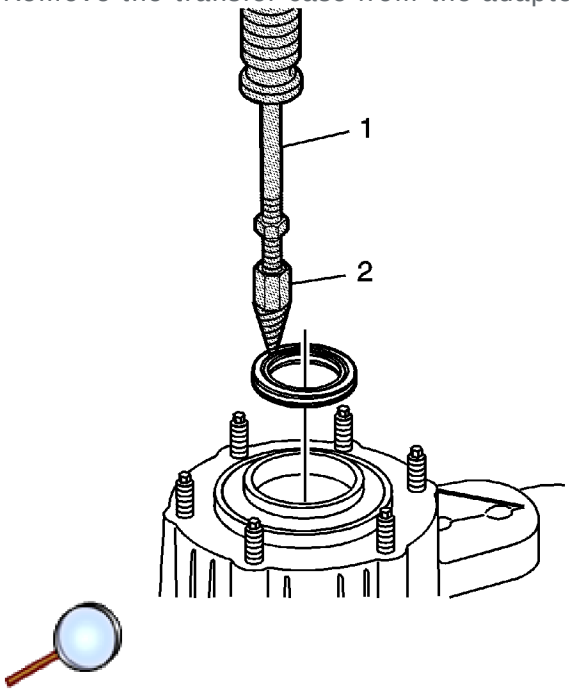
Special Tools

- J 45758 Seal Installer
- J 36825 Output Shaft Oil Seal Remover
- J 23907 Slide Hammer

Removal Procedure

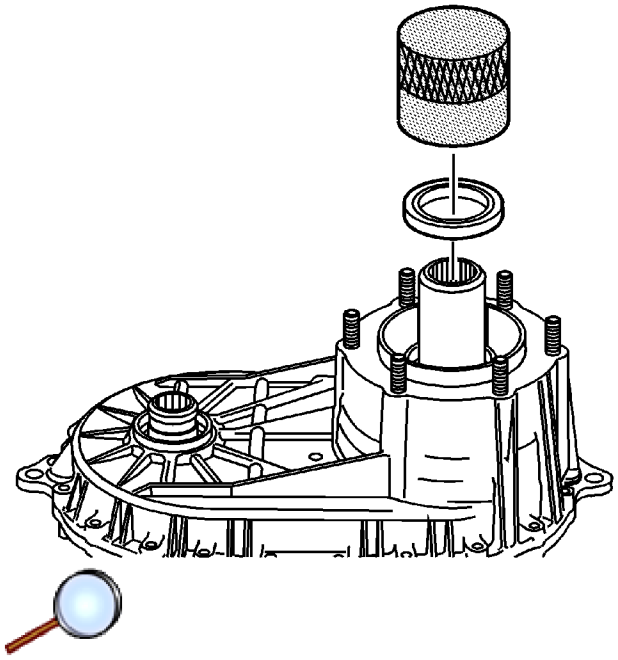
Caution: Refer to Transfer Case Seal Removal Caution in the Preface section.

1. Raise the vehicle. Refer to Lifting and Jacking the Vehicle.
2. Remove the transfer case from the adapter. Refer to Transfer Case Assembly Replacement.



3. Using the J 36825 (2) and J 23907 (1) remove the input shaft seal.
   3.1. Poke a hole in the seal using a very small punch.
   3.2. Thread the tool J 36825 (2) into the hole.

Installation Procedure



Note: When installing the input shaft seal, make sure that the part numbers on the seal are facing outward toward the technician.

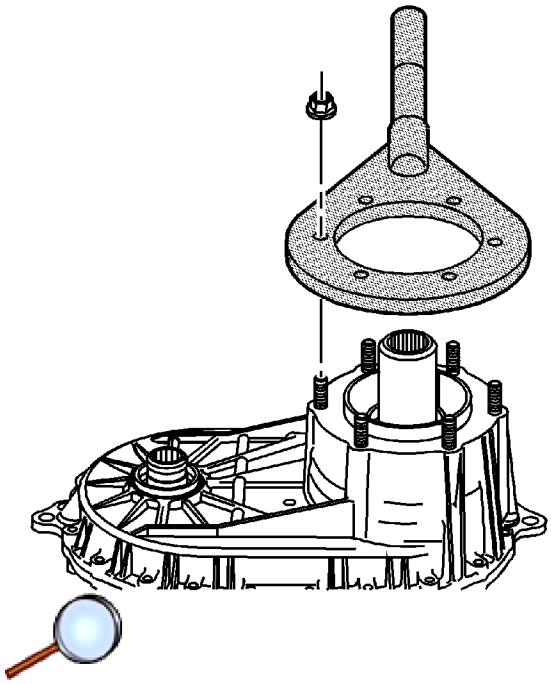
1. Position the seal on the input shaft.
2. Using the J 45758 , install the input shaft seal in the transfer case.
3. Install the transfer case to the adapter. Refer to Transfer Case Assembly Replacement.
4. Lower the vehicle. Refer to Lifting and Jacking the Vehicle.

Transfer Case Disassemble

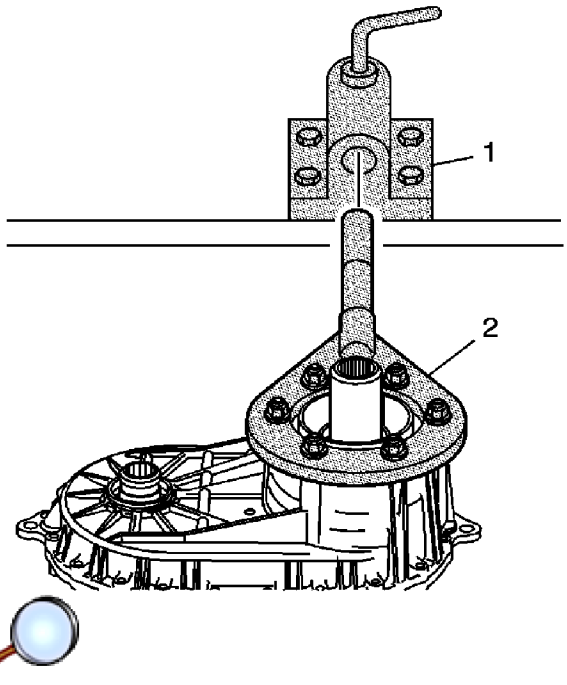
Special Tools

- *J-2619-A* Slide Hammer w/Adapter
- *J 3289-20* Holding Fixture
- *J 22912-B* Rear Pinion and Axle Bearing Remover
- *J 26941* Bushing and Bearing Remover - 3-4 inch
- *J 36825* Output Shaft Oil Seal Remover - 4WD Models Only
- *J 45358* Case Spreader
- *J 45380* Transfer Case Rear Bushing Remover and Installer
- *J 45759* Assembly Fixture
- *J 45849* Bearing Remover

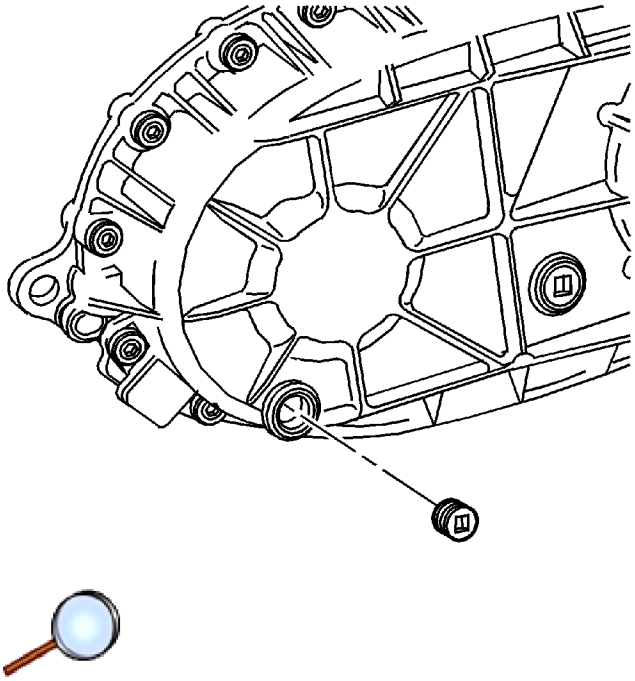
For equivalent regional tools, refer to Special Tools.



1. Mount the *J 3289-20* holding fixture to a sturdy workbench.
2. Attach the *J 45759* assembly fixture on the transfer case using the adapter studs. All of the transfer case disassembly procedures can be performed with the case mounted to the *J 45759* assembly fixture .

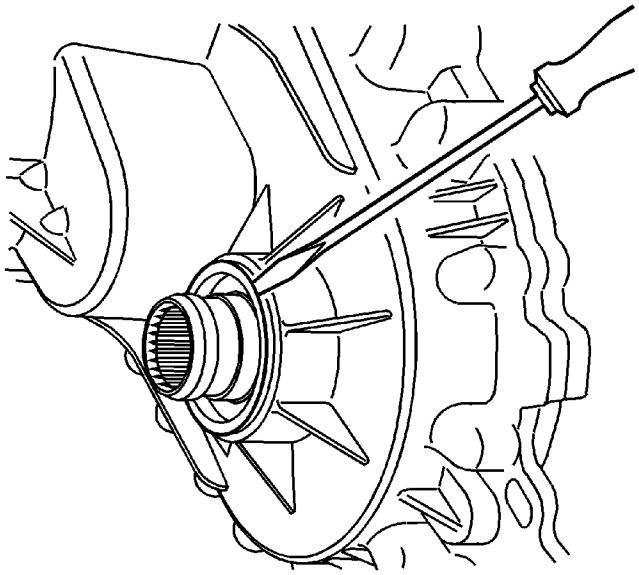


3. Install the *J 45759* assembly fixture (2) into *J 3289-20* holding fixture (1) and secure with pivot pin.



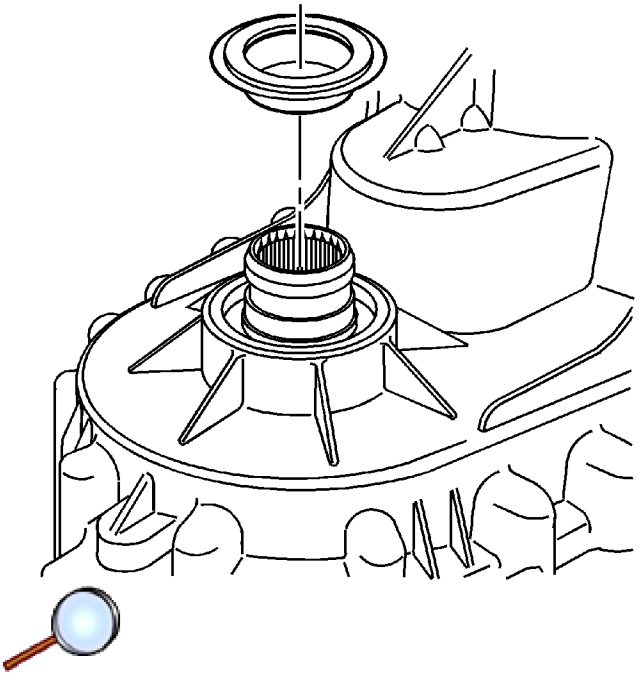
4. Remove the drain plug. Ensure all of the transfer case fluid is drained out of the transfer case.

Caution: Refer to Transfer Case Seal Removal Caution in the Preface section.

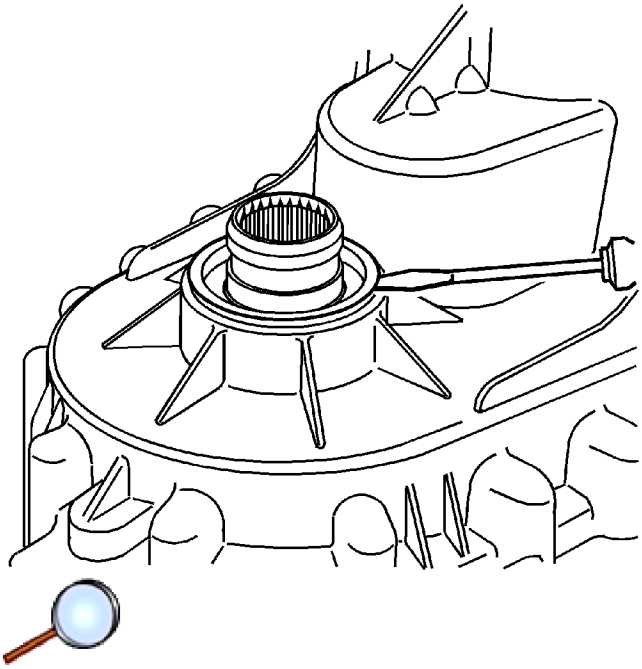


Note: The front output shaft seal is a 2 piece internal seal. The inner seal race is a force fit on the front output shaft.

