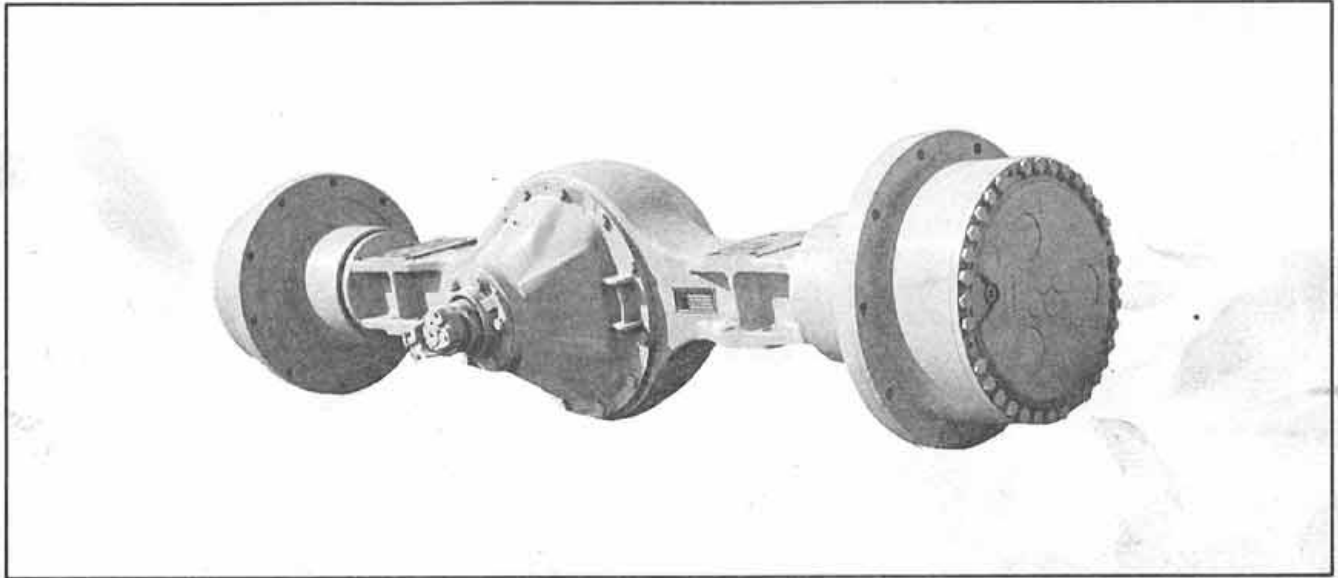


T.M.

STEIGER®

S-34 & S-40 AXLE

SERVICE MANUAL



IMMEDIATE ACTION LETTER REFERENCE:

No./Date

1 _____ 4 _____ 7 _____

2 _____ 5 _____ 8 _____

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SERVICE NEWS REFERENCE:

No./Date

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SERVICE BULLETIN REFERENCE:

