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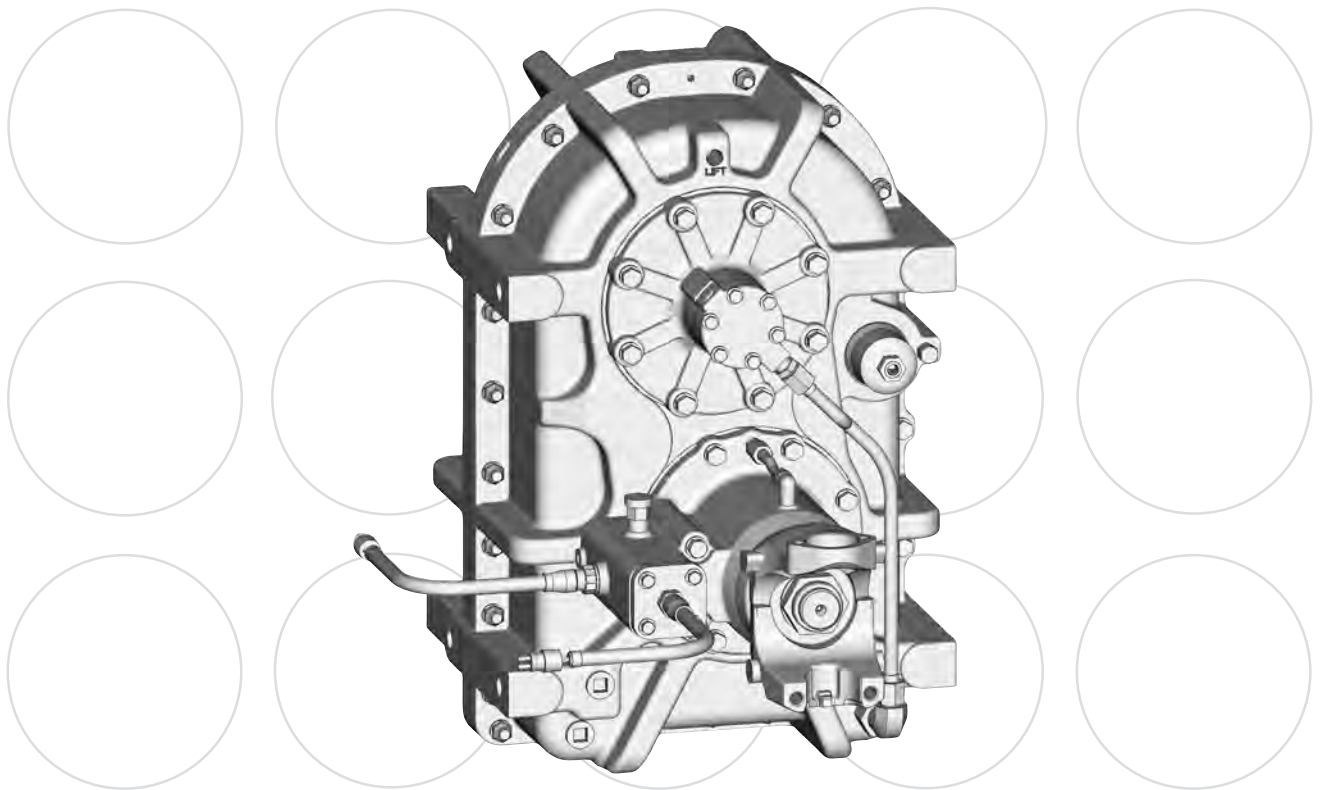


an **ArvinMeritor** brand

Maintenance Manual 3G

Transfer Case TG-2213 Series

Revised 12-04






Before You Begin

This manual provides maintenance and service procedures for Meritor's TG-2213RD two-shaft, two-speed transfer case. Before you begin procedures:

1. Read and understand all instructions and procedures before you begin to service components.
2. Read and observe all Caution and Warning safety alerts that precede instructions or procedures you will perform. These alerts help to avoid damage to components, serious personal injury, or both.
3. Follow your company's maintenance and service, installation, and diagnostics guidelines.
4. Use special tools when required to help avoid serious personal injury and damage to components.

Safety Alerts, Torque Symbol and Notes

 WARNING	A Warning alerts you to an instruction or procedure that you must follow exactly to avoid serious personal injury and damage to components.
 CAUTION	A Caution alerts you to an instruction or procedure that you must follow exactly to avoid damage to components.
	The torque symbol alerts you to tighten fasteners to a specified torque value.
NOTE:	A Note provides information or suggestions that help you correctly service a component.

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Additional Information

Call ArvinMeritor's Customer Service Center at 800-535-5560 to order the following publications.

- Off-Highway Product Specifications (Publication TP-8374)
- Lubrication (Maintenance Manual 1)
- Transfer Case Application Guidelines (TP-9441)
- Transfer Case Parts Book (PB-98144)
- Transmission Lubricant Specifications (TP-90114)
- Drivetrain Plus™ by ArvinMeritor Technical Electronic Library on CD. Features product and service information on most Meritor and Meritor WABCO products. \$20. Order TP-9853.

Key

Transfer cases manufactured through June 2001.....Shaded text

Transfer cases manufactured after June 2001.....Non-shaded text

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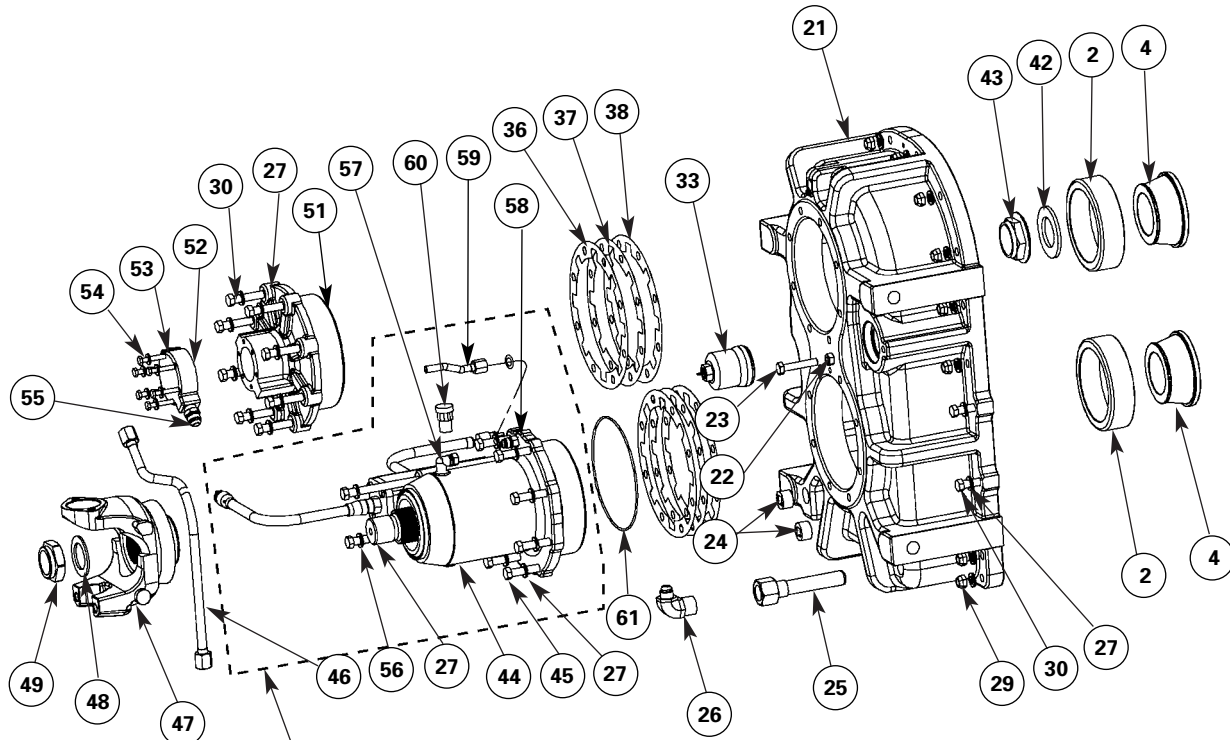
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Section 1 Exploded View

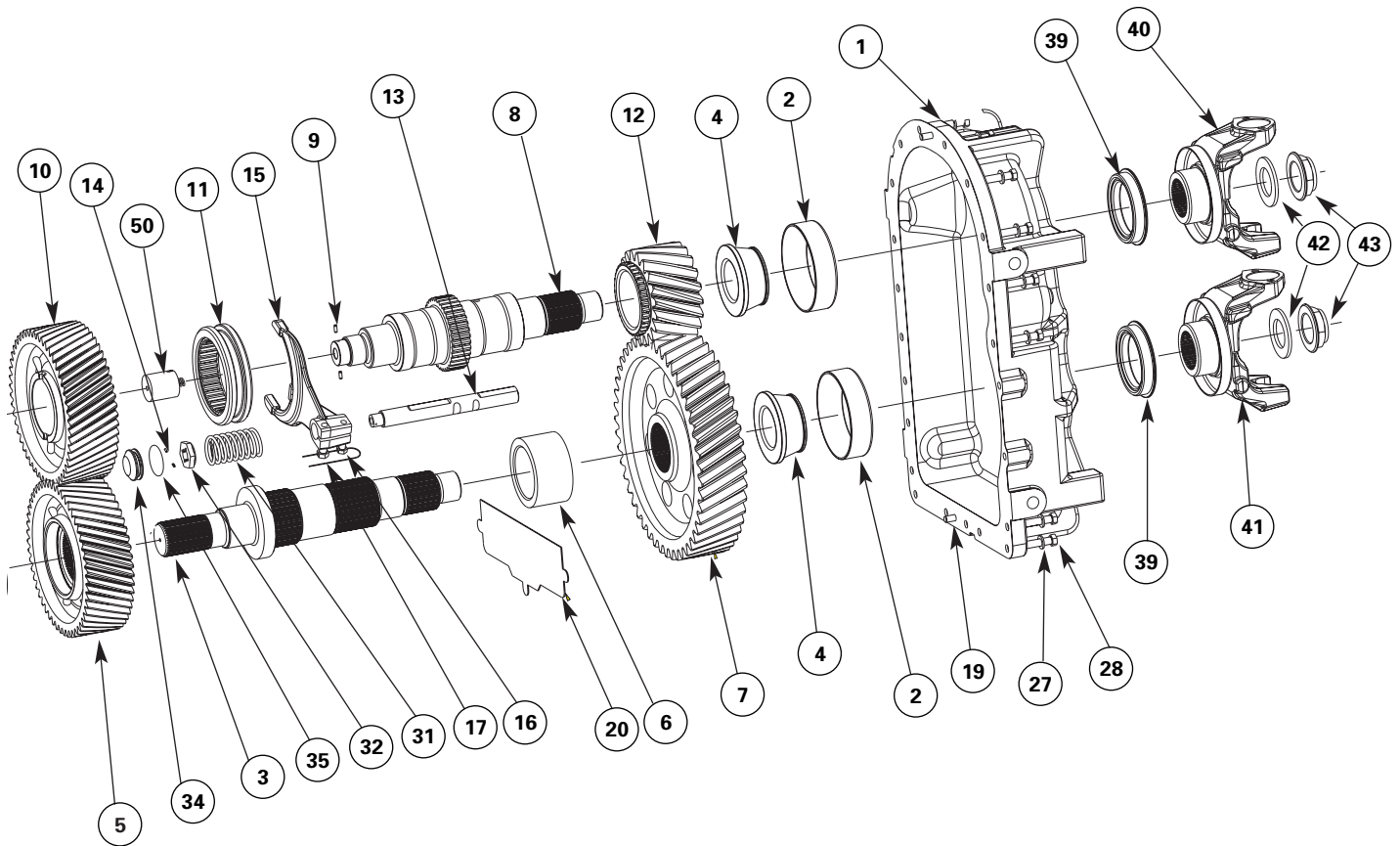


TG-2213RD Transfer Cases Manufactured After June 2001



For declutch parts
refer to pages 3 and 4.

Item	Description
1	Transfer Case Cover
2	Bearing
3	Output Shaft
4	Bearing
5	Driven Helical Gear
6	Spacer
7	Driven Helical Gear
8	Input Shaft
9	Coiled Pin
10	Drive Helical Gear
11	Clutch Collar
12	Helical Drive Gear
13	Shift Shaft
14	Pin
15	Shift Fork
16	Capscrew
17	Capscrew
19	Dowel
20	Oil Baffle Assembly
21	Transfer Case
22	Jam Nut
23	Hex Head Capscrew
24	Plug
25	Screen Fitting Assembly
26	Male Elbow
27	Flat Washer
28	Capscrew

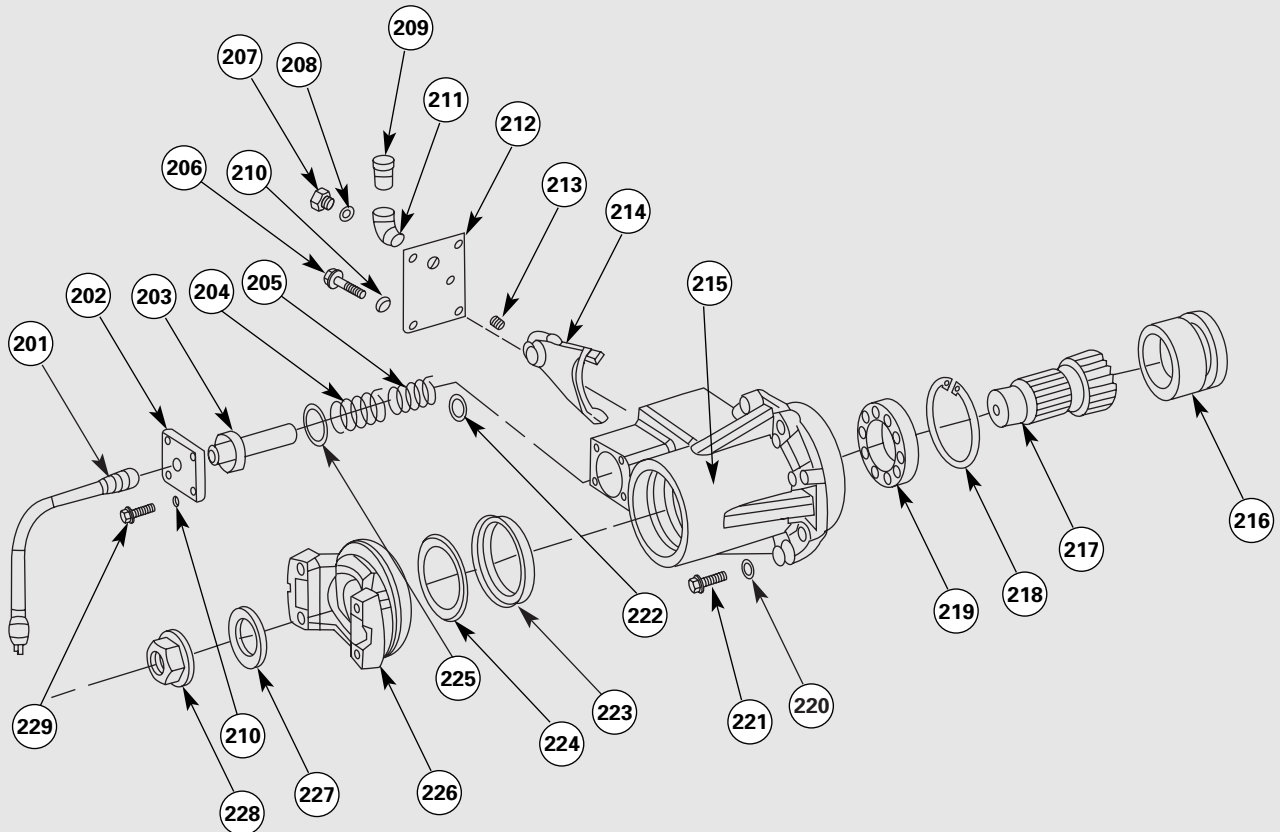


Item	Description	Item	Description
29	Lock Nut	46	Lube Tube Inlet Assembly
30	Capscrew	47	Companion Yoke Assembly
31	Spring	48	Flat Washer
32	Retainer Plate	49	Lock Nut
33	Shift Unit Cylinder	50	Pump Assembly
34	Shifter Piston	51	Bearing Cage
35	O-Ring	52	Pump Cover
36	Shim 0.010mm	53	Flat Washer
37	Shim 0.005mm	54	Capscrew
38	Shim 0.003mm	55	Connector Fitting
39	Oil Seal Assembly	56	Capscrew
40	Companion Yoke Assembly	57	Assembly Elbow
41	Companion Yoke Assembly	58	Connector Fitting
42	Flat Washer	59	Declutch Lube Tube
43	Lock Nut	60	Breather
44	Declutch Assembly	61	O-Ring
45	Capscrew		

Section 1 Exploded View

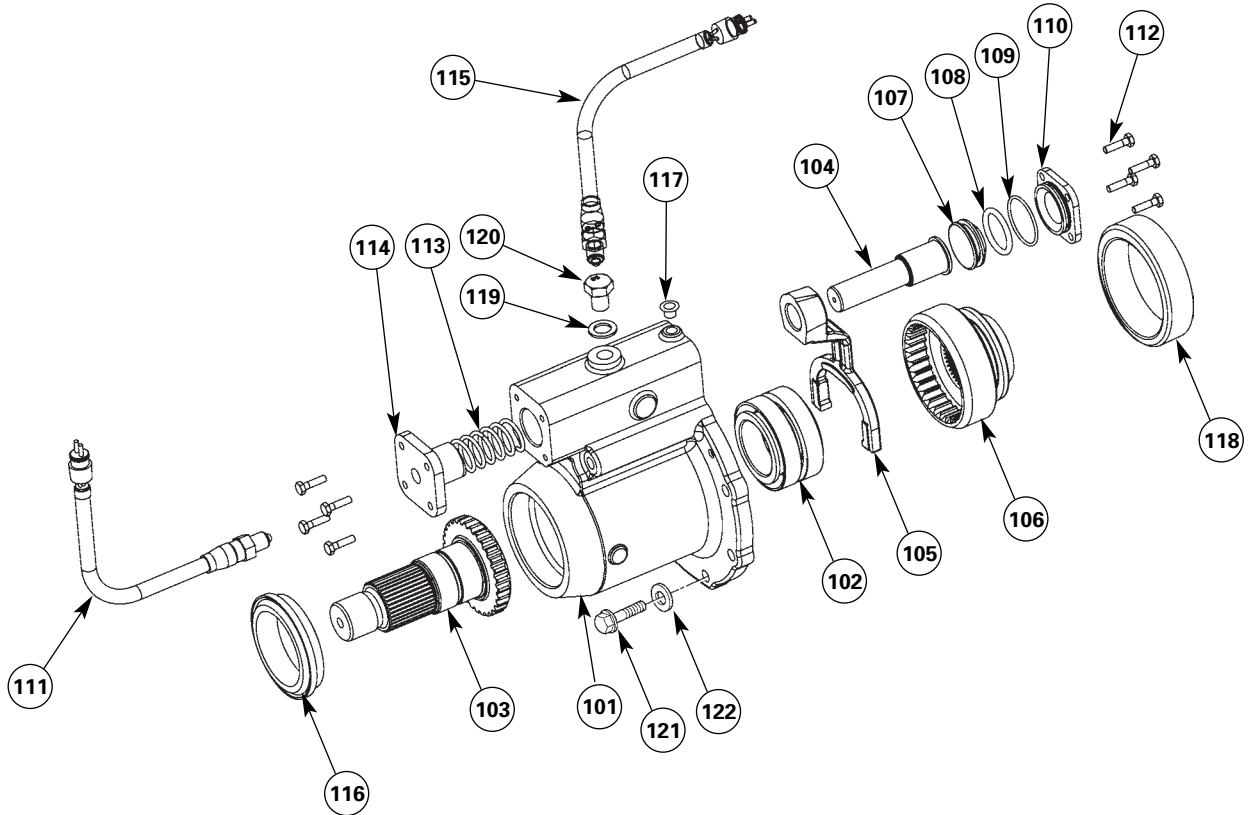


TG-2213RD Declutch – Transfer Cases Manufactured Through June 2001



Item	Description	Item	Description
201	Indicator Switch Assembly	216	Declutch Clutch Collar
202	Cover Plate	217	Declutch Shaft
203	Declutch Piston	218	Snap Ring
204	Declutch Spring	219	Ball Bearing
205	Declutch Spring	220	Housing Washer
206	Plate Capscrew	221	Housing Capscrew
207	Switch Plug	222	Declutch Quad Ring
208	Plug Washer	223	Oil Seal
209	Breather Assembly	224	POSE Seal – Before 8/98
210	Plate Washer	225	Piston Quad Ring
211	Breather Elbow	226	Yoke / Flange Assembly
212	Cover Plate	227	Yoke Washer
213	Shift Fork Set Screw	228	Lock Nut
214	Declutch Shift Fork	229	Plate Capscrew
215	Declutch Housing		

TG-2213RD Declutch – Transfer Cases Manufactured After June 2001



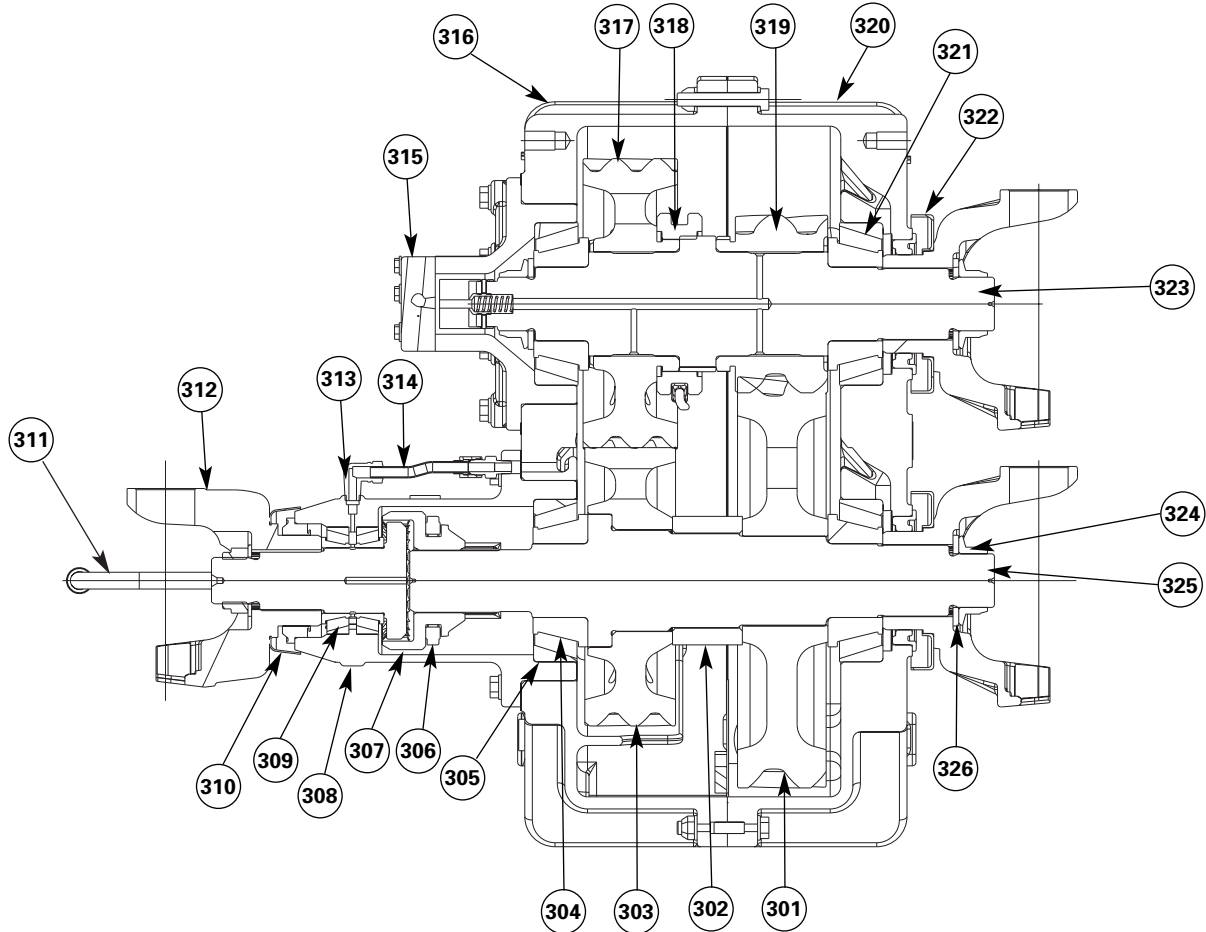
Item	Description	Item	Description
101	Bearing Cage	112	Capscrew
102	Bearing Assembly	113	Shifter Spring
103	PTO Shaft	114	Cap
104	Push Rod	115*	Declutch Switch Assembly
105	Shift Fork	116	Oil Seal Assembly
106	Differential Lockout Collar	117	Shipping Protector
107	Shifter Piston	119	Flat Washer
108	O-Ring	120	Special Screw
109	O-Ring	121	Capscrew
110	Cover Plate	122	Washer
111*	Switch Assembly		

*Optional

Section 1 Exploded View



TG-2213 Series Transfer Case Cross Section Transfer Cases Manufactured After June 2001



Item	Description	Item	Description
301	Driven Gear	314	Lubrication Tube
302	Spacer	315	Lubrication Pump Assembly
303	Driven Gear	316	Transfer Case
304	Bearing Cone	317	Drive Gear
305	Bearing Race	318	Clutch Collar
306	Shift Fork	319	Drive Gear
307	Differential Lockout Collar	320	Transfer Case Cover
308	Declutch Bearing Cage	321	Bearing
309	Declutch Bearing	322	Oil Seal
310	Declutch Oil Seal	323	Input Shaft
311	Declutch Switch Assembly	324	Lock Nut
312	Yoke Assembly	325	Output Shaft
313	Elbow	326	Washer

Description

Meritor’s Model TG-2213RD transfer case is a two-shaft, two-speed design with front and rear output shafts that provide a 13,000 lb-ft (17,626 N•m) input torque rating and up to 3,350 rpm input speed rating. See **Figure 2.1** for transfer cases manufactured through June 2001. See **Figure 2.2** for transfer cases manufactured after June 2001.