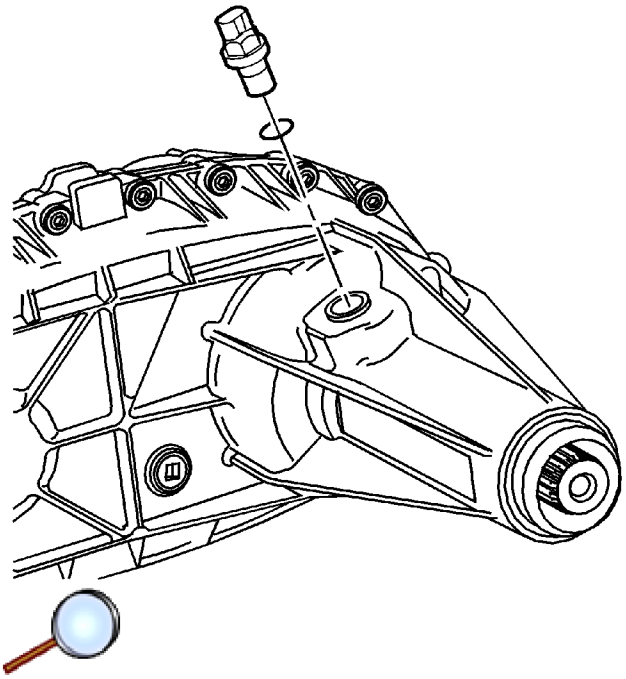
5. Remove the front input shaft seal by inserting a flat-tipped screwdriver behind the inner race of the seal.
6. Pry the inner seal race forward.



7. Using a small pry bar, move the inner seal race forward on the front input shaft.
8. Remove the inner seal race from the front input shaft.

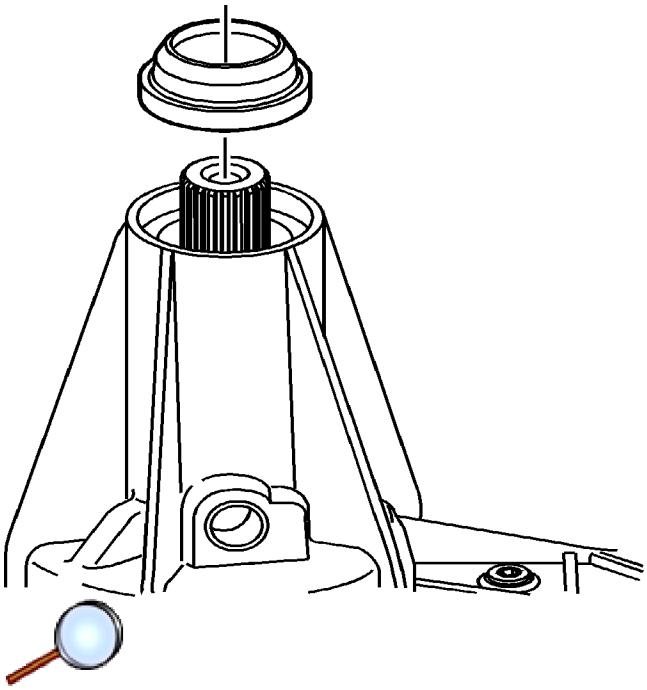


9. Insert a flat-tipped screwdriver or a small pry bar between the lip of the outer lip of the front output shaft seal and the transfer case.
10. Remove the remaining part of the front output shaft seal from the transfer case.

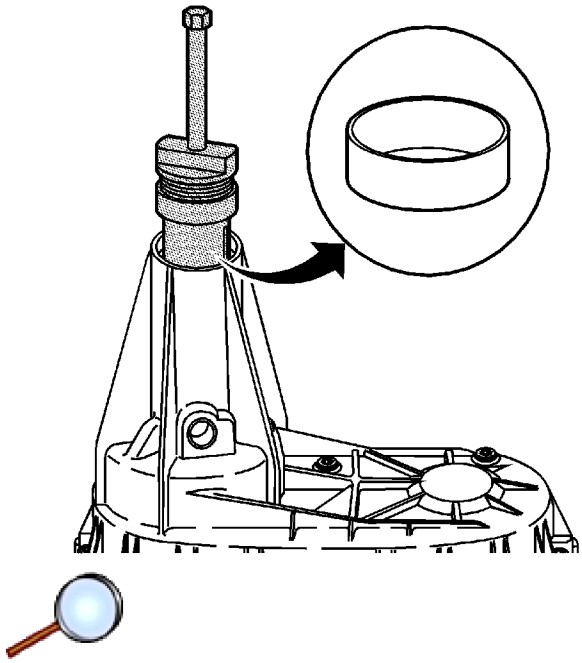


11. Remove the vehicle speed sensor (VSS) with O-ring seal.

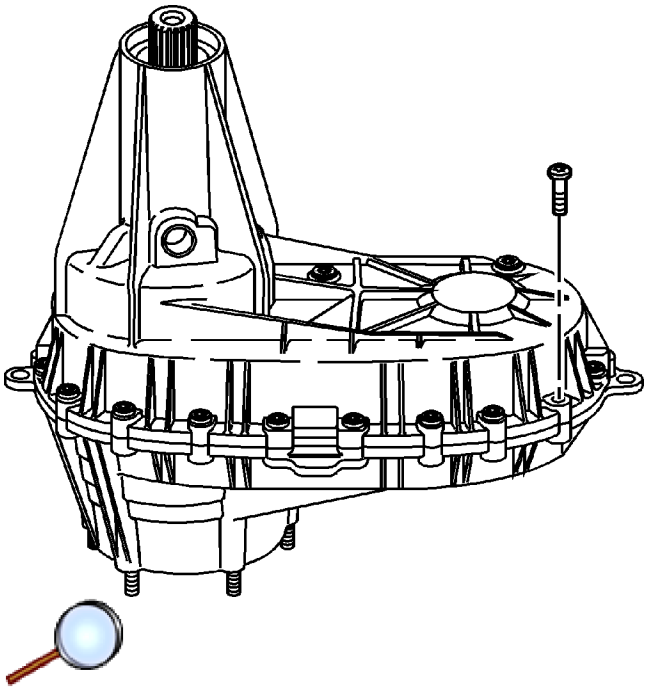
Caution: Refer to Transfer Case Seal Removal Caution in the Preface section.



12. Remove the rear output shaft seal by prying out with a flat-blade screwdriver.

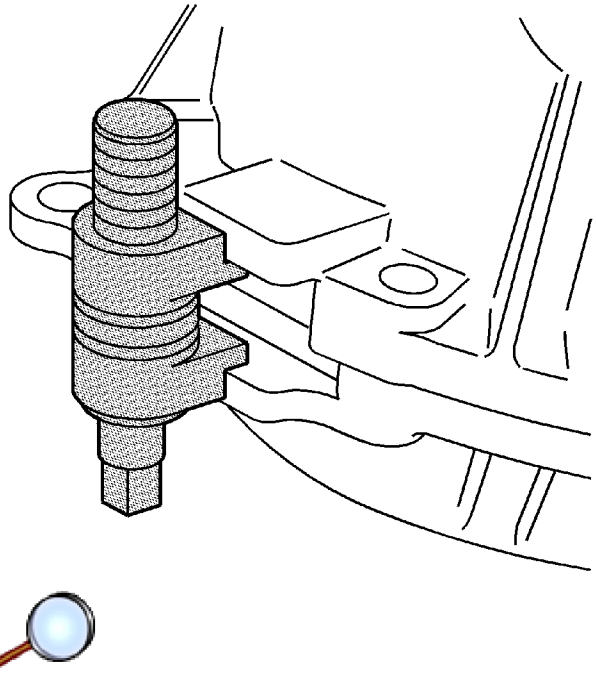


13. Using the *J 45380* bushing remover/installer , remove the rear output shaft bushing.

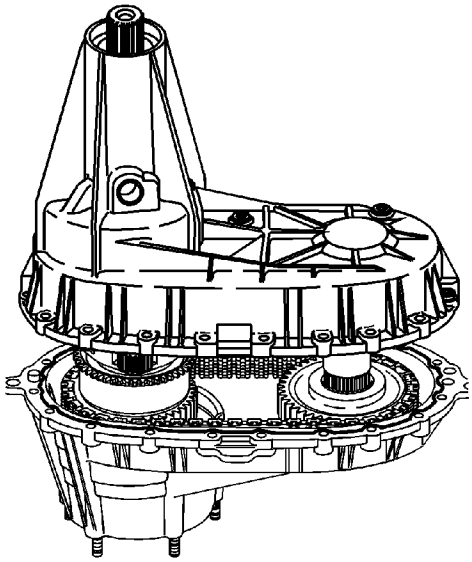


14. Remove the transfer case retaining bolts and the washers.
15. Mark the location of the brackets.

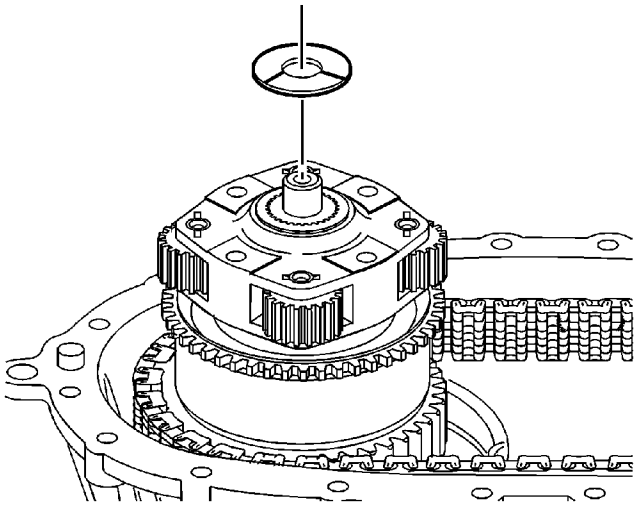
Caution: Refer to Machined Surface Damage Caution in the Preface section.



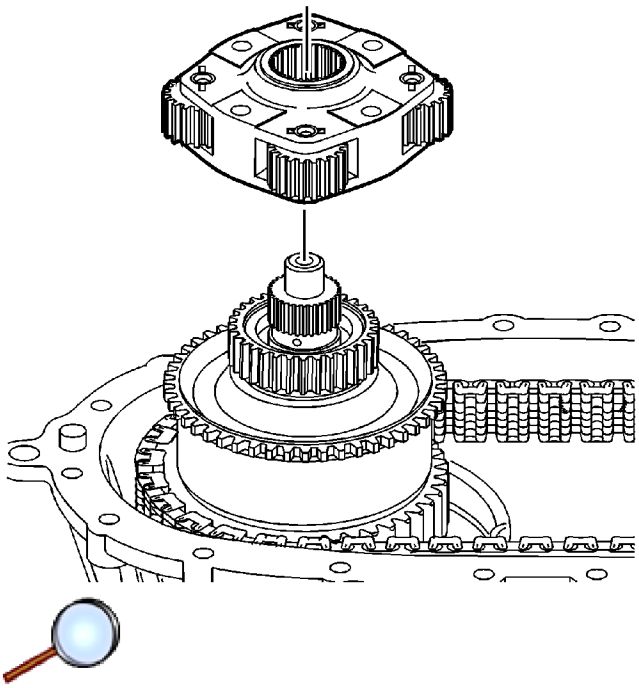
16. Using the *J 45358* case spreader between the tabs on the case halves, shear the sealer holding the case halves together.
17. Using pry bars at each side of the case, remove the case from the locating pins.



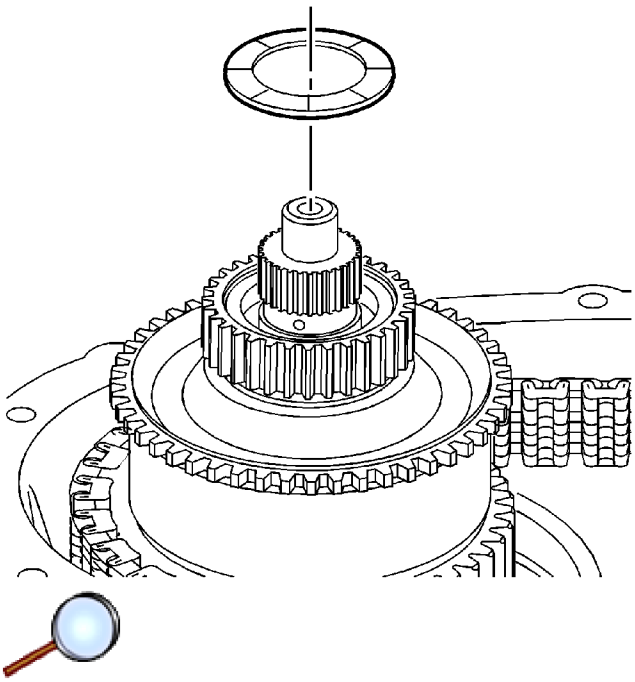
18. Remove the rear case half from the front case half. The rear output shaft will come out with the rear case half.



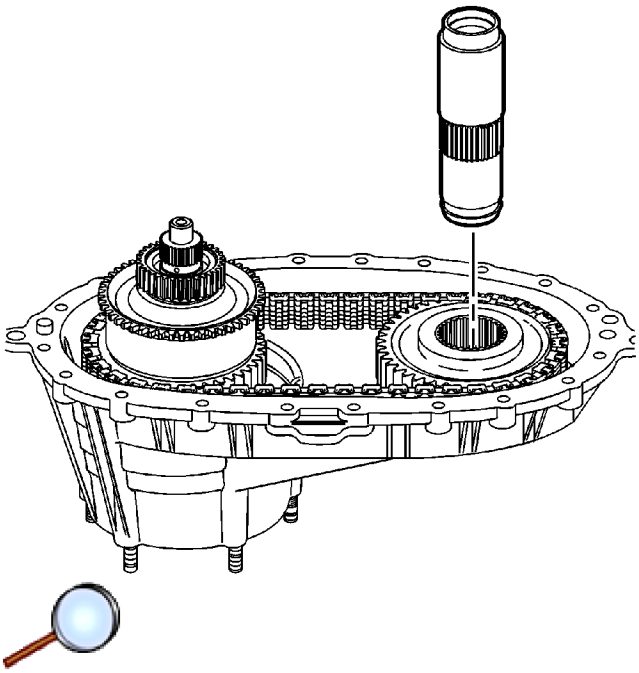
19. Remove the planetary carrier assembly thrust washer.