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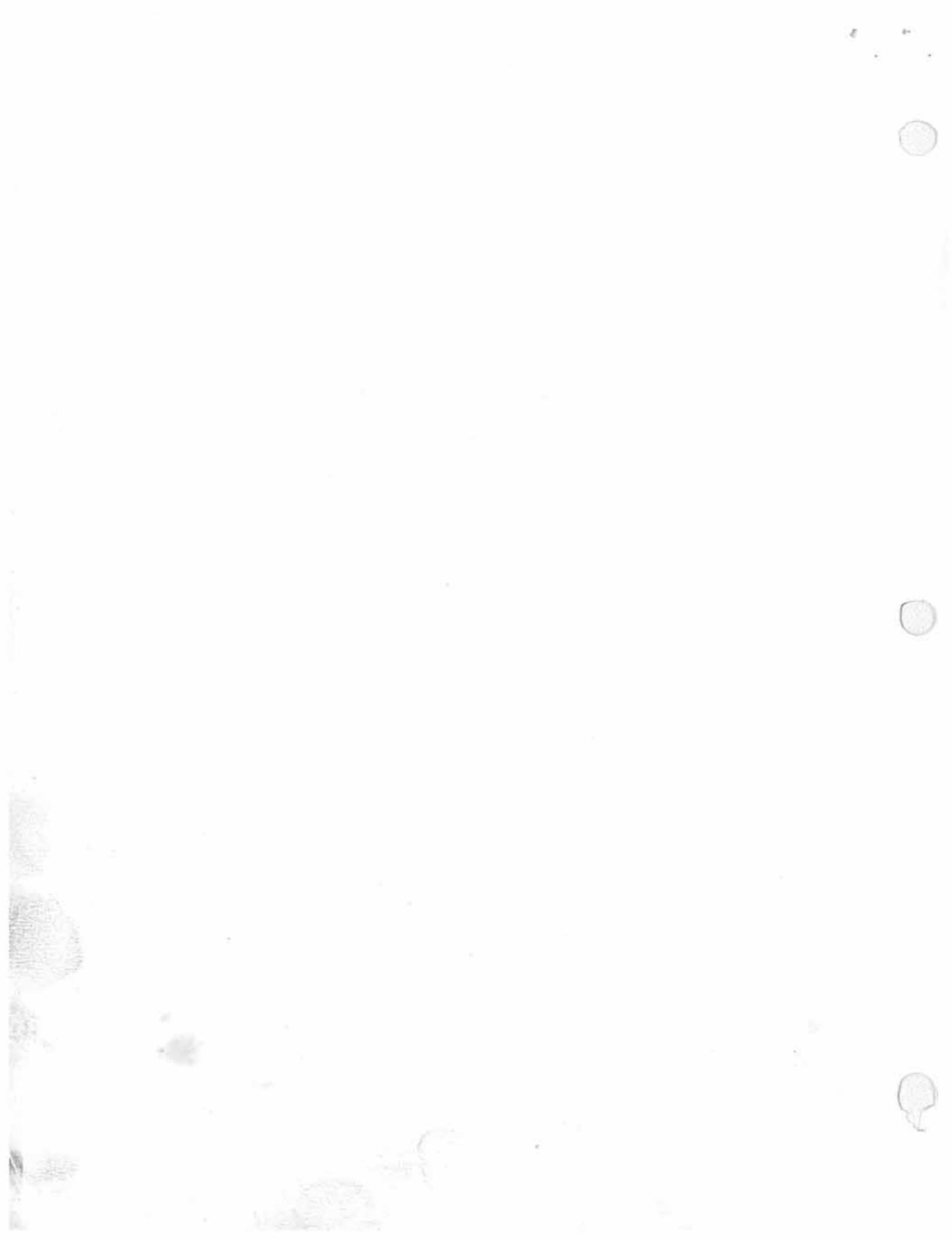
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Wheel Hub Disassembly

Disassembly Procedures

The instructions contained herein cover the disassembly and reassembly of the axle assembly in a sequence that would normally be followed after the unit has been removed from the machine and is to be completely overhauled. However, most axle repairs can be made with the assembly in the tractor. When axles are repaired off the tractor, mount the axles on steel horses or on V-blocks. If axle is mounted on horses, invert it from its normally installed position and allow housing mounting pads to rest on crossbars of horses to provide necessary rigidity.

NOTE: Cleanliness is of extreme importance in the repair and overhaul of this unit. Before attempting any repairs, the exterior of the unit must be thoroughly cleaned to prevent the possibility of dirt and foreign matter entering the mechanism.

Disassembly of Wheel Hub Assembly

1. Remove the drain plugs from the planetary hubs and axle housing.
2. Remove the capscrews from the planet carrier assembly, and place them in a container separate from other fasteners.
3. The planet carrier assembly may now be removed from the hub. Be sure to handle with care to avoid personal injury and/or damage to equipment. If necessary, use the jacking screws to initiate planet carrier separation from the hub (Fig. 1).
4. Attach a hoist and remove the planet carrier assembly (Fig. 2).

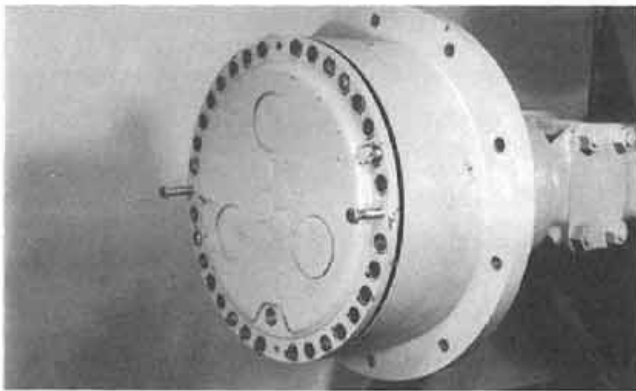


Figure 1:

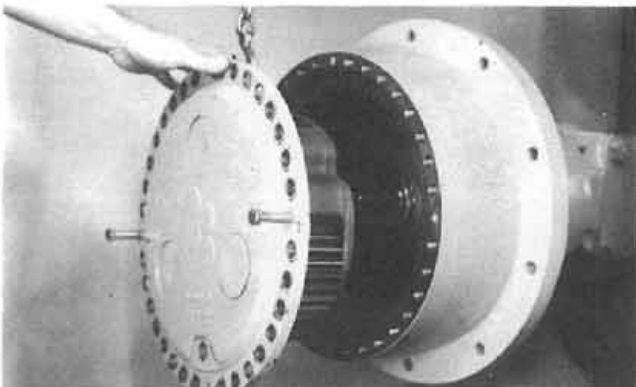


Figure 2:

Wheel Hub Disassembly

5. The axle shaft and sun gear assembly may now be withdrawn, (Fig. 3). At this time, as both axle shaft assemblies are removed, the differential carrier can be removed from the axle housing.