Ground gears are used for all ratios, along with high-capacity tapered roller bearings for exceptional service life. The TG-2213RD transfer case incorporates an extended combination of high and low ratio gears and includes an integral three-position, high-low range shift unit with a provision for a manual neutral position.

A 9.148-inch (232.36 mm) input shaft-to-output shaft distance permits the use of large swing diameter yokes (1760, 1810, 92N) on both input and output shafts. The shafts themselves are offset 1.25-inch (31.75 mm) to minimize driveline angles.

Meritor TG-2213 transfer cases use one of two styles of declutch assemblies. Transfer cases manufactured through June 2001 have declutch assemblies with large cover plates on top of the shifter housings. **Figure 2.1**. Transfer cases manufactured after June 2001 have declutch assemblies with shifter housing tops cast closed. **Figure 2.2**.

The case halves are made of stiff, vacuum-cast, lightweight aluminum and have deep, wide side-mounting pad holes. Front mounts are also available.

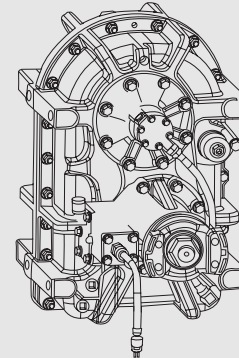
The TG-2213RD transfer case uses an advanced lubrication system with a bi-directional forced lube pump, sump magnets, three-piece breather and internal lube baffles. It comes filled with synthetic lubricant, and there is no initial (break-in) lube change requirement. Recommended oil change intervals are also extended.

Key

Transfer cases manufactured through June 2001.....Shaded text

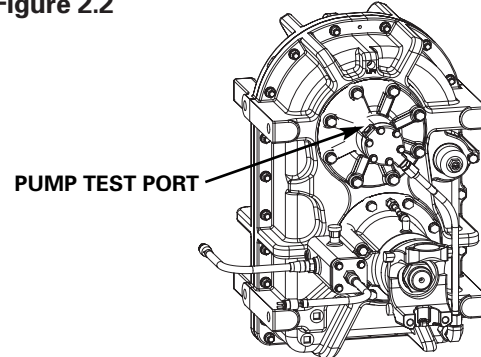
Transfer cases manufactured after June 2001.....Non-shaded text

Figure 2.1



Transfer cases manufactured through June 2001Shaded text

Figure 2.2

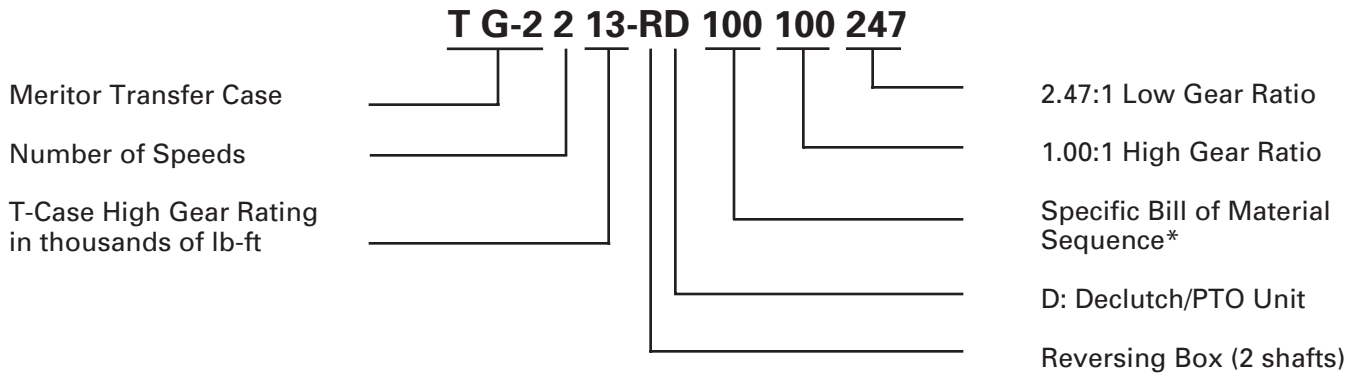


Transfer cases manufactured after June 2001Non-shaded text

Section 2 Introduction



Identification



* If a transfer case contains a combination of options, use the first designation that the transfer case matches from the following given order:

- Plain in/out transfer case (No ID letter designation)
- PD – Proportional Differential
- D – Declutch/PTO Unit

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Removal Transfer Case

WARNING

Keep the engine level when you remove the transfer case from the vehicle. If one end of the vehicle is raised without applying air pressure to the proportional differential, the engine will not remain stable. Serious personal injury and damage to components can result.

Block the wheels to prevent the vehicle from moving. Support the vehicle with safety stands. Do not work under a vehicle only supported by jacks. Jacks can slip or fall over and cause serious personal injury.

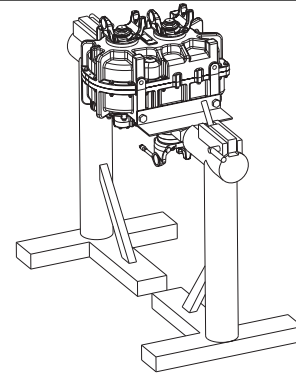
1. The vehicle must be on a level surface.
2. Place blocks under the wheels not being raised to keep the vehicle from moving.
3. Raise the vehicle so that the area to be serviced is off the ground. Support the vehicle with safety stands.
4. Remove the drain plug from the bottom of the transfer case and the proportional differential (if equipped). Drain the lubricant from the transfer case. Refer to Drain the Oil, below.
5. Disconnect the drivelines from the input and output yokes or flanges of the transfer case.
6. Disconnect the air line to the declutch.
7. Disconnect the harness for the indicator switch wires.
8. Use a hydraulic roller jack to support the transfer case. Remove the mounting bolts that hold the case to the vehicle.
9. Carefully remove the transfer case with the hydraulic jack.

CAUTION

Close or cover all openings, including the breather and oil/level drain, before you steam clean the outside of the transfer case. Steam can damage components.

10. Close or cover all openings before steam cleaning. These openings include the breather and oil/level drain.
11. Steam clean the outside of the transfer case to remove heavy amounts of dirt.
12. Attach angle iron brackets with bolts in the mounting holes of the case half of the transfer case assembly. **Figure 3.1.**

Figure 3.1



13. If necessary, install lifting bolts into both designated holes of the case halves. The lifting bolts permit easier lifting of the transfer case.

Section 3 Removal



WARNING

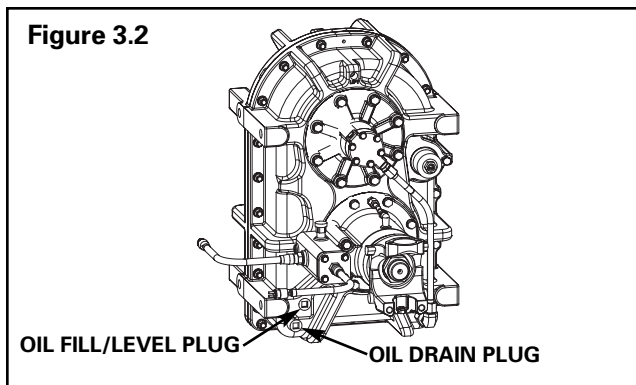
Support the transfer case with a lifting strap before you mount the transfer case into the repair stand. A transfer case that is not supported correctly can fall. Serious personal injury and damage to components can result.


To avoid serious personal injury and possible damage to components, be very careful when using lifting devices.

- Inspect to make sure that the lifting straps are not damaged.
 - Do not subject lifting straps to any shock or drop loading.
 - The lifting bolt threads must be fully engaged.
14. Use a lifting device attached to the lifting bolts to lift the transfer case and place it on a repair stand. **Figure 3.1.**
 15. Use the angle iron brackets to securely mount the transfer case in a repair stand.

Drain the Oil

1. Place a large container under the transfer case.
2. Remove the drain plug from the bottom of the transfer case. Drain and discard the oil. Clean the plug. **Figure 3.2.**



3. Install and tighten the drain plug to 35-50 lb-ft (47-68 N•m). **Figure 3.2.** 

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

To avoid serious personal injury and possible damage to components, be very careful when using lifting devices.

- Inspect to make sure that the lifting straps are not damaged.
- Do not subject lifting straps to any shock or drop loading.
- The lifting bolt threads must be fully engaged.
- The case half must be securely fastened to the stand. If the case half is not securely fastened to the stand, serious personal injury and damage to the transfer case could result.

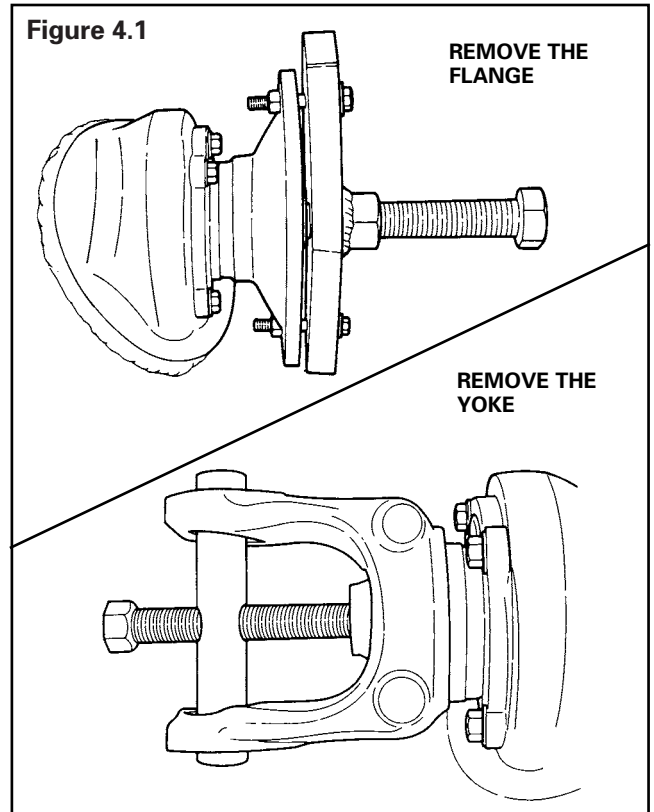
Observe all warnings and cautions provided by the press manufacturer to avoid damage to components and serious personal injury. Parts can fall from the press and cause serious personal injury and damage to components.

Disassembly


Yokes from the Input and Output Shafts

1. Remove the transfer case from the vehicle as described in Section 3.
2. Rotate the transfer case in the repair stand so the cover half with the yokes faces UPWARD.

3. Remove the yoke nuts and washers from their shafts. **Figure 4.1.**



NOTE: Do not remove the oil slinger from the yoke or flange unless it is damaged. Replace a damaged oil slinger.

4. If possible, measure the break-away torques of the yoke nuts.
 - If the break-away torques are not between **600-800 lb-ft (813-1085 N•m)**: Refer to Section 5 and check for damaged parts. 
5. Remove the yokes from their shafts. Slide the yokes off the shaft splines. If necessary, use a yoke puller. **Figure 4.1.**

Section 4 Disassembly

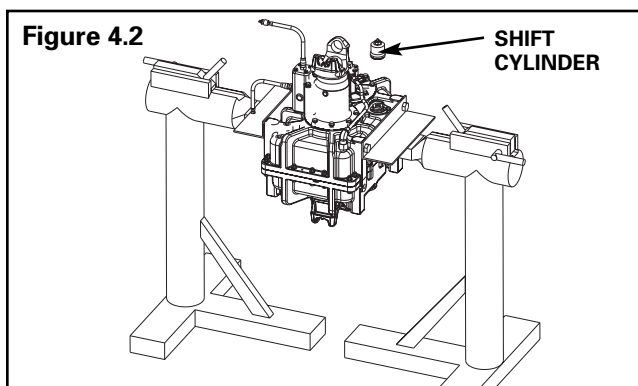


Measure and Record the Bearing End Play

1. Attach a dial indicator to a top rib on the cover half nearest the shaft being measured.
2. Thread the yoke nut partially onto the shaft to use as a pry location.
3. Place a ball bearing on the turning center of the shaft. Place the dial indicator arm on top of the ball.
4. Rotate the shaft as many times as necessary so the dial indicator reading does not change. Set the dial indicator to zero.
5. Pry up on the shaft under the yoke nut to seat the shaft in the VERTICAL direction. Record the deflection of the dial indicator. Repeat the procedure to confirm the results.
6. Repeat the procedure on the other shaft.
7. If either end play reading is not between 0.0005-inch–0.003-inch (0.0127-0.0762 mm), check for and replace damaged parts.

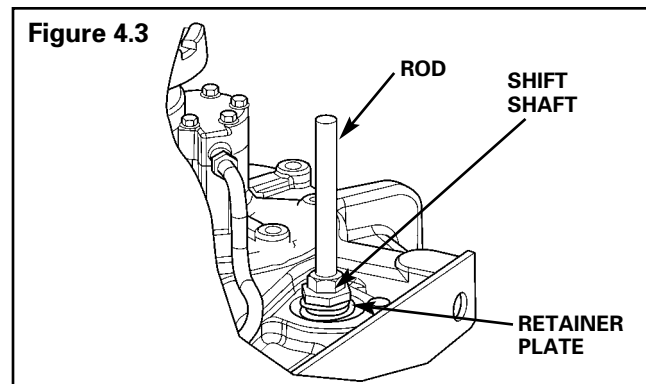
Uncage the High/Low Range Shifting Spring

1. Rotate the transfer case in the stand so the declutch faces UPWARD. **Figure 4.2.**



2. Unscrew and remove the shift cylinder subassembly. **Figure 4.2.**

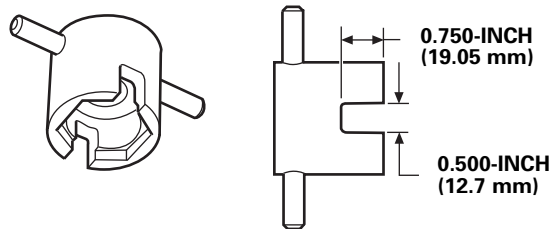
3. Thread a 7/16-inch-14 threaded rod approximately 8-inches (203 mm) long into the end of the shift shaft. The shift shaft will protrude out of the vacant shift cylinder bore. **Figure 4.3.**



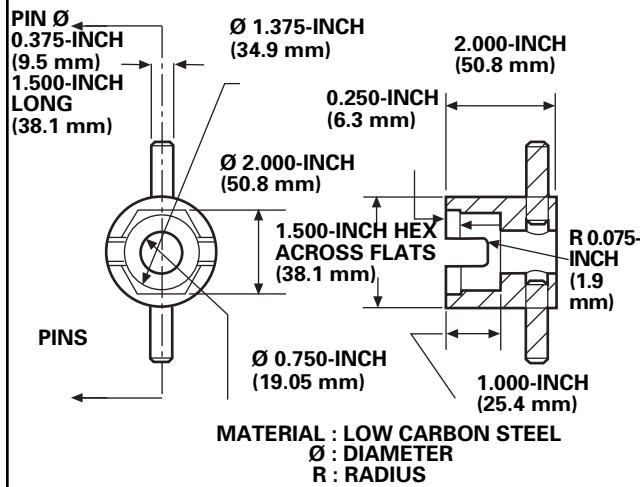
4. Slide the special Meritor spring caging tool or pipe over the end of the threaded rod. Hold the rod in place with a 7/16-inch-14 nut. **Figure 4.4.**

- **If the special Meritor spring caging tool is not available:** Use a piece of pipe 1-1/8-inches (29 mm) minimum inner diameter, 1-1/2-inches (38 mm) outer diameter, and approximately 1/2-inch (13 mm) in length.

Figure 4.4 SPRING CAGING TOOL



PINS



5. Tighten down the spring caging tool or pipe with the nut to depress the retainer plate approximately 1/4-inch (6.35 mm).

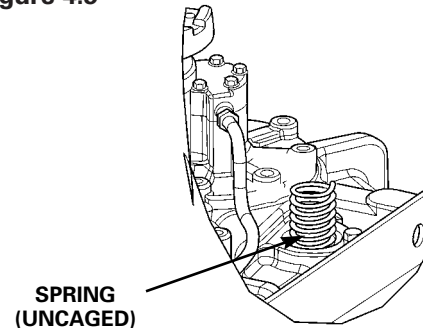
WARNING

If the pins are not aligned with the holes on the retainer plate, the retainer plate may eject off the shaft and cause serious personal injury.

6. Rotate the retainer plate 90 degrees, approximately 1/4 turn, to align the retaining pins on the shift shaft with the holes on the retainer plate.

7. Slowly de-adjust (back-off) the nut until the spring is completely uncaged. Remove the threaded rod, tool and spring. **Figure 4.5.**

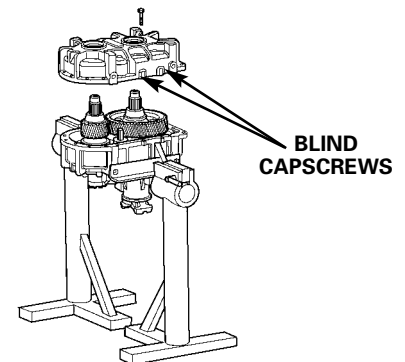
Figure 4.5



Transfer Case Cover

1. Remove the two blind cap screws and washers from the case half flange. **Figure 4.6.**

Figure 4.6



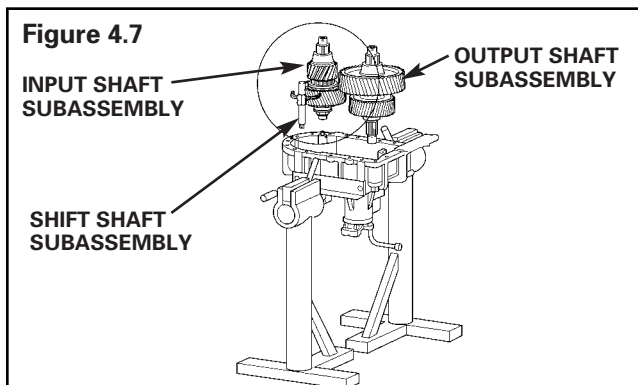
2. Rotate the transfer case assembly in the stand so the cover half faces UPWARD.
3. Remove the remaining cap screws, washers and nuts from the flange cover.
4. Separate the flange cover halves with a pry bar.
5. Use a lifting bolt and lifting strap to lift and remove the cover half subassembly.

Section 4 Disassembly



Shafts

1. Remove the oil baffle from between the case half and low ratio gear.
2. Thread a lifting nut onto the end of the output shaft. If a lifting nut is not available, use a lifting strap.
3. Use the lifting nut and overhead crane to remove the output shaft subassembly. **Figure 4.7.**



4. Thread a lifting nut onto the end of the input shaft subassembly.

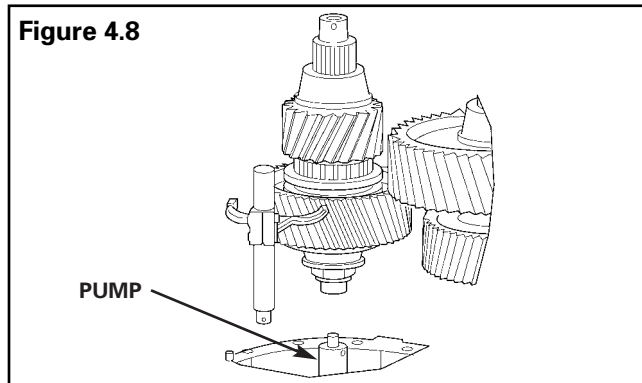
CAUTION

Remove the shift shaft and input shaft at the same time to prevent damage to the transfer case.

Check loose parts inside the pump before you remove the input shaft subassembly. Loose parts can fall to the floor when you remove the subassembly with the overhead crane. Damage to components can result.

5. Remove the shift shaft subassembly by hand and at the same time, carefully raise the input shaft subassembly with the overhead crane. Ensure that loose parts inside the pump do not fall to the floor when you remove the input shaft subassembly with the overhead crane.

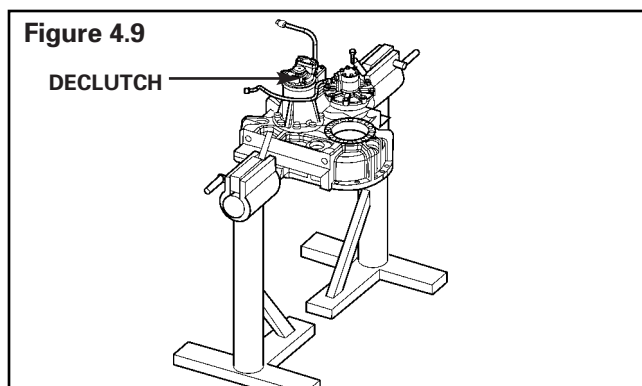
6. Remove the pump from the input shaft. Press down on the pump slightly and rotate it to release the bayonet hooks from the retaining pins. **Figure 4.8.**



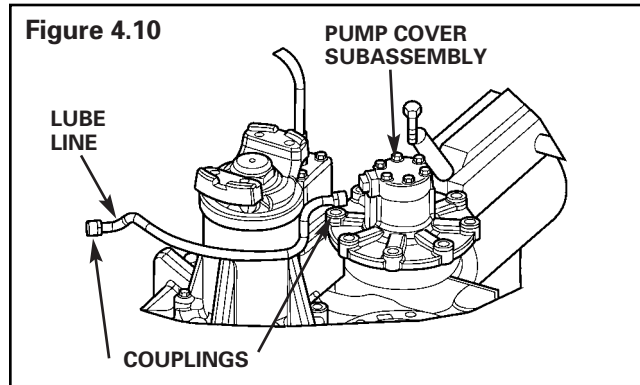
7. Store all pump parts in a clean container to prevent contamination.
8. Reach into the case half and remove the clutch collar from the declutch shaft.

Pump Cover and Declutch

1. Rotate the case half in the stand so the declutch faces UPWARD. **Figure 4.9.**



- Loosen both couplings from the ends of the lubrication line. Remove the lubrication line. **Figure 4.10.**



- Remove the bolts and washers from the pump cover subassembly. Lift the pump cover subassembly off the case half.
- Remove the pump cover shims.

NOTE: Keep the shims together and mark them as pump cover shims for easy reassembly.

Declutch/PTO

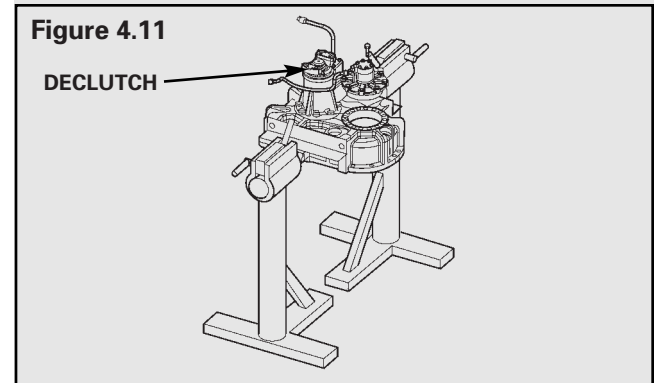
Meritor TG-2213 transfer cases use one of two styles of declutch assemblies. Use the required disassembly procedure for your declutch style.

- Transfer cases manufactured through June 2001 have declutch assemblies with large cover plates on top of the shifter housings.
- Transfer cases manufactured after June 2001 have declutch assemblies with shifter housing tops cast closed.