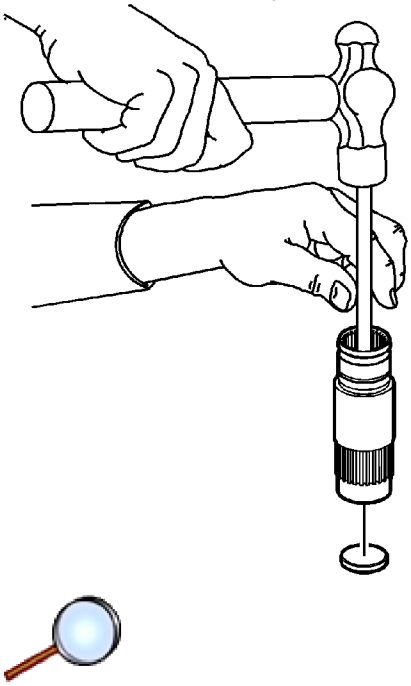
20. Remove the planetary carrier assembly.



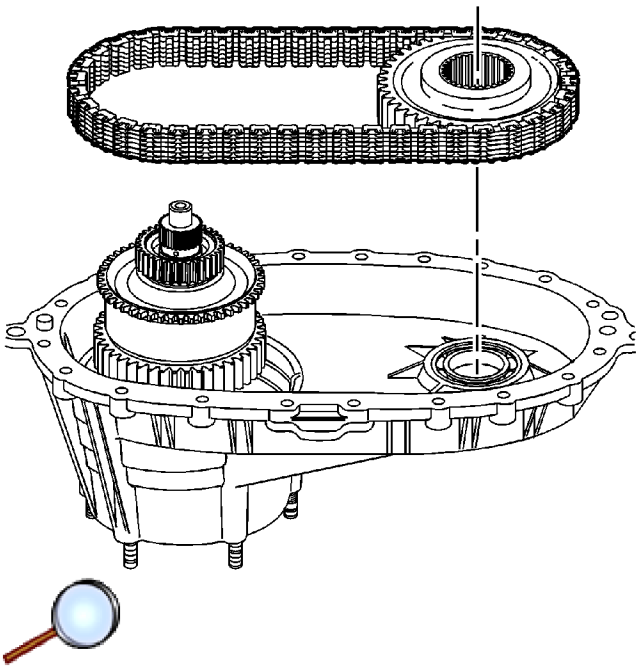
21. Remove the sun gear thrust washer.



22. Remove the front input shaft.

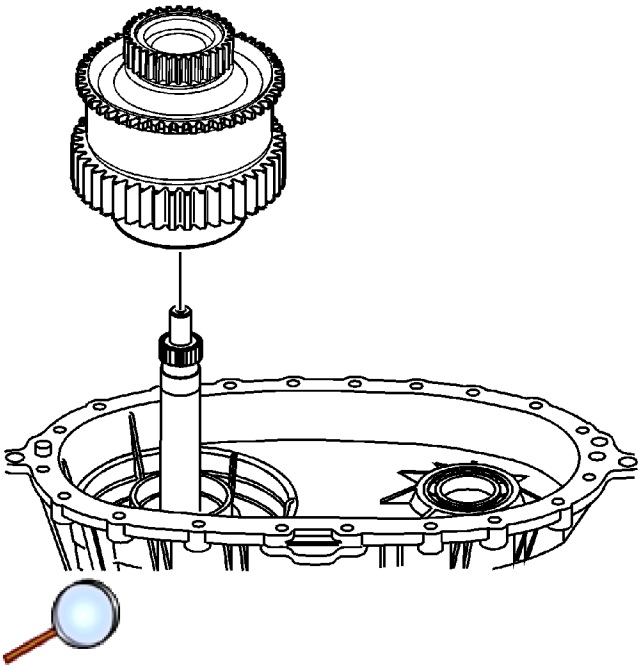


23. If the cup plug in the front output shaft is leaking, remove the plug using a brass drift.

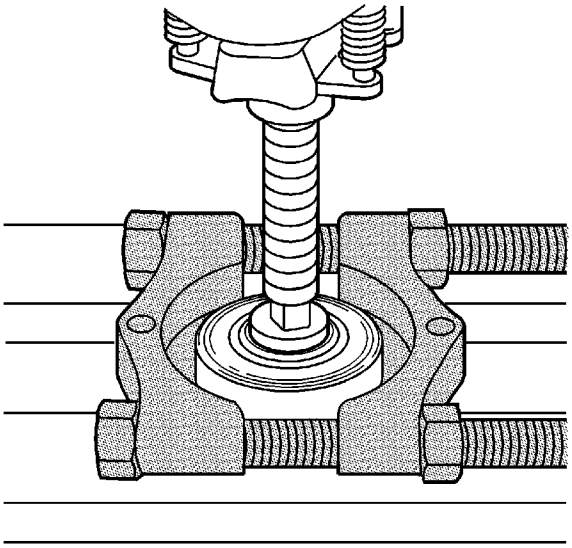


Note: If the chain and sprockets are to be used again, mark the relationship of the chain to the sprockets in order to mark the wear patterns.

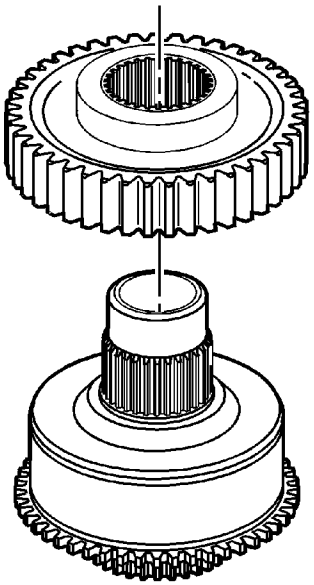
24. Remove the chain with the driven sprocket.



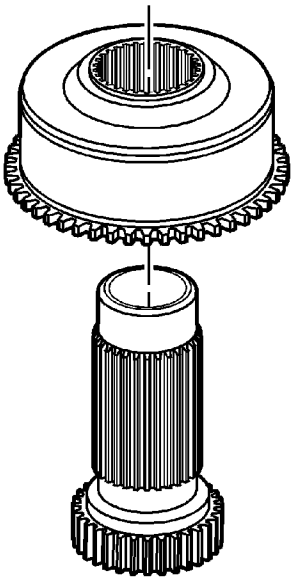
25. Remove the sun gear with the drive gear and viscous coupling. Lift up on the sun gear assembly while tapping down on the input shaft with a soft-face hammer.



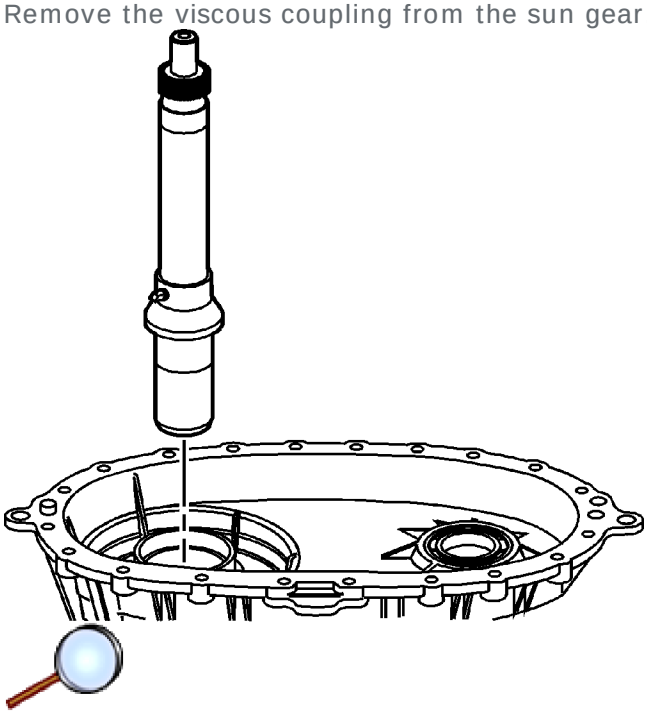
26. Using a hydraulic press and *J 22912-B* pinion/bearing remover , remove the bearing from the sun gear.



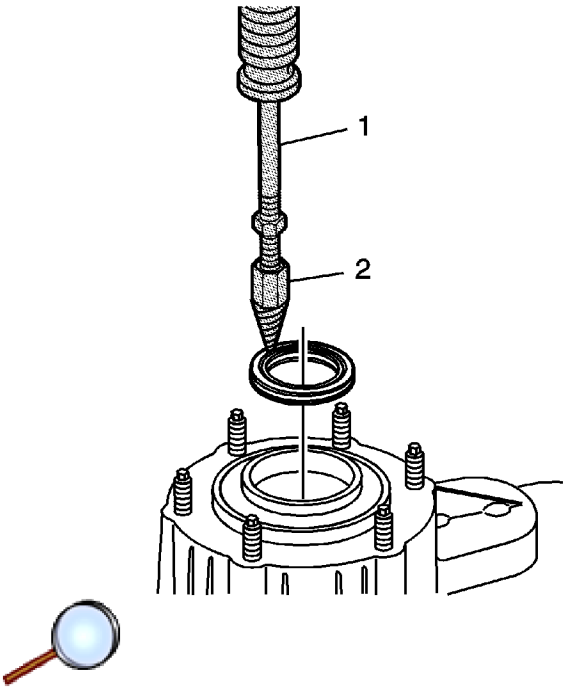
27. Remove the drive gear from the sun gear.



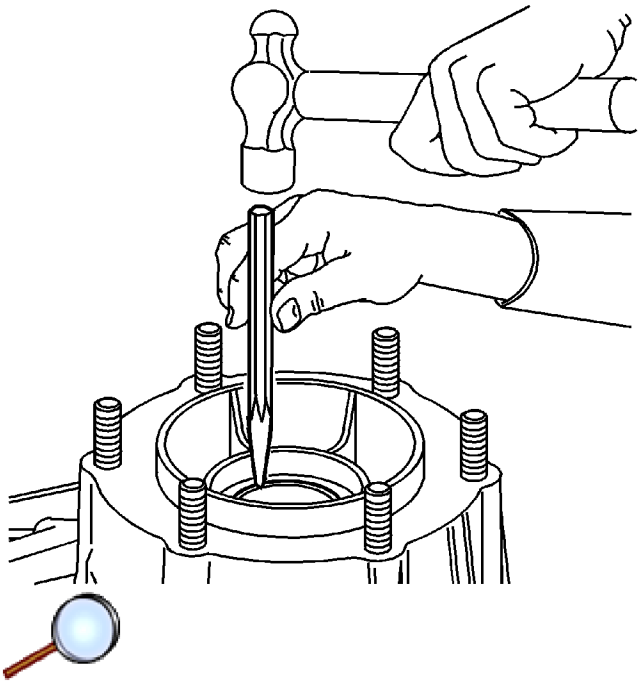
28. Remove the viscous coupling from the sun gear.



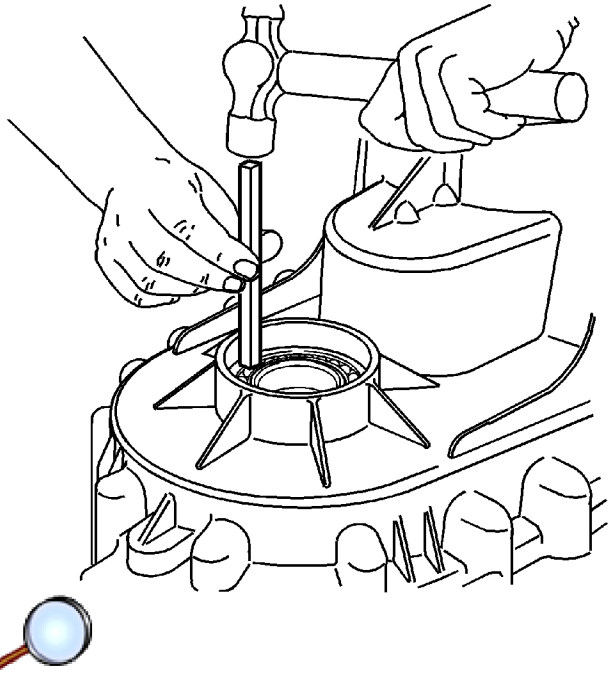
29. Remove the input shaft from the front case.



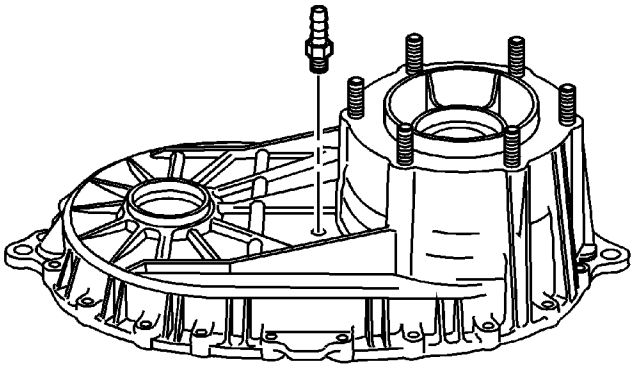
30. Using the *J-2619-A* slide hammer (1) and the *J 36825* seal remover - 4WD (2), remove the input seal.
    30.1. Poke a hole in the seal using a very sharp punch.
    30.2. Thread the *J 36825* seal remover - 4WD (2) into the hole.