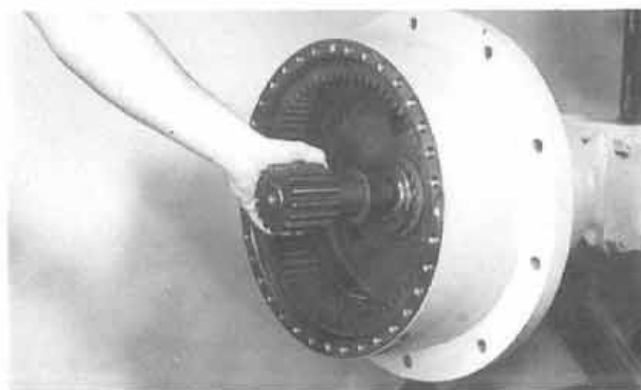


Figure 3:

6. Straighten the tangs of the nut lock as shown (Fig. 4).

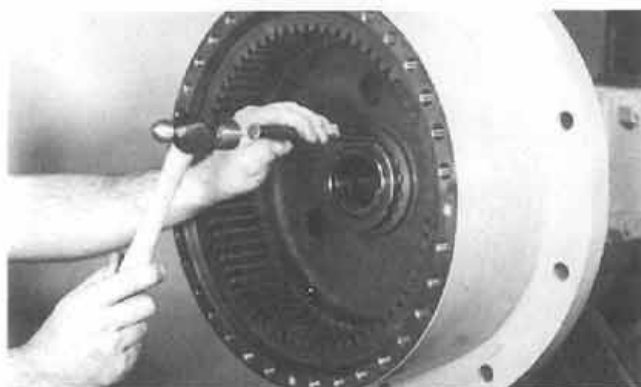


Figure 4:

7. Loosen the adjusting nut, nut lock and internal gear hub retaining washer (Fig. 5).

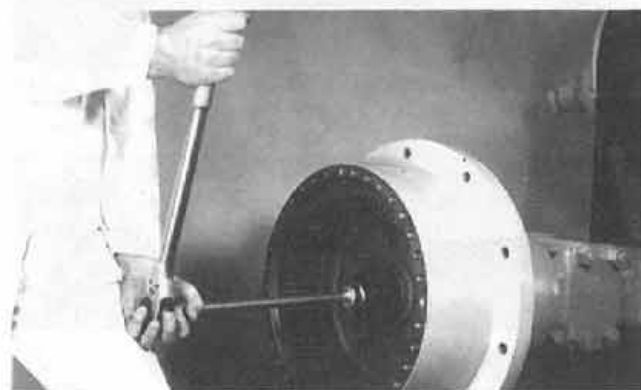


Figure 5:

8. Support the hub using a hoist. This will allow the internal gear hub to move outward. If it does not move freely, bars may be used to apply force (Fig. 6).

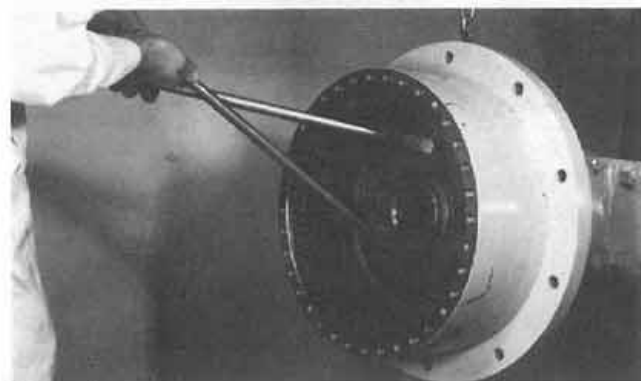


Figure 6:

Wheel Hub Disassembly

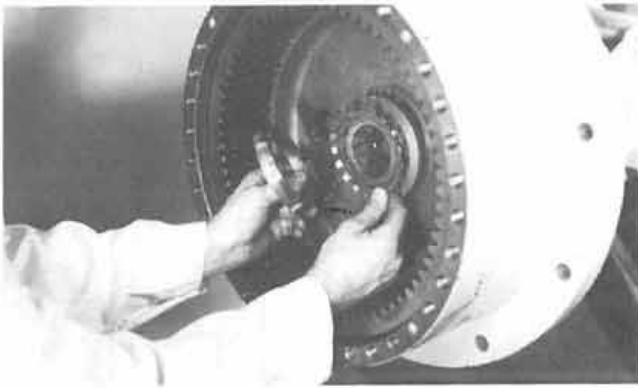


Figure 7:



Figure 8:

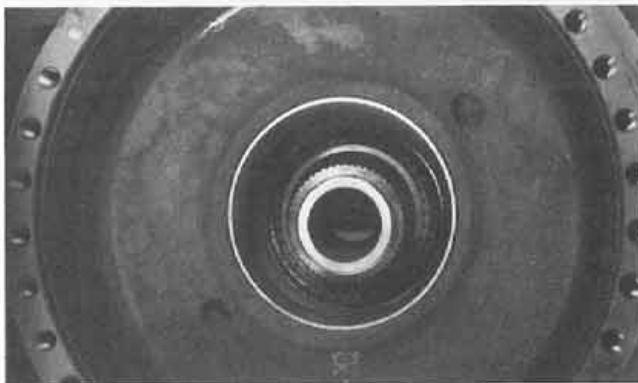


Figure 9:



Figure 10:

9. Remove the adjusting nut, nut lock and internal gear hub retaining washer (Fig. 7).

10. While supporting the hub with a hoist, slide the internal gear and hub assembly from the spindle (Fig. 8).

11. Pull the hub from the spindle while keeping it aligned to avoid damaging the bearings or spindle splines (Fig. 9).

12. Remove the spindle from the axle housing. Hold it firmly as the last capscrew is removed (Fig. 10).

Wheel Hub Disassembly

13. Pull the inboard bearing cone from the spindle using a bearing separator and a press or a puller arrangement.

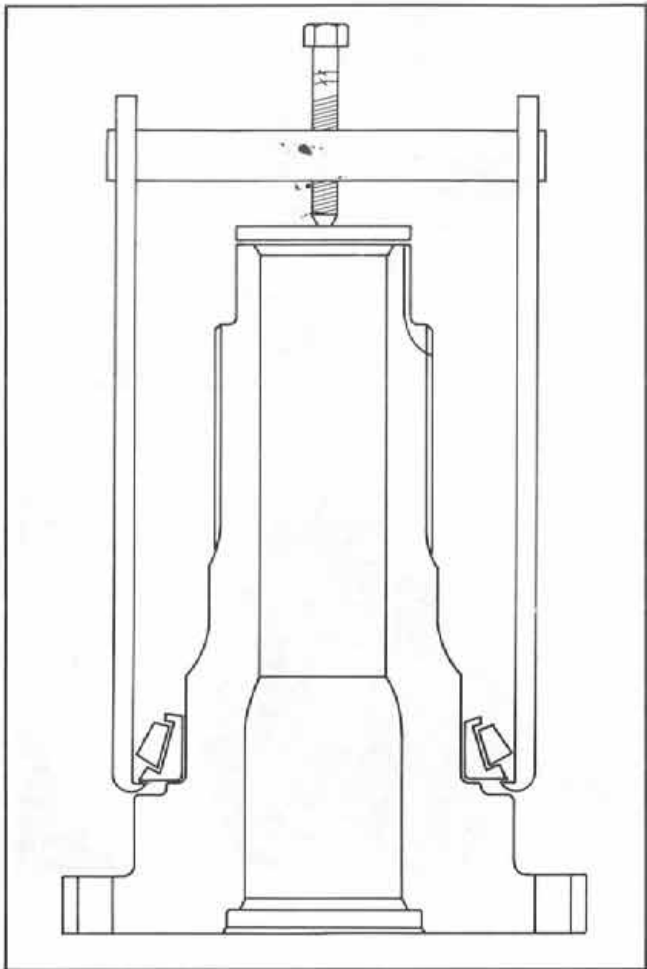


Figure 11:

14. If the oil seal is to be replaced, removal can be accomplished by using a heel type bar against a bearing cone inside the bearing cup (Fig. 12).

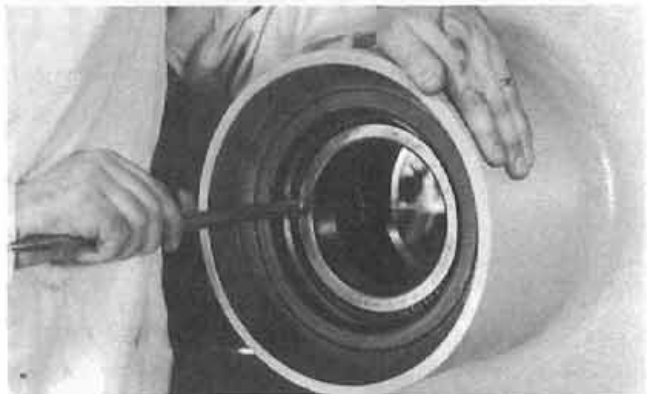


Figure 12:

Wheel Hub Disassembly

15. Remove the bearing cups from the hub counter bores using a jaw type puller arrangement (Fig. 13).

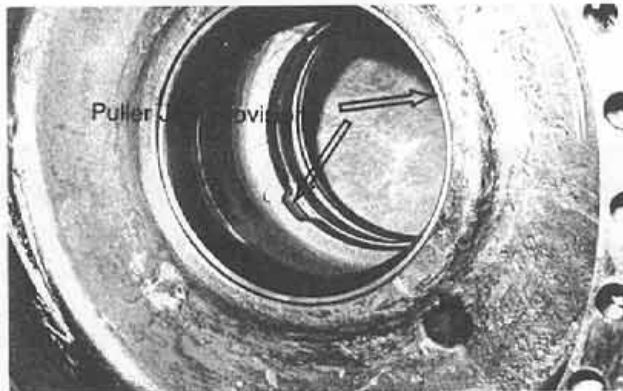
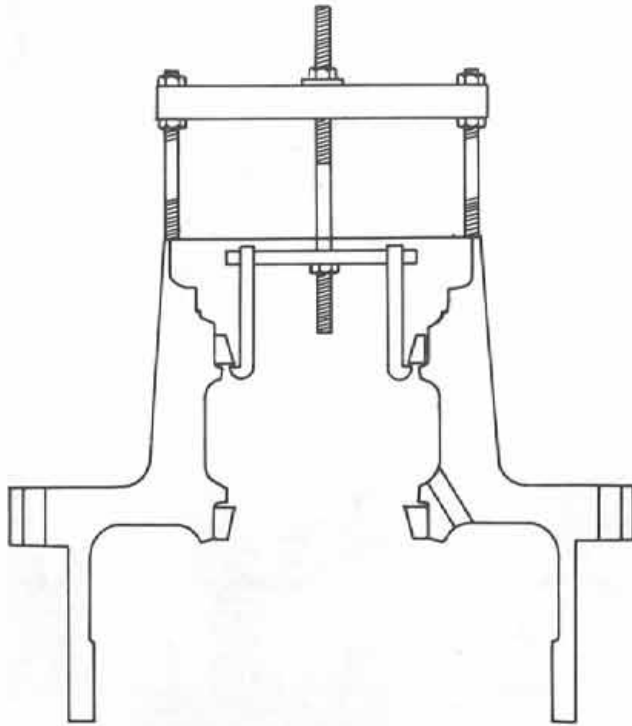


Figure 13:

Wheel Hub Disassembly

16. Straighten the lock tabs on the internal gear retainers (Fig. 14), and remove the capscrews. Lock tabs and retainers (Fig. 15). Lift the internal gear hub from the internal gear (Fig. 16).



Figure 14:



Figure 15:



Figure 16:

17. Remove the outboard bearing cone from the internal gear hub (Fig. 17) using a puller arrangement or a bearing separator and a press.



Figure 17:

Wheel Hub Disassembly



Figure 18:



Figure 19:

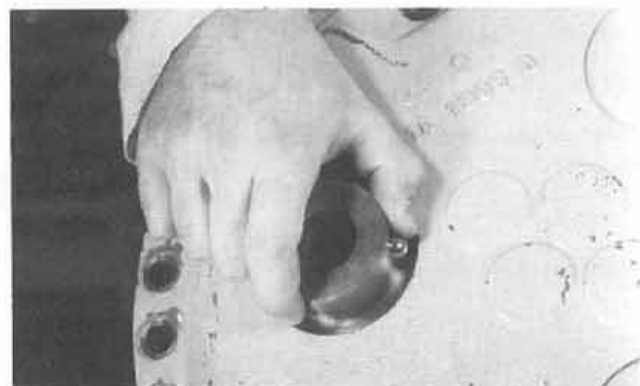


Figure 20:



Figure 21:

18. Tap the welch plugs from the counterbores of the planet carrier with a rod which will fit in the bore of the planet pinion shafts (Fig. 18).

19. Using a snap ring pliers, remove the truarc snap ring (Fig. 19). Tap the planet pinion shaft toward the outboard side of the planet carrier and retain the lock ball (Fig. 20). Proceed to remove the shaft completely (Fig. 21) and save the rollers as they fall from the bores of the planet pinion and carrier, if they are to be reused.

Wheel Hub Reassembly

Reassembly of Wheel Hub Assembly

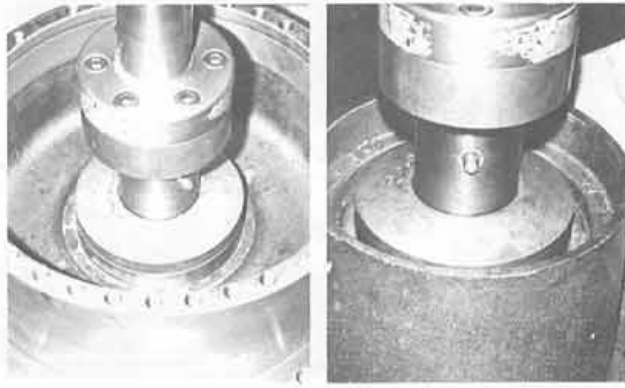


Figure 1:



Figure 2:



Figure 3:



Figure 4:

1. If bearing cups were removed from the wheel hub, install new cups by means of a press and a bearing driver (Fig. 1). As an alternative, the bearing cups can be pulled or pushed into place using a portable hydraulic press unit such as a porta power. Insure that the bearings cups are completely seated in their counterbores.