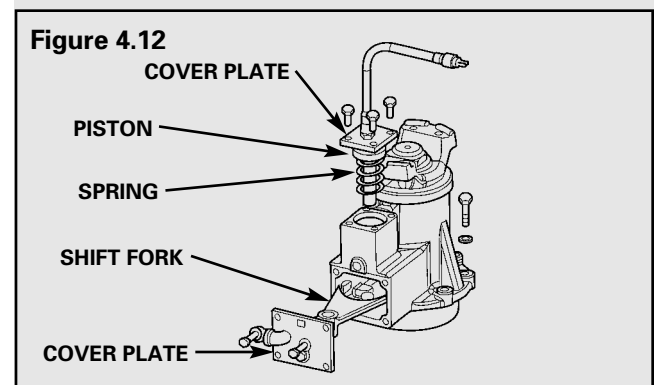
Transfer Cases Manufactured Through June 2001

See **Figure 4.11** or Exploded View in Section 1.

- Rotate the case half in the stand so the declutch faces UPWARD. **Figure 4.11.**



- Remove both cover plates from the declutch housing. **Figure 4.12.**

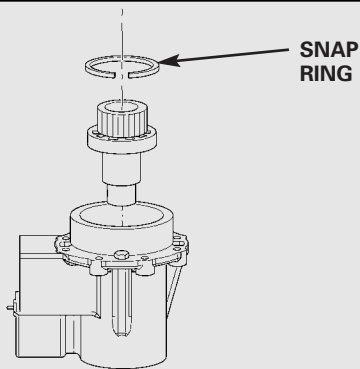


Section 4 Disassembly



3. Remove both shifting springs from inside the shift bore.
4. Remove the retaining set screw from the shift fork.
5. Slide the piston shaft through the fork and out of the shaft bore.
6. Remove the shift fork out of the large cover plate opening.
7. Remove the bolts and washers from the declutch. Lift the declutch subassembly off the case half.
8. Remove the declutch shims. Keep the shims together and mark them for easy reassembly.
9. Remove the yoke nut and washer from the end of the declutch shaft. **Figure 4.13.**

Figure 4.13



10. Slide the yoke off the shaft spline. If necessary, use a yoke puller.
11. Use a cup puller to remove the cup from the declutch housing.
12. Remove the snap ring from inside the housing.

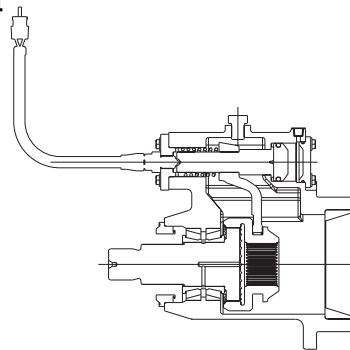
WARNING

Use a brass or leather mallet for assembly and disassembly procedures. Do not hit steel parts with a steel hammer. Pieces of a part can break off and cause serious personal injury.

13. Slide the declutch shaft and bearing out of the declutch bore. If necessary, use a brass or leather mallet to tap the end of the shaft.

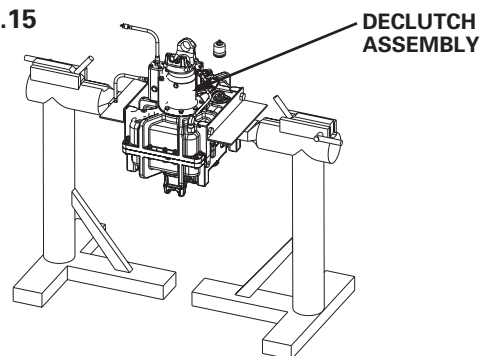
Transfer Cases Manufactured After June 2001

Figure 4.14



1. Rotate the transfer case in the repair stand so that the declutch assembly is facing UPWARD. **Figure 4.15.**

Figure 4.15



2. Remove the yoke nut, washer and yoke. If necessary, use a yoke puller.
3. Remove the declutch indicator switch from the shift plate, if so equipped.
4. Remove the cage mounting capscrews and washers from the declutch. Lift the declutch assembly off of the transfer case.
5. Disassemble the declutch cap by removing the four screws from the declutch.
6. Remove the capscrews from the cover of the declutch piston. Remove the cover.
7. Remove the declutch piston push rod and the return spring.

8. Remove the O-ring seal from the declutch piston. Discard the seal. Install a new seal at assembly.
9. Remove the O-ring seal on the cover and replace it.
10. Remove the shift fork and clutch collar.

WARNING

Use caution when you remove the declutch cap. The cap is spring loaded. Severe personal injury can result.

11. Carefully remove the spring-loaded declutch cap. To remove the declutch cap, turn each bolt a few turns at a time until all bolts can be removed at once.
12. Remove the oil and dirt seals from the bearing cage assembly.
13. Press the shaft out of the bearing cage.
14. Remove the bearing assembly.
15. Remove the bearing cups as a unit with the bearing spacer by pressing the cups out of the bearing cage. Do not separate these parts. They are a matched set.

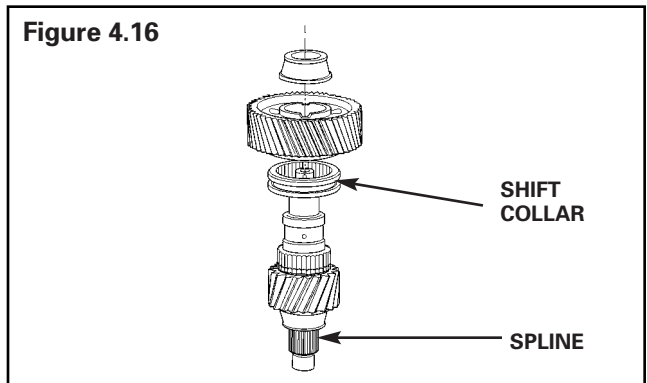
Input Shaft

1. Remove the nut and washer from the end of the input shaft.

WARNING

Observe all warnings and cautions provided by the press manufacturer to avoid damage to components and serious personal injury. Parts can fall from the press and cause serious personal injury and damage to components.

2. Place the input shaft subassembly into a hydraulic press with the splined end facing **DOWNWARD**. **Figure 4.16**.



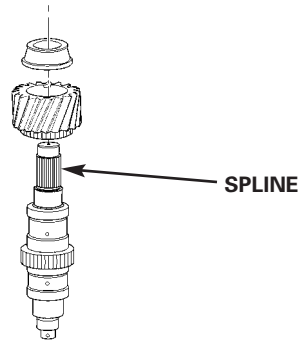
3. Support the large gear and press on the end of the shaft. Fully press both the gear and bearing cone off the shaft.
4. Identify the front input bearing for easy reassembly.
5. Slide the shift collar off the input shaft.

Section 4 Disassembly



6. Place the input shaft back onto the press with the splined end facing UPWARD. **Figure 4.17.**

Figure 4.17

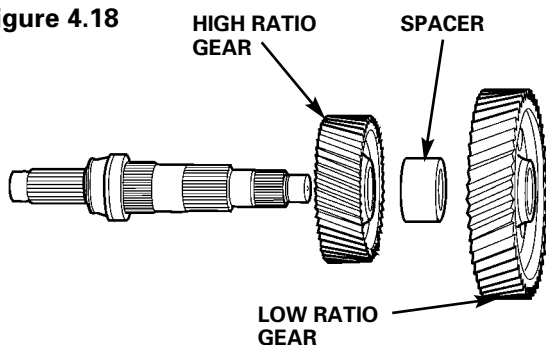


7. Support the gear and press on the end of the shaft. Fully press the shaft through the bearing cone and gear.
8. Identify the rear input bearing for easy reassembly.

Output Shaft

1. Place the output shaft subassembly into the press with the large low ratio gear facing UPWARD.
2. Support the large gear and press the shaft through the bearing cone and large gear. **Figure 4.18.**

Figure 4.18



3. Identify the rear output bearing for easy reassembly.
4. Slide the gear spacer off the shaft.

5. Place the output shaft back into the press with the remaining high ratio gear facing UPWARD as in Step 1.
6. Support the remaining gear and press the shaft through the gear.

Transfer Case Cover

1. Remove the seals from the cover half and discard.
2. Place a cup puller into the slots of the bearing cups and remove the bearing cups. If the cups are difficult to remove from the case, heat the cover in a parts oven to a maximum of 250 degrees F (121.1 degrees C) and repeat this procedure.
3. Mark the cups with their proper location for easy reassembly.

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Clean, Dry and Inspect Parts

Clean Ground or Polished Parts

WARNING

Solvent cleaners can be flammable, poisonous and cause burns. Examples of solvent cleaners are carbon tetrachloride, emulsion-type cleaners and petroleum-based cleaners. To avoid serious personal injury when you use solvent cleaners, you must carefully follow the manufacturer's product instructions and these procedures:

- Wear safe eye protection.
- Wear clothing that protects your skin.
- Work in a well-ventilated area.
- Do not use gasoline or solvents that contain gasoline. Gasoline can explode.
- You must use hot solution tanks or alkaline solutions correctly. Follow the manufacturer's instructions carefully.

CAUTION

Use only solvent cleaners to clean ground or polished metal parts. Hot solution tanks or water and alkaline solutions will damage these parts. Isopropyl alcohol, kerosene or diesel fuel can be used for this purpose.

If required, use a knife to remove gasket material from parts. Be careful not to damage the ground or polished surfaces.

1. Use a cleaning solvent, kerosene or diesel fuel, to clean ground or polished parts or surfaces. NEVER USE GASOLINE.

2. Remove gasket material from parts. Take care not to damage ground surfaces.
3. DO NOT clean ground or polished parts in a hot solution tank, water, steam or alkaline solution.

Clean Parts with a Rough Finish

1. Use a cleaning solvent or a hot solution tank with a weak alkaline solution to clean parts with a rough finish.
2. Leave parts in the hot solution tank until they are completely cleaned and heated. When the parts are clean, remove them from the tank.
3. Wash the parts with water until you completely remove the alkaline solution.

Clean Transfer Case Assemblies

CAUTION

Close or cover all openings before steam cleaning. Steam can cause component damage.

1. Steam clean the transfer case on the outside to remove heavy amounts of dirt.
2. Before steam cleaning the transfer case, close or put a cover over all openings in the case.

Section 5 Prepare Parts for Assembly



CAUTION

Dry bearings with clean paper or rags. Do not use compressed air, which can cause abrasive particles to contaminate the bearings. Damage to components and reduced bearing life can result.

Dry Cleaned Parts

Immediately after cleaning, use clean paper, rags or compressed air to dry parts.

Prevent Corrosion

NOTE: Parts must be clean and dry before you lubricate them.

- **If you assemble the parts immediately after you clean them:** Lubricate the clean, dry parts with grease to prevent corrosion.
- **If you store the parts after you clean them:** Apply a corrosion-preventive material to all machined surfaces. Store the parts in a special paper or other material that prevents corrosion.

Inspect Parts

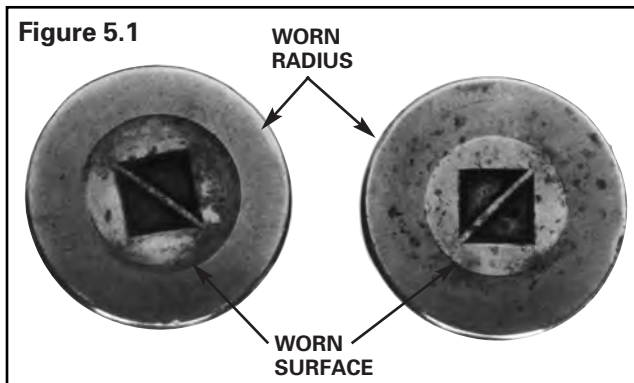
It is very important to inspect all parts carefully and completely before the transfer case is assembled. Check all parts for wear and stress. Replace all damaged parts before assembly.

Tapered Roller Bearings

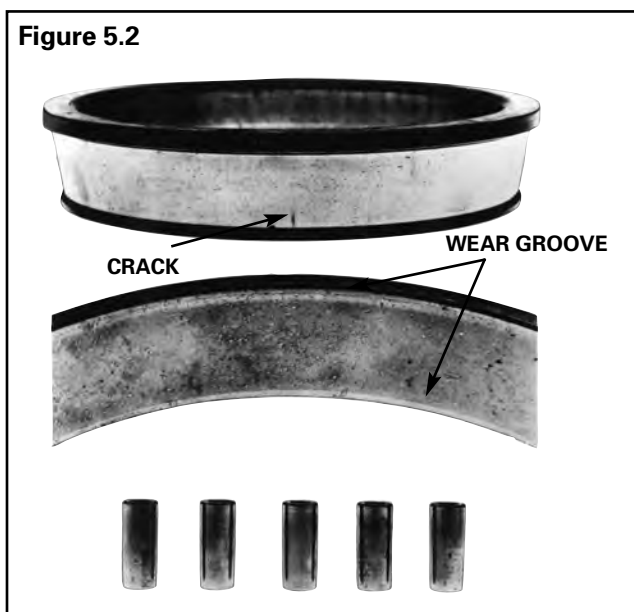
Inspect the tapered roller bearings. Inspect the cup, cone, rollers and cage of all tapered roller bearings in the assembly. If any of the following conditions exist, replace the bearing.

- The center of the large diameter end of the rollers is worn level with or below the outer surface.

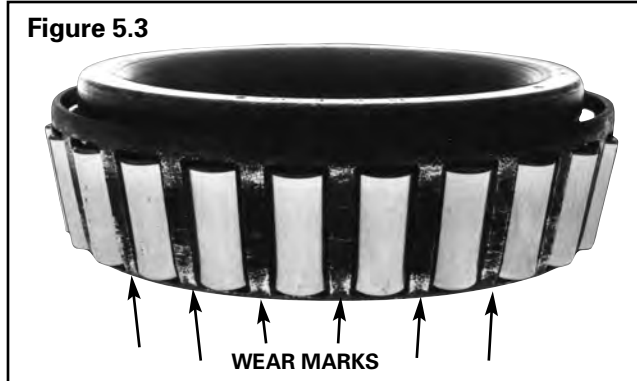
- The radius at the large diameters end of the rollers is worn to a sharp edge. **Figure 5.1.**



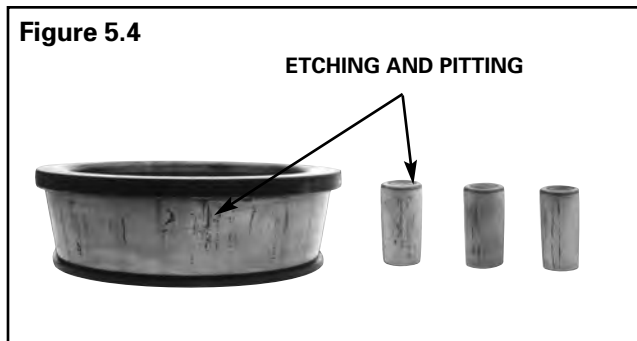
- A visible roller groove is worn in the inner race surfaces of the cup or cone. The groove can be seen at the small or large diameter end of both parts.
- Deep cracks or breaks appear in the surfaces of the cup, cone inner race or rollers. **Figure 5.2.**



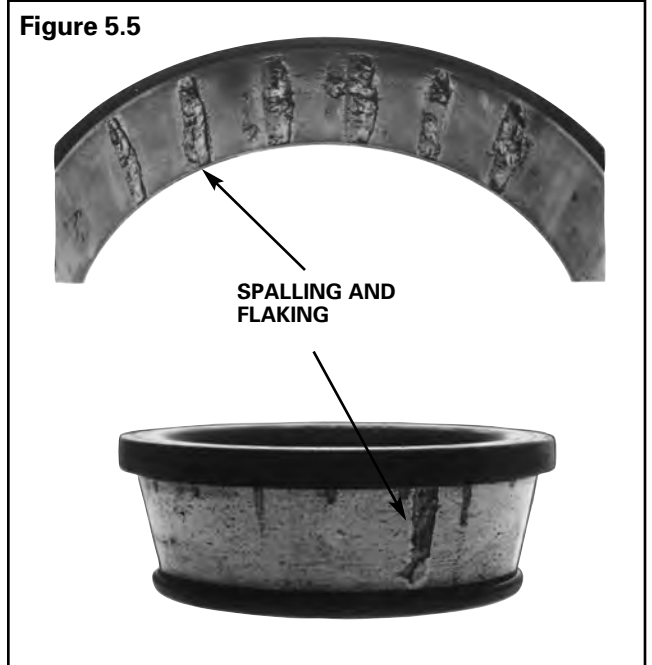
- Bright wear marks appear on the outer surface of the roller cage. **Figure 5.3.**



- The rollers and surfaces of the cup and cone inner race that touch the rollers are damaged. **Figure 5.4.**



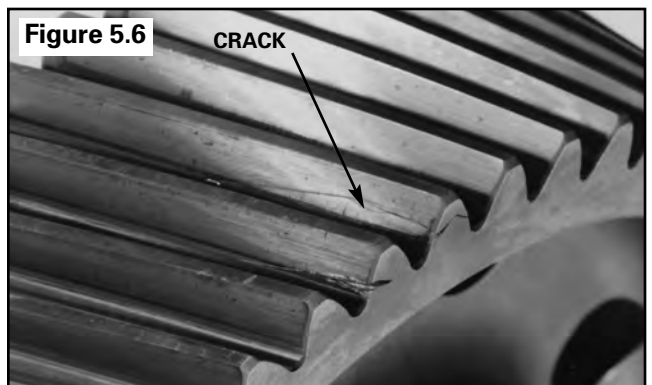
- The cup and cone inner race surfaces that touch the roller are damaged. **Figure 5.5.**



Helical Gears

Inspect the helical gear teeth, splines and journals. If any of the following conditions exist, replace the gear:

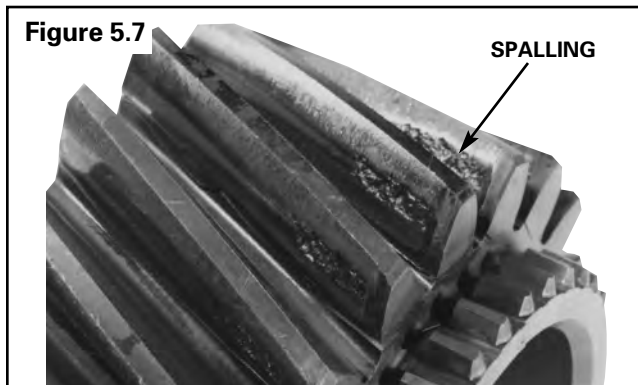
- Crack in the root of a tooth or along the tooth flank. **Figure 5.6.**



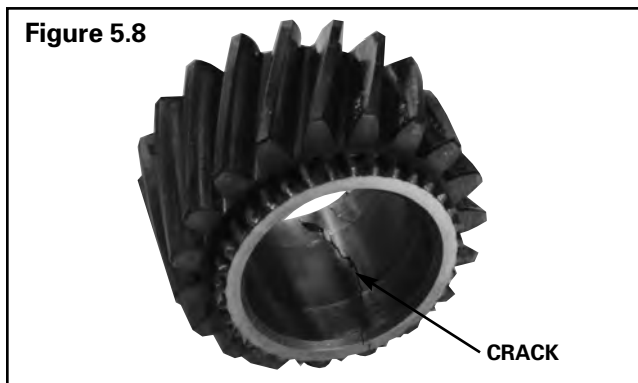
Section 5 Prepare Parts for Assembly



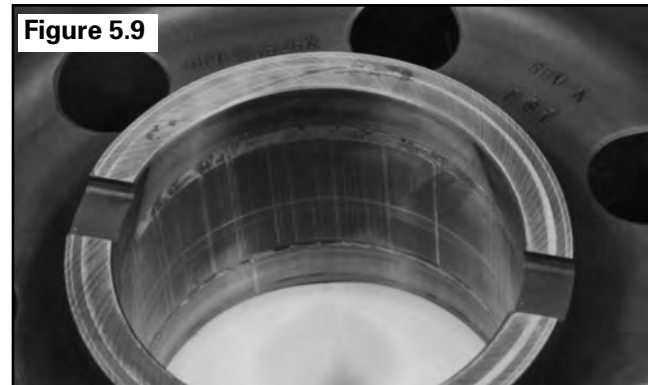
- Severe scoring or fretting on the surface of a tooth. Gears with scoring and/or fretting on the teeth, but without cracks, may continue to operate satisfactorily with higher noise. **Figure 5.7.**



- Cracks along the internal journal of the input gears. **Figure 5.8.**



- Deep gouges or metal transfer along the input gear journals. **Figure 5.9.**

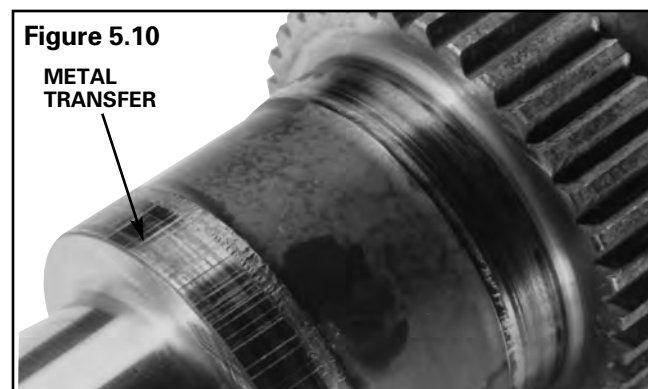


- Chipped or severely worn shifting splines on the input gears.
- Chipped or cracked splines on the output gears.

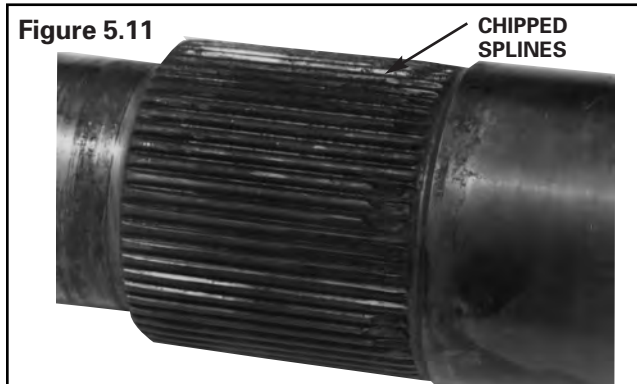
Shafts

Inspect the input and output shafts for damage to the gear journals, shifting splines, threads, and gear retaining splines. If any of the following conditions exist, replace the shaft.

- Deep gouges or metal transfer along the input shaft journals. **Figure 5.10.**



- Chipped or worn shifting splines on the input shaft.
- Chipped or cracked splines on the output shaft.
Figure 5.11.



- Cracks along the yoke splines, bearing journal abutments, or cross-drilled holes. Magnaflux may be necessary to see small cracks.

Declutch Components

Inspect the declutch housing, shaft, needle bearing, ball bearing, shift collar, shift fork, and sensors for damage. If any of the following conditions exist, replace the component.

- Cracks in the housing.
- Cracks along the shaft yoke spline or ball bearing abutment. Magnaflux may be necessary.
- Chipped or cracked shifting splines on the shift collar or shaft.
- The rollers of the needle bearing or ball bearing do not roll easily or lack lubrication. The raceway is cracked or dented.
- Cracked or missing tangs on the shift fork arms.
- The sensor ball sticks or does not return to its resting position. The sensors do not complete a circuit when tested with a volt-ohm meter (VOM).

High-Low Shifting Components

Inspect the shift collar, shift fork, shift shaft, retaining pins, shift cylinder, piston, O-ring, and case halves for damage. If any of the following conditions exist, replace or repair the component.

- Cracked or missing tangs on the shift fork arms.
- Chipped or cracked shifting splines on the shift collar.
- Cracks or deep gouges on the shift shaft.
- The retaining pins in the shift shaft are not 0.100-inch (2.54 mm) above the shaft diameter. Remove and set to the correct position.
- Gouges on the inside of the shift cylinder.
- Torn or feathered areas on the O-ring.
- Deep gouges in the shifting bores of the case halves.

Section 5

Prepare Parts for Assembly



Oil and Lubrication System

The lubrication system is extremely important to the performance of the transfer case. Inspect all parts closely for excessive wear or damage. Perform the following checks:

- Inspect the oil for metal shavings, dirt and consistency. Perform an analysis if the oil appears contaminated.
- Check the magnets for metal shavings. A small amount of metal shavings is normal. However, excessive build-up indicates gear and bearing damage. Thoroughly remove all metal shavings from the magnets. The magnets must be firmly fastened to the case.
- Check the sump screen. Remove any material that may restrict oil flow through the mesh.
- Inspect the seals closely. Look for nicks and tears on all sealing lips. Any damage is likely to result in a seal leak.
- Check the pump for easy rotation. If the internal gear does not spin easily or jams when rotating the crescent plate, replace the pump.
- Check the oil line for damage. Replace if it is dented or kinked.
- Make sure the pump drive pins are 0.063-inch (1.6 mm) above the diameter of the shaft. Remove and set to the correct position if necessary.

Transfer Case Halves

Inspect the case halves for cracks and internal wear. If any of the following conditions exist, replace the damaged parts:

- A crack in either case half
- Deep gouges in the shifting bores.

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Take care when you use silicone gasket materials to avoid serious personal injury. Follow the manufacturer's instructions to prevent irritation to the eyes and skin.

Small amounts of acid vapor are present when applying silicone gasket material. To prevent possible serious personal injury, make sure there is good ventilation in the work area. If the silicone gasket material gets in your eyes, flush your eyes with water for 15 minutes. Have your eyes checked by a doctor.

Take care when using Loctite® to avoid serious personal injury. Follow the manufacturer's instructions to prevent irritation to the eyes and skin. If Loctite gets into your eyes, flush them with water for 15 minutes. Have your eyes checked by a doctor as soon as possible.

Observe all warnings and cautions provided by the press manufacturer concerning press operation to avoid serious personal injury and possible damage to components.

To avoid serious personal injury and possible damage to components, be very careful when using lifting devices.

- Inspect to make sure that the lifting straps are not damaged.
- Do not subject lifting straps to any shock or drop loading.
- The lifting bolt threads must be fully engaged.
- The case half must be securely fastened to the stand. If the case half is not securely fastened to the stand, serious personal injury and damage to the transfer case could result.

When you apply some silicone gasket materials, small amounts of acid vapor are present. To prevent possible serious injury, the work area must be well-ventilated. If the silicone gasket material gets into your eyes, flush them with water for 15 minutes. Have your eyes checked by a doctor as soon as possible.

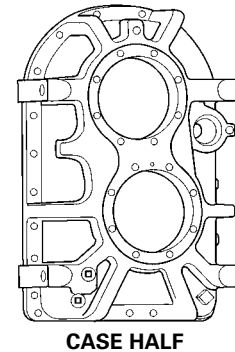
Assembly

Transfer Case Subassemblies

1. Clean all designated parts. Refer to Section 5.

Case Half

Figure 6.1




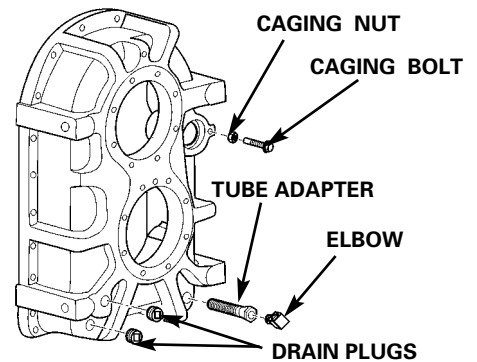

2. Thread the caging nut onto the caging bolt as far as possible. Screw the nut and the bolt assembly into the case half. Tighten the bolt to 45-55 lb-ft (61-76 N•m). 



Figure 6.2



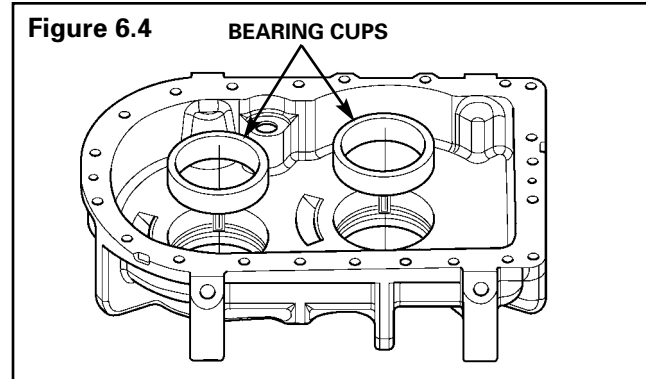
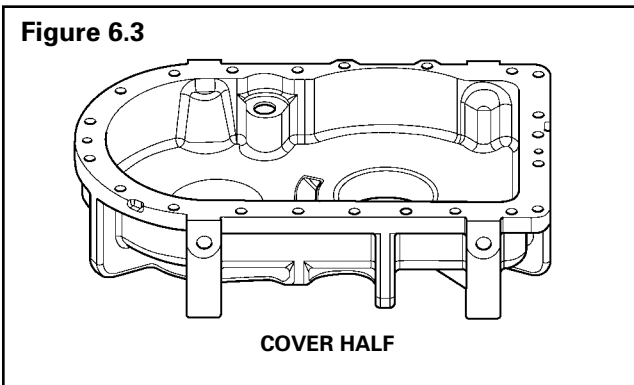
3. Apply Loctite 592 to the tube adapter fitting assembly threads. Screw the assembly into the case half. Tighten it to 35 lb-ft (47 N•m) minimum. 

Section 6 Assembly

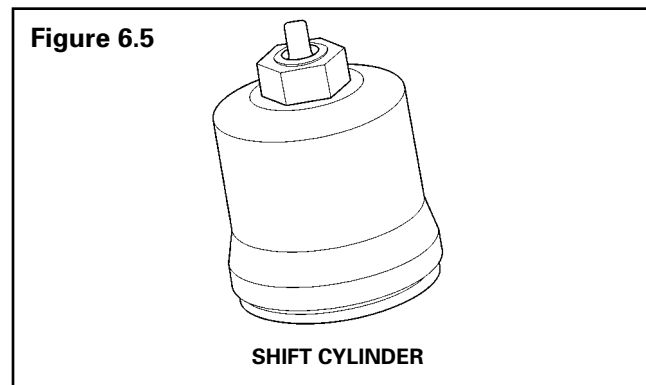


4. Apply Loctite 592 to the elbow threads. Screw the elbow into the adapter fitting assembly. Tighten the elbow to 20 lb-ft (27 N•m). Angle the elbow in the direction shown in **Figure 6.2**. 
5. Apply Loctite 592 to the fill and drain plugs. Screw them into the case half. Tighten the plugs to 35 lb-ft (47 N•m). 

Cover Half



Shift Cylinder



CAUTION

Press the bearing cup straight into the housing without tilting. Component damage can result.

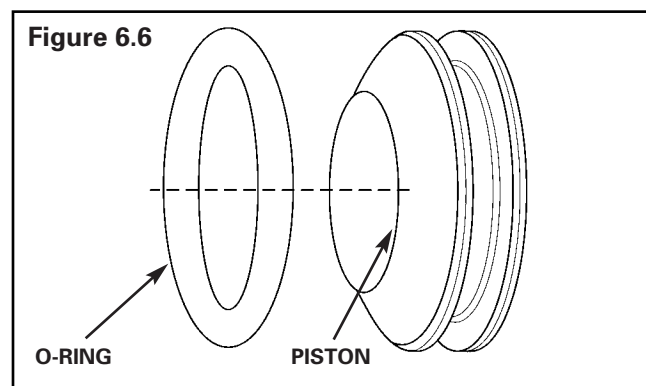
NOTE: For easier installation, freeze the bearing cups to -65 degrees F (-54 degrees C) maximum. If necessary, heat the cover housing in a parts washer. Do not exceed 250 degrees F (121 degrees C).

1. With a suitable bearing cup driver, completely seat the bearing cups into the cover housing. **Figure 6.4.**
2. To check that the bearing cups are seated, insert and remove a 0.001-inch (0.025 mm) shim between each bearing cup and the cover shoulder. There should not be a gap between the bearing cups and the cover shoulder. **Figure 6.4.**

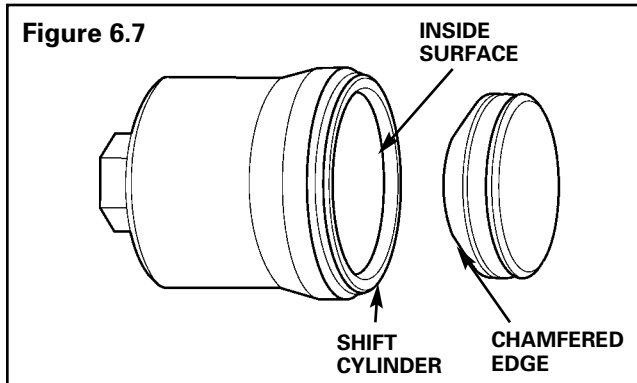
CAUTION

Do not fold or twist the O-ring. A damaged O-ring can leak. Damage to components can result.

1. Roll the O-ring onto the piston. Apply Meritor specification O-668 synthetic grease to the entire inside surface of the shift cylinder. **Figures 6.6 and 6.7.**

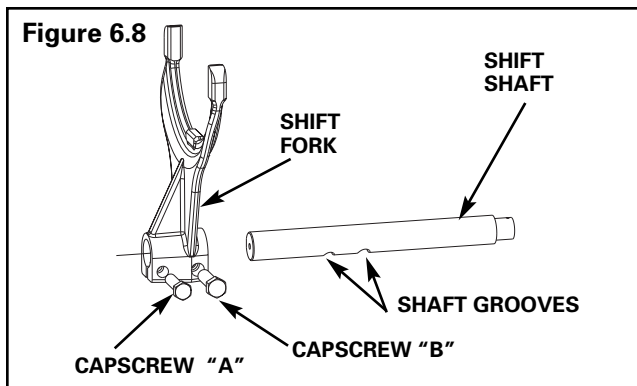


2. Insert the piston into the shift cylinder. The chamfered edge of the piston must face the direction shown. **Figure 6.7.**



Shift Shaft

1. Slide the shift shaft through the shift fork bore. The shift shaft must face the direction shown. **Figure 6.8.**





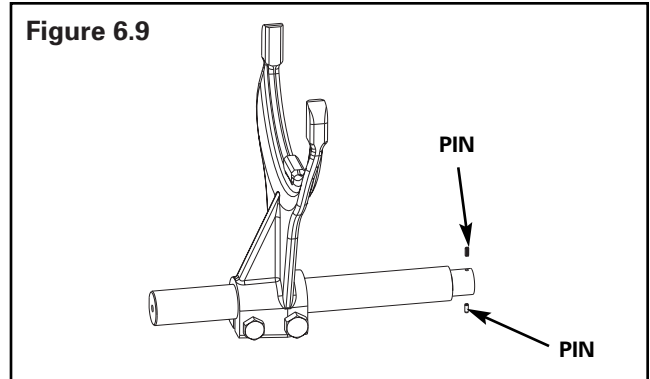
2. Align the shaft grooves with the shift fork capscrew holes. Install the capscrews to fasten the shift fork to the shift shaft.
 - A. Tighten capscrew "A" to 45-55 lb-ft (61-74 N•m). 
 - B. Tighten capscrew "B" to 75-85 lb-ft (101-115 N•m). **Figure 6.8.** 
3. Press the pins into the shift shaft. Use a gauge to set the pins to their correct height of 0.100–0.120-inch (2.5-3 mm) above the shift shaft. **Figure 6.9.**

Figure 6.9



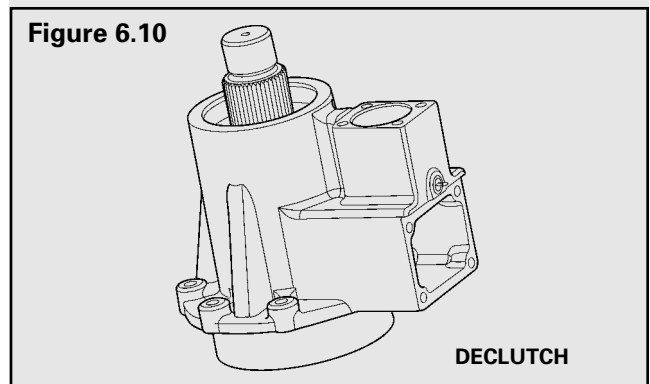
Declutch/PTO

Meritor TG-2213 transfer cases use one of two styles of declutch assemblies. Use the required assembly procedure for your declutch style.

- A. Transfer cases manufactured through June 2001 have declutch assemblies with large cover plates on top of the shifter housings.
- B. Transfer cases manufactured after June 2001 have declutch assemblies with shifter housing tops cast closed.

Transfer Cases Manufactured Through June 2001

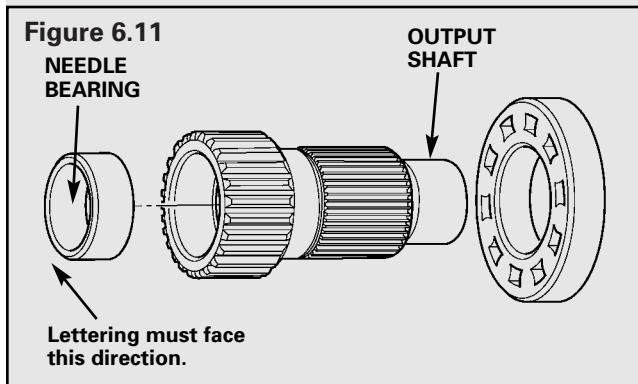
Figure 6.10



Section 6 Assembly



1. Use the correct tool to press the needle bearing into the shaft bore. Seat the needle bearing 0.075–0.105-inch (1.9-2.7 mm) below the shaft surface. The stamped lettering on the bearing must face the direction shown in **Figure 6.11**.



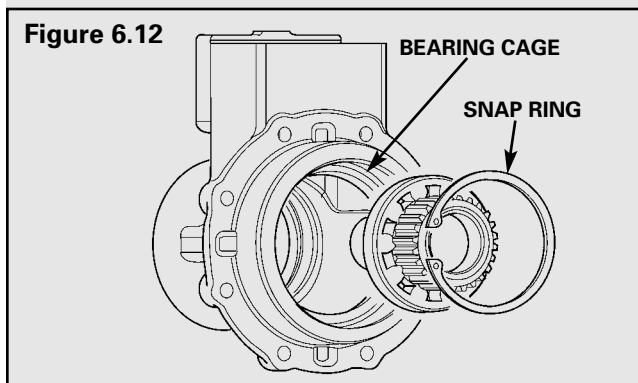
2. Press the roller bearing onto the shaft journal. **Figure 6.11**.

NOTE: For easier installation, freeze the shaft and bearing assembly to -65 degrees F (-54 degrees C).

! CAUTION

To prevent damage to components, do not exceed 2 tons (1.8 tonnes) of press force.

3. Rest the declutch assembly on the outboard machined face. Use a press to insert the shaft and bearing assembly into the declutch housing in the direction shown in **Figure 6.12**. Do not exceed 2 tons (1.8 tonnes).



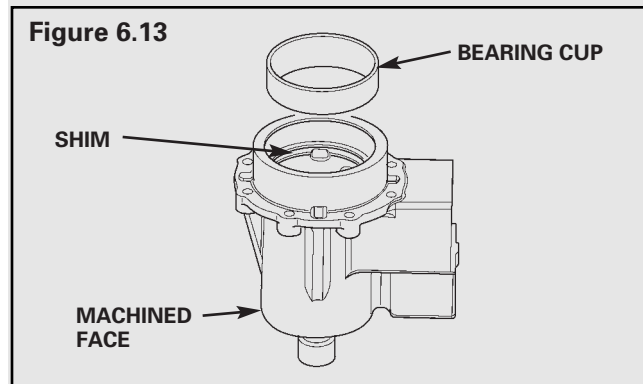
4. Retain the shaft and bearing assembly with the snap ring. Use a screwdriver to tap all around the snap ring. Completely seat the snap ring 360 degrees. **Figure 6.12**.

NOTE: For easier installation, freeze the bearing cup to -65 degrees F (-54 degrees C) maximum.

! CAUTION

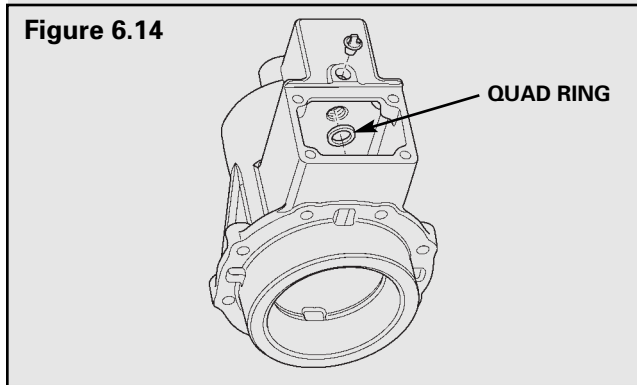
To prevent damage to components, do not exceed 15 tons (13.6 tonnes) of press force.

5. Use a press to seat the bearing cup into the declutch housing. Do not tilt the bearing cup or exceed 15 tons (13.6 tonnes). **Figure 6.13**.

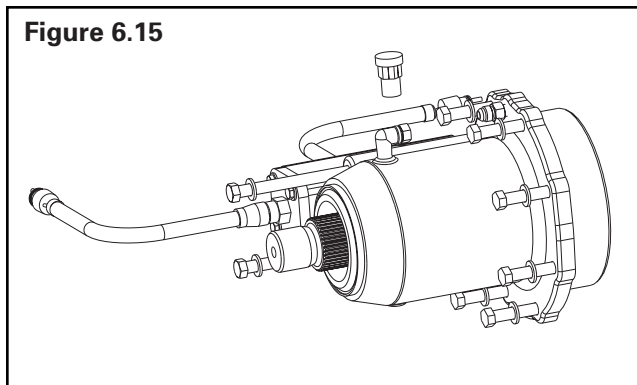


6. To check that the bearing cup is completely seated, insert and remove a 0.001-inch (0.025 mm) shim between the bearing cup and the declutch shoulder. There should not be a gap between the bearing cup and the declutch shoulder. **Figure 6.13**.

7. Install the quad ring into the declutch housing. Do not fold or twist the quad ring, which can cause leakage. **Figure 6.14.**



Transfer Cases Manufactured After June 2001

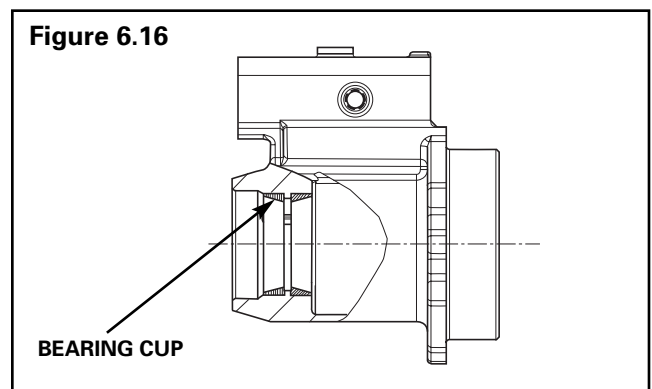


1. Assemble the declutch components by performing the following steps.

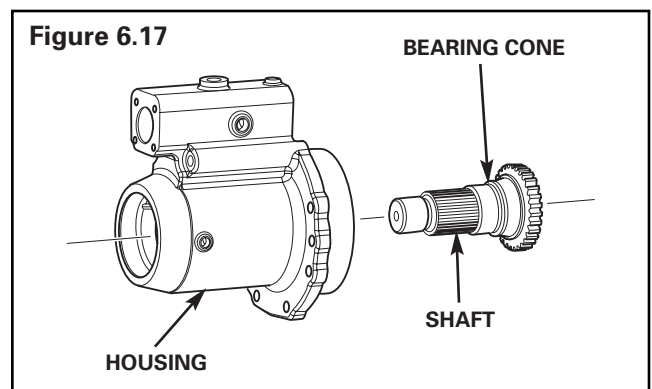
NOTE: For easier installation, freeze the bearing cups to -65 degrees F (-54 degrees C) before positioning the bearing cups into the housing bores.

2. Install the bearing cups into the declutch bearing cage housing. The cup must fit securely in the housing bores. This is an interference fit. **Figure 6.16.**

- If you freeze the bearing cups and the cups are loose after the cup temperature warms: Replace the housing.



3. Preheat the first bearing cone to 200° F (93° C). Support the shaft and slide the heated cone in place onto the output shaft. **Figure 6.17.**

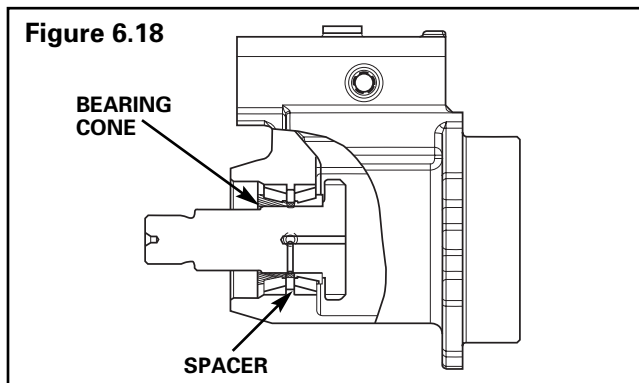


4. Adjust the declutch end play as follows.
 - A. Slide the shaft assembly into the housing.
 - B. Select the 0.283-inch (7.19 mm) spacer from Bearing Kit 2593 and slide the spacer onto the splined end of the shaft.

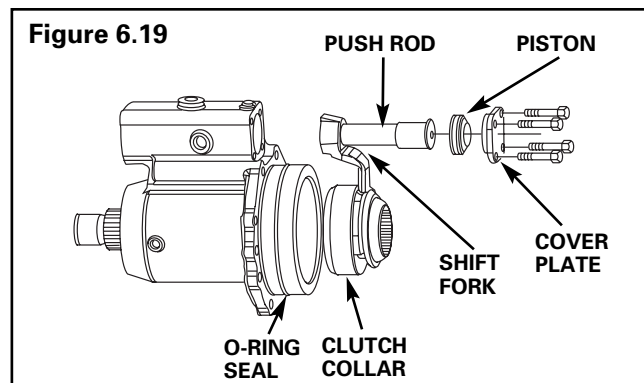
Section 6 Assembly



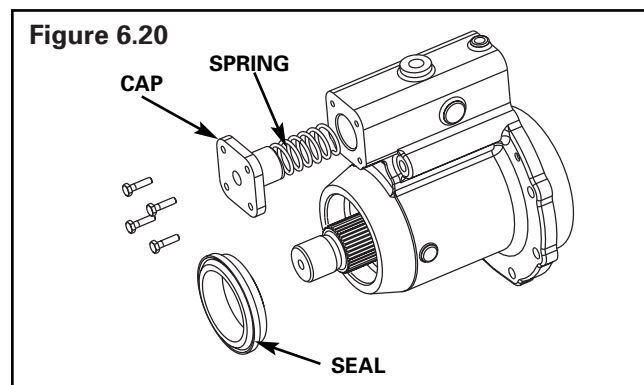
- C. With the bearing spacer in position, heat the outer bearing cone to 200°F (93°C) and install it on the shaft. **Figure 6.18.**
- D. Support the shaft in a vertical press and apply a load of 50-100 pounds (23-45 kg) bearing cone race to set the bearing.
- E. Measure the shaft end play.
- F. Remove the shaft by pressing the shaft from the housing. Remove the outer bearing cone and space.
- G. Select a smaller spacer width from the kit that would provide an end play of 0.001-0.003-inch (0.025-0.076 mm).
- H. Repeat the shaft and bearing assembly with the new spacer width installed. Recheck the end play after the yoke has been installed and the locking nut is tightened. If the end play is not within 0.001-0.003-inch (0.025-0.076 mm), replace the spacer and reassemble the shaft and bearing cone.



- 5. Apply a light film of SAE 50W synthetic oil to all parts.
- 6. Assemble the shift fork to the clutch collar. Install this unit into the bearing cage housing.
- 7. Install the push rod into the housing and through the shift fork assembly.
- 8. Lightly lubricate all parts including the piston and seal with SAE 50W synthetic oil.
- 9. Apply 20-30 lbs (9-14 kg) of pressure to insert the piston into the housing. **Figure 6.19.**



- 10. Install the cover plate with the O-ring seal in place.
- 11. Lightly lubricate all parts with SAE 50W synthetic oil.
- 12. Apply Loctite 242 to the 1/4-20 screws and washers, install and tighten to 10-14 lb-ft (14-19 N•m). **T**
- 13. Insert the spring into the housing over the push rod. **Figure 6.20.**





- 14. Apply a thin film of Loctite 518 gasket material to the cap surface. Install the cap with the 1/4-20 screws and washers using Loctite 242 and tighten to 10-14 lb-ft (14-19 N•m). **Figure 6.20. T**
- 15. Install the declutch shaft seal into the housing.
- 16. Press the seal into position until the seal is seated on the housing.
- 17. Install the O-ring onto the housing flange diameter.