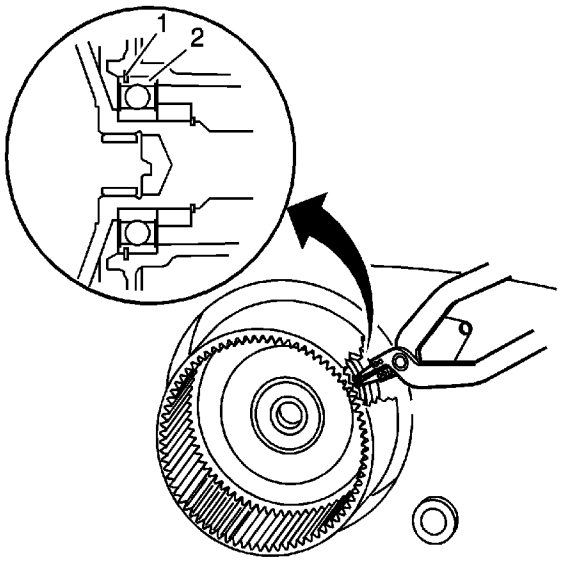
31. Remove the input shaft bushing from the front case using a hammer and brass drift.



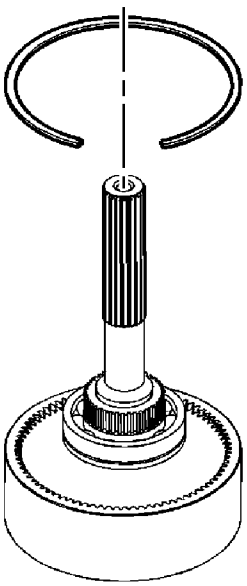
32. Using a brass drift, remove the front output shaft bearing from the front case half.



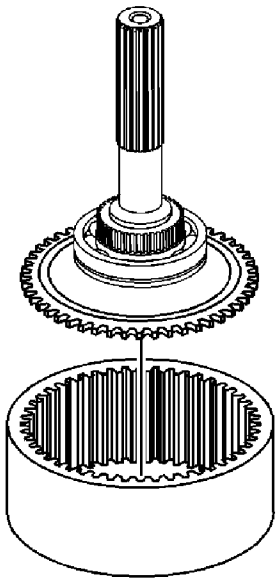
33. If necessary, remove the vent from the front case half.



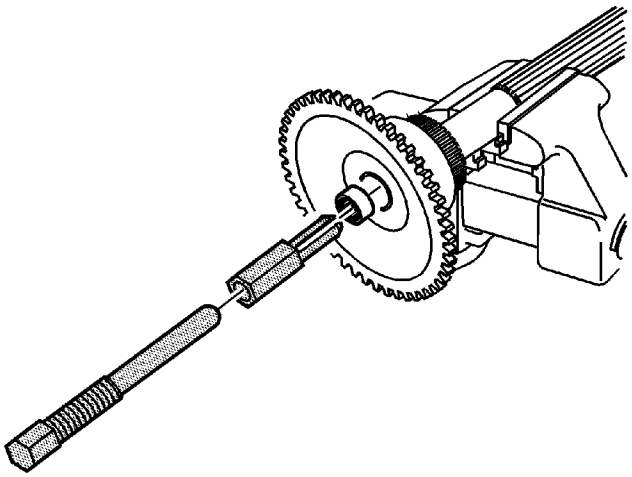
34. Remove the rear output shaft from the rear case half.
    34.1. Spread the rear output shaft rear bearing outer retaining ring (1).
    34.2. Using a soft-face hammer, tap on the end of the rear output shaft.



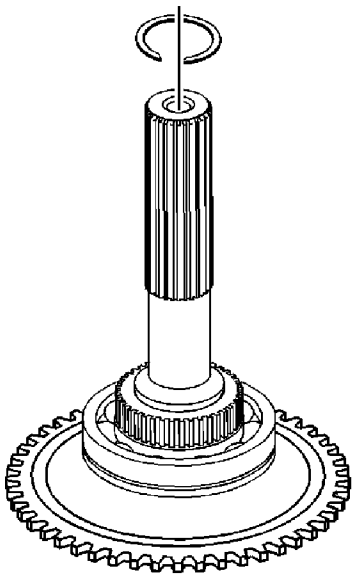
35. Remove the annulus gear retaining ring.



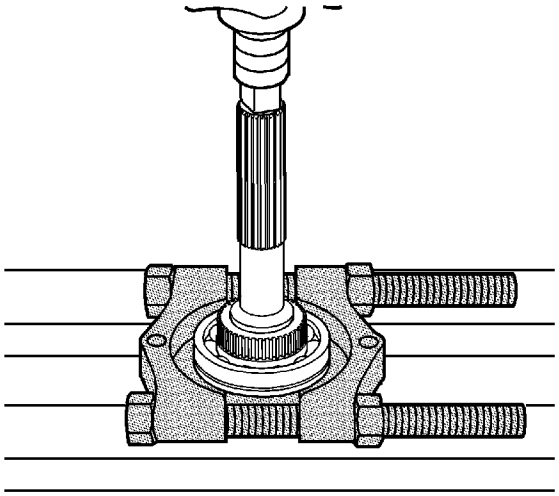
36. Remove the rear output shaft from the annulus gear.



37. Inspect the bearing in the rear output shaft. Refer to Transfer Case Cleaning and Inspection.
38. If the bearing is faulty, remove the bearing using the *J 45849* bearing remover .
    - Install the finger part of the *J 45849* bearing remover in the bearing.
    - Thread the driver part into the fingers.
    - Remove the bearing from the fingers by squeezing the fingers together.

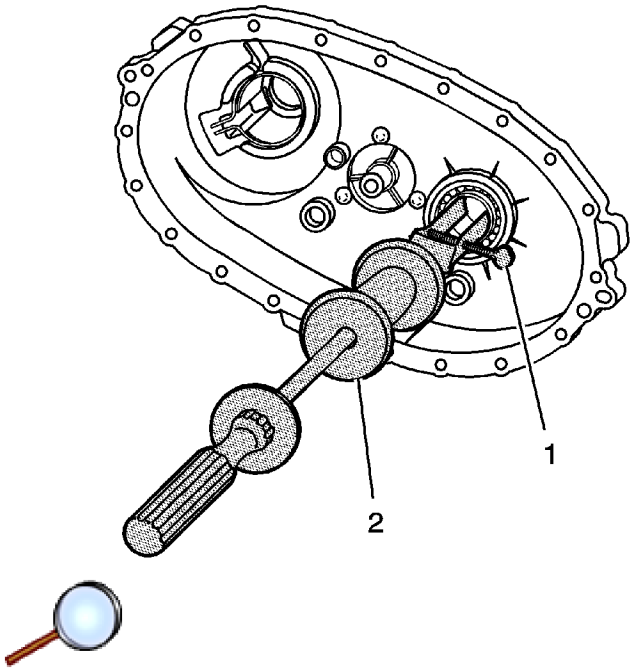


39. Remove the retaining ring for the rear output shaft bearing and the speed reluctor wheel.



40. Using a hydraulic press and the *J 22912-B* pinion/bearing remover , remove the speed reluctor wheel and the rear output shaft bearing

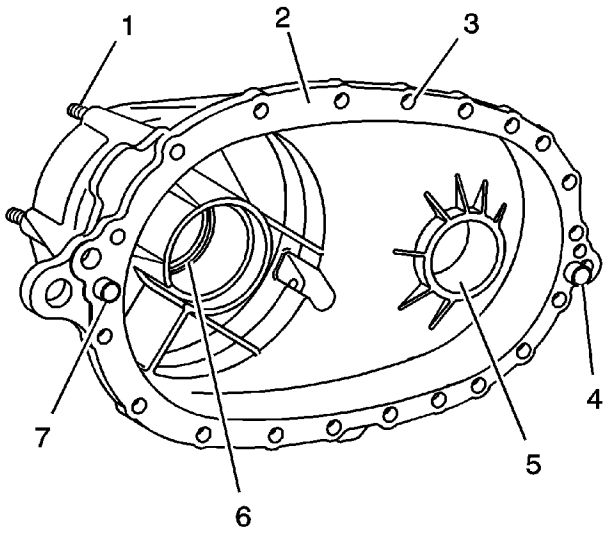
    Do not use the speed reluctor wheel again.



41. Remove the rear bearing for the front output shaft from the rear case, using the *J 26941* bushing/bearing remover (1) and the *J-2619-A* slide hammer (2).

Transfer Case Cleaning and Inspection

Front Case Half



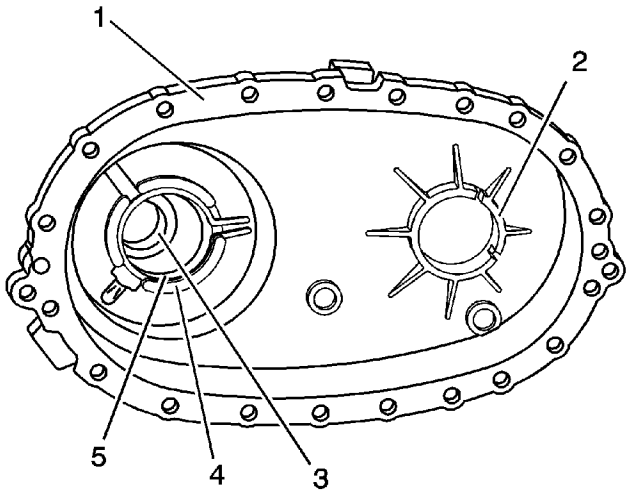
1. Clean the front case half in cleaning solvent and air dry.
2. Remove the metal shavings from the case half bolt holes.

Caution: Refer to Machined Surface Damage Caution in the Preface section.

3. Remove the sealer from the case sealing surfaces.
4. Inspect the case for being broken or cracked.
5. Inspect the front output shaft front bearing bore (5) for the following conditions:
   - Spun bearing
   - Cracks
6. Replace the front case half if any of the above is found.
7. Inspect the sealing surfaces (2) for damage.
8. Repair small scratches or nicks with a soft stone.
9. Inspect the front case to transmission case mounting surface for damage.
10. Inspect the case threaded bolt holes (3) for damage.
11. Repair any damaged threads.
12. Inspect the transmission to transfer case studs (1) for damage.
13. Replace any damaged studs. Refer to Transfer Case Disassemble and Transfer Case Assemble.
14. Inspect the location pins (4 and 7) for being loose or missing.
15. Repair or replace any damaged location pins.
16. Inspect the input shaft bushing (6) for the following conditions:
    - Excessive wear
    - Scoring

17. Inspect the front output shaft front bearing for the following conditions:
    - Roughness
    - Brinelling
    - Pitting
18. Replace the bearings if any of the above conditions are found. Refer to Transfer Case Disassemble and Transfer Case Assemble.

Rear Case Half



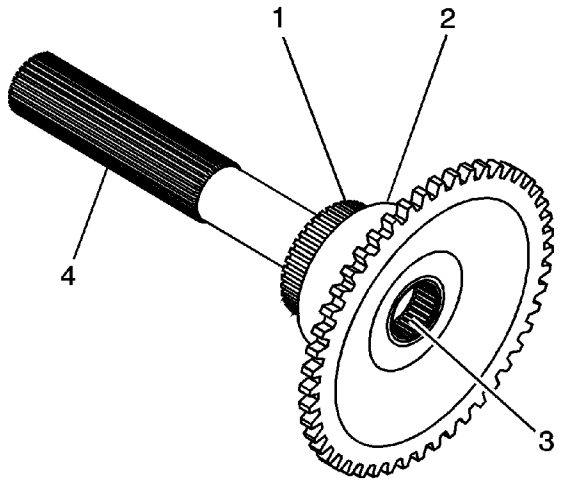
1. Clean the rear case half in cleaning solvent and air dry.

   Caution: Refer to Machined Surface Damage Caution in the Preface section.

2. Remove the sealer from the case sealing surfaces.
3. Inspect the case for being broken or cracked.
4. Replace the case if it is broken or cracked.
5. Inspect the sealing surfaces (1) for damage.
6. Repair small scratches or nicks with a soft stone.
7. Inspect the case threaded bolt holes for damage.
8. Repair any damaged threads.
9. Inspect the front output shaft rear bearing bore (2) for the following conditions:
    - Spun bearing
    - Cracks
10. Inspect the rear output shaft rear bearing bore (5) for the following conditions:
    - Spun bearing
    - Cracks
11. Replace the case if the bearing has spun. Refer to Transfer Case Disassemble and Transfer Case Assemble.
12. Inspect the retaining ring (4) for the rear output shaft rear bearing for being bent or twisted.
13. Replace a faulty retaining ring.

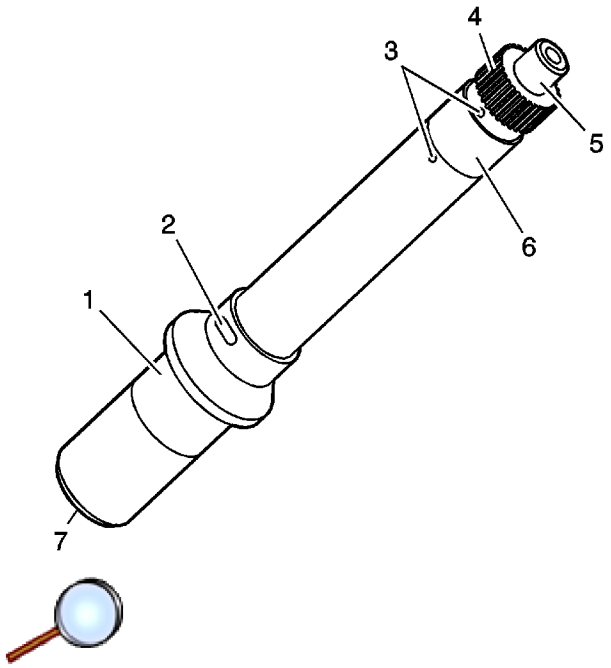
14. Inspect the rear output shaft bushing (3) for scoring or wear.
15. Replace the case if the rear output shaft bushing is faulty. Refer to Transfer Case Disassemble and Transfer Case Assemble.

Rear Output Shaft



1. Clean the rear output shaft with the input shaft rear support bearing and the rear output shaft bearing in cleaning solvent.
2. Air dry and ensure all solvent is removed from the bearings.
3. Inspect the speed reluctor wheel (1) for damage.
4. Replace the speed reluctor wheel if faulty. Refer to Transfer Case Disassemble and Transfer Case Assemble.
5. Inspect the rear output shaft bearing (2) for the following conditions:
   - Scoring
   - Pitting
   - Brinelling
   - Excessive wear
6. Replace the rear output shaft bearing (2) if it is faulty. Refer to Transfer Case Disassemble and Transfer Case Assemble.
7. Inspect the input shaft rear support bearing (3) for the following conditions:
   - Scoring
   - Pitting
   - Brinelling
   - Excessive wear
8. Replace the input shaft rear support bearing (3) if any of the above conditions are found. Refer to Transfer Case Disassemble and Transfer Case Assemble.
9. Inspect the rear output shaft splines (4) for wear or damage.
10. Inspect the rear output shaft bearing area for a spun bearing.
11. Replace the rear output shaft if any of the above conditions are found.

Input Shaft

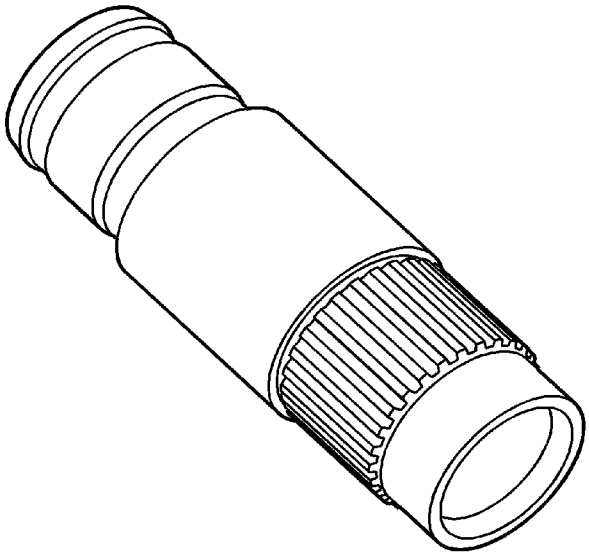


1. Clean the input shaft in cleaning solvent.
2. Clean the input shaft oil galleries (3) and air dry.
3. Inspect the oil scoop (2) for damage.
4. Replace the oil scoop if it is damaged.

   Note: Do not attempt to smooth any roughness in the bearing journals.

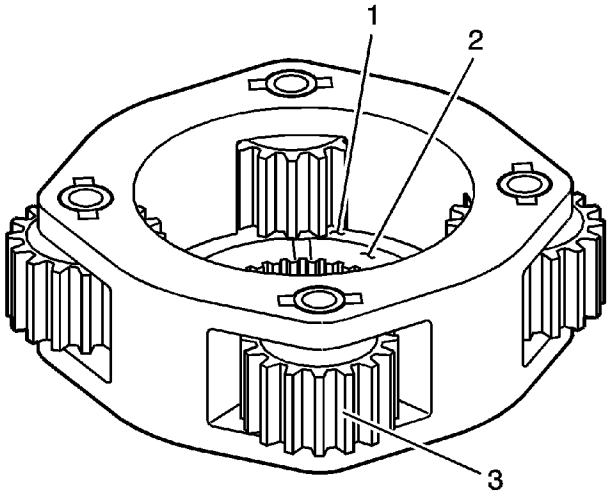
5. Inspect the journals on the input shaft for the following conditions:
   - The input gear bushing journal (1)
   - The sun gear bushing journal (6)
   - The input gear rear support bearing journal (5)
     - Scoring
     - Pitting
     - Brinelling
     - Excessive wear
6. Inspect the input shaft internal input splines (7) and the planetary carrier splines (4) for damage or excessive wear. Witness marks are normal.
7. Replace the input shaft if any of the above conditions are found.

Front Output Shaft



1. Clean the front output shaft in cleaning solvent and air dry.
2. Inspect for spun bearings at the front output shaft bearing areas.
3. Inspect the front output internal splines and driven gear splines for damage or excessive wear.
4. Replace the front output shaft if it is damaged.
5. Inspect the cup plug in the front output shaft for leaking.
6. Replace the cup plug if it is leaking. Refer to Transfer Case Disassemble and Transfer Case Assemble.

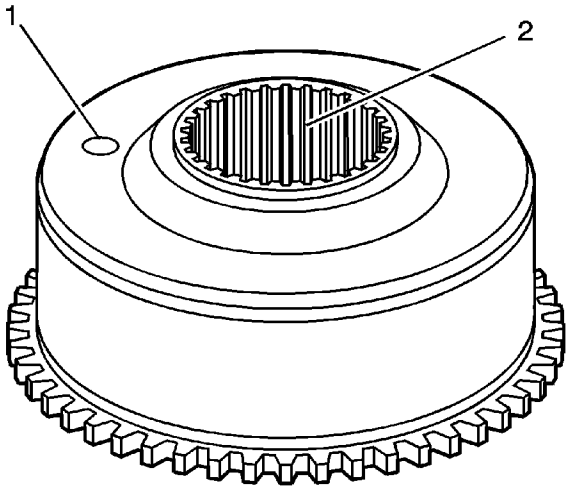
Planetary Carrier



1. Clean the planetary carrier in cleaning solvent. Do not disassemble the planetary carrier.

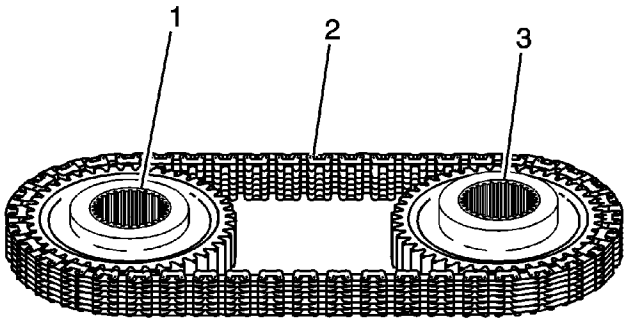
2. Air dry, and ensure all cleaning solvent is removed from the bushings in the pinion gears (3). Do not spin the pinion gears with compressed air.
3. Inspect the pinion gears for excessive looseness because of wear at the bushings or the shafts.
4. Inspect the pinion gears for chipped teeth.
5. Inspect the pinion gears for debris embedded in the root of the teeth.
6. Inspect the planetary assembly for cracks at the web (1) of the housing.
7. Inspect the thrust washer surface (2) for scoring or excessive wear.
8. Replace the planetary carrier if any of the above conditions are found.
9. Inspect the planetary carrier thrust washers for excessive wear or scoring.
10. Replace the thrust washers if they are faulty.

Viscous Coupling



1. Inspect the viscous coupling for leaking at the ball (1) in the housing. A black liquid would be visible if it is leaking.
2. Replace the viscous coupling if it is leaking.
3. Inspect for excessive worn splines (2).
4. Replace the viscous coupling if the splines are faulty.

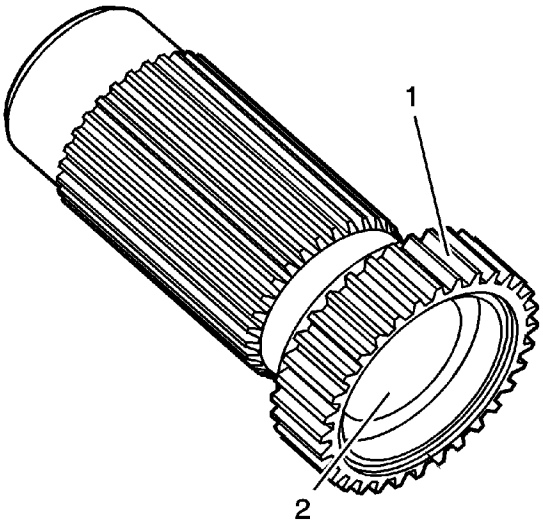
Drive Chain and Sprockets



1. Clean the drive chain (2), drive sprocket (3), and driven sprocket (1) in cleaning solvent and air dry.
2. Inspect the drive chain (2) for the following conditions:
   - Loose link pins
   - Binding or stiff links
   - Debris embedded in the links
   - Worn teeth surfaces
3. Replace the chain if any of the above conditions are found.
4. Inspect the driven sprocket (1) and the drive sprocket (3) for the following conditions:
   - Chipped teeth
   - Excessive worn gear surfaces

     Slight wear marks are normal.
   - Debris embedded in the root of the teeth
5. Replace the sprockets if any of the above conditions are found. The chain and sprockets may be replaced separately.

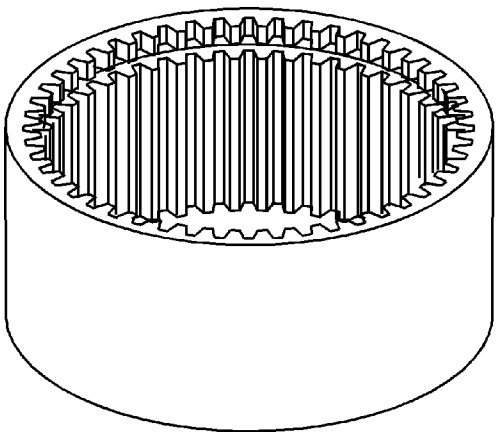
Sun Gear



1. Clean the sun gear in cleaning solvent and air dry.
2. Inspect the teeth on sun gear (1) for the following conditions:
   - Chipped teeth
   - Excessive worn gear surfaces

     Slight wear marks are normal.
   - Debris embedded in the root of the teeth
3. Inspect the input shaft bushing (2) for excessive wear or scoring. The bushing is only serviced with the gear.
4. Replace the sun gear if they are faulty.

Annulus Gear



1. Clean the annulus gear in cleaning solvent and air dry.
2. Inspect the annulus gear for the following conditions:
   - Chipped teeth
   - Damage or excessive wear

     Witness marks are normal.
   - Debris embedded in the root of the teeth
3. Replace the annulus gear if any of the above conditions are found.

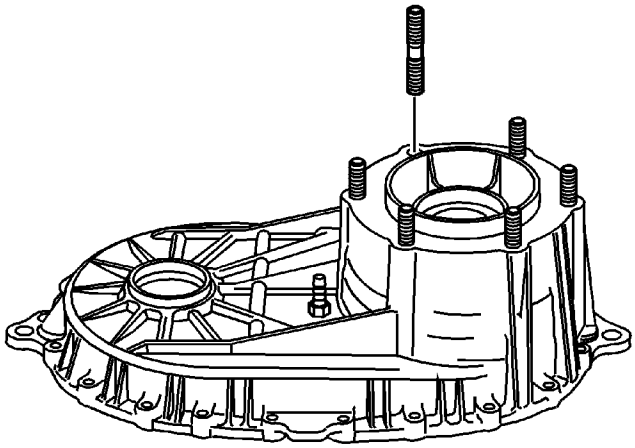
Transfer Case Assemble

Special Tools

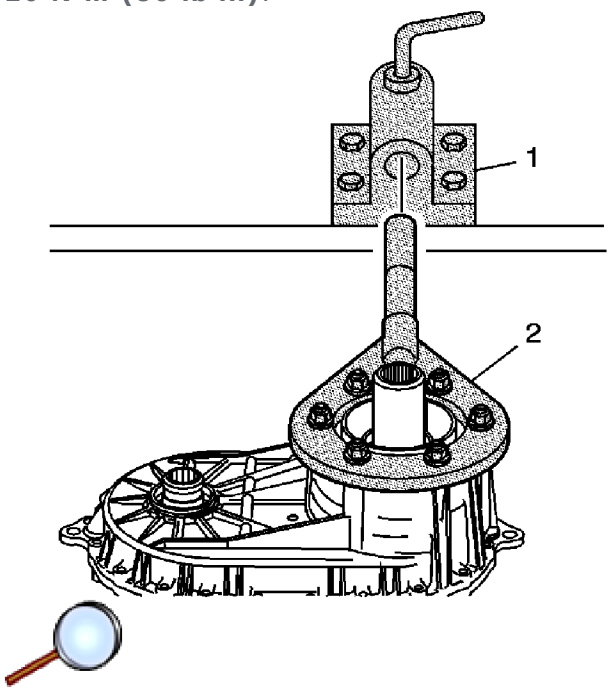
- *J 3289-20* Holding Fixture
- *J 5590* Bearing and Seal Driver
- *J 8092* Universal Driver
- *J 22828* Input and Countershaft Race Installer
- *J 36373* Input Sun Gear Ball Bearing Installer
- *J 36850* Transjel Lubricant
- *J 42176* Universal Driver Handle - Non-Threaded
- *J 43484* Front Output Shaft Seal Installer
- *J 45380* Transfer Case Rear Bushing Remover and Installer
- *J 45540* Tone Ring and Bearing Installer
- *J 45756* Rear Output Shaft Seal Installer
- *J 45758* Input Seal Installer
- *J 45759* Assembly Fixture
- *J 45848* Bearing Installer

For equivalent regional tools, refer to Special Tools.

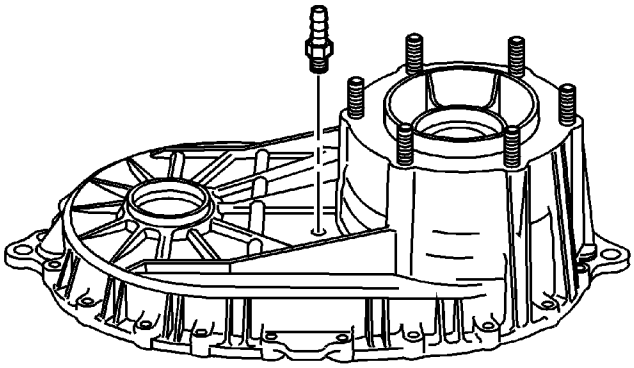
Caution: Refer to Fastener Caution in the Preface section.



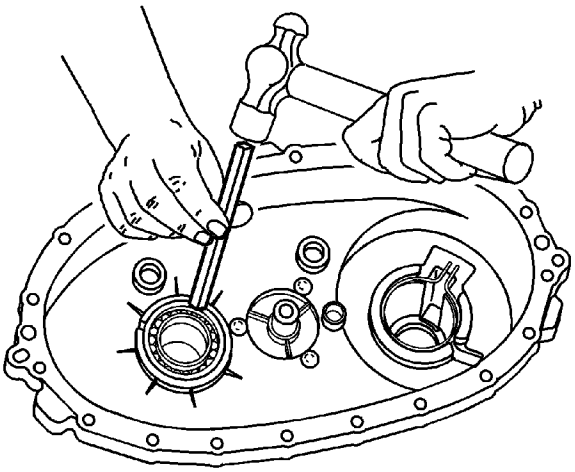
1. If removed, install the transfer case mounting studs and tighten the mounting studs to **10 N·m (89 lb in)**.



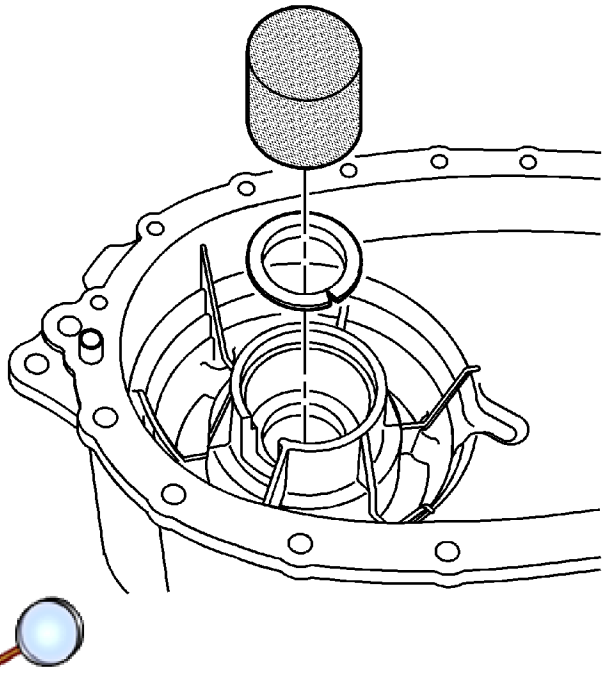
2. Attach the *J 45759* assembly fixture (2) to the front case half using the adapter studs. All of the assembly procedures can be performed with the case mounted to the *J 45759* assembly fixture (2).
3. Install the *J 45759* assembly fixture (2) into the *J 3289-20* holding fixture (1) and secure with pivot pin.



4. If removed, apply pipe sealant GM P/N 12346004 (Canadian P/N 10953480) to the threads on the vent.
5. Install the vent and tighten to **6 N·m (53 lb in)**.

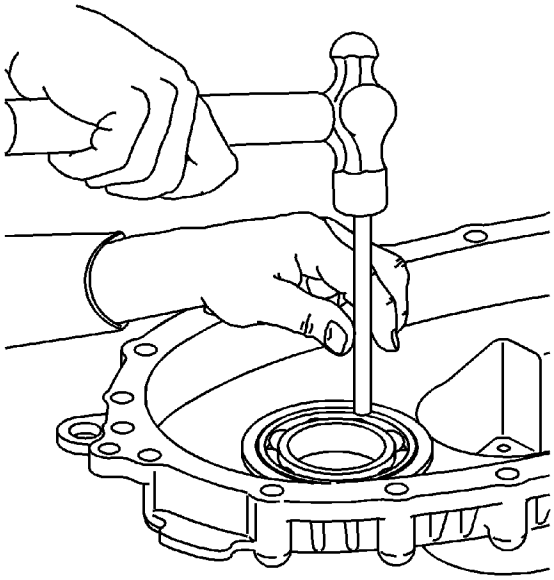


6. Install the front output shaft rear bearing in the rear case half.
   - Use a hammer and a brass drift only on the outer bearing race.
   - Ensure the bearing is kept square to the bore while installing.

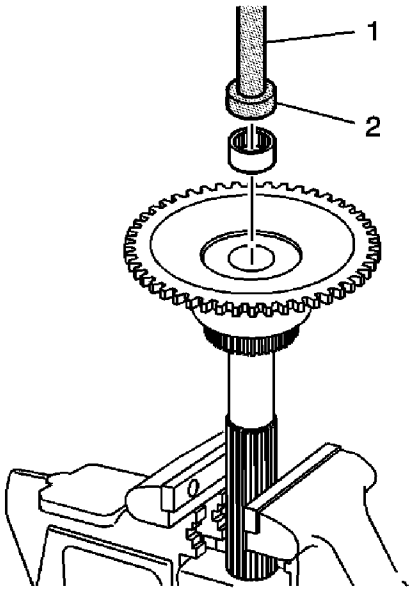


Note: Lubricate all bearings and bearing journals with transfer case fluid during installation.

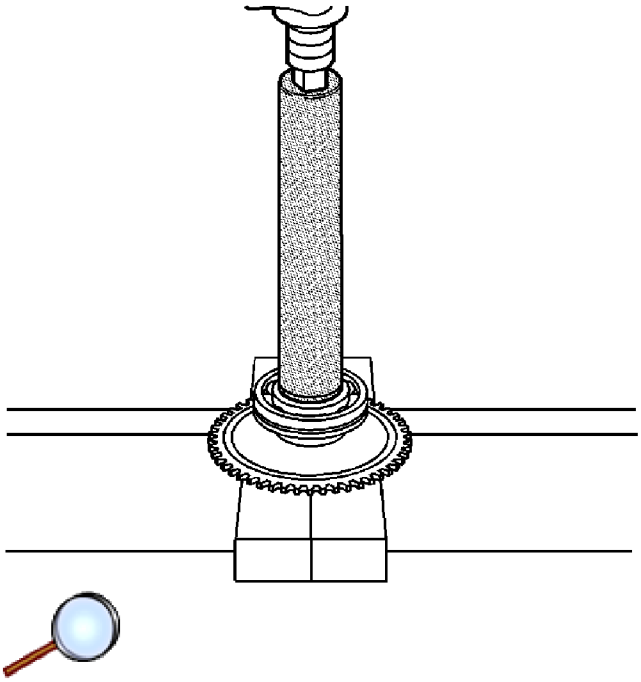
7. Install the input shaft bushing in the front case half using the *J 36373* bearing installer and a hammer.



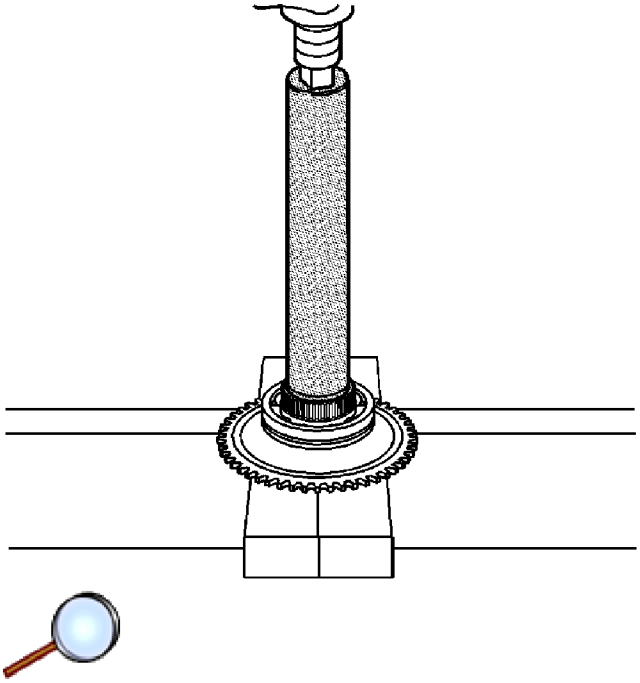
8. Install the front bearing for the front output shaft in the front case half.
   - Use a hammer and a brass drift only on the outer bearing race.
   - Ensure the bearing is kept square to the bore while installing.



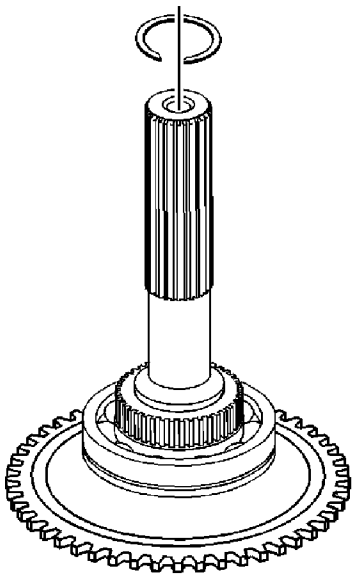
9. If removed, install the input shaft rear support bearing in the rear output shaft using *J 42176* driver handle (1) and *J 45848* bearing installer (2).



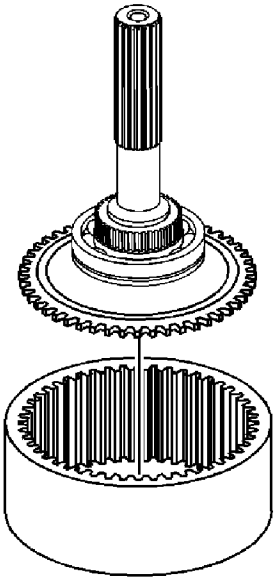
10. Using the *J 22828* race installer and a hydraulic press, install the rear output shaft bearing with the retaining ring groove towards the gear.



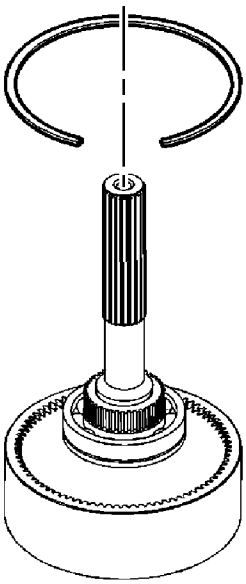
11. Using the *J 22828* race installer and a hydraulic press, install a NEW speed reluctor wheel.



12. Install a NEW retaining ring for the rear output shaft bearing.



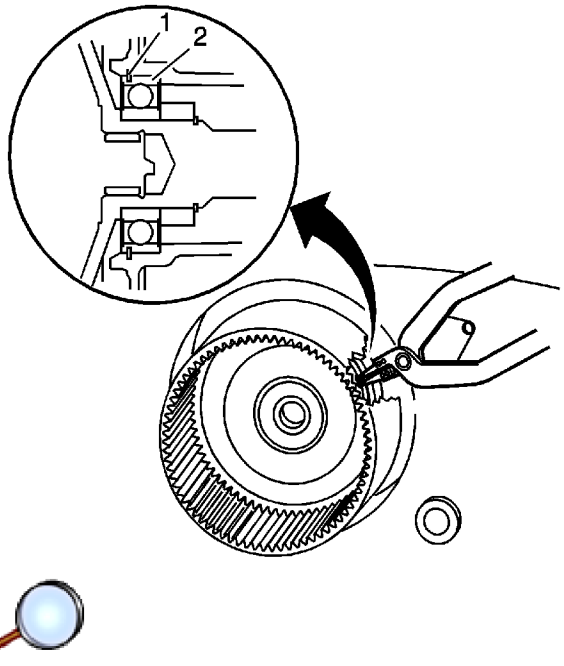
13. Install the rear output shaft in the annulus gear.



Warning: The vehicle could roll while in park if the annulus gear becomes disengaged from the rear output shaft. Always install a new rear output shaft to annulus gear retaining ring. Ensure the rear output shaft retaining ring is fully seated in the annulus gear.

Caution: Damage may occur to the viscous coupling if the retaining ring for the rear output shaft to the annulus gear fails or becomes dislodged during vehicle operation. Always install a new rear output shaft to annulus gear retaining ring. Ensure the rear output shaft retaining ring is fully seated in the annulus gear.