2. Apply a light coat of sealant in the oil seal counterbore of the hub. Coat the outside diameter of the oil seal with the same type of sealant (do not use two dissimilar sealants). Fill the cavity of the oil seal lip with grease to aid in retaining the seal spring while driving the seal into place. Either press or drive the seal in until it is seated against the shoulder (Fig. 2), however do not attempt to force it beyond this point as the seal will be crushed, or become distorted.

3. Install the bearing cone on the internal gear hub. Pressing is recommended rather than heating or driving the bearing on (Fig. 3).

4. Install the bearing cone on the spindle (Fig. 4).

Wheel Hub Reassembly

5. Apply sealant to the mating flange of the spindle or axle housing (Fig. 5). Put one drop of lock and sealant compound (Steiger part number 19-880) on the threads of each spindle capscrew (Fig. 6). Torque the 5/8 inch capscrews to 150 to 180 lb ft (20.74 to 24.89 Kg/M) (Fig. 7). If 3/4 inch capscrews are used, torque to 375 lb ft (51.86 Kg/M).



Figure 5:



Figure 6:



Figure 7:

Wheel Hub Reassembly



Figure 8:



Figure 9:



Figure 10:



Figure 11:

6. Position the internal gear hub into the internal gear (Fig. 8). Put the retainers and lock tabs into place. Apply one drop of lock and sealant compound (Steiger part number 19-880) to each of the cap screw threads (Fig. 9). Torque the cap screws to 20 lb ft (2.78 Kg/M) (Fig. 10). Use a pliers to bend the lock tab against the cap screw (Fig. 11).

Wheel Hub Reassembly

7. Lubricate the bearing cups, cones and oil seals (Fig. 12). Use a hoist to support the wheel hub. Visually align the hub and spindle (Fig. 13) to avoid damage to the oil seal as the hub is pushed on.



Figure 12:



Figure 13:

8. Position the internal gear hub to engage with the splines on the spindle (Fig. 14), turning the hub slightly may help locate an engagement point, then carefully push the internal gear hub into the wheel hub.

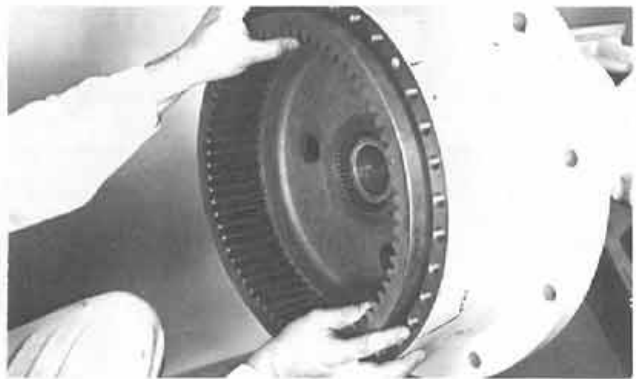


Figure 14:

Wheel Hub Reassembly

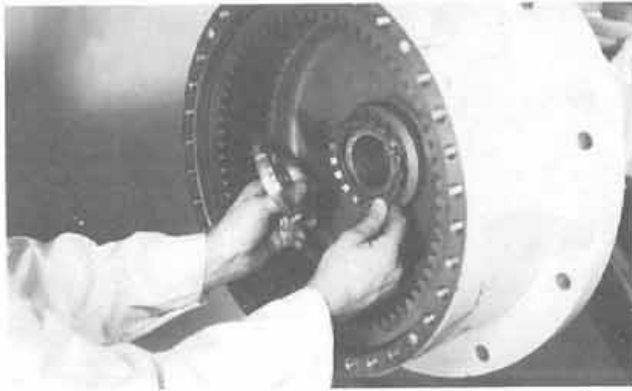


Figure 15:

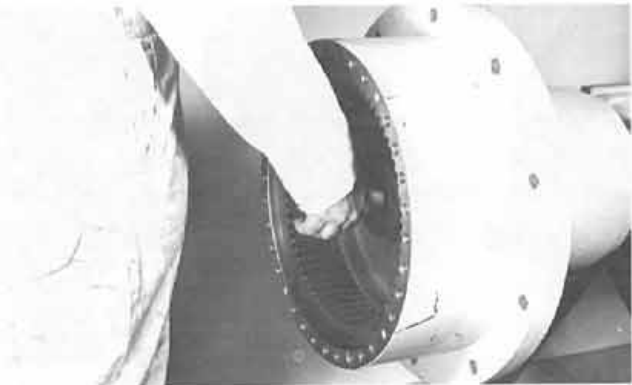


Figure 16:

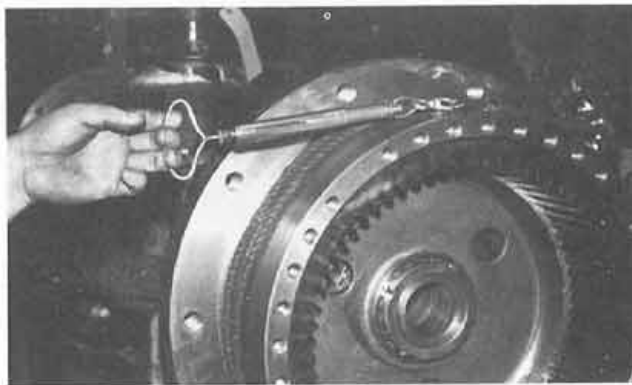


Figure 17:

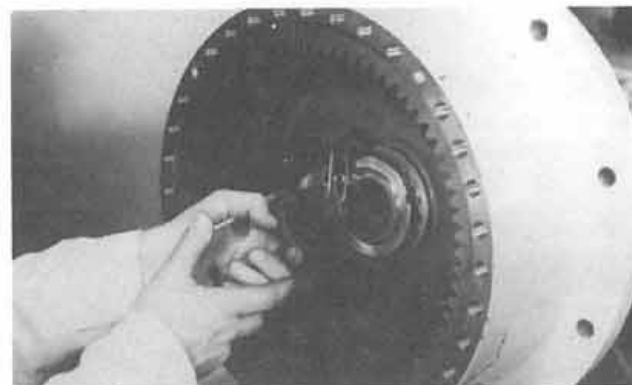


Figure 18:

9. Install the retaining washer (beveled side visible if so equipped), nut lock and adjusting nut (Fig. 15). Torque the adjusting nut to 150 lb ft (20.74 Kg/M) to seat all bearings (Fig. 16), then rotate the wheel hub both directions for several turns and check for binding. Loosen the adjusting nut one-fourth of a turn. Check the wheel hub rotating torque with a spring scale (Fig. 17) while advancing the adjusting nut in small increments until the 62 to 80 lb in (.71 to .92 Kg/M) requirement is met. An equivalent to this is 7 to 9 lbs (2 to 3 Kg) pull on the spring scale. As a result, the locking nut is usually advanced to the first lock tab after zero bearing clearance is achieved. Lock the adjusting nut in this location (Fig. 18).

Wheel Hub Reassembly

10. Apply grease to the bores of the planet pinions to hold the individual roller bearings as they are installed (Fig. 19). Each planet pinion has two rows of roller bearings. After the first row has been installed, put in the spacer washer (Fig. 20) and proceed to install the second row of bearings (Fig. 21).

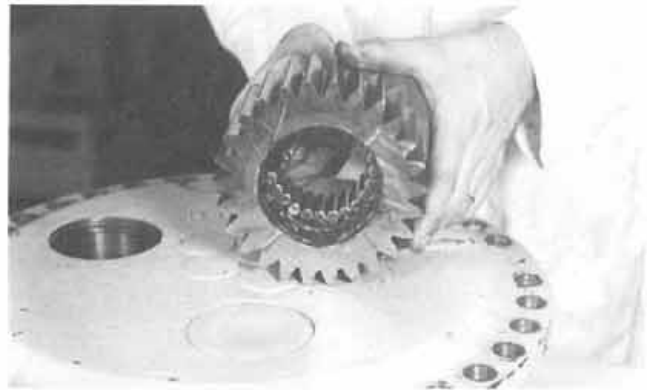


Figure 19:



Figure 20:



Figure 21:

Wheel Hub Reassembly



Thrust Plate-Later Type



Thrust Plate-Earlier Type

Figure 22:

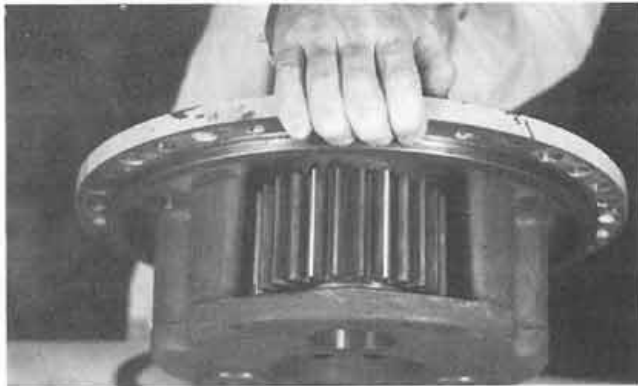


Figure 23:



Figure 24:

11. Position the planet pinion inboard thrust plate (Fig. 22), install the planet pinion (Fig. 23) and install the planet pinion outboard thrust plate (Fig. 24). Note the earlier or later version of the thrust plates.