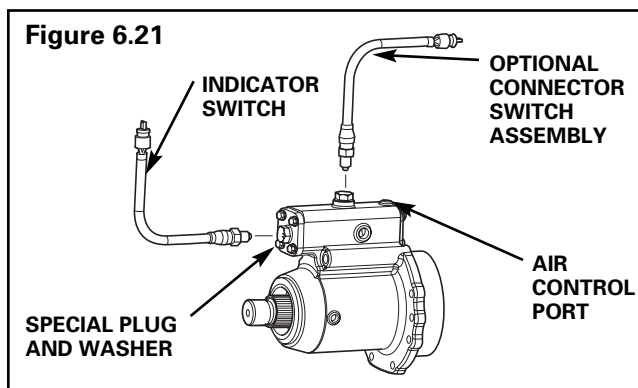
18. Pressure test the declutch housing for air leakage by performing the following steps:
 - A. With the correct fitting installed into the air control port, apply a pressure of 80-100 psi (5.52-6.89 bar).
 - B. Shut off the air supply.

CAUTION

Check for external leaks at the cover plate joint and fitting if the pressure decreases more than 5 psi (0.3 bar) in 10 minutes. Leaks can cause component damage.

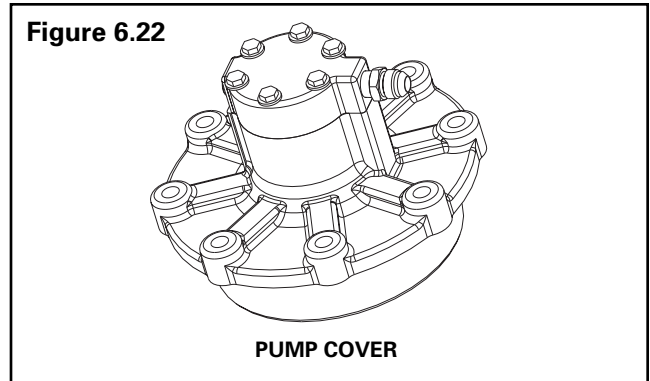
- C. Check for external leaks at the cover plate joint and fitting if the pressure decreases more than 5 psi (0.3 bar) in 10 minutes.
 - **If the external joints are sealed and the leakage is still more than 5 psi (0.3 bar):** Remove the piston and inspect the O-ring and housing bore for damage. Repair parts as necessary, reassemble and retest.

19. Install the indicator switch. Tighten to 25-30 lb-ft (34-40 N•m). 
 - **If a switch is not used:** Install the special plug and washer used to cap the access hole and tighten to 25-30 lb-ft (34-40 N•m). **Figure 6.21.** 



Pump Cover

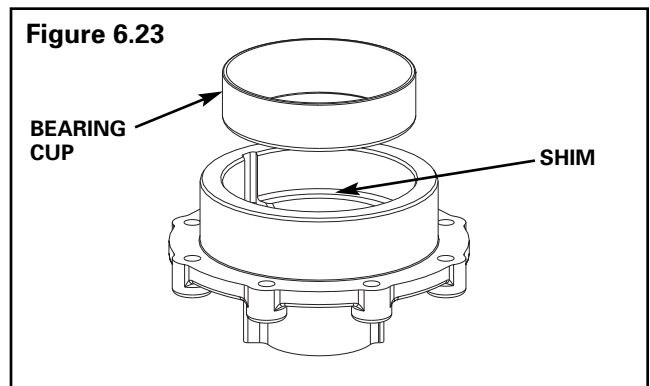
Figure 6.22



NOTE: For easier installation, freeze the bearing cup to -65 degrees F (-54 degrees C) maximum.

1. Position the bearing cup onto the cover bore. Use a cup driver to completely seat the bearing cup. **Figure 6.23.**
 - **If you freeze the bearing cups and the cups are loose after the cup temperature warms:** Replace the pump cover.

Figure 6.23

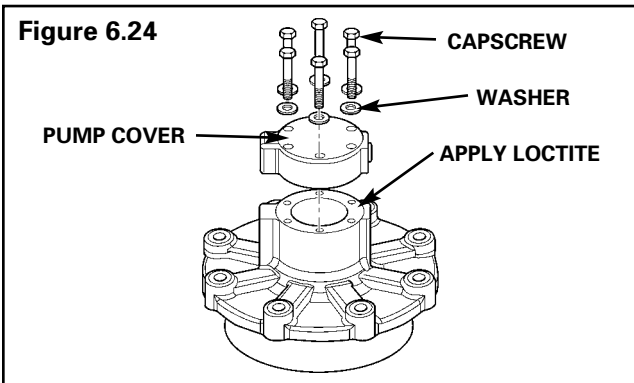


2. To check that the bearing cup is completely seated, insert and remove a 0.001-inch (0.025 mm) shim between the bearing cup and the pump cover seal. There must not be a gap between the bearing cup and the pump cover seal. **Figure 6.23.**

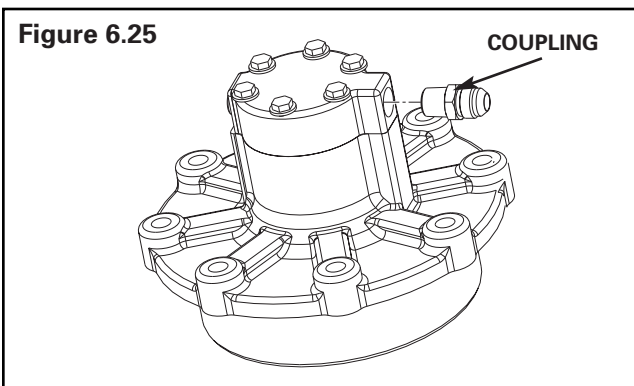
Section 6 Assembly



3. Apply a light coat of Loctite 518 to the top of the pump cover surface. **Figure 6.24.**

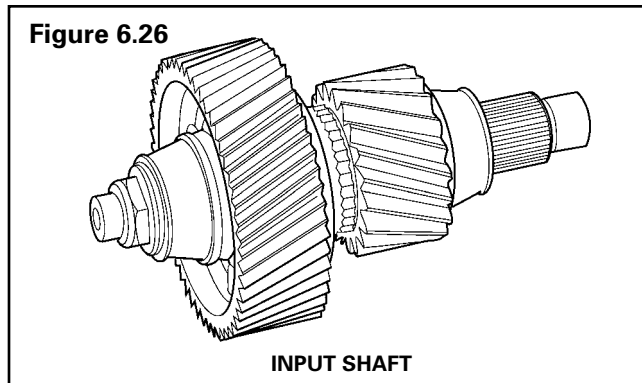


4. Place the cover onto the pump cover surface. The cover outline must fit over the pump cover outline. **Figure 6.24.**
5. Wipe away any excess Loctite inside the pump cover. Excess Loctite can coat the pump parts and damage the pump.
6. Apply Loctite 242 to all cap screw threads. Fasten the cover with the cap screws and washers. Tighten the cap screws to 11-15 lb-ft (15-20 N•m). **T**
7. Apply Loctite 592 to the coupling threads. **Figure 6.25.**

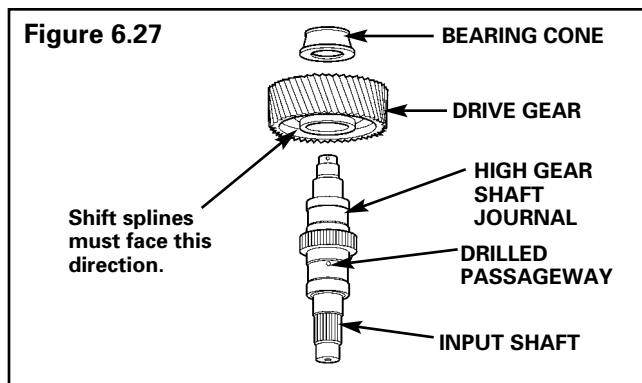


8. Insert the coupling into the cover port. Tighten the coupling to 20 lb-ft (27 N•m). **T**

Input Shaft



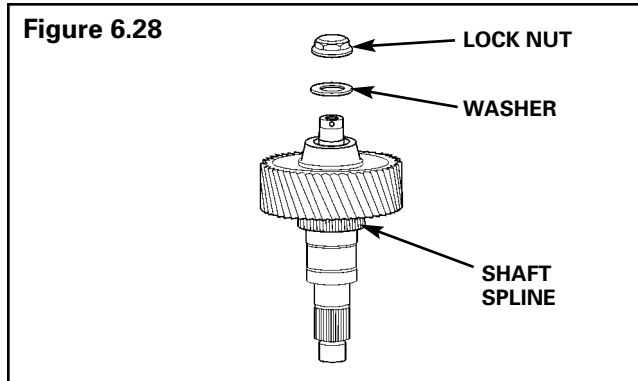
1. Inspect the drilled passages of the input shaft for debris. Use air pressure or oil to determine if all the passages are clear. **Figure 6.27.**




2. Spray the high gear shaft journal with SAE 50W synthetic oil. **Figure 6.27.**
3. Slide the high ratio gear onto the shaft journal. The shifting splines of the gear must face the shaft splines for correct installation. **Figure 6.27.**

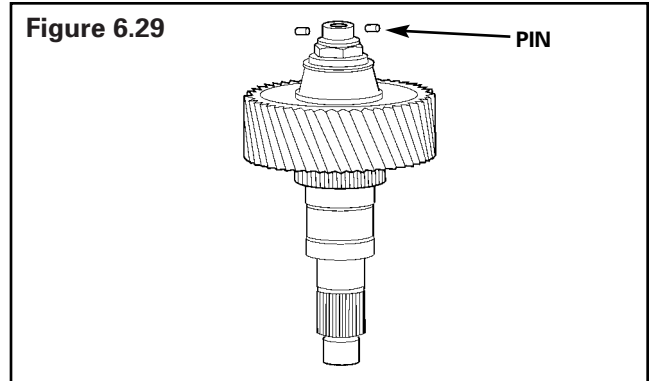
NOTE: For easier installation, heat the bearing cone to 200 degrees F (93 degrees C) before pressing it onto the shaft.

- Place the bearing cone over the end of the input shaft. With a press, completely seat the bearing 360 degrees against the shaft shoulder. **Figure 6.28.**

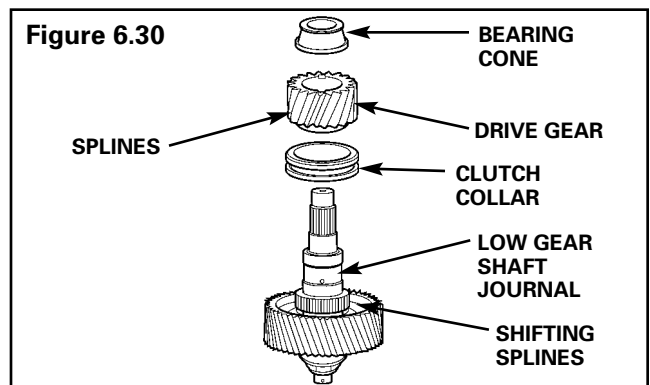


- To check that the bearing cone is seated, insert and remove a 0.001-inch (0.025 mm) shim between the bearing cone and the shaft shoulder. There should not be a gap between the bearing cone and the shaft shoulder.
- Place the splined end of the shaft assembly into a vice or other locking device. Lock it into place by engaging the shift spline of the shaft with the mating spline on the table fixture.
- Place the washer over the bearing cone onto the input shaft. **Figure 6.28.**
- Secure the washer with the lock nut. Tighten the lock nut to 600-800 lb-ft (813-1085 N•m). **Figure 6.28.** 

- Press the pins into the holes located at the end of the input shaft. **Figure 6.29.**



- Use a gauge to set the pins to the proper height of 0.063–0.083-inch (1.6-2.1 mm) above the shaft. **Figure 6.29.**
- Spray the low gear shaft journal 360 degrees with SAE 50W synthetic oil. **Figure 6.30.**



- Apply Meritor specification O-668 synthetic grease to the shifting splines of the shaft and gears. **Figure 6.30.**
- Slide the clutch collar onto the input shaft splines.
- Slide the low ratio gear onto the splined side of the input shaft. The shifting splines of the gear must face the shaft splines for proper installation.

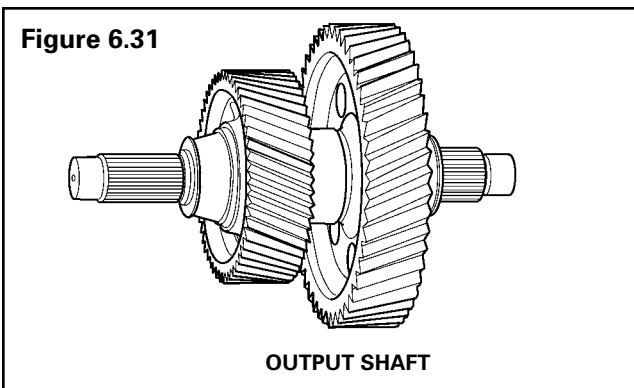
Section 6 Assembly



NOTE: For easier installation, heat the bearing cone to 200 degrees F (93 degrees C) before pressing it onto the shaft.

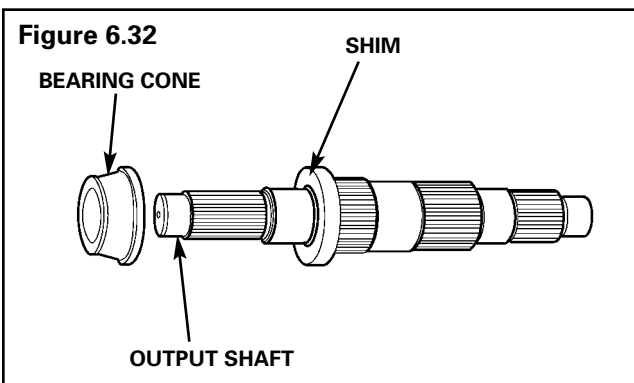
15. Place the bearing cone over the end of the shaft. Use a press to completely seat it against the shaft shoulder. **Figure 6.30.**
16. To check that the bearing cone is seated, insert and remove a 0.001-inch (0.025 mm) shim between the bearing cone and the shaft shoulder. There should not be a gap between the bearing cone and the shaft shoulder.
17. Check that both gears are free to rotate. There should be a 0.005-inch (0.127 mm) minimum clearance gap at the end of each gear hub.

Output Shaft

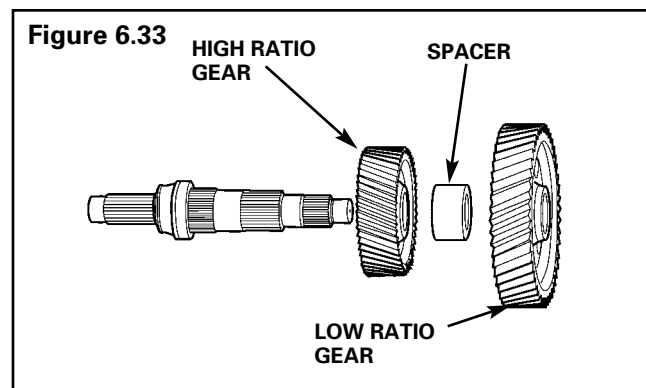


NOTE: For easier installation, heat the bearing cone to 200 degrees F (93 degrees C) before pressing it onto the shaft.

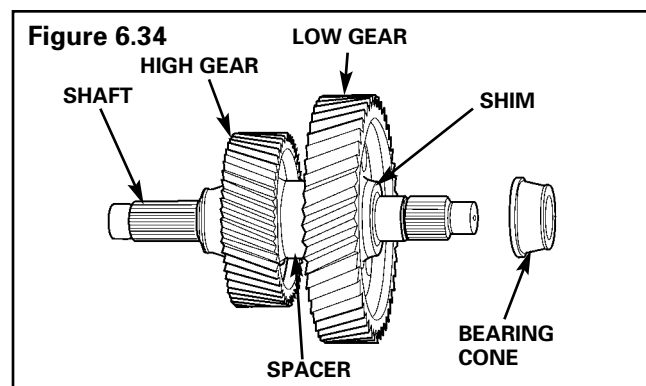
1. Place the bearing cone over the end of the shaft. Press it into position. **Figure 6.32.**



2. Completely seat the bearing cone.
3. To check that the bearing cone is seated, insert and remove a 0.001-inch (0.025 mm) shim between the bearing cone and the shaft shoulder. There should not be a gap between the bearing cone and the shaft shoulder. **Figure 6.32.**
4. Press the high ratio gear onto the output shaft or press the shaft through the gear. The gear must face the direction shown in **Figure 6.33** for proper installation.



5. Slide the spacer over the shaft to contact the high ratio gear. **Figure 6.33.**
6. Press the low ratio gear onto the shaft or press the shaft through the gear. The words THIS SIDE UP should face to the right. **Figure 6.34.**



NOTE: For easier installation, heat the bearing cone to 200° F (93° C) before pressing it onto the shaft.

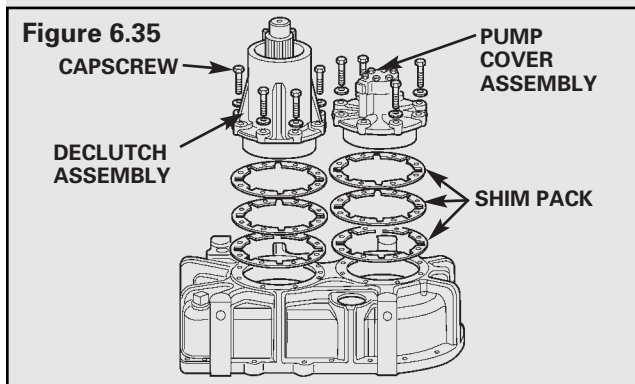
7. Slide the cone over the end of the shaft. Use a press to set the cone into position. **Figure 6.34.**
8. Completely seat all components.
9. To check that all mating surfaces are completely seated, insert and remove a 0.001-inch (0.025 mm) shim between the mating surfaces. **Figure 6.34.**
 - Shaft to high gear
 - High gear to spacer
 - Spacer to low gear
 - Low gear to bearing cone.

Transfer Cases Manufactured Through June 2001

1. Clean all designated parts. Refer to Section 5.

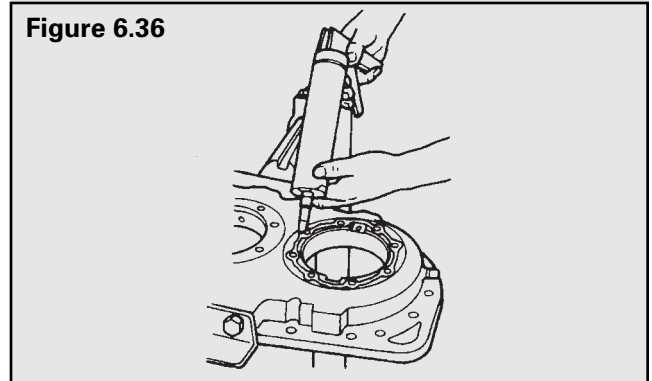
Assemblies and Shaft Subassemblies



1. Place the case half assembly on the assembly fixture. Use four bolts to secure it into place. **Figure 6.35.**



2. Apply a light coating of Loctite 518 around the perimeter and each capscrew hole of both case half flanges, the pump cover and the declutch flanges. If easier, apply a light coating of Loctite 518 around the perimeter of the shims. **Figures 6.35 and 6.36.**

Figure 6.36

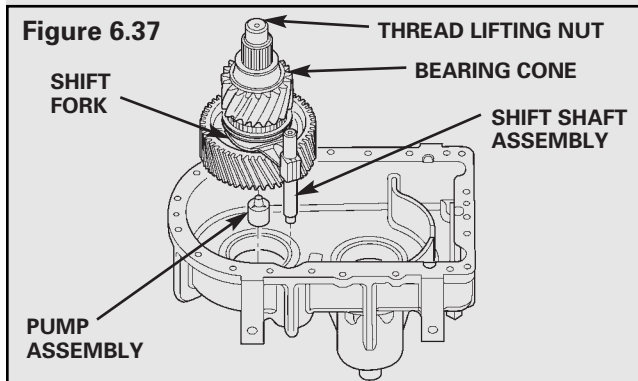


3. Place a 0.060-inch (1.5 mm) shim pack on the pump cover opening and declutch opening.
4. Assemble the pump cover assembly to the case half with only four capscrews and washers. The pump cover must face the direction shown in **Figure 6.35** for proper installation. Tighten the capscrews to 65-75 lb-ft (88-102 N•m). 
5. Assemble the declutch assembly to the case half with the remaining four capscrews and washers. The declutch assembly must face the direction shown in **Figure 6.35** for correct installation. Tighten the capscrews to 65-75 lb-ft (88-102 N•m). 

Section 6 Assembly



6. Grease the transfer case shift shaft bore and shift shaft. **Figure 6.37.**



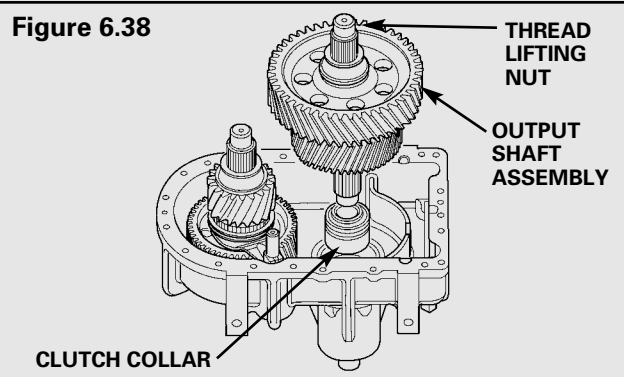
7. Thread a lifting nut onto the end of the input shaft.
8. With a lifting device, lift the input shaft by the lifting nut and position it over the pump cover.
9. Grease the fork groove of the input shaft clutch collar.

CAUTION

Lubricate the pump assembly with the specified oil to prevent pump parts from falling out of the pump assembly. Damage to components can result.

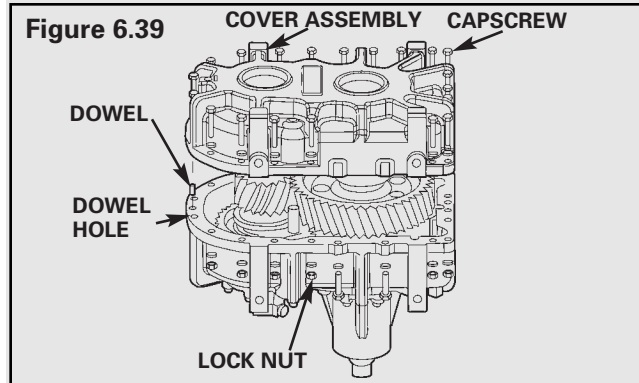
10. Fill the pump assembly with SAE 50W synthetic oil. Spin the pump assembly to coat the internal parts.
11. Attach the pump assembly to the input shaft by compressing the pump spring and hooking the housing bayonets around the shaft pins. **Figure 6.37.**
12. Insert the shift fork into the clutch collar groove. **Figure 6.37.**


13. At the same time, lower the input shaft assembly and the shift shaft assembly into the bearing cage and shift shaft bore. The pump groove must be aligned with the pin on the pump cover.
14. Thoroughly coat the gears and bearings with synthetic oil.
15. Apply a thick coating of synthetic grease to the declutch needle bearing before inserting the clutch collar. **Figure 6.38.**



16. Grease all the internal splines and the outer groove of the clutch collar.
17. Slide the clutch collar onto the declutch shaft. The groove must be toward the top. **Figure 6.38.**
18. Thread a lifting nut onto the end of the output shaft assembly. **Figure 6.38.**
19. With a lifting device, position the output shaft assembly over the declutch. Lower the output shaft assembly so the spline engages with the clutch collar and all the gears fully mesh.
20. Coat all the gears and bearings with synthetic oil.

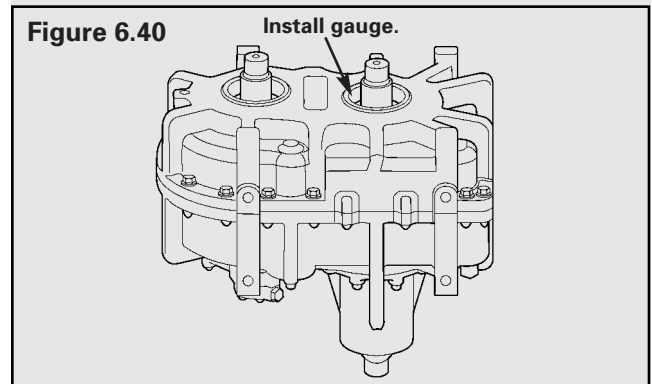
21. Apply a small amount of RTV sealant into both dowel holes of the case and the cover. Insert both dowels. **Figure 6.39.**



22. Apply a small amount of RTV sealant to both sides of all baffle tabs. Insert the baffle between the case flange and the large gear. Align the tabs with the mating grooves on the cover assembly. **Figure 6.39.**
23. Apply a small amount of Loctite 518 around the entire flange face of the case assembly and on the inside of all capscrew holes. **Figure 6.39.**
24. Grease the shift bore of the cover assembly. Using the dowels as guide pins, lower the cover assembly down onto the case assembly. Without pinching the baffle, fully seat the cover onto the case. **Figure 6.39.**
25. From the cover side, bolt the case and cover together with the long capscrews, washers and lock nuts.
26. Turn the case over and install the remaining two blind capscrews. Tighten them to 65-75 lb-ft (88-102 N•m). 

Check the End Play

1. Install the end play gauge and the dial indicator to the case half and shaft. If a separate dial indicator is used, attach it firmly to a housing rib. **Figure 6.40.**



2. Apply hand pressure to seat the shaft.
3. Rotate the shaft a minimum of three full revolutions in both directions. The dial indicator must not move at the completion of the revolutions.
4. Set the dial indicator at zero.

CAUTION

To avoid damage to the transfer case, fully seat the bearings.

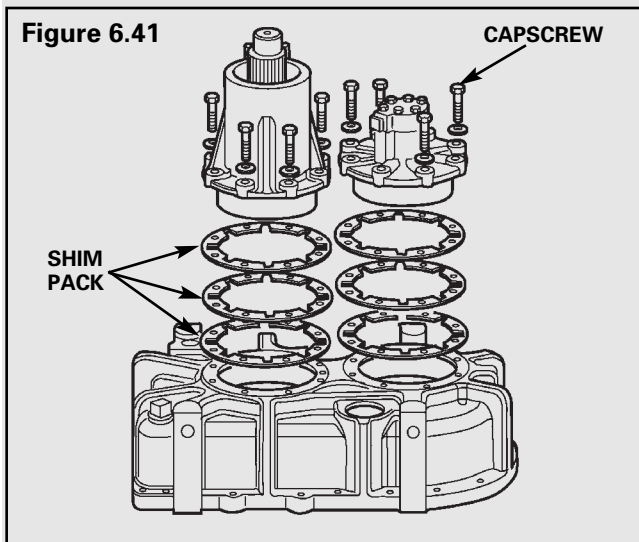
5. Use a pry bar on the shaft to seat the bearing.
6. Rotate the shaft a minimum of three full revolutions in both directions. The dial indicator must not move at the completion of the revolutions.
7. Read the dial indicator and record the number. The correct shaft end play is 0.0005–0.003-inch (0.0127-0.076 mm). Repeat for the other shaft.
8. If necessary, proceed to the next step to adjust the end play.



Section 6 Assembly



Adjust the End Play

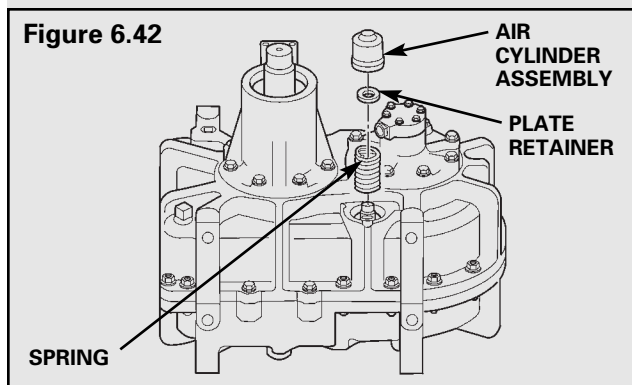
NOTE: If the end play is between 0.0005- and 0.003-inch (0.0127 and 0.076 mm), it is not necessary to adjust the shim pack thickness. **Figure 6.41.**



1. If the end play reading is less than 0.0005-inch (0.0127 mm), add shims to the shim pack and measure the end play according to the preceding procedure. **Figure 6.41.**
2. If the end play reading is more than 0.003-inch (0.076 mm), remove the shims from the shim pack to adjust the end play to 0.002-inch (0.050 mm). For example, if end play reading is 0.018-inch, remove the 0.016 shims.
3. Install the four capscrews and check the end play according to the procedure in Step 2. Tighten the capscrews to 65-75 lb-ft (88-102 N•m). 
4. Repeat this procedure until the end play of both shafts is correct. Record the final end play of both shafts.
5. Install the remaining four capscrews and washers. Tighten the capscrews to 65-75 lb-ft (88-102 N•m). **Figure 6.41.** 

Shifting and Pump Components

1. Screw a 7/16-inch -14, 8-inch (203 mm) length, threaded rod into the shift shaft until it is seated. **Figure 6.42.**

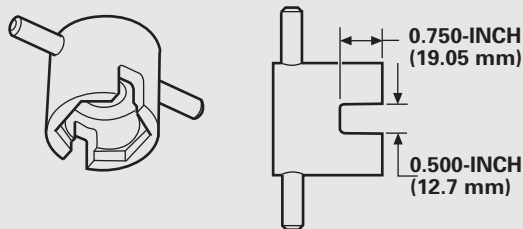


2. Insert the spring into the case bore. Fit the retainer onto the spring. Refer to **Figure 6.42.**

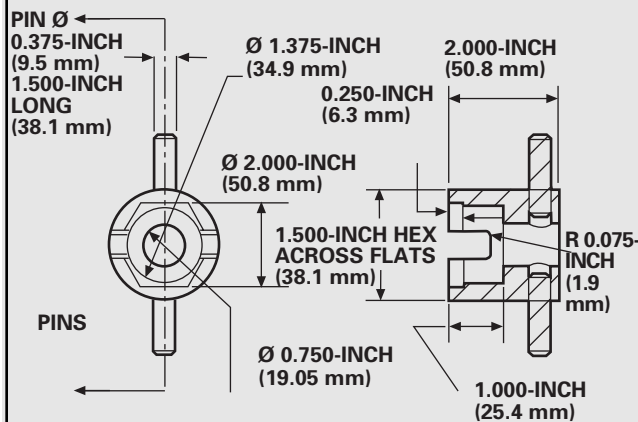
3. Insert the special spring caging tool over the rod and compress the spring with a nut and washer. Carefully align the pins with the locking grooves in the retainer. **Figure 6.43.**

- **If the special Meritor spring caging tool is not available:** Use a piece of pipe 1-1/8-inches (29 mm) minimum inner diameter, 1-1/2-inches (38 mm) outer diameter, and approximately 1/2-inch (13 mm) in length.


Figure 6.43 SPRING CAGING TOOL



PINS



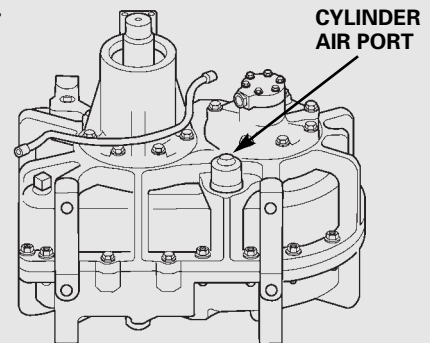
MATERIAL : LOW CARBON STEEL
Ø : DIAMETER
R : RADIUS

4. After the spring and retainer are fully compressed, rotate the retainer 90 degrees to lock it into place. Remove the spring caging tool and the threaded rod.
5. Apply Loctite 277 to the threads of the cylinder assembly. **Figure 6.42.**
6. Thread the cylinder assembly to the case bore over the caged spring. Tighten the cylinder assembly to 85-95 lb-ft (115-129 N•m). **Figure 6.42.** 

Check the Shift Cylinder for Air Leakage

1. Insert an air line with a pressure gauge into the cylinder air port. Tighten the air line securely. **Figure 6.44.**

Figure 6.44



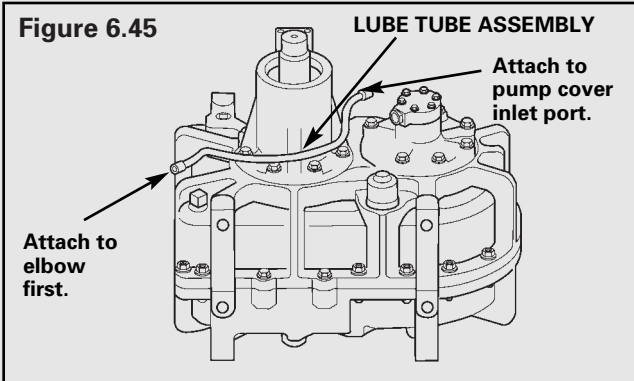
2. Pressurize the shift cylinder to 100 psi (6.9 bar) maximum. Monitor the pressure in the cylinder for one minute.
 - **If the pressure drop is more than one psi (0.069 bar):** Replace the cylinder assembly. **Figure 6.42.**

Section 6 Assembly



Install the Lubrication Tube Inlet Assembly

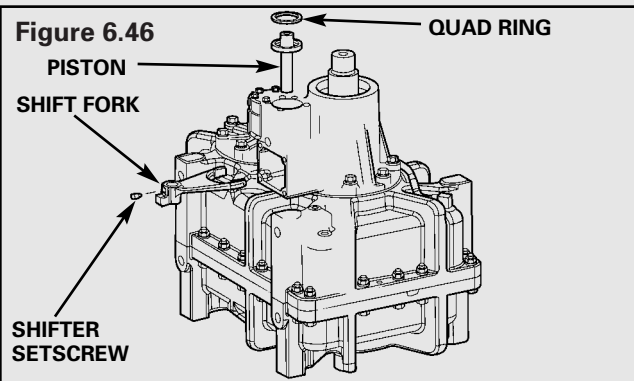
1. Attach one end of the lubrication tube inlet assembly to the elbow at the bottom of the case half. Do not fully tighten the tube assembly. **Figure 6.45.**



2. Attach the other end of the tube assembly to the pump cover inlet port. If necessary, bend the tube slightly to fit. **Figure 6.45.**
3. Tighten both tube fittings to 20 lb-ft (27 N•m). **T**

Install the Declutch

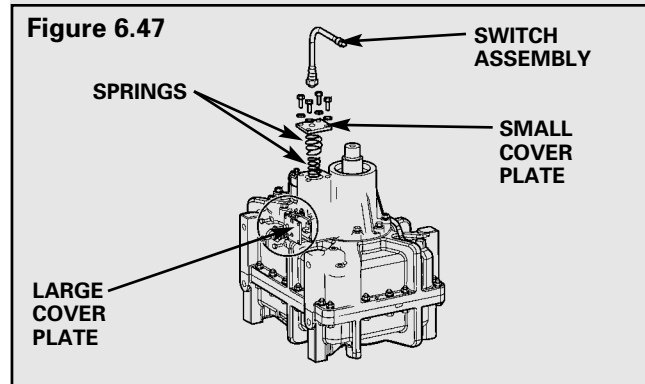
1. Place the shift fork into the declutch collar groove. Refer to **Figure 6.46** for the correct fork position.





! CAUTION

Do not fold or twist the quad ring. A damaged quad ring can leak. Damage to components can result.

2. Place the quad ring around the piston groove.
3. Apply grease to the declutch bore and piston shaft.
4. Insert the piston through the fork bore into the declutch bore.
5. Apply Loctite 277 to the set screw threads. Tighten the set screw to fasten the fork to the piston shaft. Tighten the set screw to 20-30 lb-ft (27-41 N•m). **T**
6. Insert the inner and outer springs into the declutch bore. **Figure 6.47.**



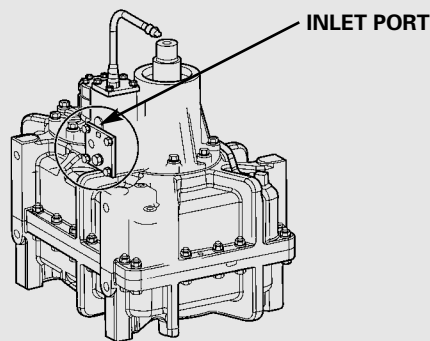
7. Apply Loctite 518 to the cover plate openings. **Figure 6.47.**
8. Apply Loctite 277 to all the connector switch threads, plug threads and bolt threads. **Figure 6.47.**
9. Install the small cover plate over the springs. The springs will compress as the bolts are tightened. Assemble the plate with the inlet side on the outside and toward the air inlet.

10. Install the large cover plate over the shift fork opening. Assemble the plate with the inlet side on the outside toward the air inlet.
11. Tighten all bolts to 25-35 lb-ft (34-47 N•m). 
12. Refer to the Bill of Material to install either sensors or plugs in the plate openings. If a plug is used, install the proper washer. **Figure 6.47.**
13. Tighten all switches and plugs to 25-35 lb-ft (34-47 N•m). 

Check the Declutch for Air Leakage

1. Insert an air line with a pressure gauge into the inlet port. Pressurize the declutch to 100 psi (6.9 bar). **Figure 6.48.**

Figure 6.48



2. Monitor the pressure drop for one minute. If the pressure drop is more than 3 psi (0.207 bar) over one minute, replace the piston and quad ring.

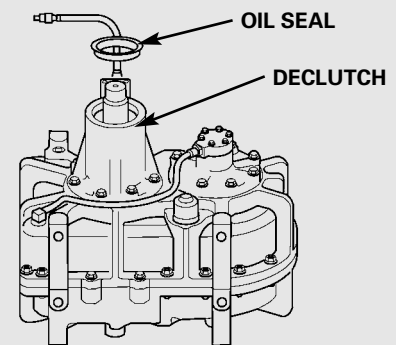
Install Seals and Yokes

CAUTION

When you handle seals, use care so you don't touch the seal lip. Damage to the seal can result.

1. Apply a small amount of oil to the inner bore of the declutch before pressing in the seal. **Figure 6.49.**

Figure 6.49



2. Use a press and seal driver or a flat metal plate to install the oil seal into the declutch. Press until the metal flange of the seal is seated to the top of the declutch.
3. Use a feeler gauge to measure the gap between the bottom face of the seal and the top surface of the declutch.
 - **If a gap exists:** It must not exceed 0.030-inch (0.762 mm) at any point around the seal circumference.
 - **If a gap varies by more than 0.010-inch (0.254 mm):** Remove and reseal the seal. **Figure 6.49.**

Section 6 Assembly



Transfer Cases Manufactured After June 2001

1. Clean all designated parts. Refer to Section 5.

Assemblies and Shaft Subassemblies

WARNING

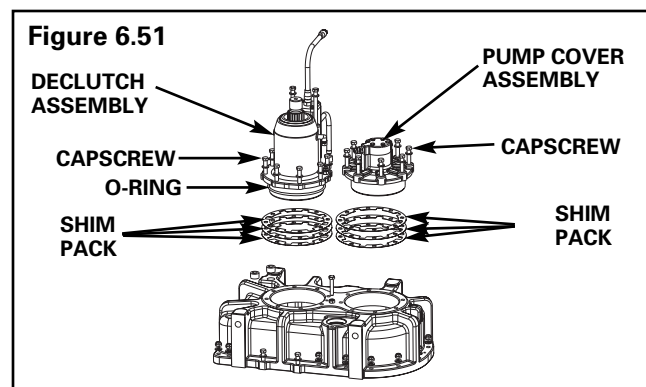
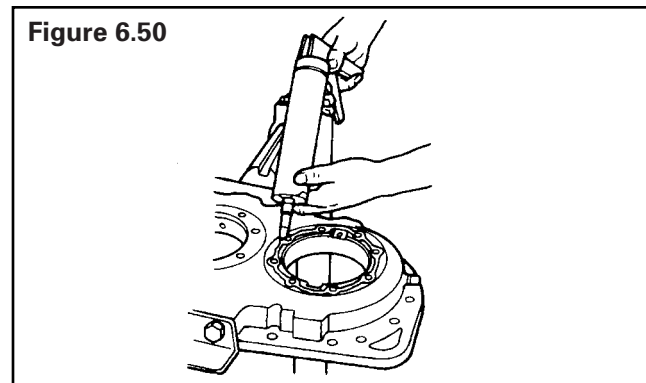
Support the transfer case housing half with a lifting strap before lifting it into place. A transfer case housing half that is not supported correctly can fall. Serious personal injury and damage to components can result.



To avoid serious personal injury and possible damage to components, be very careful when using lifting devices.

- Inspect to make sure that the lifting straps are not damaged.
- Do not subject lifting straps to any shock or drop loading.
- Fully thread the lifting nut.

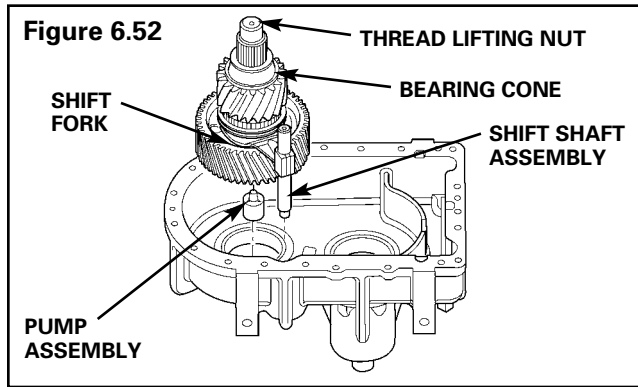
Take care when using Loctite® to avoid serious personal injury. Follow the manufacturer's instructions to prevent irritation to the eyes and skin. If Loctite gets into your eyes, flush them with water for 15 minutes. Have your eyes checked by a doctor as soon as possible.

1. Place the transfer case housing half on the assembly fixture. Use four bolts to secure it in place.
2. Apply a light coating of Loctite 518 around the perimeter and around each capscrew hole of both case half flanges, the pump cover and the declutch flanges. If easier, apply a light coating of Loctite 518 around the perimeter of the shims. **Figures 6.50 and 6.51.**



3. Apply SAE 50W synthetic oil onto the declutch flange O-ring.
4. Place a 0.060-inch (1.5 mm) shim pack on the pump cover opening and declutch opening.
5. Assemble the pump cover assembly to the case half with only four capscrews and washers. The pump cover must face the direction shown in **Figure 6.51** for correct installation. Tighten the capscrews to 65-75 lb-ft (88-102 N•m). 
6. Assemble the declutch assembly to the case half with the remaining four capscrews and washers. The declutch assembly must face the direction shown in **Figure 6.51** for proper installation. Tighten the capscrews to 65-75 lb-ft (88-102 N•m). 

- Apply SAE 50W synthetic oil to the transfer case shift shaft bore and shift shaft.
Figure 6.52.



- Thread a lifting nut onto the end of the input shaft.
- With a lifting device, lift the input shaft by the lifting nut and position it over the pump cover.
- Apply SAE 50W synthetic oil to the fork groove of the input shaft clutch collar.

CAUTION

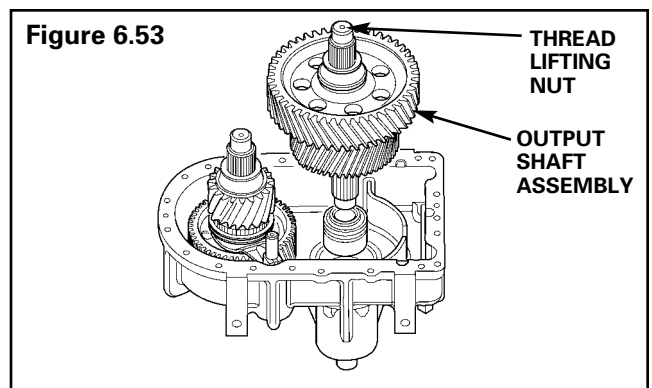
Lubricate the pump assembly. If not thoroughly lubricated, pump parts may fall out of the pump assembly. This can cause damage to components.

- Lubricate the pump assembly with the specified SAE 50W synthetic oil. Refer to Section 8.
- Spin the pump assembly to coat the internal parts.
- Attach the pump assembly to the input shaft by compressing the pump spring and hooking the housing bayonets around the shaft pins. **Figure 6.52.**

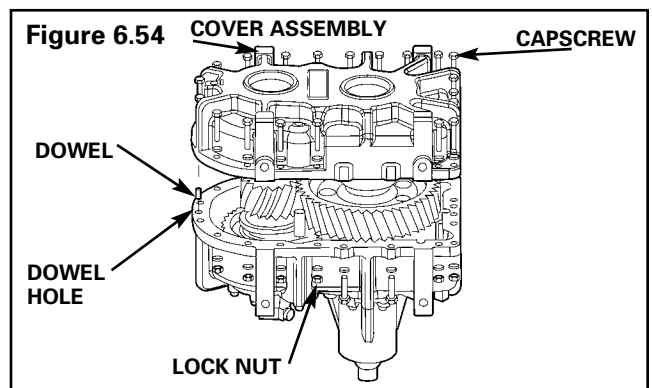
NOTE: You must align the pump groove with the pin on the pump cover when you install the input shaft/pump assembly.

- Insert the shift fork into the clutch collar groove. **Figure 6.52.**

- At the same time, lower the input shaft/pump assembly and the shift shaft assembly into the bearing cage and shift shaft bore.
- Thoroughly coat the gears and bearings with SAE 50W synthetic oil.
- Apply SAE 50W synthetic oil to all the internal splines and the outer groove of the clutch collar.
- Thread a lifting nut onto the end of the output shaft assembly. **Figure 6.53.**




- With a lifting device, position the output shaft assembly over the declutch. Lower the output shaft assembly so the spline engages with the clutch collar and all the gears fully mesh.
- Coat all the gears and bearings with SAE 50W synthetic oil.
- Insert both dowels into the transfer case. **Figure 6.54.**



Section 6 Assembly



22. Apply a small amount of RTV sealant to both sides of all baffle tabs. Insert the baffle between the case flange and the large gear. Align the tabs with the mating grooves on the cover assembly.
23. Apply a small amount of Loctite 518 around the entire flange face of the case assembly and on the INSIDE of all capscrew holes.
24. Apply SAE 50W synthetic oil to the shift bore of the cover assembly. Using the dowels as guide pins, lower the cover assembly onto the case assembly. Without pinching the baffle, fully seat the cover onto the case.
25. From the cover side, bolt the case and cover together with the long capscrews, washers and lock nuts.
26. Turn the case over and install the remaining two blind capscrews. Tighten all capscrews to 65-75 lb-ft (88-102 N•m). 

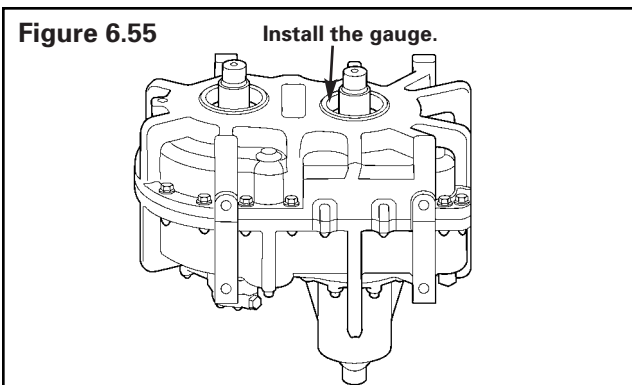
CAUTION

To avoid damage to the transfer case, fully seat the bearings.

5. Use a pry bar on the shaft to seat the bearing.
6. Rotate the shaft a minimum of three full revolutions in both directions.
7. Read the dial indicator and record the number. The correct shaft end play is 0.0005–0.003-inch (0.0127-0.076 mm). Repeat for the other shaft. The dial indicator must not move at the completion of the revolutions.
8. If necessary, proceed to the next step to adjust the end play.

Check the End Play

1. Install the end play gauge and dial indicator to the case half and shaft. If a separate dial indicator is used, attach it firmly to a housing rib. **Figure 6.55.**

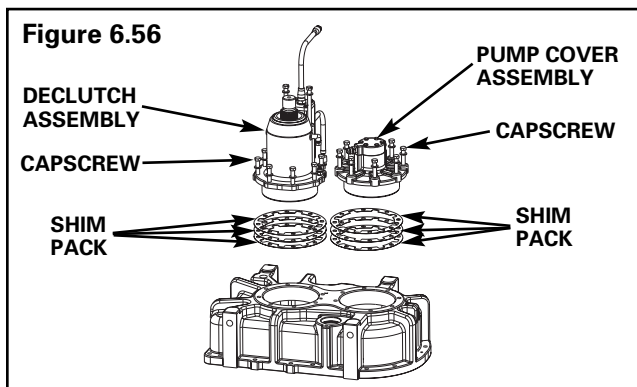




2. Apply hand pressure to seat the shaft.
3. Rotate the shaft a minimum of three full revolutions in both directions.
4. Set the dial indicator to zero. The dial indicator must not move at the completion of the revolutions.

Adjust the End Play/Install the Declutch – Transfer Cases Manufactured After June 2001

Use the following procedure if the transfer case was manufactured after June 2001.

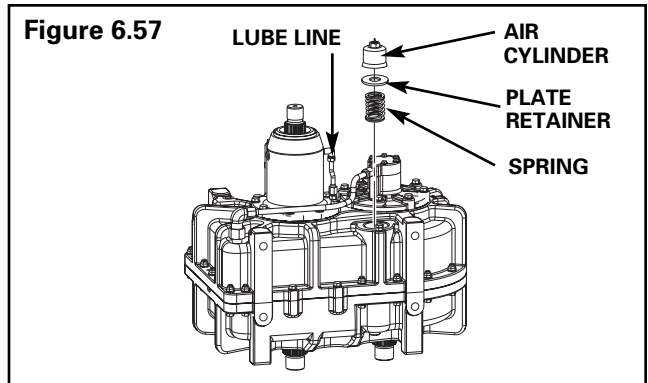
1. Measure end play.
 - **If the end play is between 0.0005- and 0.003-inch (0.0127 and 0.076 mm):** It is not necessary to adjust the shim pack thickness. **Figure 6.56.**
 - **If the end play reading is less than 0.0005-inch (0.0127 mm):** Add shims to the shim pack and measure the end play according to the preceding procedure. **Figure 6.56.**
 - **If the end play reading is more than 0.003-inch (0.076 mm):** Remove the shims from the shim pack to adjust the end play to 0.002-inch (0.050 mm). For example, if the end play reading is 0.018-inch (0.4572 mm), remove the 0.016-inch (0.4060 mm) shims.



2. Install the four cap screws and check the end play according to the preceding procedure. Tighten the cap screws to 65-75 lb-ft (88-102 N•m). 
3. Repeat this procedure until the end play of both shafts is correct. Record the final end play of both shafts.
4. Install the remaining four cap screws and washers. Tighten the cap screws to 65-75 lb-ft (88-102 N•m). **Figure 6.56.** 

Shifting and Pump Components

1. Install the declutch lube line and fittings. Apply Loctite 518 to the fitting threads. **Figure 6.57.**

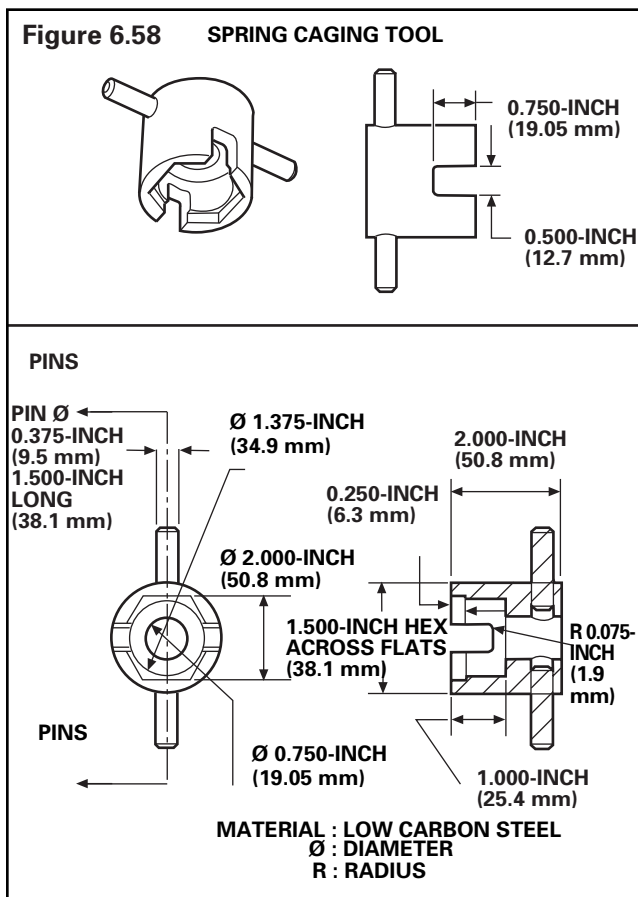


2. Screw a 7/16-inch -14, 8-inch (203 mm) length, threaded rod into the shift shaft until it is seated. **Figure 6.57.**
3. Insert the spring into the case bore.
4. Fit the retainer onto the spring. **Figure 6.57.**

Section 6 Assembly



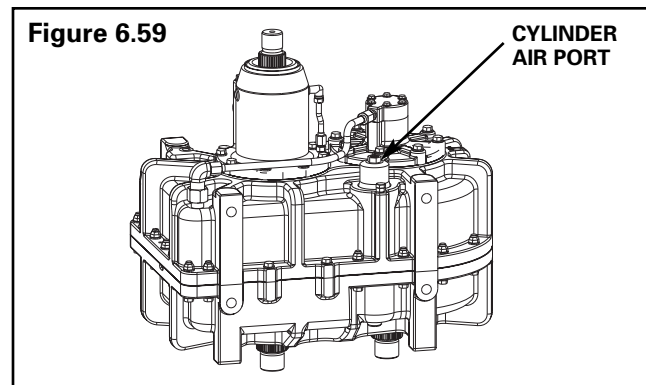
5. Insert the special spring caging tool over the rod and compress the spring with a nut and washer. Carefully align the pins with the locking grooves in the retainer. **Figure 6.58.**
 - **If the special Meritor spring caging tool is not available:** Use a piece of pipe 1-1/8-inch (29 mm) minimum inner diameter, 1-1/2-inch (38 mm) outer diameter, and approximately 1/2-inch (13 mm) in length.



7. Apply Loctite 277 to the threads of the cylinder assembly. **Figure 6.57.**
8. Thread the cylinder assembly to the case bore over the caged spring. Tighten the cylinder assembly to 85-95 lb-ft (115-129 N·m). **Figure 6.57.**

Check the Shift Cylinder for Air Leakage

1. Insert an air line with a pressure gauge into the cylinder air port. Tighten the air line securely. **Figure 6.59.**

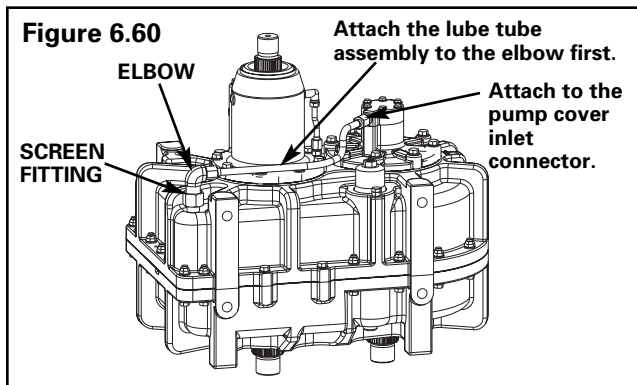





2. Pressurize the shift cylinder to 100 psi (6.9 bar) maximum. Monitor the pressure in the cylinder for one minute. If the pressure drop is more than 1 psi (0.069 bar), replace the cylinder assembly. **Figure 6.59.**
3. Remove the air line and pressure gauge.

6. After the spring and retainer are fully compressed, rotate the retainer 90 degrees to lock it into place. Remove the spring caging tool and the threaded rod.

Screen Fitting, Elbow, and Lubrication Tube

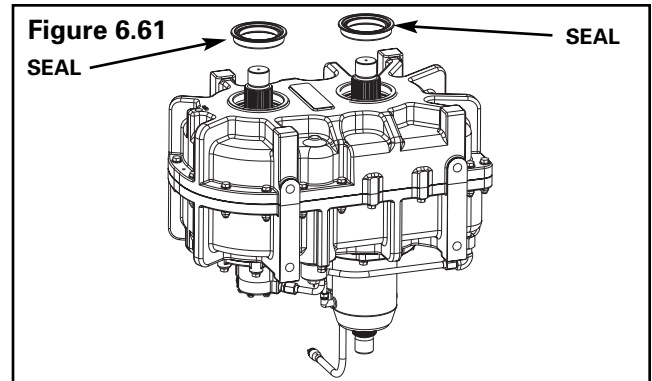
1. Apply Loctite 518 to the threads of the screen fitting and elbow. **Figure 6.60.**



2. Install the screen fitting into the transfer case. Tighten to 35 lb-ft (47 N•m). 
3. Install the elbow into the screen fitting. Tighten to 35 lb-ft (47 N•m). 
4. Attach one end of the lubrication tube inlet assembly to the elbow at the bottom of the case half. Do not fully tighten the tube assembly. **Figure 6.60.**
5. Attach the other end of the tube assembly to the pump cover inlet port. **Figure 6.60.**
6. Tighten both tube fittings to 20 lb-ft (27 N•m). 

Seals and Yokes

1. Use a press and seal driver or a flat metal plate to install the oil seal into the transfer case cover. Press until the metal flange of the seal is seated to the top of the bore. **Figure 6.61.**

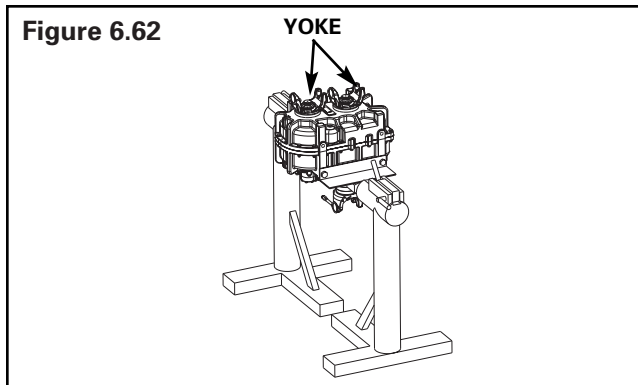


2. Use a feeler gauge to measure the gap between the bottom face of the seal and the top surface of the transfer case cover. No gap should exist.
 3. Apply a coating of SAE 50W synthetic oil to the companion yoke shaft and the oil seal.
 4. Slide the yoke onto the shaft spline. If necessary, press the yoke slightly to fully seat it.
- NOTE:** Refer to the Bill of Material to determine the correct yoke.
5. Apply Loctite 518 to the bottom of the washer.

Section 6 Assembly



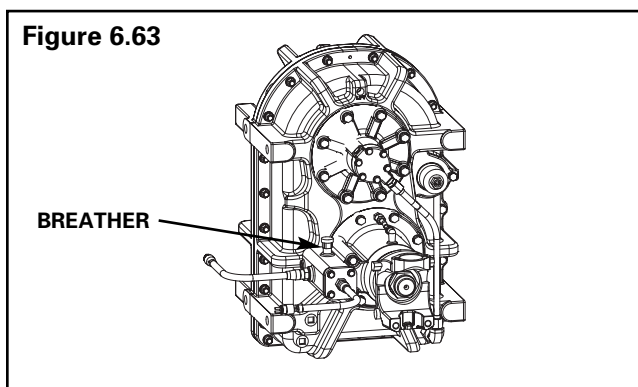
6. Apply a 1/8-inch (3.18 mm) diameter bead of RTV 732 silicone gasket material completely around the undercut of the shaft at the end of the yoke spline. **Figure 6.62.**



7. Fasten the yoke with the washer and lock nut. Tighten the lock nut to 600-800 lb-ft (813-1085 N•m). **T**
8. Repeat the above procedure for the remaining yoke.

Transfer Case Assembly Test

1. Pressure test the transfer case assembly for air leakage. **Figure 6.63.**
2. Check that the fittings are installed correctly.



! CAUTION

**The air pressure must not exceed 10 psi (0.69 bar).
Damage to components can result.**

3. With the correct fitting installed into the breather port, apply a pressure of 8-10 psi (0.55-0.69 bar).
4. Shut off the air supply.
 - **If the pressure decreases by more than 2 psi (0.14 bar) in 10 minutes:** Check for external leaks at the fittings.
5. Correct the leakage problem and retest.
6. Install the breather.

WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.


Installation

Transfer Case in Vehicle

WARNING

Support the transfer case with a lifting device before you move the transfer case. A transfer case that is not supported correctly can fall. Serious personal injury and damage to components can result.

To avoid serious personal injury and possible damage to components, be very careful when using lifting devices.

- Inspect to make sure that the lifting straps are not damaged.
 - Do not subject lifting straps to any shock or drop loading.
 - Fully thread the lifting bolt.
1. With a lifting device, remove the transfer case from the repair stand to a hydraulic roller jack. Remove the temporary eyebolts and angle iron brackets from the transfer case housing.
 2. Use the hydraulic roller jack to move the transfer case into position under the vehicle.
 3. Install the transfer case into the vehicle with the mounting bolts. Tighten the bolts to the torque specification supplied by the vehicle manufacturer. 
 4. Connect the drivelines to the input and output yokes of the transfer case.
 5. Fill the transfer case with the proper quantity of specified lubricant. Refer to Section 8.

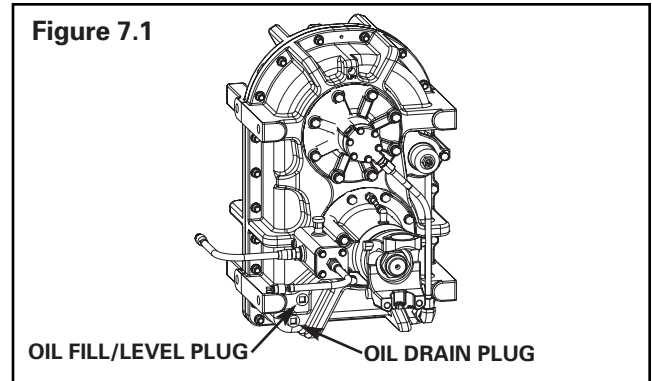
Fill the Transfer Case with Lubricant

NOTE: If you fill the transfer case with oil through the declutch, allow adequate time for the oil to work its way through the declutch bearing.

1. Fill the transfer case with 6.5 pints (3.08 L) of SAE 50W full synthetic oil through the breather opening in the declutch.


You must fill the transfer case with oil until the oil level is at the bottom of the fill plug. **Figure 7.1.**

Figure 7.1



WARNING

Take care when using Loctite® to avoid serious personal injury. Follow the manufacturer's instructions to prevent irritation to the eyes and skin. If Loctite gets into your eyes, flush them with water for 15 minutes. Have your eyes checked by a doctor as soon as possible.

2. Apply Loctite 592 to the elbow threads. Insert the breather into the declutch opening. Tighten the elbow to 20 lb-ft (27 N•m) minimum. 

Section 7 Installation

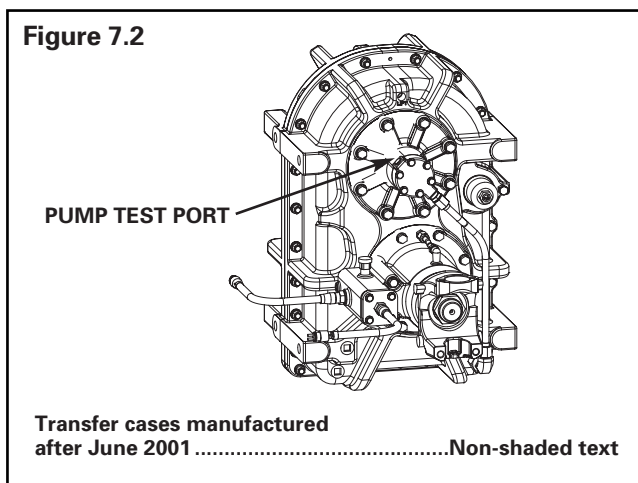


Check the Transfer Case Lubrication Pressure

The transfer case lubrication pressure should be 7-25 psi (0.48-1.72 bar) with the truck operating at 20-25 mph (32-40 km/h) and the oil warm. Replace the pump if the pressure is less than 7 psi (0.48 bar).

The lubrication pump relief pressure is 60 ± 5 psi (4.14 ± 0.34 bar) and is not adjustable.

Figure 7.2.



WARNING

To prevent serious eye injury, always wear safe eye protection when you perform vehicle maintenance or service.

Lubrication

For complete lubrication information for Meritor's transfer cases, refer to Maintenance Manual 1, Lubrication. To obtain a copy of this publication or access it on ArvinMeritor's web site, refer to the Service Notes page on the inside front cover of this manual.

Lubricant Temperatures

CAUTION

Meritor transfer cases may operate above 190° F (88° C) without damage. However, if the oil temperature reaches 250° F (121° C), stop the vehicle immediately. Check for the cause of overheating. Maximum continuous oil temperature must not exceed 225° F (107° C). Damage to components can result.

The transfer case oil sump should have a maximum continuous operating temperature of 225° F (107° C) and an absolute maximum temperature of 250° C (121° C).

- **If the vehicle temperature reaches 250° F (121° C):** Stop the vehicle immediately. Check for the cause of overheating.
- **If the transfer case continuous sump temperature is over 225° F (107° C) caused by high input speeds with high ambient temperatures and poor air circulation:** Use a lighter viscosity oil recommended by Meritor. Also use a lighter-viscosity oil in extremely cold climates.

Multi-Viscosity Oils

Meritor does not approve multi-viscosity motor oils. Refer to Maintenance Manual 1, Lubrication, for a list of approved oils.

Meritor does approve petroleum-base and synthetic-base oils.

Do Not Install API GL-5 Oils

CAUTION

Only use oil specified by Meritor in a transfer case. Do not install API GL-5 oils, which contain extreme pressure (EP) additives. These additives can form sludge at normal operating temperatures. Damage to components will result.

Do not install API GL-5 oils in a transfer case. This specification contains extreme pressure (EP) additives that can form sludge at normal operating temperatures and damage transfer case components.

Petroleum-Base and Synthetic-Base Oils

CAUTION

Do not mix or switch petroleum-base and synthetic-base oils in a transfer case. Damage to components will result. Only install the same oil type that was originally specified throughout the life of the transfer case.

Meritor approves both petroleum-base and synthetic-base oils. However, do not mix or switch these oils in a transfer case. Damage to components will result. Use the same oil type that was originally specified in the transfer case.

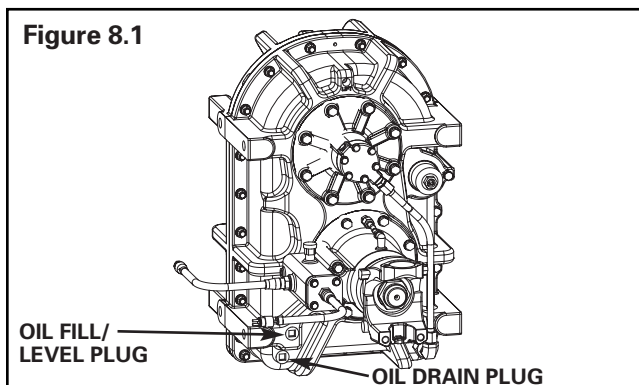
Synthetic oils must be approved by Meritor's engineering department. Refer to publication TP-90114 for a list of approved distributors. To obtain this publication refer to the Service Notes page at the front of this manual.

Section 8 Lubrication and Maintenance



Check and Adjust the Oil Level

1. Make sure the vehicle is parked on a level surface.
2. Clean the area around the fill plug. Remove the fill plug from the transfer case. **Figure 8.1.** The oil level must be even with the bottom of the the fill plug hole or the top of the standpipe, if used.
 - **If oil flows from the hole when you loosen the plug:** The oil level is high. Drain the oil to the bottom of the fill hole.
 - **If the oil level is below the bottom of fill/level plug hole or stand pipe:** Add the specified oil until oil is even with the bottom of the fill hole.



3. Install and tighten the fill plug to 35-50 lb-ft (47-68 N•m). **T**

Drain and Replace the Oil

1. Park the vehicle on a level surface. Put a large container under the transfer case.
2. Remove the drain plug from the bottom of the transfer case. Drain and discard the oil correctly. Clean the plug. **Figure 8.1.**
3. Install and tighten the drain plug to 35-50 lb-ft (47-68 N•m). Clean the area around the fill plug. Remove the fill plug from the transfer case. **T**
4. Add the specified oil until the oil level is even with the bottom of the fill plug hole. Install and tighten the fill plug to 35-50 lb-ft (47-68 N•m). **T**
5. Run the vehicle for 1/4 mile (0.4 km), then top off the oil level by adding oil to the fill opening. Reinstall and tighten the fill plug to 35-50 lb-ft (47-68 N•m). **T**

Transfer Case Oil Specifications ① ④ ⑤

Oil Description	Meritor Specification	A.P.I. Specification	Military Specification	SAE Grade	Outside Temperature
Petroleum GL-1 Oil with Rust and Oxidation Inhibitor ②	—	A.P.I. GL-1	—	90W 80W	Above 10°F (-12°C) Above -15°F (-26°C)
Heavy Duty Engine Oil ②	—	A.P.I. CD, CE, SF or SG ⑥	—	50W 40W 30W	Above 10°F (-12°C) Above 10°F (-12°C) Above -12°F (-26°C)
Full Synthetic Oil ③	O81	—	—	50W	Above -40°F (-40°C)
A.P.I. GL-5 (Axle Lube) ①	DO NOT USE IN TRANSFER CASES				

- ① Do Not use multi-viscosity (I.E. 80/90W) GL-5 Gear Oil (axle lube).
- ② 90W GL-1 or 50W motor oil is same viscosity and commonly used above 10°F (-12°C).
- ③ Meritor approved full synthetic oil for manual ZF Meritor transmissions is also approved for Meritor transfer cases. Use synthetic oil only if the transfer case was initially filled with synthetic oil.
- ④ Do not mix or switch oil types. Use the same oil that initially filled the transfer case.
- ⑤ Do not use multi-viscosity oils.
- ⑥ Current designations are acceptable.

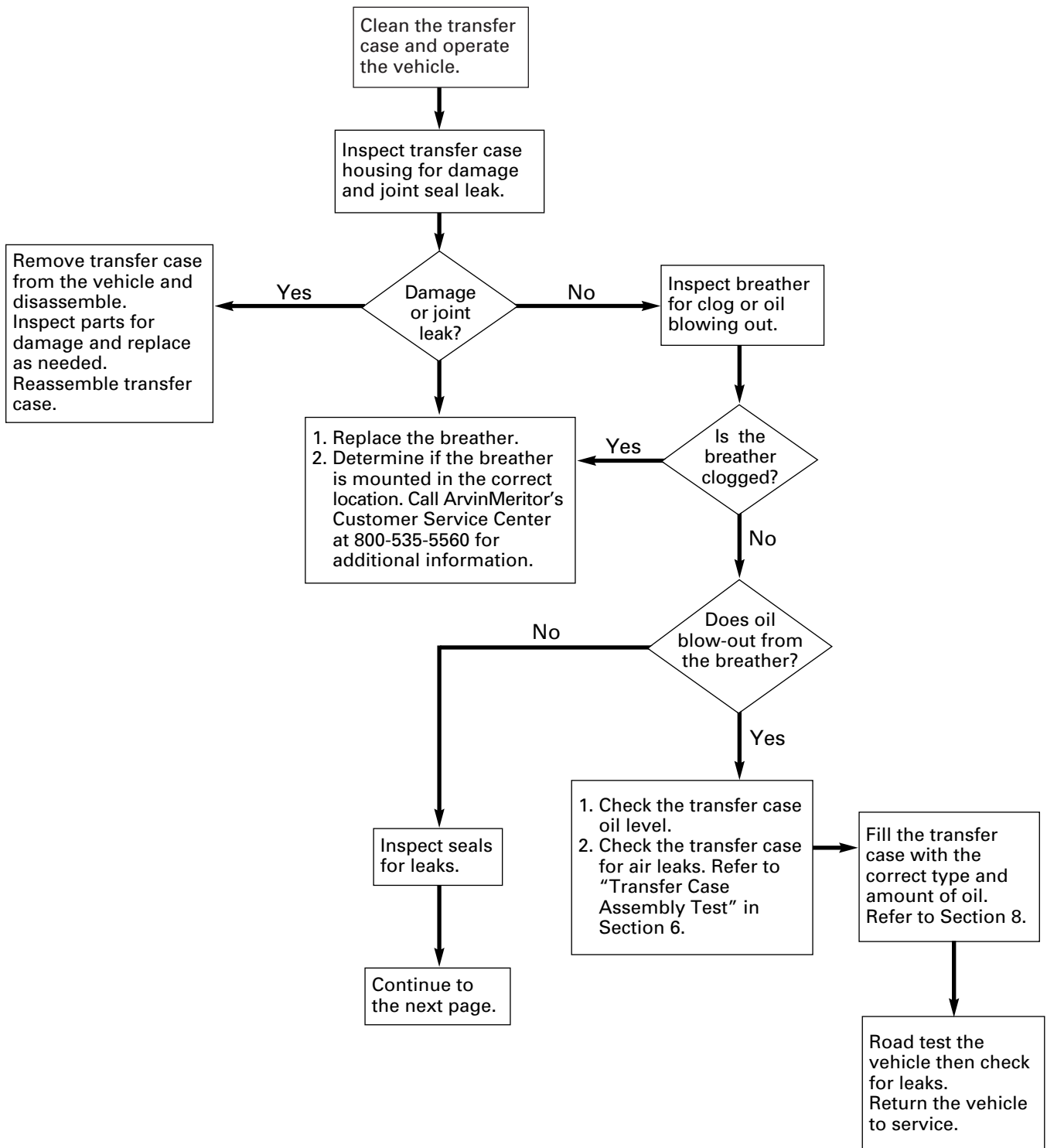


Section 8 Lubrication and Maintenance

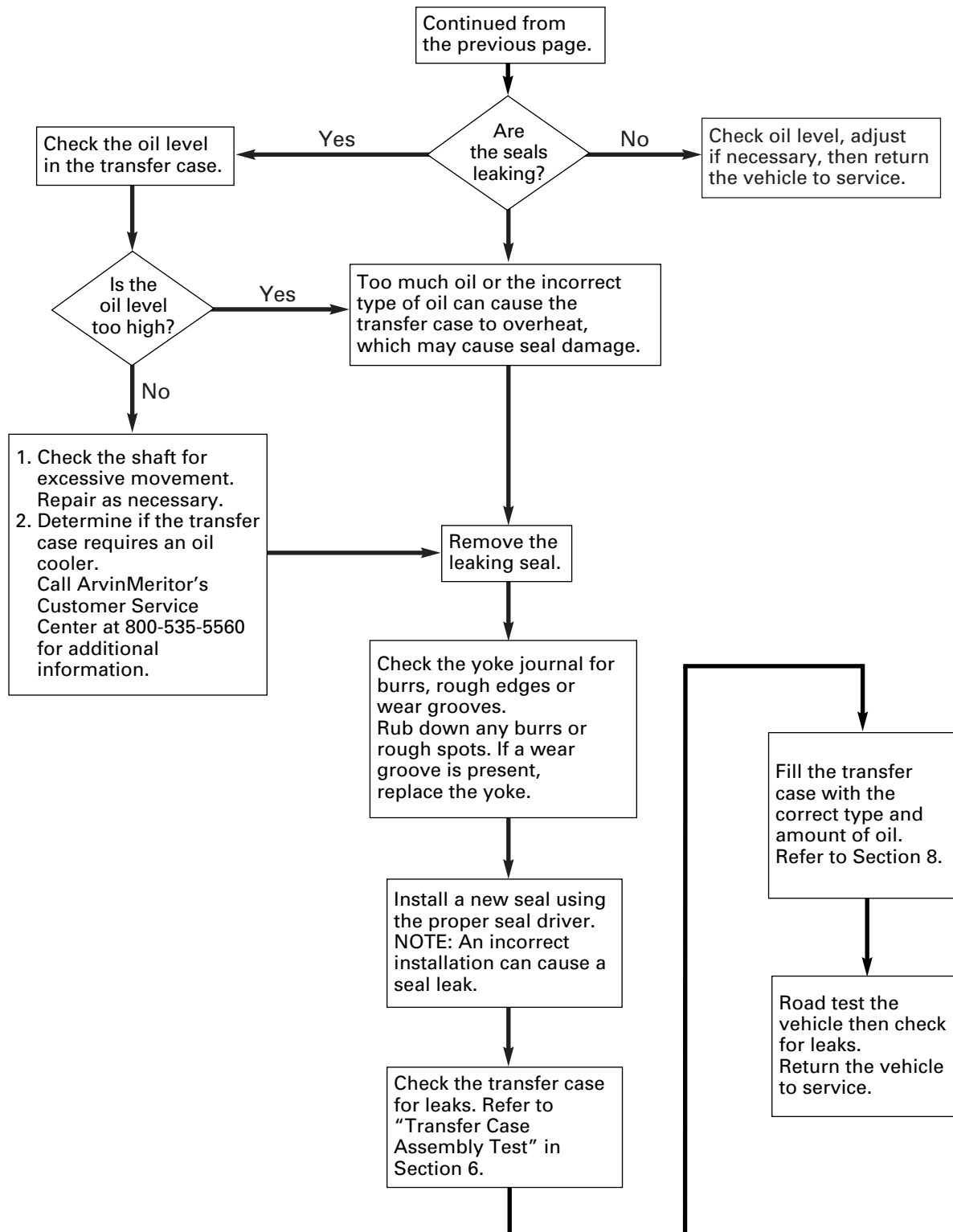
Transfer Case Oil Change Intervals

Operation	On-Highway	Off-Highway
Check Oil Level	5,000 miles (8000 km)	250 operating hours
Initial Oil Change	2,500 miles (4000 km)	40-100 operating hours
Scheduled Oil Change	12,000-25,000 miles (19 000-40 000 km)	1500 operating hours or twice each year (whichever comes first)
Synthetic Oil	100,000 miles or once each year (whichever comes first)	3000 hours or once each year (whichever comes first)

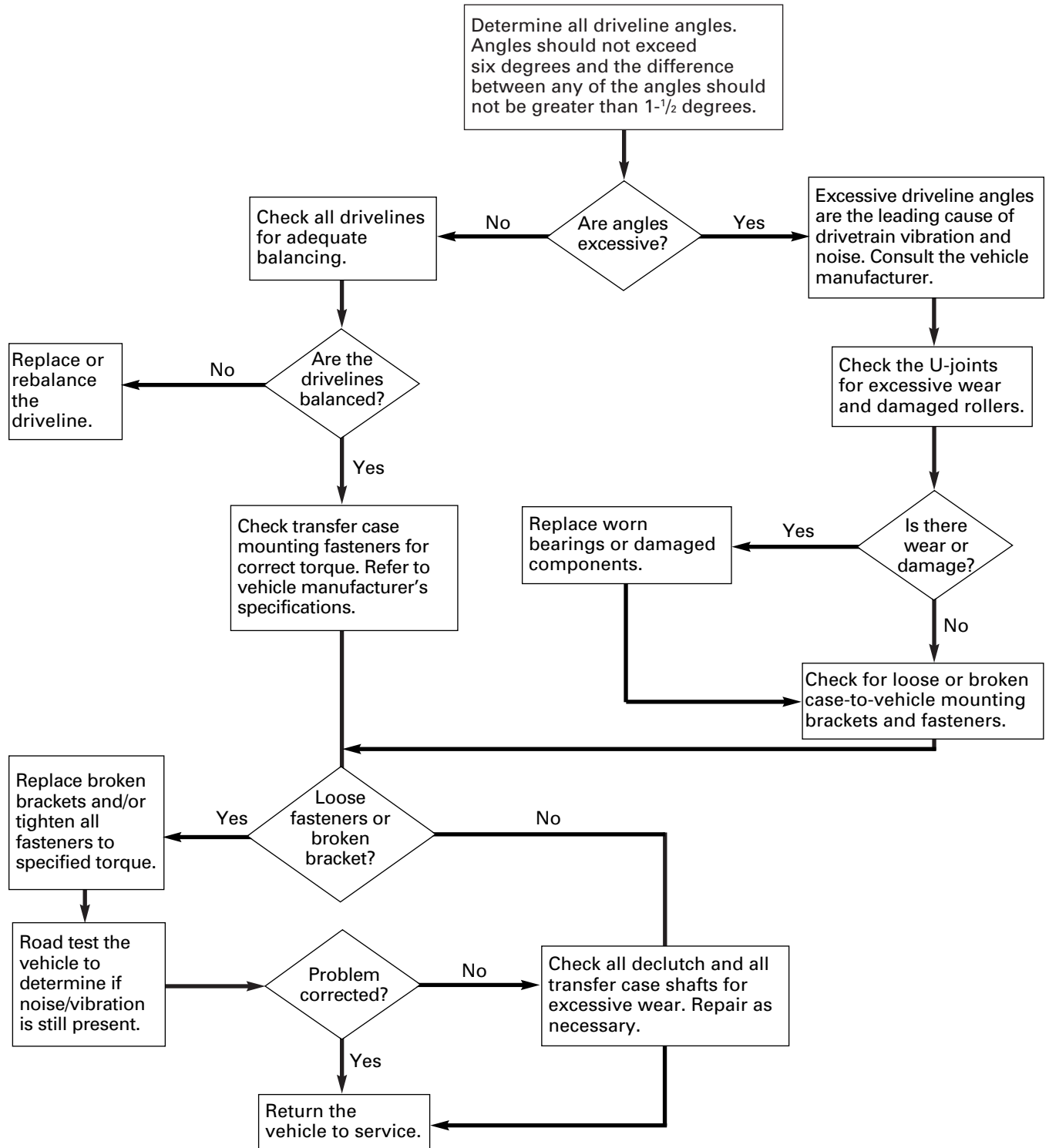
Transfer Case Lubrication Diagnostics



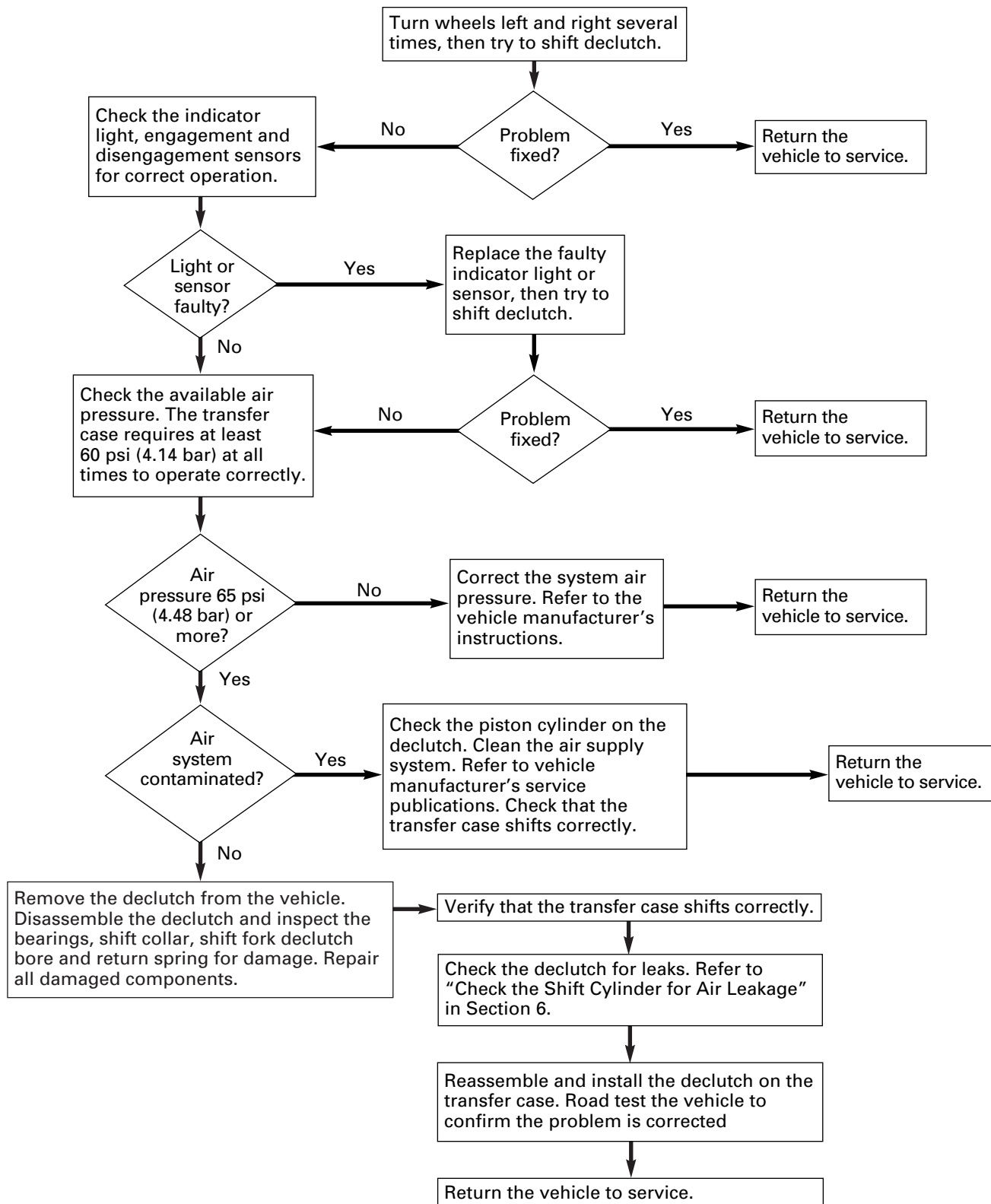
Transfer Case Lubrication Diagnostics



Excessive Noise and Vibration Diagnostics



Declutch/PTO Does Not Engage/Disengage Diagnostics



Specifications

Applications that exceed these recommended speed limits must be reviewed with the ArvinMeritor Engineering Applications Department. Call the ArvinMeritor Customer Service Center at 800-535-5560.

Input Torque Rating lb-ft (N·m)		Front Declutch Torque Rating lb-ft (N·m)	Input Speed Rating rpm	Dry Weight Less Yokes lbs (kg)	Oil Capacity pints (L)	Ratio Combinations
High	Low					
13,000 (17,626)	10,500 (14,237)	10,000 (13,500)	3,350	425 (192.8)	6.5 (3.0)	0.85 / 2.47 1.00 / 2.47

Options

- Optional Indicator Switch Available for All (PTO/Declutches) – Indicator switches for ON and OFF
- Meritor Full Round and Easy Service Yokes or Companion Flanges available as specified

As input speed increases, more heat is generated due to the viscous shearing of lubricant by the gear components, noise increases and transfer case component integrity can be compromised.

Section 10 Specifications and Applications



Driveline Application Guidelines

NOTE: All of the options shown below may not be available for each transfer case configuration. The values given are for ArvinMeritor-manufactured parts. If parts from other manufacturers are used, torque values may be different.

Wing Style Yokes	Max. Torque Rating/lb-ft (N·m)	Flange Style		
62N	5,000 (6779)	3WCS	3WCS 8 BOLT	5 WCS 12 BOLT
58WB	7,025 (9561)			
72N	7,080 (9599)			
82N	11,080 (15022)			
85WB	12,500 (16948)			
92N	23,000 (31184)			

Full Round (NYS) Easy Service (TYS) Style Yokes	Max. Torque Rating/lb-ft (N·m)	Flange Style		
131 NYS and TYS	1,950 (2644)	3WCS	3WCS 8 BOLT	5 WCS 12 BOLT
133 NYS and TYS	2,330 (3159)			
135 NYS and TYS	3,080 (4176)			
141 NYS and TYS	3,750 (5084)			
148 NYS and TYS	5,000 (6779)			
155 NYS and TYS	6,250 (8474)			
16 NYS and TYS	7,100 (9626)			
17 NYS and TYS	9,600 (13016)			
176 NYS and TYS	16,000 (21693)			
18 NYS and TYS	21,000 (28472)			

Driveline Length Guidelines

Smallest yoke sizes (131 Series): Maximum driveline length of approximately 48-inches (1.2 m).

Largest yoke sizes (92N Series): No more than an 80-inch (2.03 m) long driveline. Other maximum driveline lengths should fall between these values, increasing with relative size.

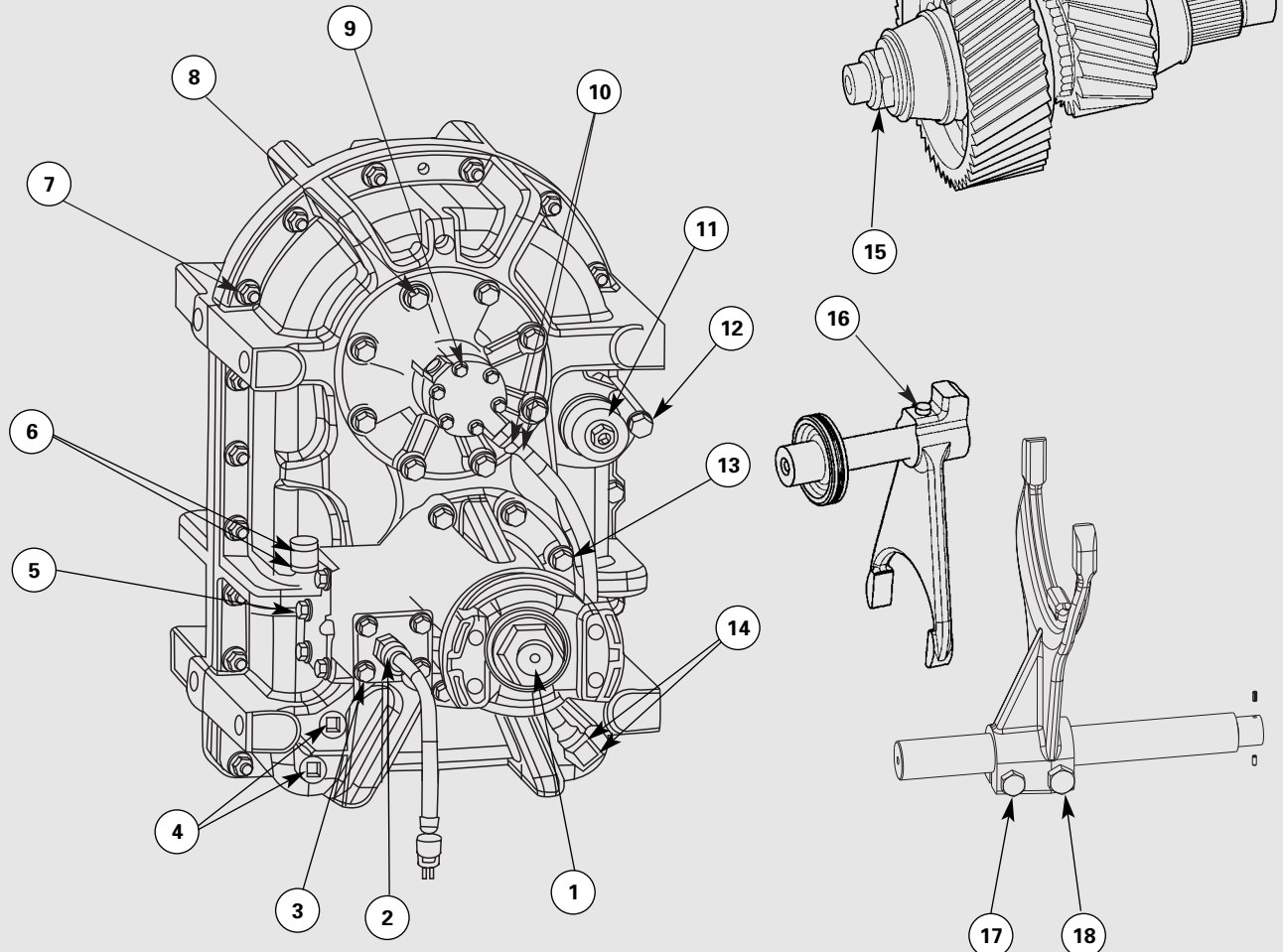
Maximum Driveline Angle Guidelines

NOTE: Values shown below are guidelines only for two-joint shafts without mismatch. For more detailed information on performing driveline calculations refer to ArvinMeritor publication SP-7711. Obtain final approval from ArvinMeritor's Driveline Engineering Department.

Driveline RPM	Maximum Operating Angle (DEG)
4000	4.25
3500	5.00
3000	5.85
2500	7.00
2000	8.65

TG-2213RD Torque Chart

Transfer Cases Manufactured Through June 2001

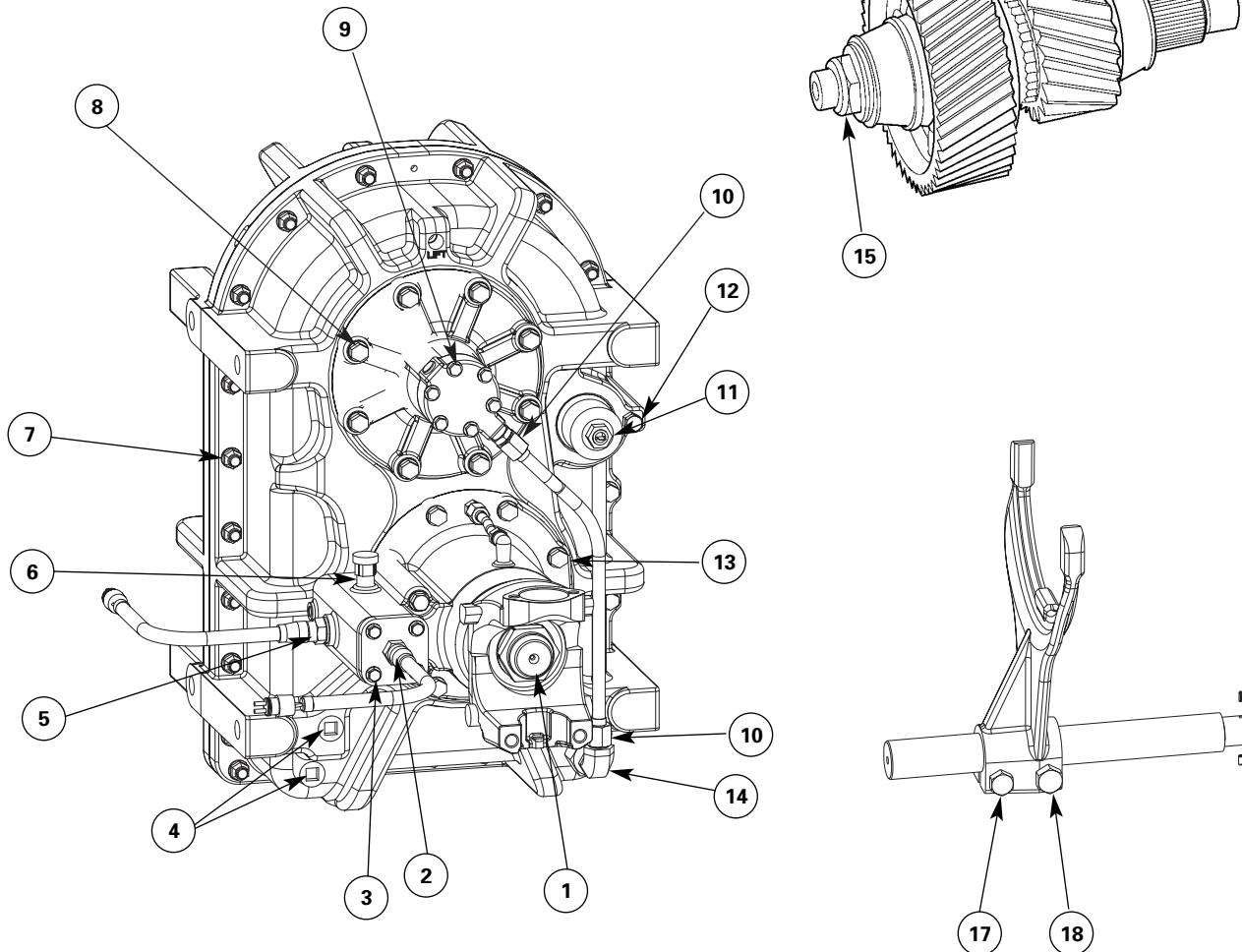


Item	Description	Torque lb-ft (N·m)	Item	Description	Torque lb-ft (N·m)
1	Yoke Nuts (Both Sides)	600-800 (813-1085)	10	Lube Line Fitting	20 (27) Minimum
2	Indicator Switch Assembly	25-35 (39-47)	11	High/Low Shift Cylinder	85-95 (115-129)
3	Declutch Cover Capscrew	25-35 (39-47)	12	Caging Capscrew	45-55 (61-75)
4	Fill / Drain Plug	35 (47) Minimum	13	Declutch Housing Capscrew	65-75 (88-102)
5	Cover Capscrew	25-35 (39-47)	14	Lube Line Elbow	20 (27) Minimum
6	Breather Elbow	35-50 (47-68)	15	Input Shaft Lock Nut	600-800 (813-1085)
6	Breather	20 (27) Minimum	16	Declutch Piston Setscrew	20-30 (27-41)
7	Housing Capscrew	65-75 (88-102)	17	High / Low Shift Fork Capscrew	45-55 (61-75)
8	Bearing Cage Capscrew	65-75 (88-102)	18	High / Low Shift Fork Capscrew	75-85 (102-115)
9	Pump Cover Capscrew	10-15 (14-20)			

Section 10 Specifications and Applications



TG-2213RD Torque Chart Transfer Cases Manufactured After June 2001



Item	Description	Torque lb-ft (N·m)	Item	Description	Torque lb-ft (N·m)
1	Yoke Nuts (Both Sides)	600-800 (813-1085)	10	Lube Line Fitting	20 (27) Minimum
2	Indicator Switch Assembly	25-35 (39-47)	11	High/Low Shift Cylinder	85-95 (115-129)
3	Declutch Cover Capscrew	10-14 (14-19)	12	Caging Capscrew	45-55 (61-75)
4	Fill/Drain Plug	35 (47) Minimum	13	Declutch Housing Capscrew	65-75 (88-102)
5	Switch Plug	25-35 (39-47)	14	Lube Line Elbow	20 (27) Minimum
6	Breather	20 (27) Minimum	15	Input Shaft Lock Nut	600-800 (813-1085)
7	Housing Capscrew	65-75 (88-102)	17	High/Low Shift Fork Capscrew	45-55 (61-75)
8	Bearing Cage Capscrew	65-75 (88-102)	18	High/Low Shift Fork Capscrew	75-85 (102-115)
9	Pump Cover Capscrew	10-15 (14-20)			