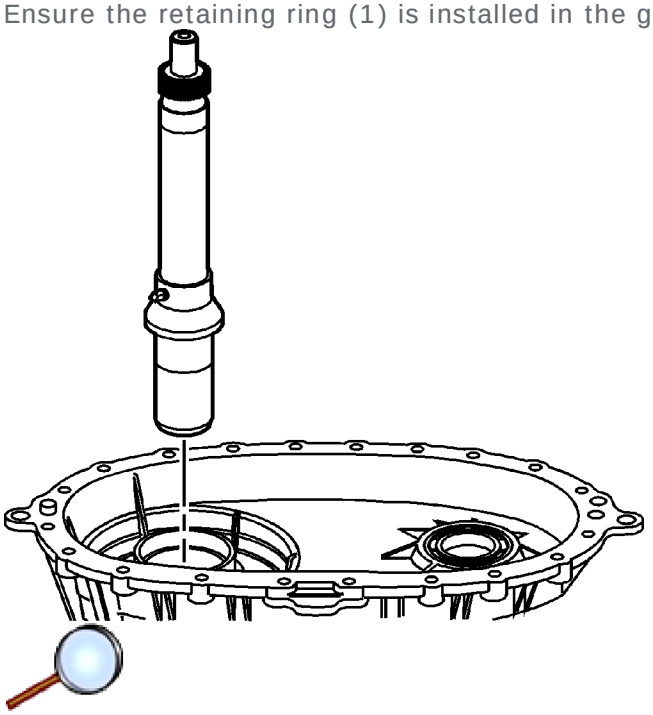
14. Install a NEW annulus gear retaining ring.



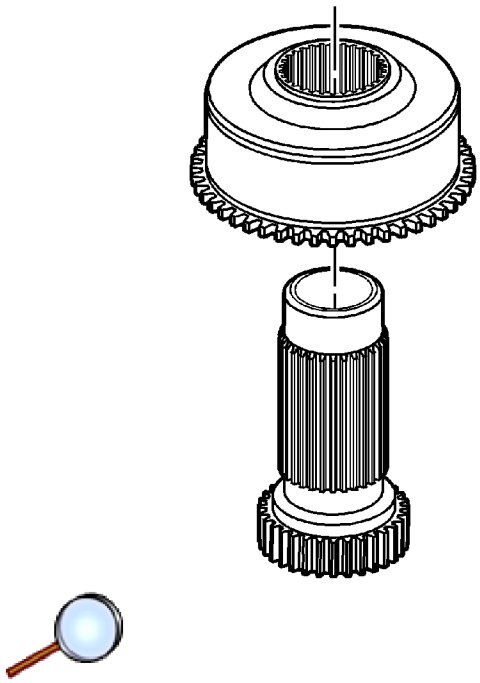
15. Install the rear output shaft in the rear case.
    - Spread the rear output shaft rear bearing outer retaining ring (1).

- Using a soft-face hammer, tap on the rear output shaft.

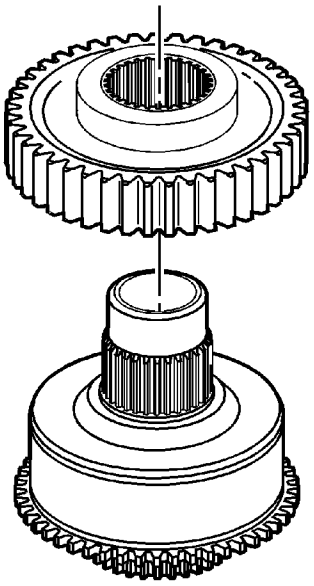
16. Ensure the retaining ring (1) is installed in the groove of the rear output shaft bearing (2).



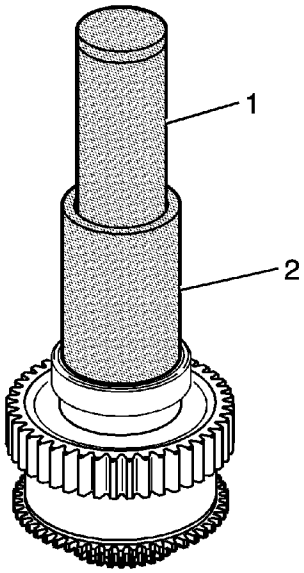
17. Install the input shaft in the front case.



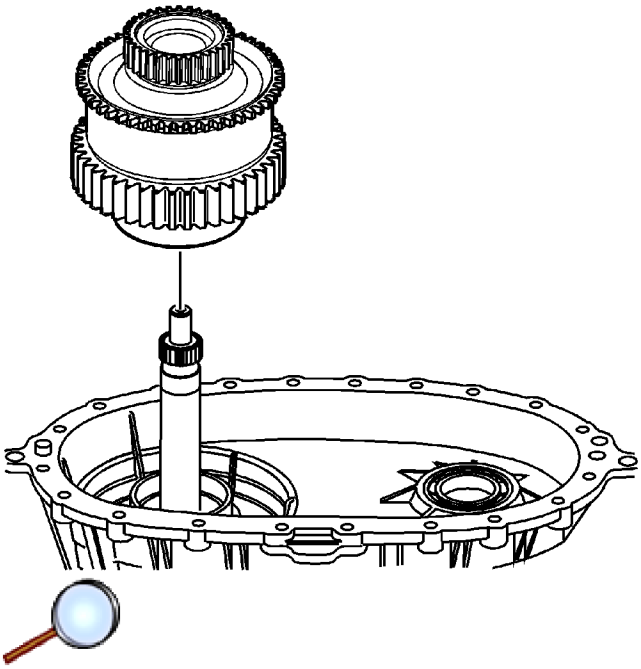
18. Install the viscous coupling on the sun gear.



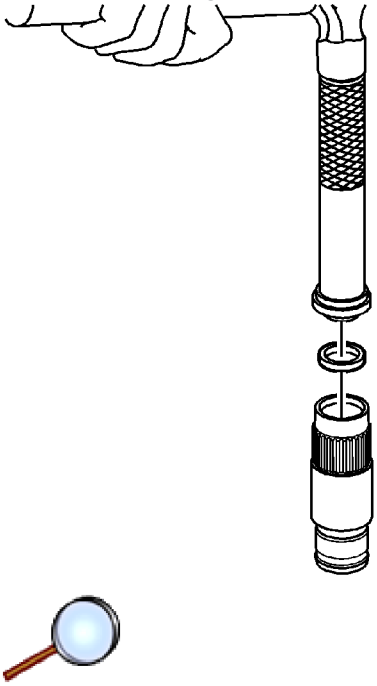
19. Install the drive gear on the sun gear.



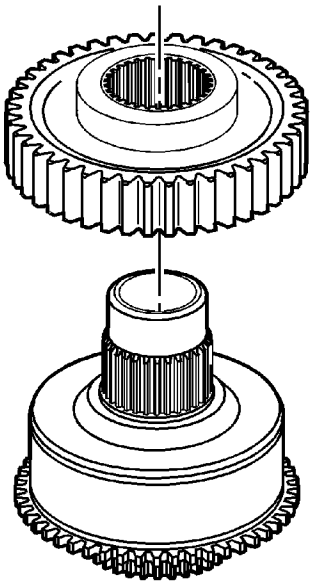
20. Using a hammer with the *J 45540* ring/bearing installer (2) and the *J 5590* driver (1), install the bearing on the sun gear. Ensure the bearing is fully seated against the drive gear.



21. Install the sun gear, with the drive gear and the viscous coupling, on the input gear.

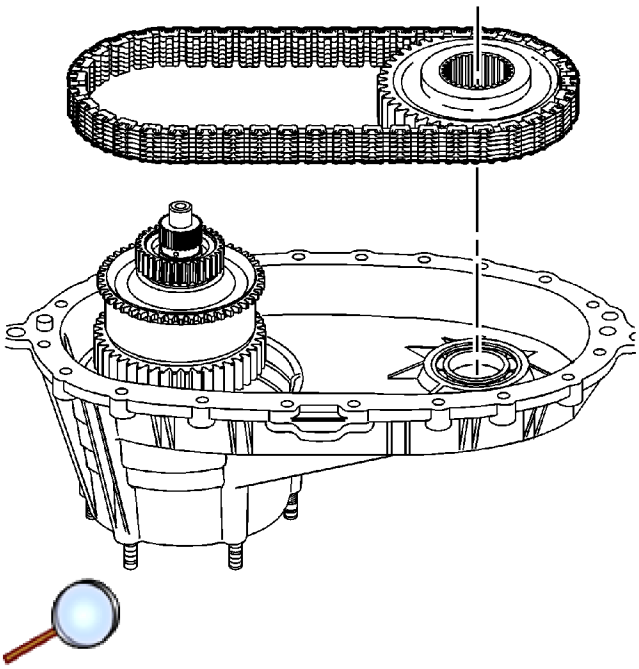


22. If it is a new shaft, or if the cup plug was removed, install the cup plug in the front output shaft using a suitable driver. Install the cup plug 1 mm (0.039 in) from flush with the end of the shaft.

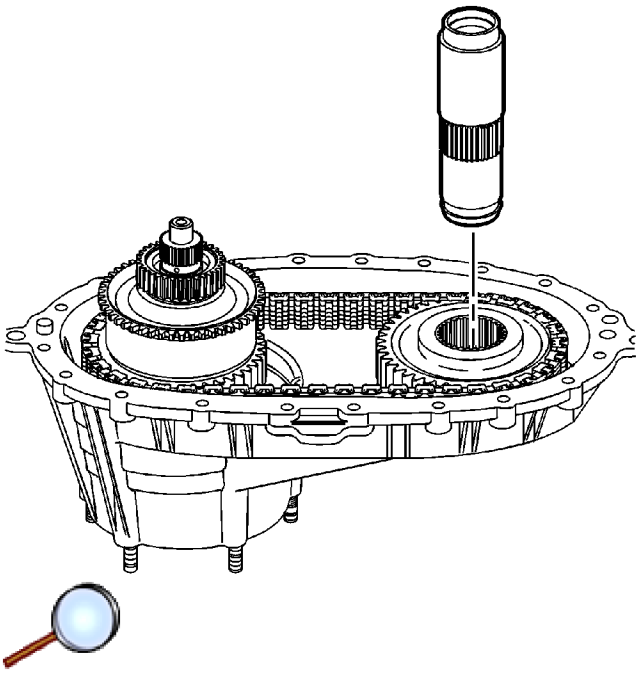


Note: Ensure to align the marks of the drive chain and sprockets, if using the chain and sprockets again.

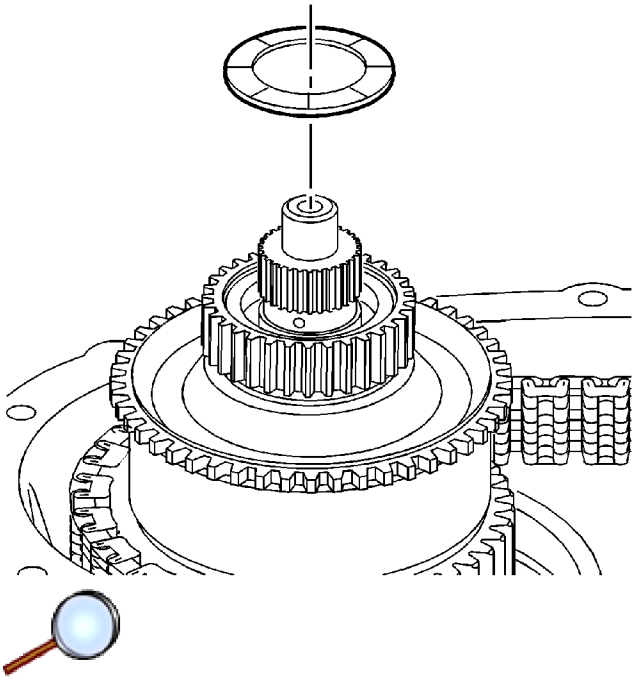
23. Install the drive chain on the drive sprocket.
    - The blue link on the chain faces up.
    - Align the chain, if using it again, with the alignment marks made during disassembly.



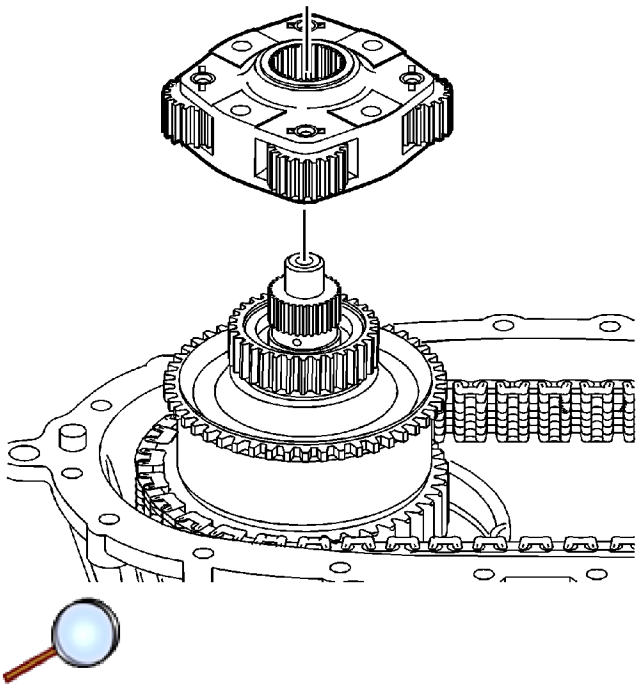
24. Install the driven sprocket and the chain.



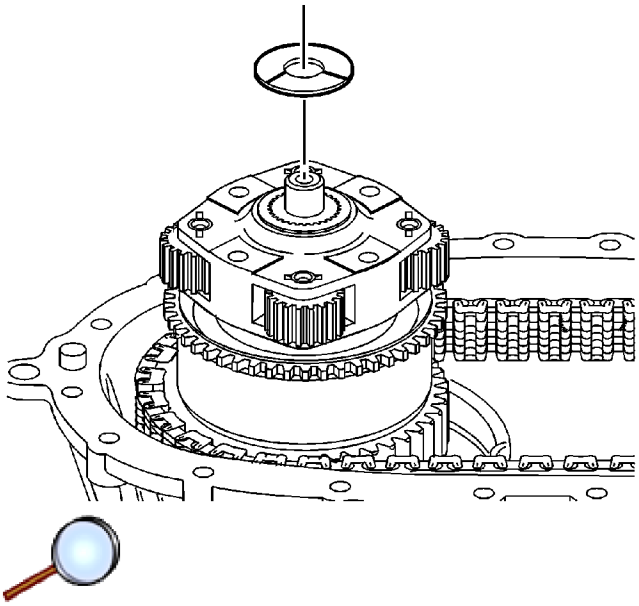
25. Install the front output shaft in the driven sprocket and the bearing.



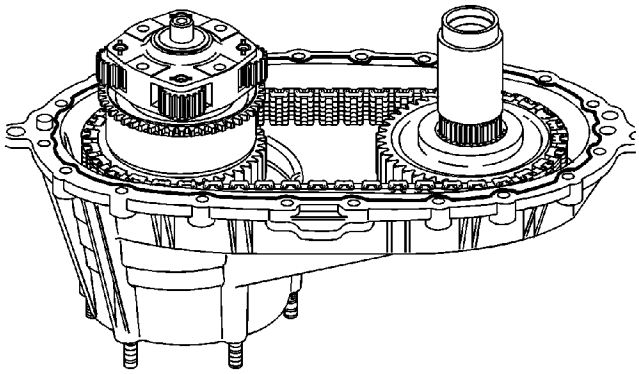
26. Lubricate the sun gear thrust washer with *J 36850* lubricant or equivalent.
27. Install the sun gear thrust washer.



28. Install the planetary carrier assembly.



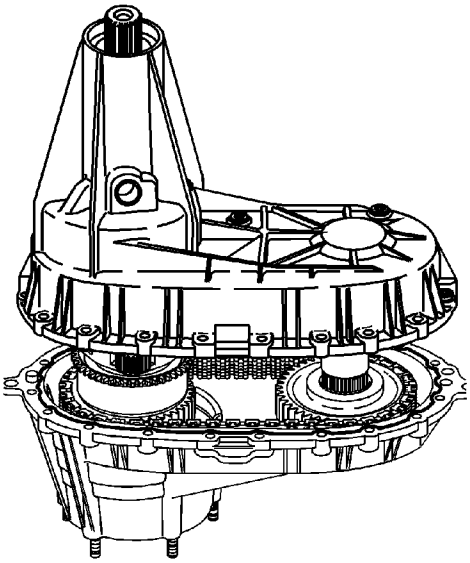
29. Lubricate the sun gear thrust washer with *J 36850* lubricant or equivalent.
30. Install the planetary carrier thrust washer.



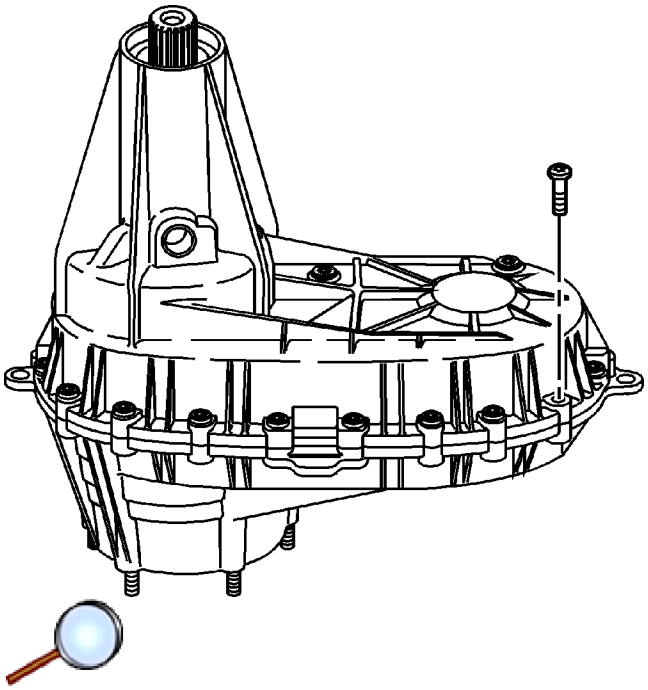
Note:

- Ensure that both the sealing surfaces on the front and rear case halves are free of dirt, oil, and cleaning solvent.
- Ensure the locating pins are installed in the front case half.

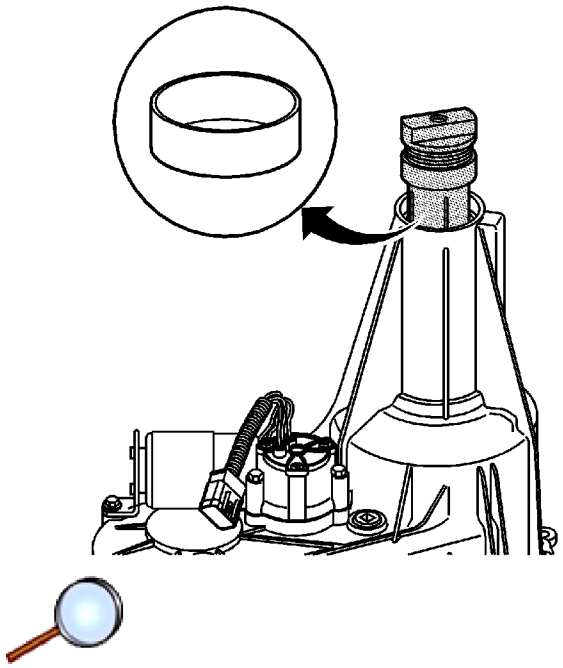
31. Install the locating pins in the front case, if necessary.
32. Apply a 3.175 mm (1/8 in) bead of room temperature vulcanizing (RTV) sealant GM P/N 12345739 (Canadian P/N 10953541) or equivalent to the mating surfaces of the front case half.



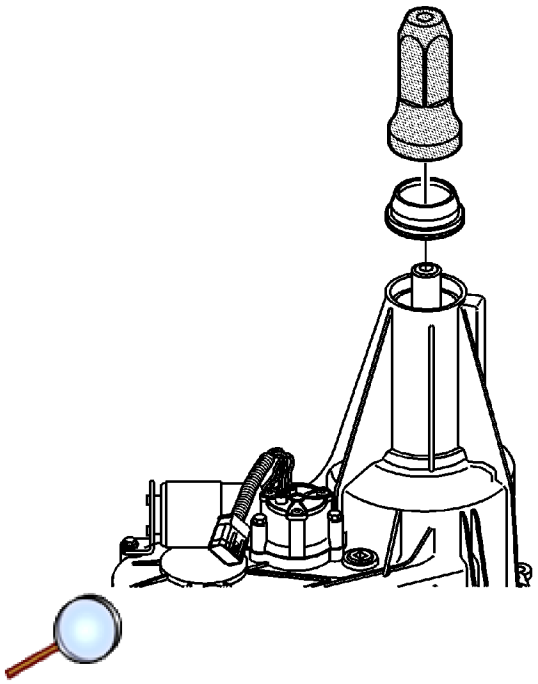
33. Lower the rear case half into place.



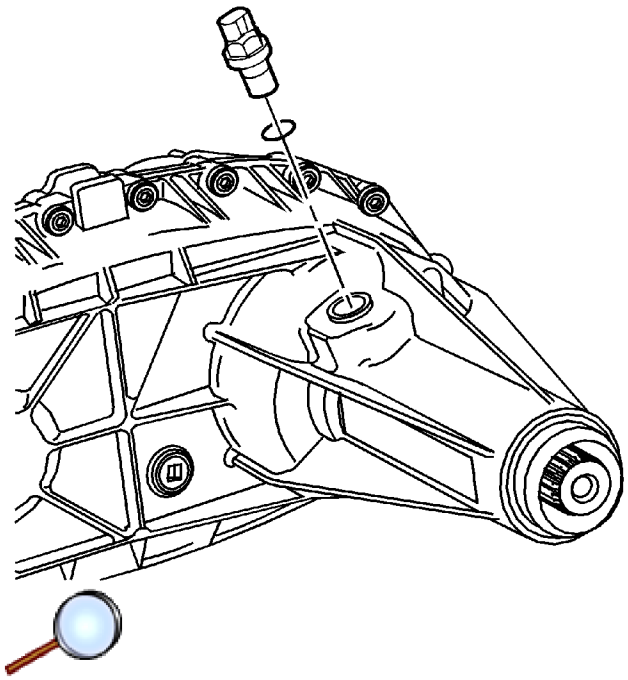
34. Install the case bolts, washers, and brackets.
35. Tighten the case bolts to **21 N·m (15 lb ft)**.



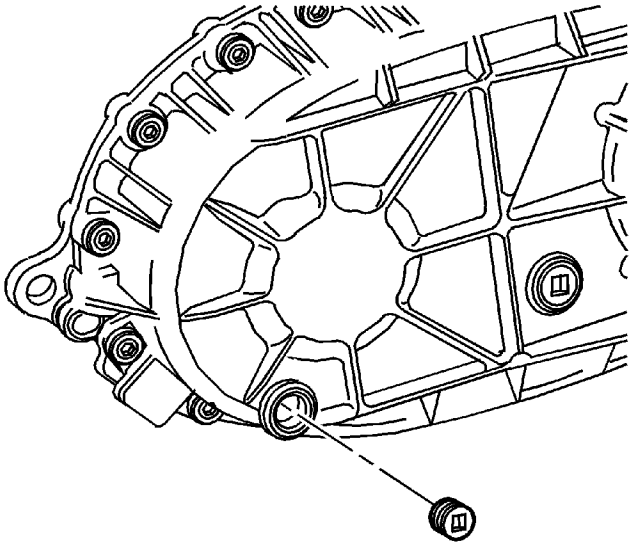
36. Using the *J 45380* bushing remover/installer , install the rear output shaft bushing, if removed or new.



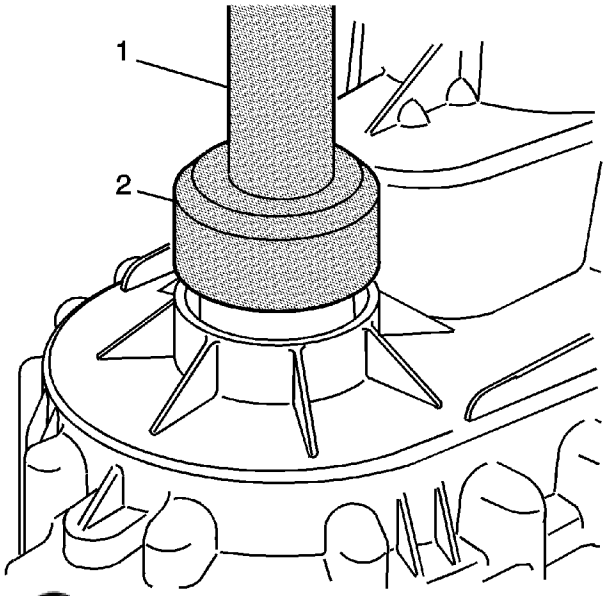
37. Using the *J 45756* seal installer , install the rear output shaft seal.



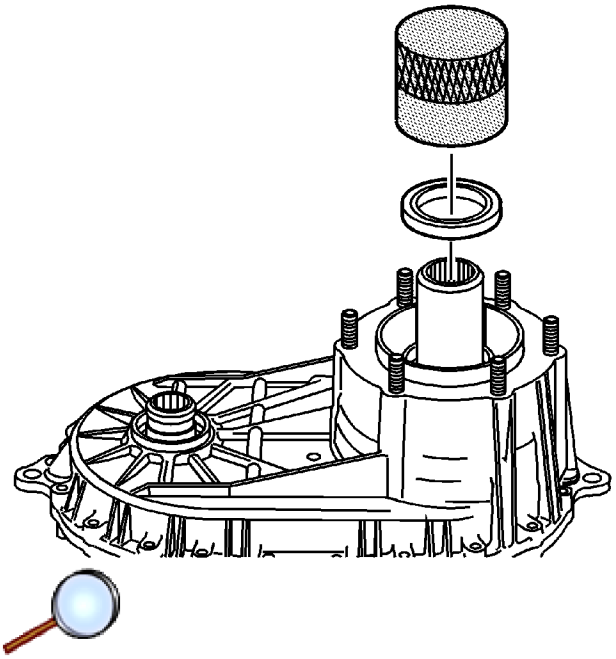
38. Install the vehicle speed sensor (VSS) with a NEW O-ring seal.
39. Tighten the VSS to **17 N·m (13 lb ft)**.



40. Apply pipe sealant GM P/N 12346004 (Canadian P/N 10953480) to the threads on the drain plug and fill plug.
41. Install the drain plug and tighten to **25 N·m (18 lb ft)**.
42. Install the fill plug and tighten to **25 N·m (18 lb ft)**.



43. Using the *J 43484* seal installer (2) and the *J 8092* driver (1), install the front output shaft seal.



44. Using the *J 45758* seal installer , install the front input shaft seal.
45. Remove the transfer case from the *J 45759* assembly fixture .