Wheel Hub Reassembly

12. Visually align planet carrier pin bore with planet pinion bearing bore (Fig. 25). Be sure the lube hole in the planet pinion shaft is open prior to installation (Fig. 26). Install the shaft while aligning the lock ball (Fig. 27). Check that no rollers have fallen out and/or no binding exists while turning the planet pinion gear. Install the snap ring (Fig. 28) to retain the shaft.



Figure 25:



Figure 26:



Figure 27:



Figure 28:

Wheel Hub Reassembly



Figure 29:



Figure 30:

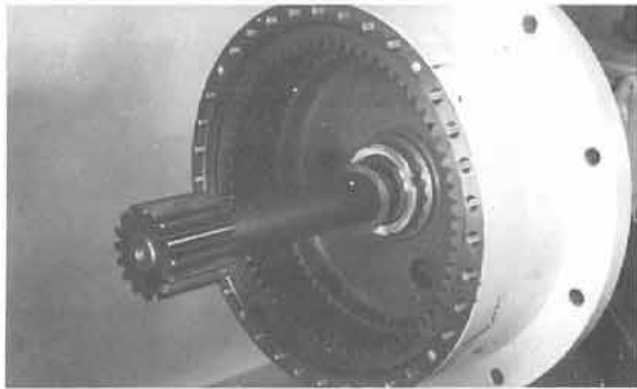


Figure 31:

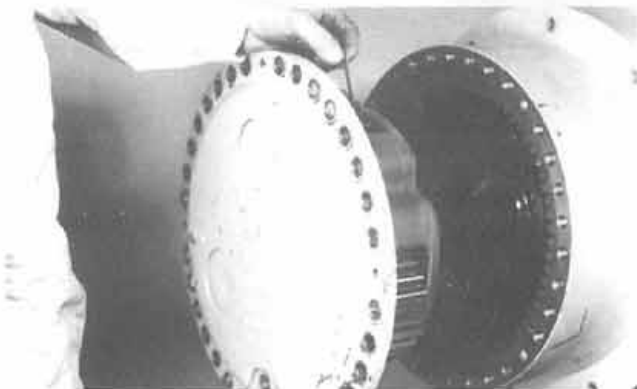


Figure 32:

13. Apply sealant to the plug counterbore (Fig. 29). Install the plug and secure it by tapping the center to expand it using a blunt tool (Fig. 30).

14. Install the axle shaft/sun gear assembly with thrust washer (Fig. 31). Leave the shaft as shown, then install the planet carrier assembly over the shaft (Fig. 32) and install the o-ring seal. Push the planet carrier

Wheel Hub Reassembly

assembly inward and align the planet pinion gear teeth with the internal ring gear (Fig. 33). Observe the bolt pattern of the wheel hub.

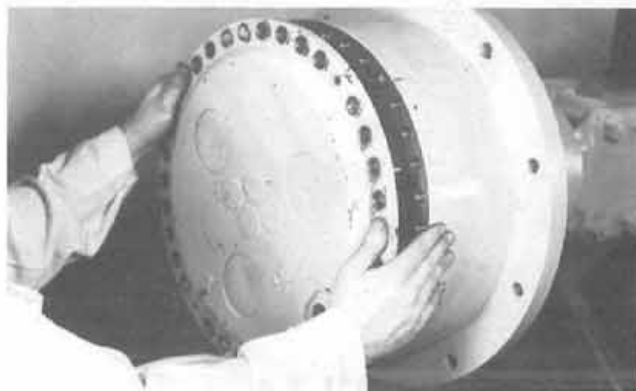


Figure 33:

15. Apply a lock and sealant compound (Steiger part number 19-880) to the threads of each capscrew (Fig. 34) and torque to 100 to 130 lb ft (13.83 to 17.97 Kg/M) (Fig. 35).
16. Fill the planetary gear compartments to the proper level. An E.P. SAE 85W-90 Mil L-2105B, or E.P. SAE 90 Mil L-2105B gear lube may be used.

NOTE: SAE 85W-90 is the preferred gear oil. However SAE 90 may be used as an alternative.

All of the above lubricants must have the API (American Petroleum Institute) rating of GL-5 in order to have adequate load bearing characteristics.

Tighten the fill plug on the planet carrier. After the unit has accumulated 100 working hours, the lubricant should be drained and the unit refilled with new lubricant as conditions warrant. The lubricant should be changed every 500 working hours thereafter.



Figure 34:



Figure 35: