

SERVICE REPAIR

MANUAL

Hyster H004 (S80-120FT, S80-100FTBCS, S120FTS, S120FTPRS) Forklift Service Repair Manual

HYSTER

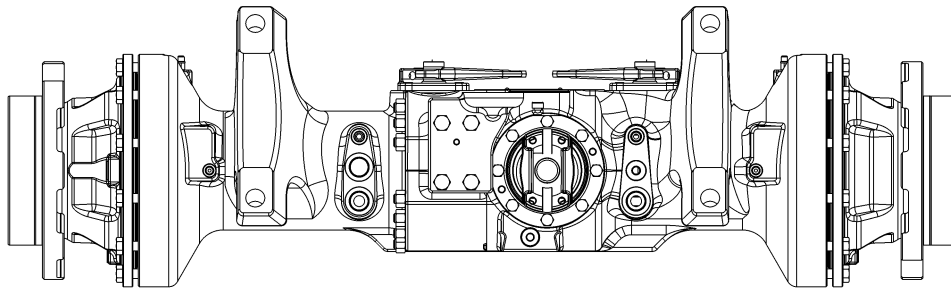
DRIVE AXLE AND DIFFERENTIAL ASSEMBLY REPAIR (WET BRAKE)

**S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT;
S80, 100FTBCS; S120FTS; S120FTPRS)**

[G004, H004, J004];

**H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT
(H80, 90, 100, 110, 120FT)**

[N005, P005, R005, S005, U005]



HYSTER

SAFETY PRECAUTIONS

MAINTENANCE AND REPAIR

- The Service Manuals are updated on a regular basis, but may not reflect recent design changes to the product. Updated technical service information may be available from your local authorized Hyster® dealer. Service Manuals provide general guidelines for maintenance and service and are intended for use by trained and experienced technicians. Failure to properly maintain equipment or to follow instructions contained in the Service Manual could result in damage to the products, personal injury, property damage or death.
- When lifting parts or assemblies, make sure all slings, chains, or cables are correctly fastened, and that the load being lifted is balanced. Make sure the crane, cables, and chains have the capacity to support the weight of the load.
- Do not lift heavy parts by hand, use a lifting mechanism.
- Wear safety glasses.
- DISCONNECT THE BATTERY CONNECTOR before doing any maintenance or repair on electric lift trucks. Disconnect the battery ground cable on internal combustion lift trucks.
- Always use correct blocks to prevent the unit from rolling or falling. See HOW TO PUT THE LIFT TRUCK ON BLOCKS in the **Operating Manual** or the **Periodic Maintenance** section.
- Keep the unit clean and the working area clean and orderly.
- Use the correct tools for the job.
- Keep the tools clean and in good condition.
- Always use **HYSTER APPROVED** parts when making repairs. Replacement parts must meet or exceed the specifications of the original equipment manufacturer.
- Make sure all nuts, bolts, snap rings, and other fastening devices are removed before using force to remove parts.
- Always fasten a DO NOT OPERATE tag to the controls of the unit when making repairs, or if the unit needs repairs.
- Be sure to follow the **WARNING** and **CAUTION** notes in the instructions.
- Gasoline, Liquid Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Diesel fuel are flammable. Be sure to follow the necessary safety precautions when handling these fuels and when working on these fuel systems.
- Batteries generate flammable gas when they are being charged. Keep fire and sparks away from the area. Make sure the area is well ventilated.

NOTE: The following symbols and words indicate safety information in this manual:



WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury and property damage.

On the lift truck, the **WARNING** symbol and word are on orange background. The **CAUTION** symbol and word are on yellow background.

TABLE OF CONTENTS

General	1
Identification Plate	1
Drive Axle Removal	1
Hub Seal Replacement	8
Remove	9
Install	12
Planetary Reduction Repair	17
Remove	18
Disassemble	20
Clean and Inspect	26
Assemble	26
Install	36
Brake Repair	40
Remove and Disassemble	42
Clean and Inspect	51
Assemble and Install	52
Bevel Pinion	62
Remove	63
Disassemble	65
Clean and Inspect	68
Assemble	68
Calculation of Measurement Y	70
Calculation of Measurement X	71
Calculation of Measurement S1	72
Calculation of Measurement S2	72
Bevel Pinion Housing	74
Install	78
Differential Unit	80
Remove	81
Disassemble	90
Differential Assembly	90
Ring Nuts	96
Clean and Inspect	97
Assemble	97
Ring Nuts	97
Differential Assembly	100
Install	107
Drive Axle Installation	120
Special Tools	128
Torque Specifications	129

This section is for the following models:

S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS;
S120FTPRS) [G004, H004, J004];
H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT)
[N005, P005, R005, S005, U005]

"THE QUALITY KEEPERS"

**HYSTER
APPROVED
PARTS**

**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

JustClickHere 

NOTE:

**If there is no response to click on the link above,
please download the PDF document first, and then
click on it.**

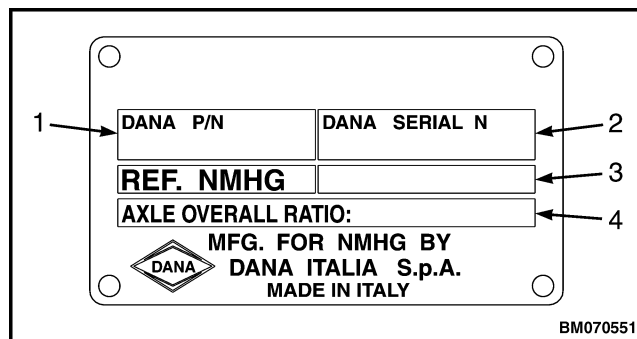
**Have any questions please write to me:
admin@servicemanualperfect.com**

General

This manual covers the repair of the drive axle, differential, and the wet disc brakes.

IDENTIFICATION PLATE

See Figure 1.



1. DANA PART NUMBER
2. DANA SERIAL NUMBER
3. HYSTER PART NUMBER
4. AXLE OVERALL RATIO

Figure 1. Identification Plate

Drive Axle Removal



WARNING

When putting the lift truck on blocks, make sure the surface is solid, even, and level. Any blocks used to support the lift truck must be solid, one-piece units.

1. Put blocks on each side (front and back) of the steering tires to prevent movement of the lift truck.
2. Raise the lift truck and put blocks under the frame so that the drive wheels do not touch the floor. Put blocks under the counterweight for stability.
3. Remove the mast assembly as described in the section **Mast Repairs** (S/N A513, A514, A613, A614, A702, A703, A704, A705, A706, A707, A751, A752, B513, B514, B586, B587, B588, B589, B590, B591, B749, B750, B751, B752, B753, B754) 4000SRM1250.



WARNING

On lift trucks with pneumatic tires, completely remove air from tires before removing them from lift truck. Air pressure in tires can cause tire and rim parts to explode, which can cause serious injury

or death. Never loosen nuts that hold together inner and outer wheel halves when there is air pressure in tire.

4. Remove the wheels.
5. Remove the planetary carrier housing fill/level plugs on both sides of the drive axle.

See Figure 2 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)

See Figure 3 for lift truck models

- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)

6. Remove the center section fill/level plug.

See Figure 2 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)

See Figure 3 for lift truck models

- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)

7. Remove the planetary carrier housing drain plugs on both sides of the drive axle to drain the oil from the planetary carrier housings into a suitable container.

See Figure 2 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)

See Figure 3 for lift truck models

- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)

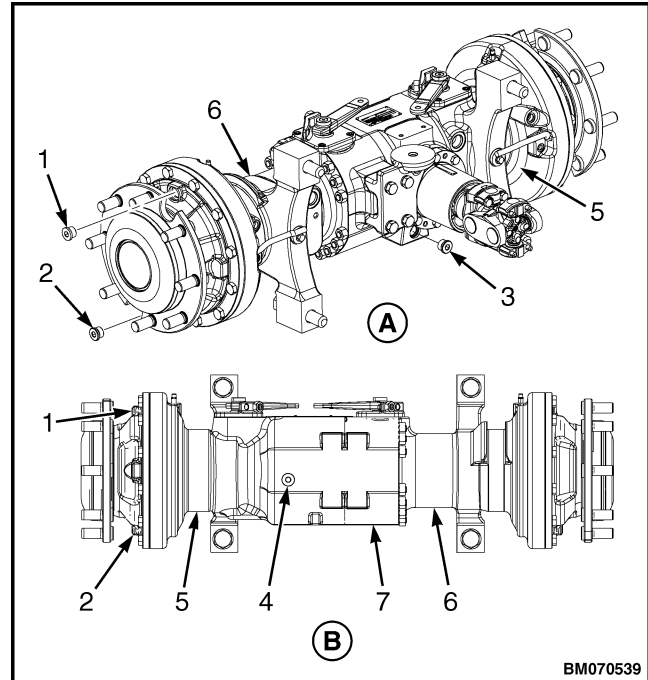
8. Remove the center section drain plug to drain the oil from the center section into a suitable container.

See Figure 2 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)

See Figure 3 for lift truck models

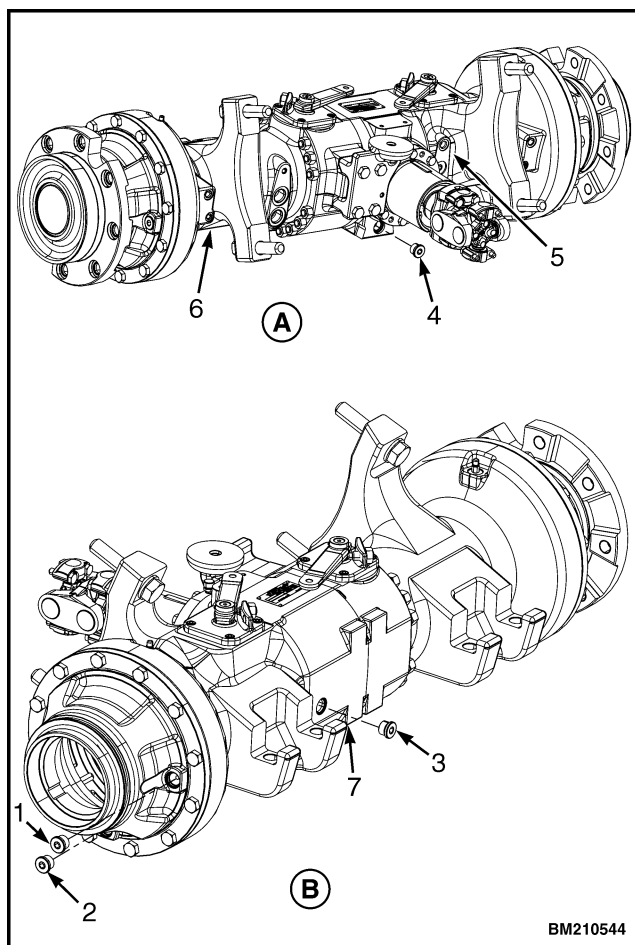
- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)



- A. REAR VIEW SHOWN
- B. FRONT VIEW SHOWN

1. PLANETARY CARRIER HOUSING FILL/LEVEL PLUGS
2. PLANETARY CARRIER HOUSING DRAIN PLUGS
3. CENTER SECTION DRAIN PLUG
4. CENTER SECTION FILL/LEVEL PLUG
5. PLANETARY CARRIER HOUSING (RH)
6. PLANETARY CARRIER HOUSING (LH)
7. CENTER SECTION

Figure 2. Drive Axle Drain and Fill/Level Plugs for Lift Truck Models S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)



A. REAR VIEW SHOWN
B. FRONT VIEW SHOWN

1. PLANETARY CARRIER HOUSING FILL/LEVEL PLUGS
2. PLANETARY CARRIER HOUSING DRAIN PLUGS
3. CENTER SECTION FILL/LEVEL PLUG
4. CENTER SECTION DRAIN PLUG
5. PLANETARY CARRIER HOUSING (RH)
6. PLANETARY CARRIER HOUSING (LH)
7. CENTER SECTION

Figure 3. Drive Axle Drain and Fill/Level Plugs for Lift Truck Models H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)

9. Remove the parking brake cables. Refer to the following section for removal procedures:

See **Brake System** 1800SRM1247 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004)

- H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005)

See **Wet Brakes - NMHG** 1800SRM1597 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS, (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (J004)
- H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (U005)

10. Remove the capscrews retaining the line guards and remove the line guards on both sides of the drive axle.

See Figure 4 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)

See Figure 5 for lift truck models

- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)

11. Disconnect the brake cooling lines from both sides of the drive axle.

See Figure 4 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)

See Figure 5 for lift truck models

- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)

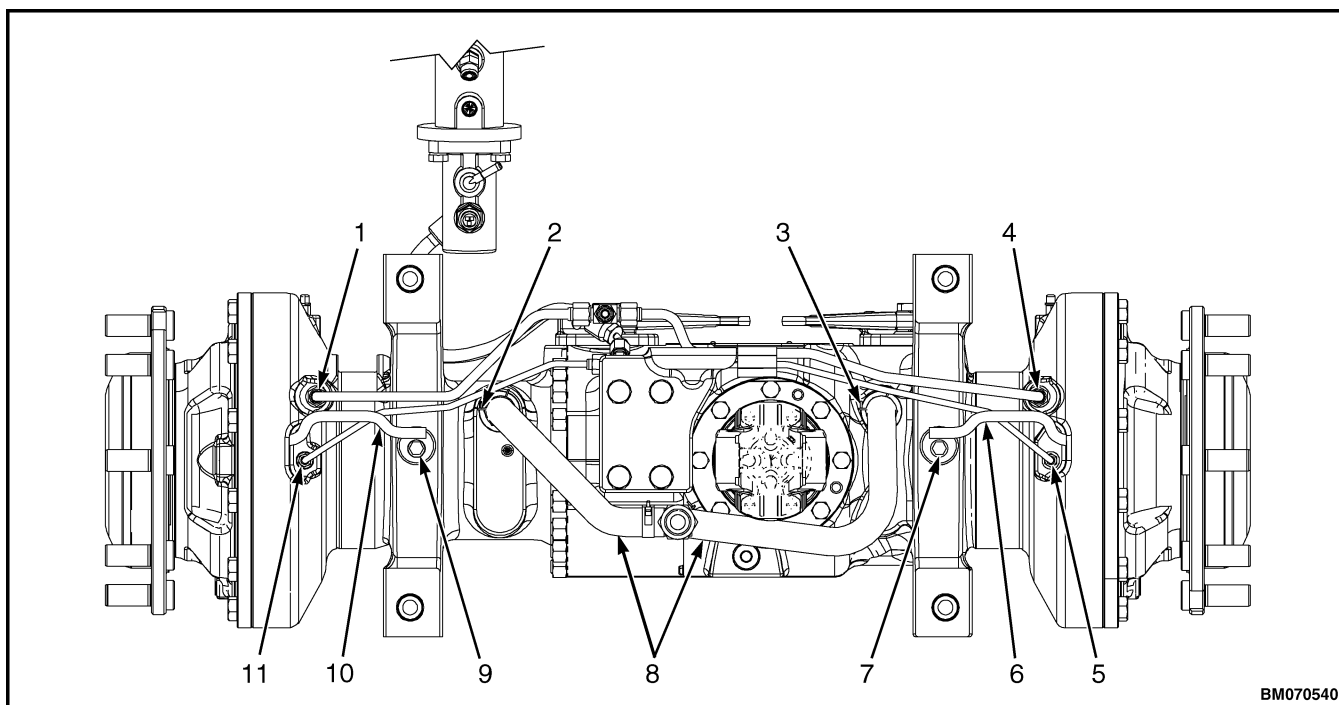
12. Disconnect the brake lines from both sides of the drive axle.

See Figure 4 for lift truck models

- S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)

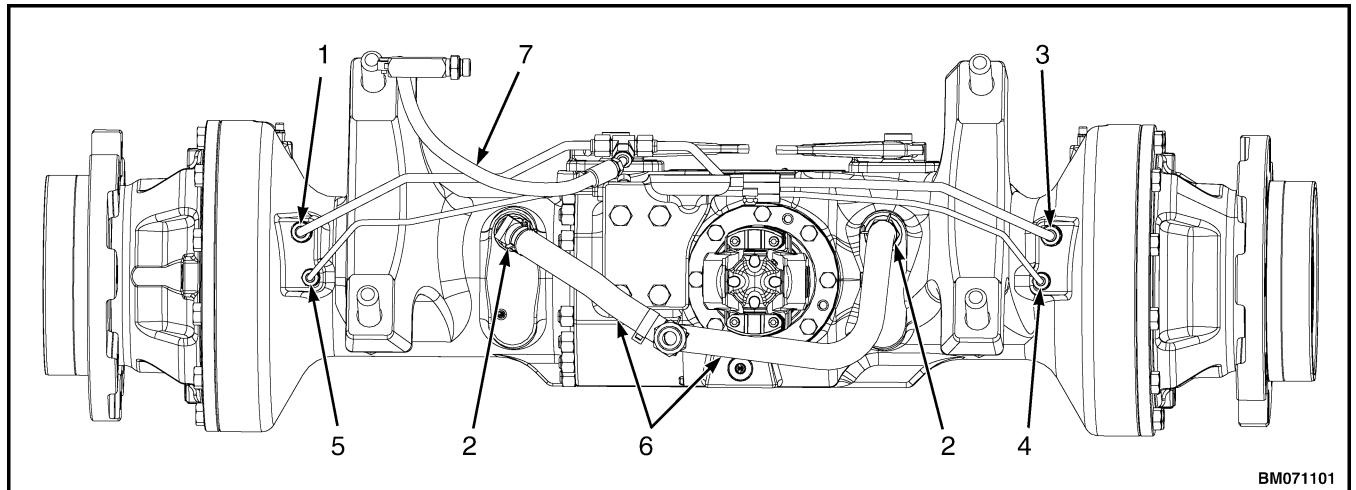
See Figure 5 for lift truck models

- H4.0FT5/FT6; H4.5FTS5, H4.5FT6, H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)



- | | |
|------------------------------------|----------------------------|
| 1. BRAKE COOLING LINE (LEFT SIDE) | 7. CAPSCREW |
| 2. HOSE CLAMP | 8. COOLING RETURN HOSES |
| 3. HOSE CLAMP | 9. CAPSCREW |
| 4. BRAKE COOLING LINE (RIGHT SIDE) | 10. LINE GUARD (LEFT SIDE) |
| 5. BRAKE LINE (RIGHT SIDE) | 11. BRAKE LINE (LEFT SIDE) |
| 6. LINE GUARD (RIGHT SIDE) | |

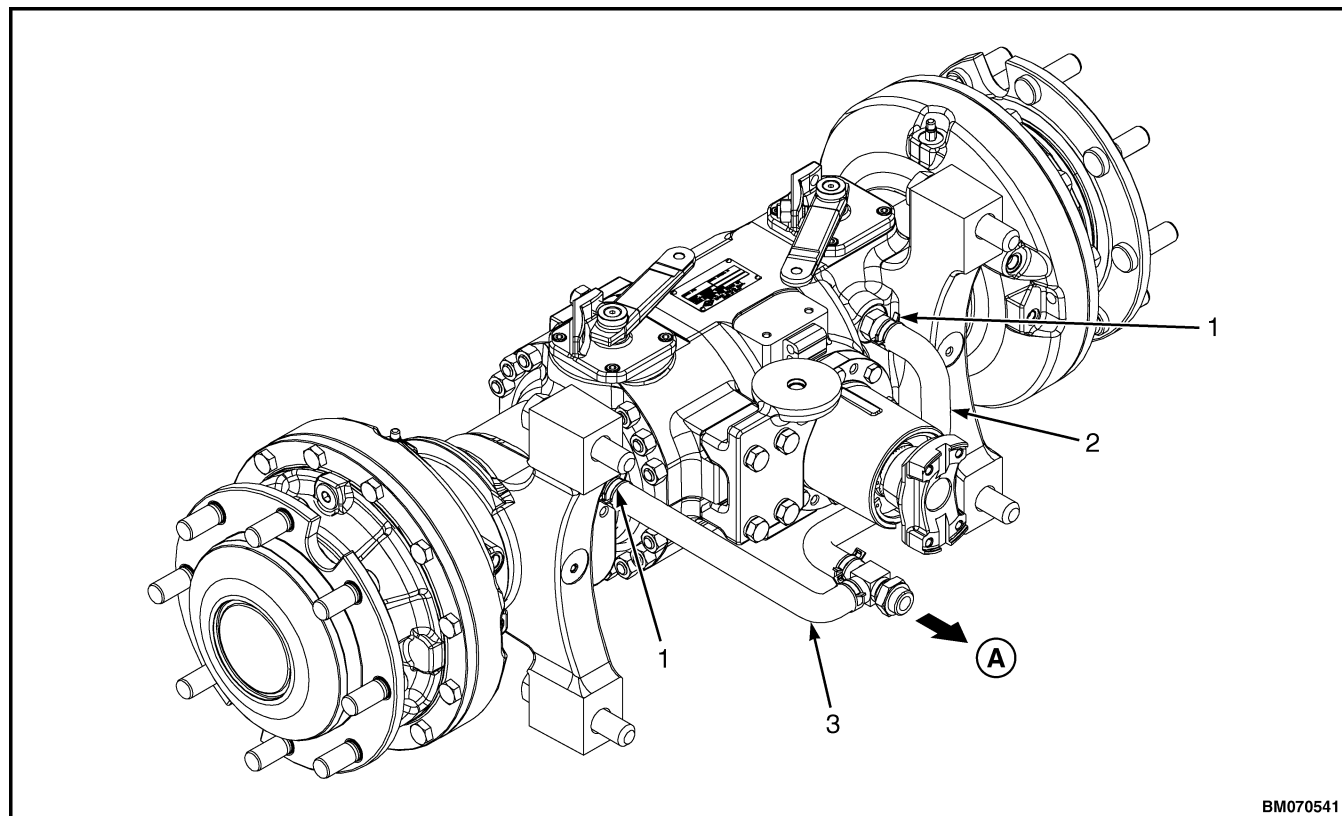
Figure 4. Brake Cooling Lines and Brake Lines, Lift Truck Model S4.0, 4.5, 5.5FT, S5.5FTS (S80, 100, 120FT; S80, 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004)



- | | |
|------------------------------------|---------------------------|
| 1. BRAKE COOLING LINE (LEFT SIDE) | 5. BRAKE LINE (LEFT SIDE) |
| 2. HOSE CLAMP | 6. COOLING RETURN HOSES |
| 3. BRAKE COOLING LINE (RIGHT SIDE) | 7. BRAKE LINE SUPPLY LINE |
| 4. BRAKE LINE (RIGHT SIDE) | |

Figure 5. Brake Cooling Lines and Brake Lines, Lift Truck Model H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005)

13. Disconnect the cooling return hoses from the drive axle. See Figure 6.
14. Place blocks under the axle assembly and connect slings and lifting device.
15. Place blocks under the transmission to support the transmission while removing the drive axle.
16. Remove the capscrews holding the drive shaft and remove the drive shaft.



BM070541

A. DRIVE AXLE COOLING HOSE RETURN TO TRANSMISSION SUMP

1. HOSE CLAMP
2. COOLING RETURN HOSE, RIGHT SIDE
3. COOLING RETURN HOSE, LEFT SIDE

Figure 6. Drive Axle Cooling Return Hoses

17. Remove the transmission isolator mounting bolt located on top of the assembly. See Figure 7.

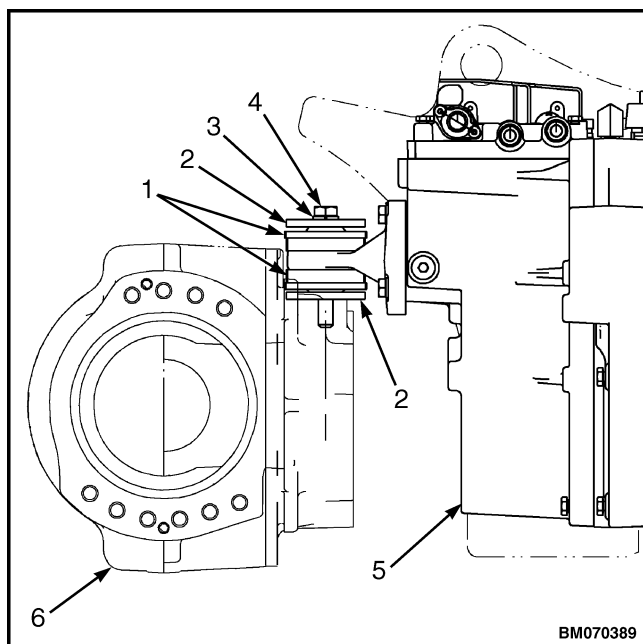


Figure 7. Transmission to Differential Mounting Bolt

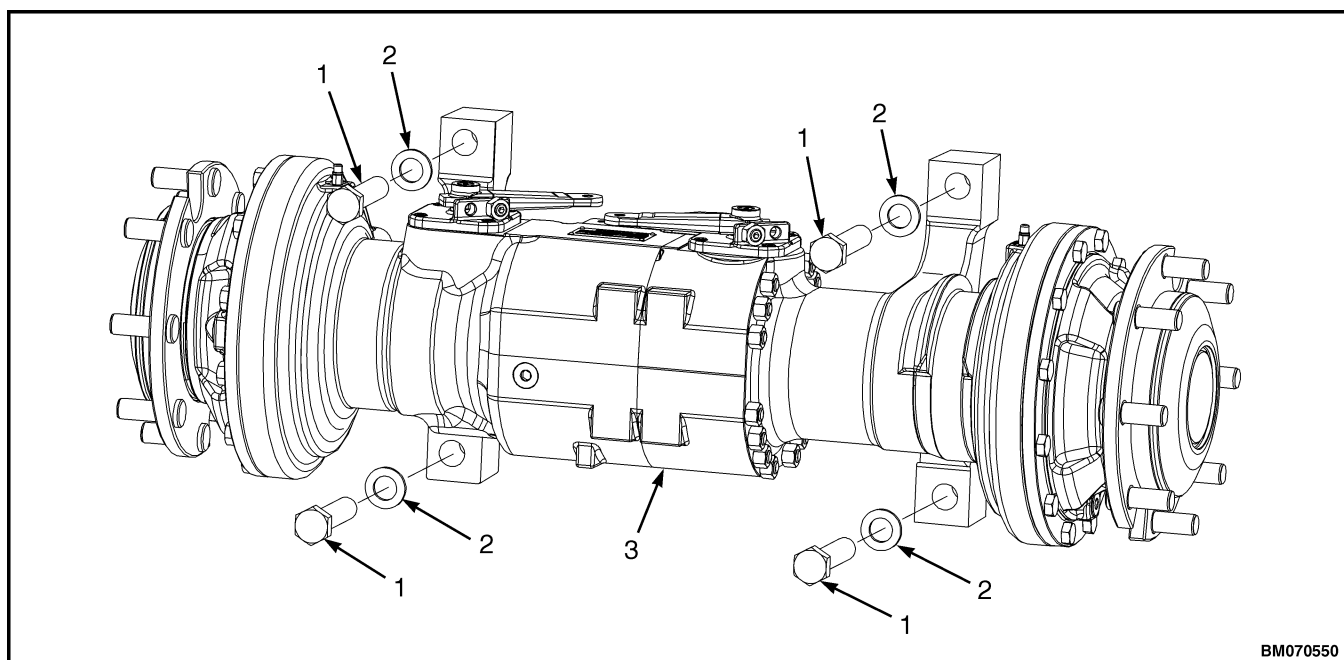
Legend for Figure 7

- | | |
|--------------|-----------------|
| 1. ISOLATORS | 4. CAPSCREW |
| 2. WASHER | 5. TRANSMISSION |
| 3. WASHER | 6. DRIVE AXLE |

18. Remove the four mounting capscrews and washers from the drive axle. See Figure 8.

19. Remove blocks and lower the drive axle assembly. Pull axle forward and away from frame.

20. Place blocks under the differential assembly.

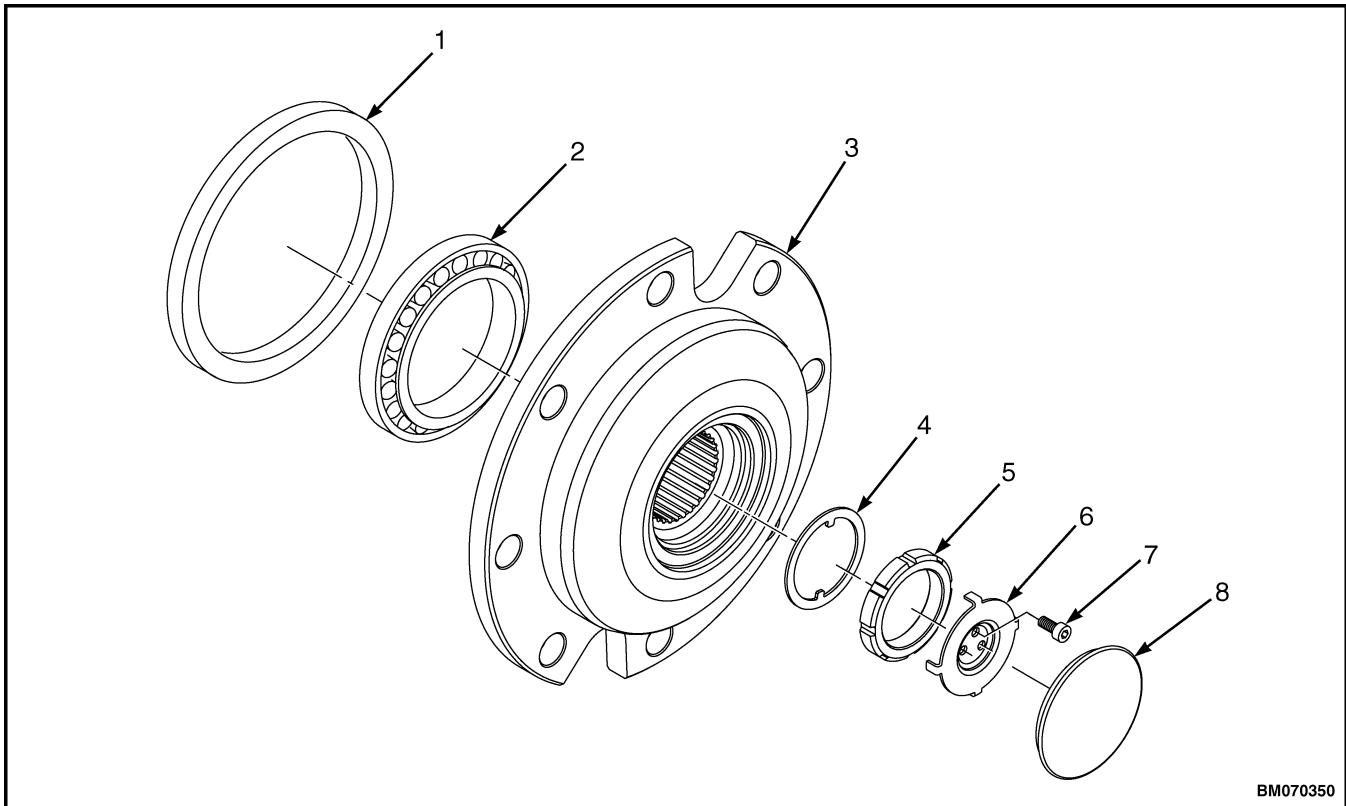


1. CAPSCREW
2. WASHER

3. DRIVE AXLE

Figure 8. Drive Axle Mounting Capscrews

Hub Seal Replacement



BM070350

1. SEAL
2. EXTERNAL BEARING
3. HUB
4. WASHER

5. RING NUT
6. SAFETY FLANGE
7. SOCKET HEAD SCREW
8. COVER

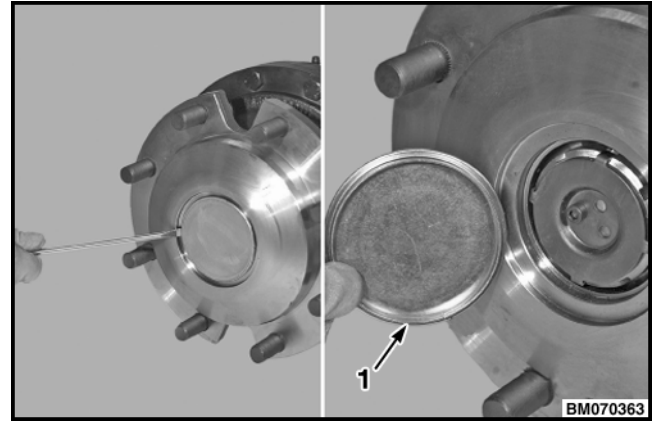
Figure 9. Hub Seal Replacement

REMOVE

Refer to Figure 9.

STEP 1.

Remove the cover from the hub.

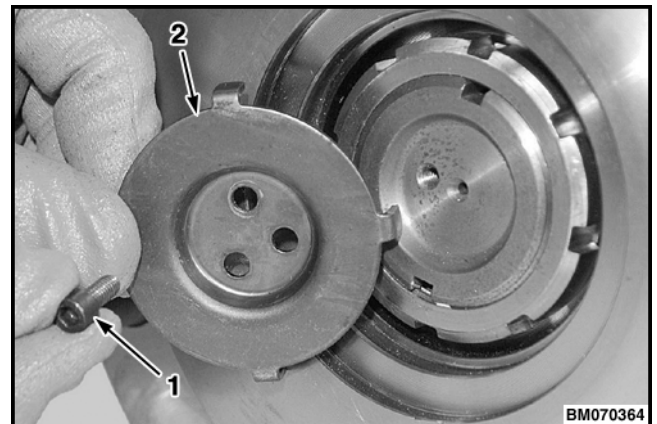


1. COVER

STEP 2.

Mark the position of the ring nut.

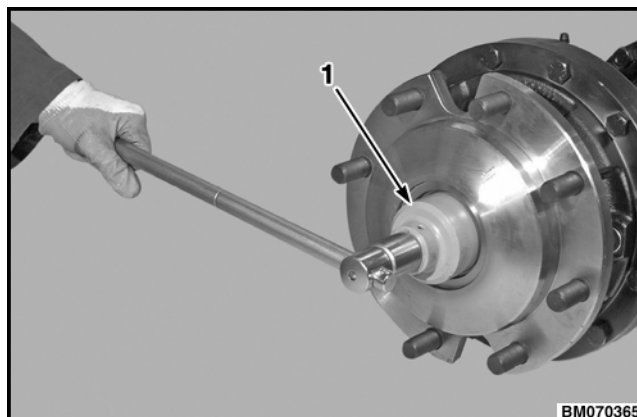
Remove the socket head screw and the safety flange from the ring nut.



1. SOCKET HEAD SCREW
2. SAFETY FLANGE

STEP 3.

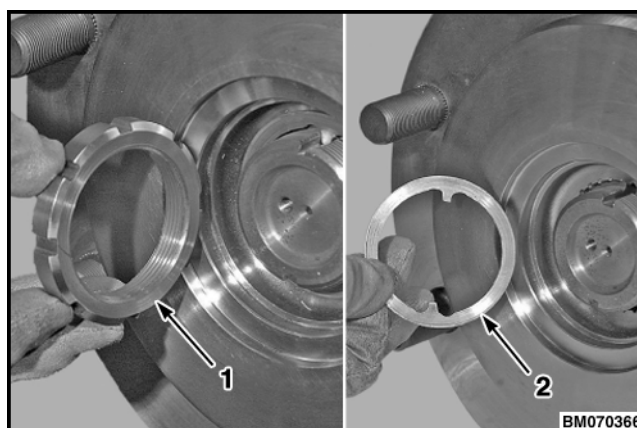
Using special tool T1, loosen the ring nut.



1. SPECIAL TOOL T1

STEP 4.

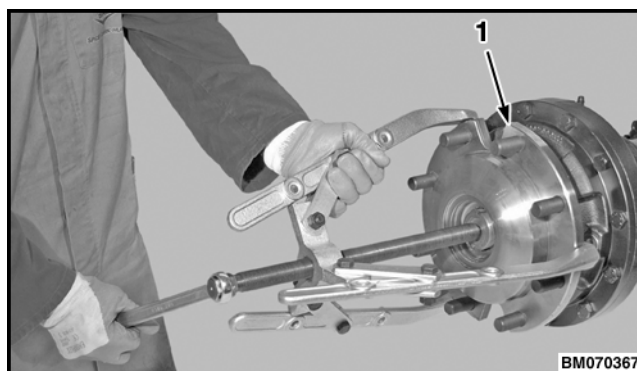
Remove the ring nut and washer.



1. RING NUT
2. WASHER

STEP 5.

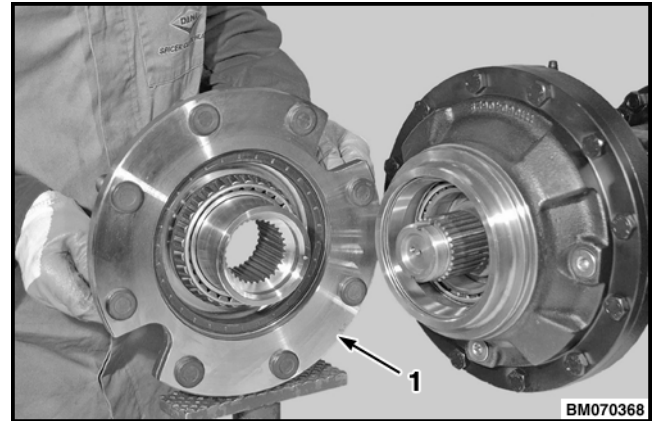
Using a puller, loosen the hub assembly.



1. HUB ASSEMBLY

STEP 6.

By hand, finish removing the hub assembly.

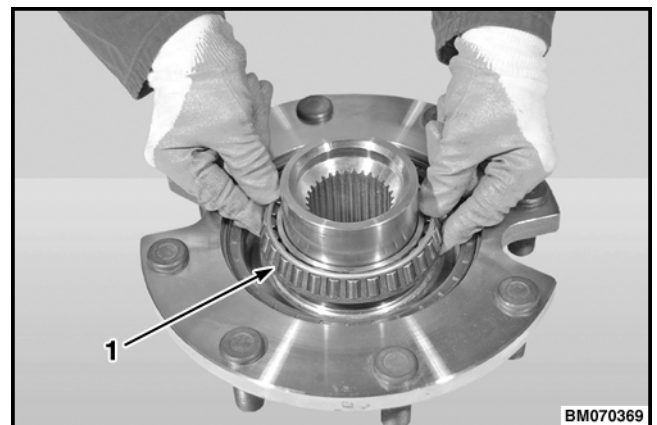


1. HUB ASSEMBLY

NOTE: It may be necessary to use a puller to remove the external bearing.

STEP 7.

Remove the external bearing.



1. EXTERNAL BEARING

STEP 8.

Remove the seal from the hub.



1. SEAL

INSTALL

Refer to Figure 9.

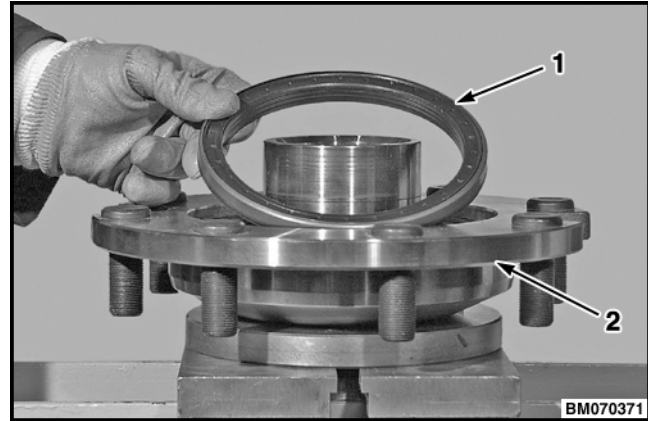


CAUTION

Make sure the seal is positioned correctly in the hub or damage may occur.

STEP 1.

Position the seal in the hub.



- 1. SEAL
- 2. HUB

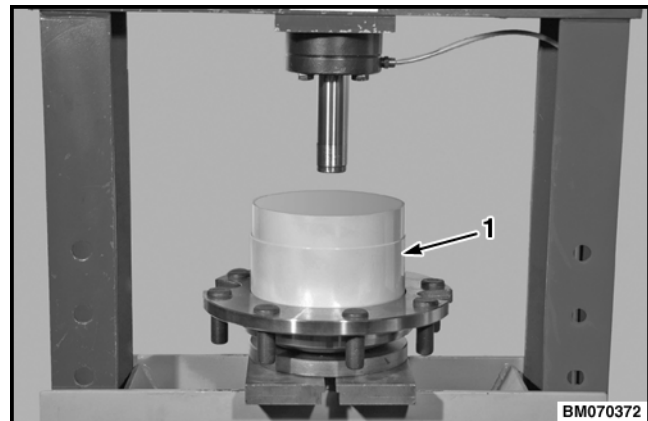


CAUTION

When installing the sealing ring, make sure to maintain the predefined distance of 21.4 to 21.8 mm (0.842 to 0.858 in.) for pneumatic lift trucks, and 8.9 to 9.1 mm (0.350 to 0.358 in.) for cushion lift trucks. Refer to STEP 3.

STEP 2.

Position the special tool T2 for cushion lift trucks or special tool T3 for pneumatic lift trucks on the seal and press the seal into the hub.



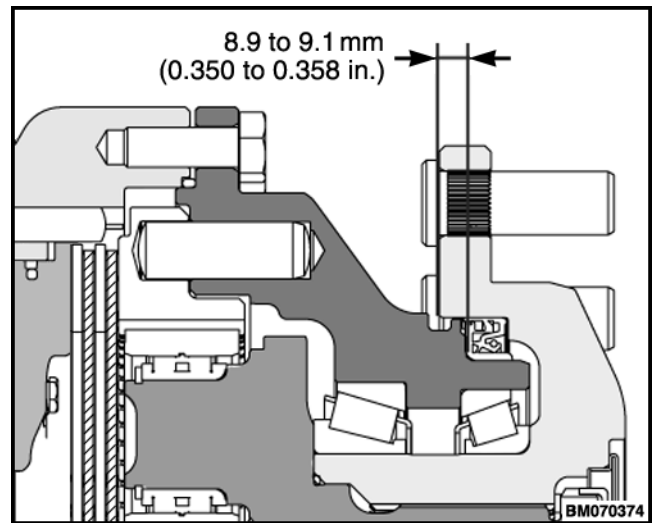
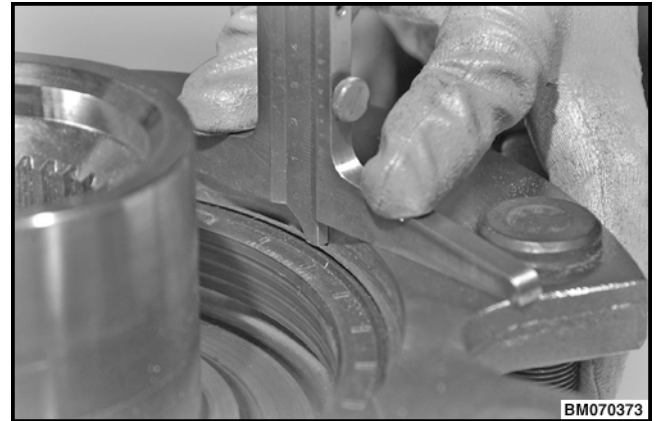
NOTE: SPECIAL TOOL T2 SHOWN. SPECIAL TOOL T3 IS SIMILAR.

- 1. SPECIAL TOOL T2

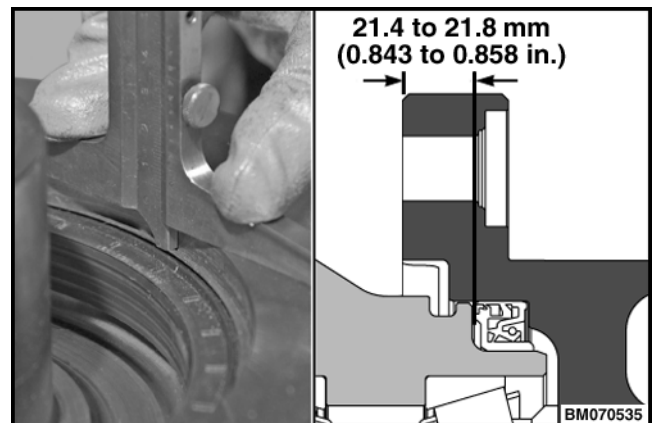
STEP 3.

Verify the depth of the seal is correct. 8.9 to 9.1 mm (0.350 to 0.358 in.) for cushion lift trucks, and 21.4 to 21.8 mm (0.842 to 0.858 in.) for pneumatic lift trucks.

Check the flatness of the seal.



NOTE: CUSHION LIFT TRUCK SHOWN.



NOTE: PNEUMATIC LIFT TRUCK SHOWN.

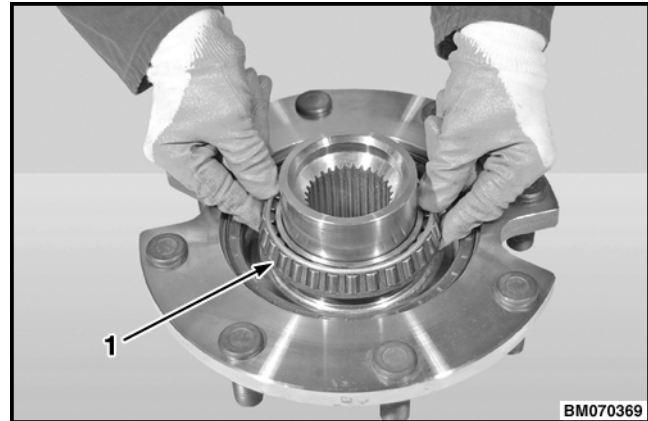
**WARNING**

Hot parts. Wear protective clothing and gloves to prevent burns.

STEP 4.

Install the external bearing. If necessary, use a suitable drift pin to prevent damage.

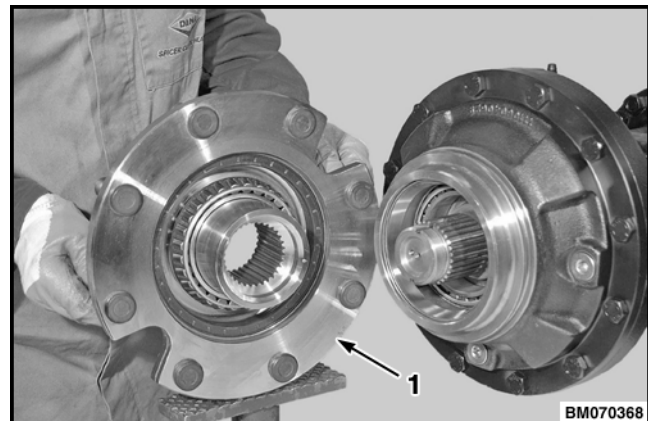
Alternatively, heat the bearing to 100°C (212°F).



1. EXTERNAL BEARING

STEP 5.

Install the hub assembly.

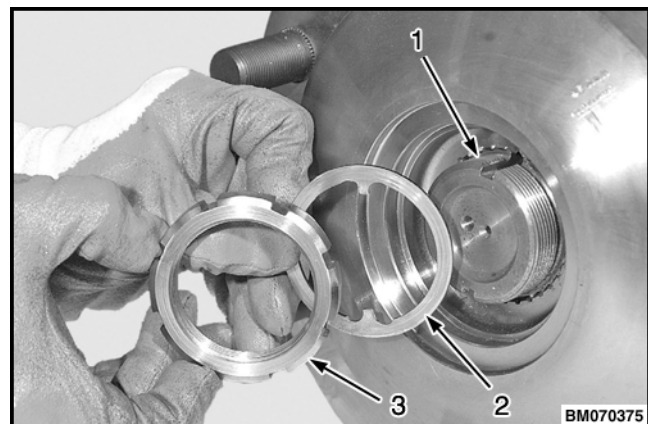


1. HUB ASSEMBLY

STEP 6.

Install the washer.

Apply Loctite® 242 to the arm thread and manually thread the ring nut onto the arm thread.



1. APPLY LOCTITE® 242
2. WASHER
3. RING NUT

STEP 7.

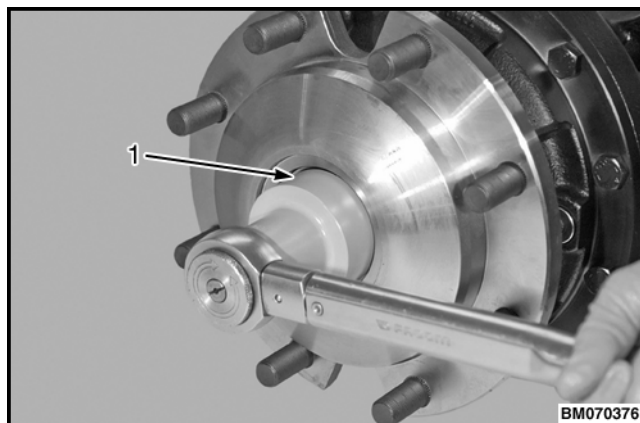
Lock the wheel hub in position with a lever.

Tighten the ring nut as follows:

- a. Using special tool T1, tighten ring nut to 237 N•m (175 lbf ft).
- b. Rotate hub 2 to 3 revolutions in both directions.
- c. Using special tool T1, tighten ring nut to 406 N•m (300 lbf ft).
- d. Rotate hub 2 to 3 revolutions in both directions.

STEP 8.

Tighten the ring nut to 500 to 600 N•m (369 to 443 lbf ft).



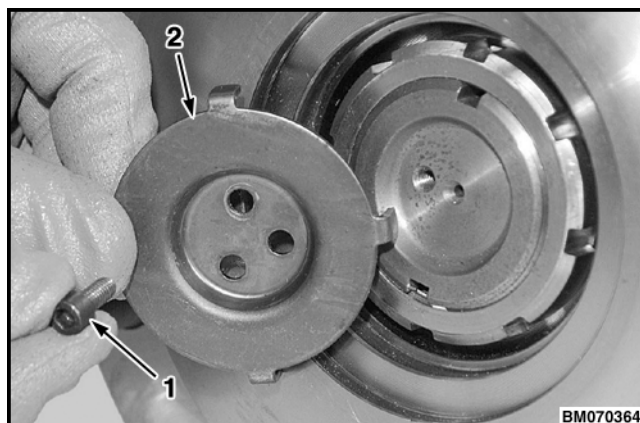
1. SPECIAL TOOL T1



NOTE: It may be necessary to move ring nut in the tightening direction to allow alignment of the safety flange to socket head screw hole.

STEP 9.

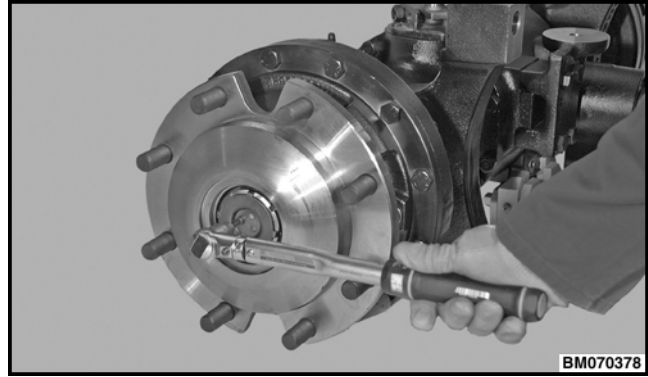
Apply Loctite® 242 to the threads of the socket head screw. Place the safety flange in position and install the socket head screw into one of the three holes.



1. SOCKET HEAD SCREW
2. SAFETY FLANGE

STEP 10.

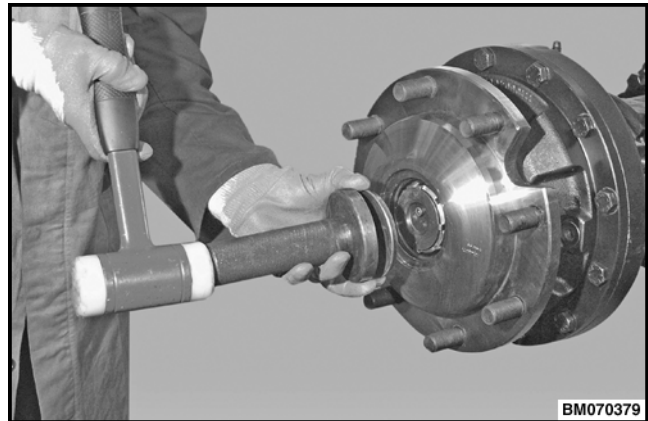
Tighten the socket head screw to 9.5 to 10.5 N•m (84 to 93 lbf in).

**CAUTION**

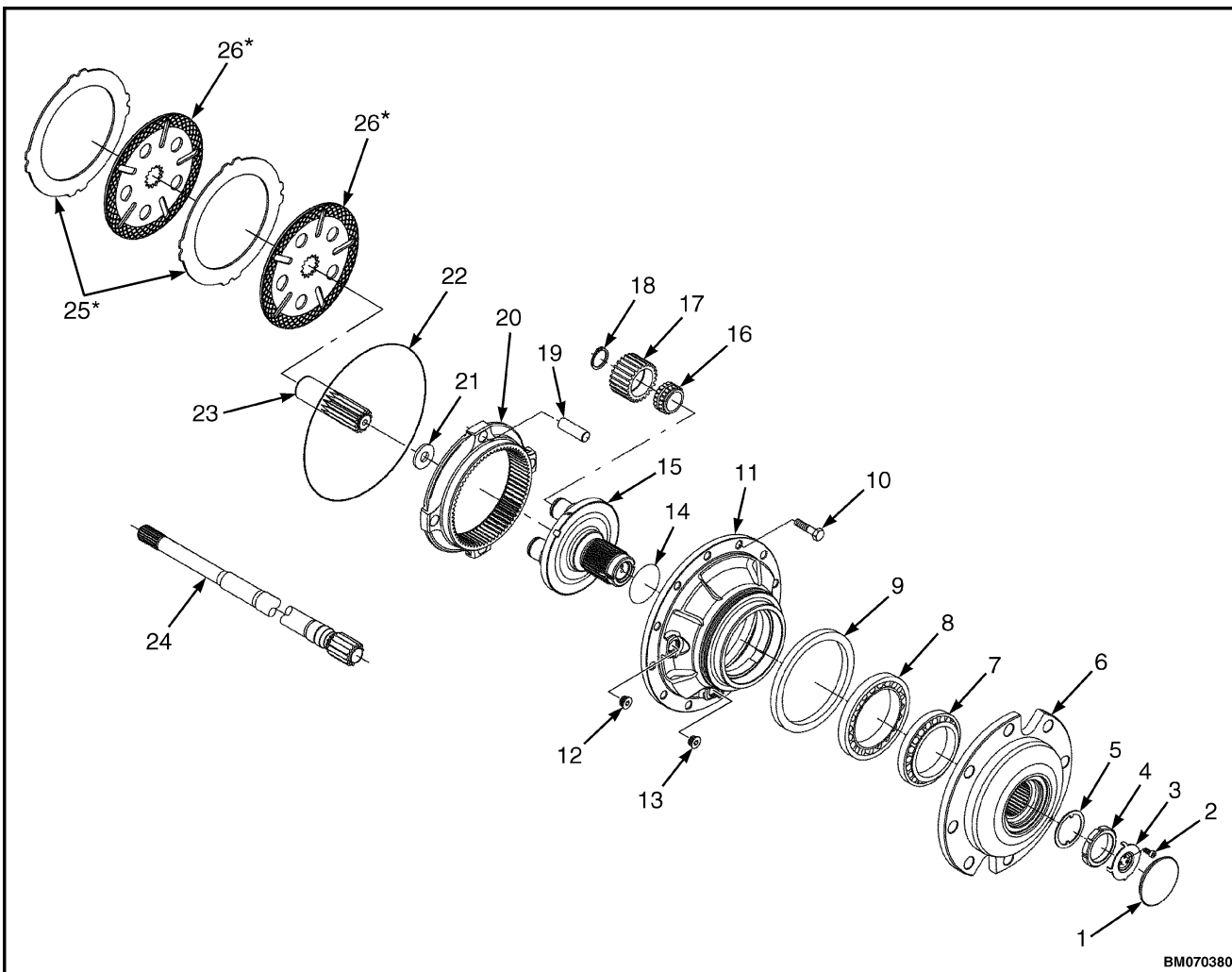
Do not damage the contact surfaces of the cover when installing.

STEP 11.

Apply Loctite® 510 to the cover and install the cover into the hub.



Planetary Reduction Repair



BM070380

NOTE: THE S4.5, 5.5FT, S5.5FTS, (S100, 120FT; 100FTBCS; S120FTS; S120FTPRS) (G004, H004, J004); H4.0FT5/FT6; H4.5FTS5, H4.5FT6; H5.0-5.5FT (H80, 90, 100, 110, 120FT) (N005, P005, R005, S005, U005) SERIES LIFT TRUCK DRIVE AXLE WILL HAVE TWO BRAKE DISCS AND TWO FRICTION PLATES. THE S4.0FT, (S80FT; S80FTBCS) (G004, H004, J004) SERIES LIFT TRUCK DRIVE AXLE WILL ONLY HAVE ONE BRAKE DISC AND ONE FRICTION PLATE.

- | | |
|----------------------|-----------------------|
| 1. COVER | 14. O-RING |
| 2. SOCKET HEAD SCREW | 15. PLANETARY CARRIER |
| 3. SAFETY FLANGE | 16. NEEDLE BEARINGS |
| 4. RING NUT | 17. PLANETARY GEAR |
| 5. WASHER | 18. RETAINING RING |
| 6. HUB | 19. DOWEL PIN |
| 7. EXTERNAL BEARING | 20. RING GEAR |
| 8. INTERNAL BEARING | 21. THRUST WASHER |
| 9. SEAL | 22. O-RING |
| 10. CAPSCREW | 23. PINION |
| 11. PLANETARY COVER | 24. AXLE SHAFT |
| 12. MAGNETIC PLUG | 25. FRICTION PLATE |
| 13. PLUG | 26. BRAKE DISC |

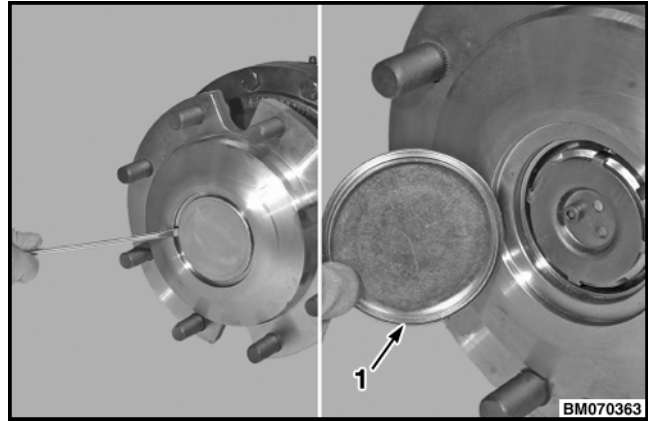
Figure 10. Planetary Reduction Assembly

REMOVE

Refer to Figure 10.

STEP 1.

Remove the cover from the hub.

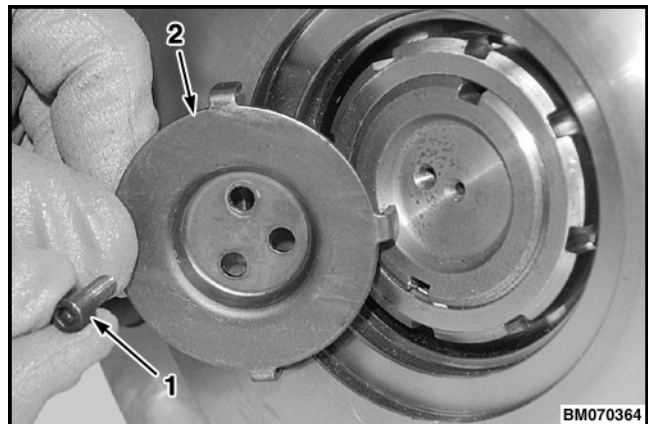


1. COVER

STEP 2.

Mark the position of the ring nut.

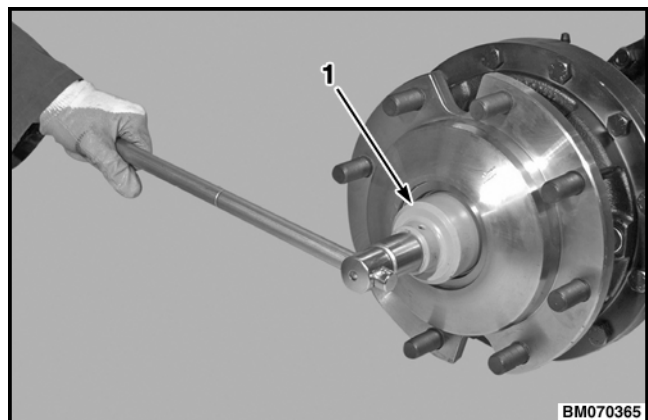
Remove the socket head screw and the safety flange from the ring nut.



1. SOCKET HEAD SCREW
2. SAFETY FLANGE

STEP 3.

Using a special tool T1, loosen the ring nut.



1. SPECIAL TOOL T1

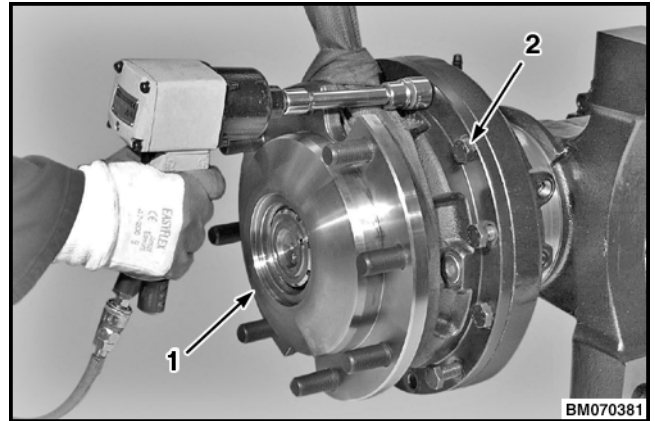
**WARNING**

The hub and planetary carrier assembly are heavy. Use caution when removing.

STEP 4.

Place a sling around the hub and planetary carrier assembly and connect the sling to an overhead lift. Place the sling under light tension.

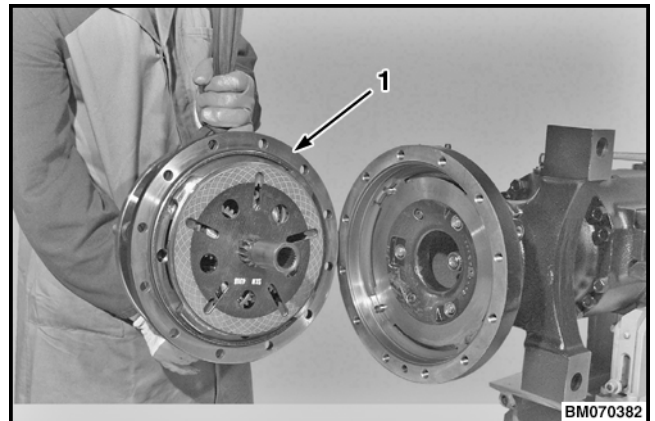
Remove the capscrews from the planetary cover.



- 1. HUB AND PLANETARY CARRIER ASSEMBLY
- 2. CAPSCREW

STEP 5.

Remove the hub and planetary carrier assembly.



- 1. HUB AND PLANETARY CARRIER ASSEMBLY