SERVICE MANUAL

SPEEDROWER® 1116

FINAL DRIVE

40841300

SPERRY NEW HOLLAND

Reprinted

OVERHAUL OF THE FINAL DRIVE

Materials Required

1. Gear lube - SAE 80W-90 (API-GL5) 2.25 quarts per final drive.
2. Grease -

   Texaco - Marfak Multipurpose #2

   Shell Super Duty

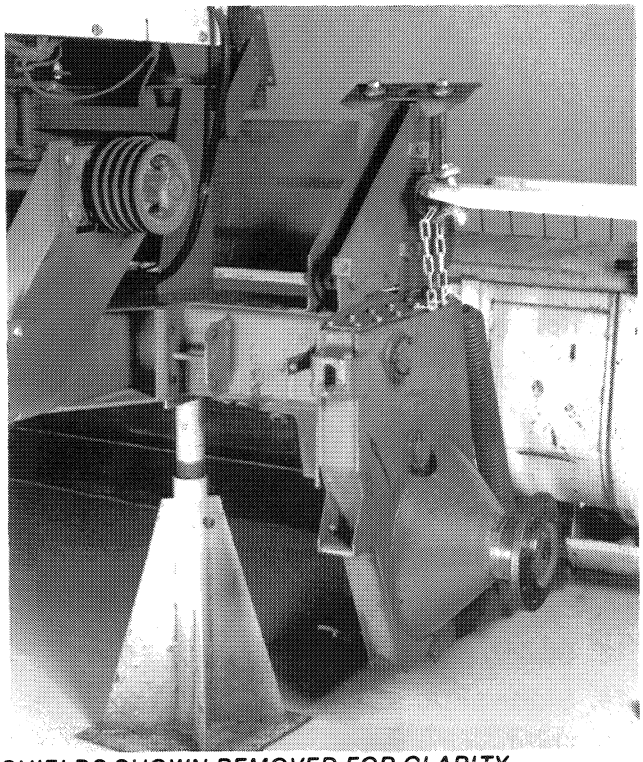
   Exxon Ronex® MP

   Gulf Gulfcrown #2 (Gulfex A)

   Lubriplate 1200-2.

   These are the approved suppliers for grease which should be used to pack the final drive bearings.
3. Permatex® #2
4. Clear silicone rubber sealant.
5. Red touch-up paint.

CONTENTS



SHIELDS SHOWN REMOVED FOR CLARITY. **FIGURE 1-1**

A. REMOVING THE FINAL DRIVE CASE (Figure 1-1 through 1-3)

1. Remove the conditioner. Refer to Model 1116 operator's manual, "Removal and Installation of Conditioner" section.
2. Park the machine on a level hard surface with the wheels blocked.
3. Remove both flotation spring bolts.
4. Remove the lower header arm rear bolt.
5. Remove lower hydraulic cylinder pin.
6. Raise the tractor with a jack and place a jack stand under the main frame. Lower tractor onto the jack stand.
7. Remove the tire and wheel and drain the oil from the final drive. Remove the shield assembly above the final drive.
8. Support the final drive with a suitable lifting device using a short chain. Install the chain using the second and third cover cap screw from the front (outer side) See Figure 1-2. Use 5/16" x 1" cap screws and flat washers. This will help in balancing the final drive. Remove the eight cap screws and hardened washers holding the chain case to the main frame. See Figure 1-3.

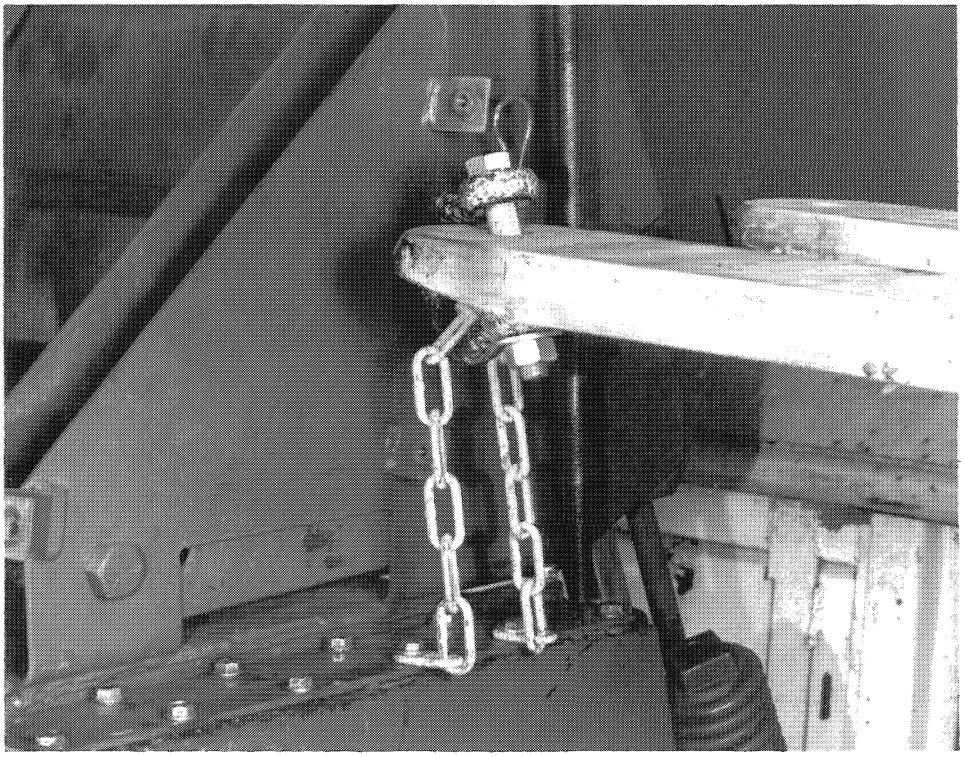


FIGURE 1-2

Pull final drive away from the main frame. Half of the drive shaft and brake drum will remain attached to the final drive.

CAUTION: FINAL DRIVE CASE IS HEAVY (275 LBS.)

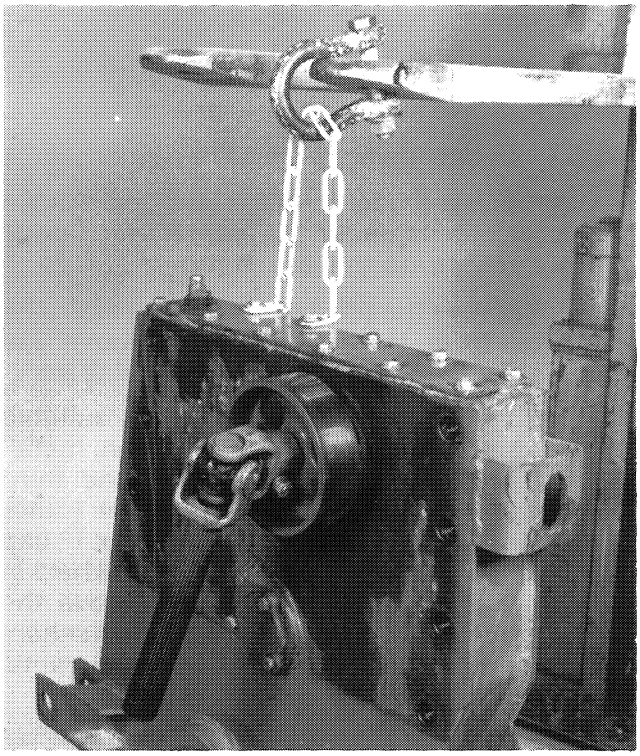


FIGURE 1-3

B. PARTS LIST - SEE FIGURE 1-4

1. Oil seal
2. Cap
3. Shims
4. Bearing cone - 4
5. Bearing cup - 4
6. Spacer
7. Top shaft
8. Input gear
9. Cap - 3
10. Intermediate shaft
11. Intermediate pinion
12. Intermediate gear
13. Spring pin
14. Slotted nut
15. Hardened washer
16. Bearing cone
17. Bearing cup
18. Chamfered spacer
19. Retaining ring
20. Axle gear
21. Bearing cup
22. Bearing cone (installed)
23. Seal
24. Axle shaft

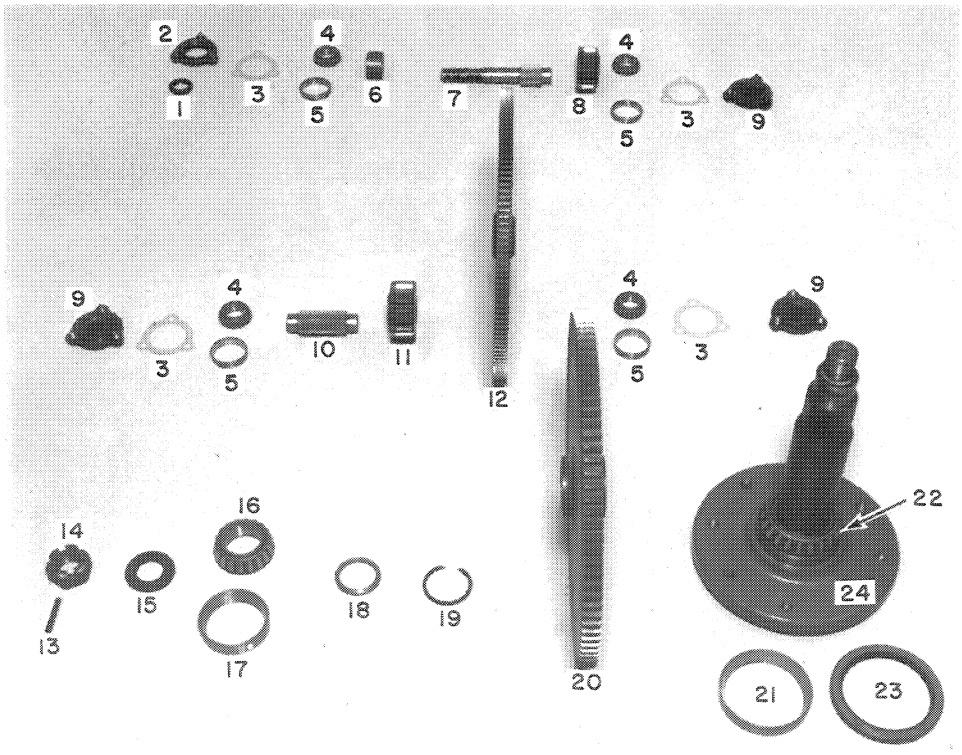


FIGURE 1-4

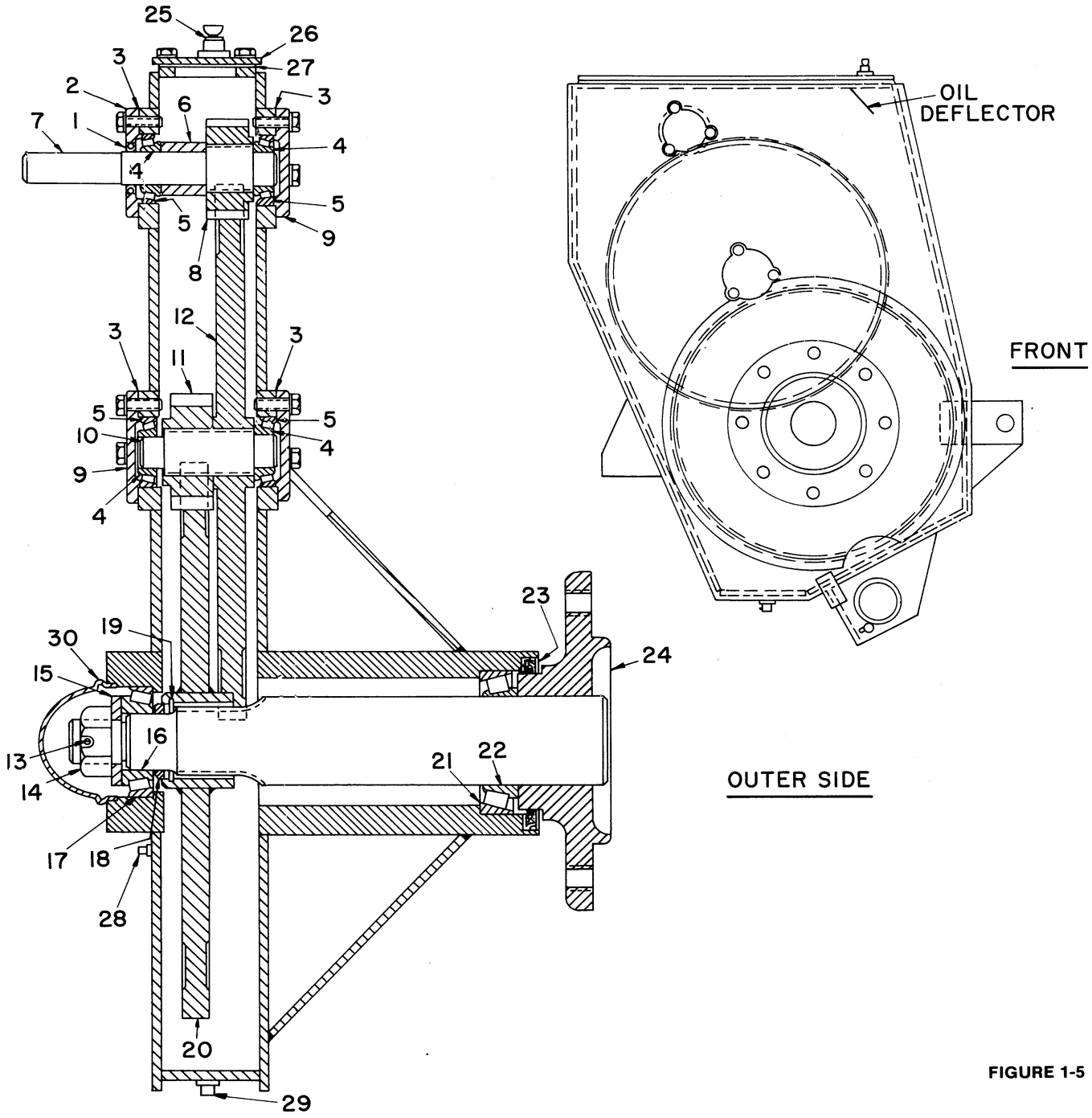


FIGURE 1-5

PARTS LIST FOR FIGURE 1-5

1. Oil seal
2. Cap
3. Shims
4. Bearing cone - 4
5. Bearing cup - 4
6. Spacer
7. Top shaft
8. Input gear
9. Cap - 3
10. Intermediate shaft
11. Intermediate pinion
12. Intermediate gear
13. Spring pin
14. Slotted nut
15. Hardened washer
16. Bearing cone
17. Bearing cup
18. Chamfered spacer
19. Retaining ring
20. Axle gear
21. Bearing cup
22. Bearing cone
23. Seal
24. Axle shaft
25. Fill plug
26. Top cover
27. Gasket
28. Check plug
29. Drain plug
30. Hub cap

C. DISASSEMBLY FIGURES 1-4 THROUGH 1-11

The final drive assembly has been removed from the tractor and steam cleaned. See Figure 1-6.

The final drive is supported in the vise with a piece of ¼" (6 mm) angle iron 27" (69 cm) long with two 11/16" (4 mm) holes. The center of the first hole is 14⅞" (38 cm) below the top of the angle iron. The second hole is centered 10½" (28 cm) below the center of the upper hole. Attach the angle iron to the housing with two ⅝" x 1½" cap screws and flat washers.

A hook for removing the two large gears can be made from a mild steel rod. The 1" (3 cm) leg is 20" (50 cm) from the bottom of the handle. See Figure 1-7.

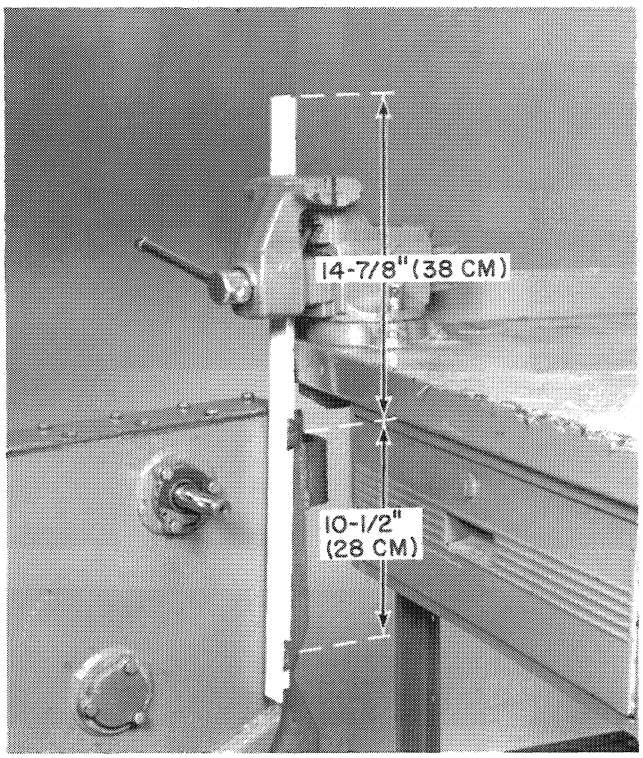


FIGURE 1-6

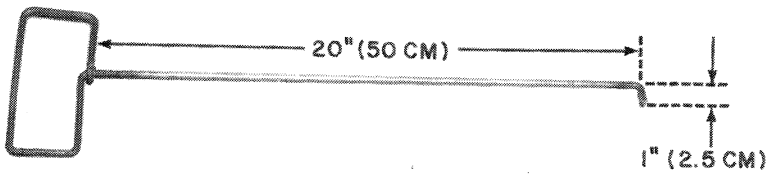


FIGURE 1-7

Disassembly

1. Remove top cover.
2. Remove brake drum and U-joint. Remove bearing cap next to the drum.
3. Remove the outer top bearing cap.

Install a 5/16" x ¾" cap screw at A, Figure 1-8, in the outer threaded hole in the top shaft. This will protect the shaft as it is driven in. Use care to protect the bearings and the gear. Remove bearing cone, the input gear, and top shaft from the housing.

Remove the intermediate bearing caps. Use a 5/16" x ¾" cap screw to protect the intermediate shaft as it is driven out of one bearing. See Figure 1-9. Hold the intermediate gear with the hook. Push the intermediate shaft out. Take care to protect the bearing. Lift the intermediate gear out, Figure 1-10. Remove the intermediate pinion.

Remove the hub cap, spring pin, slotted nut, and hardened washer. Turn the slotted nut on far enough to protect the axle threads. Drive the axle out far enough to unseat the axle inner bearing cone. Remove the nut, bearing cone, and narrow chamfered spacer. Remove the axle and use the hook to remove the axle gear, see Figure 1-11.

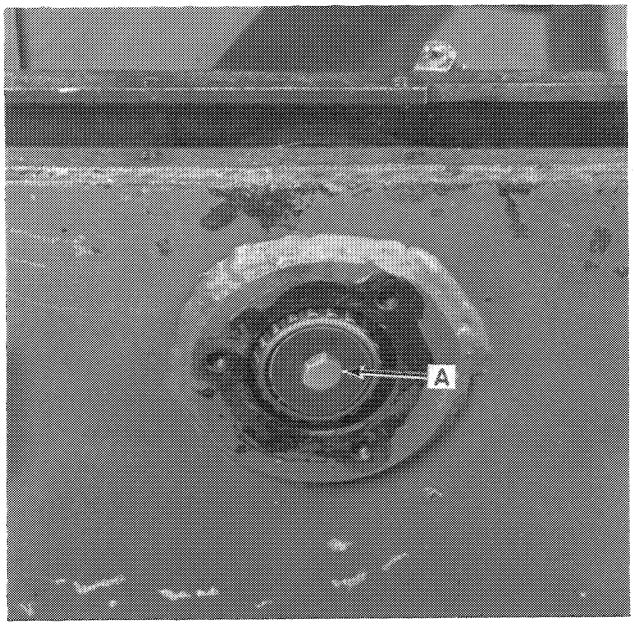


FIGURE 1-8

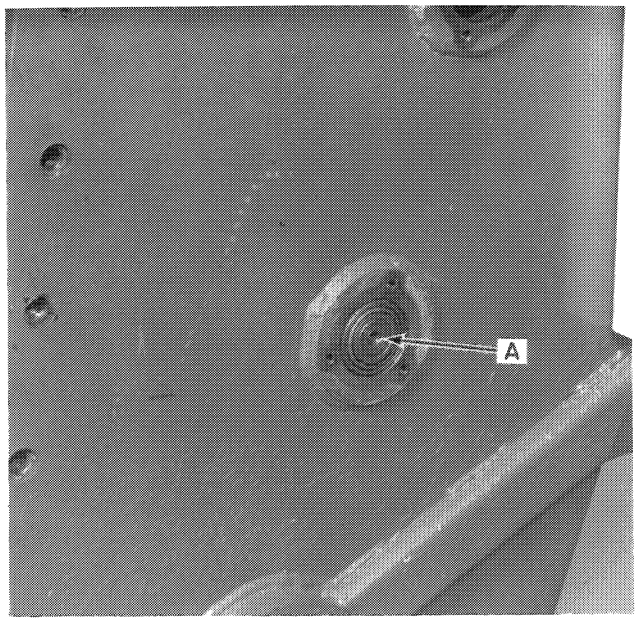


FIGURE 1-9

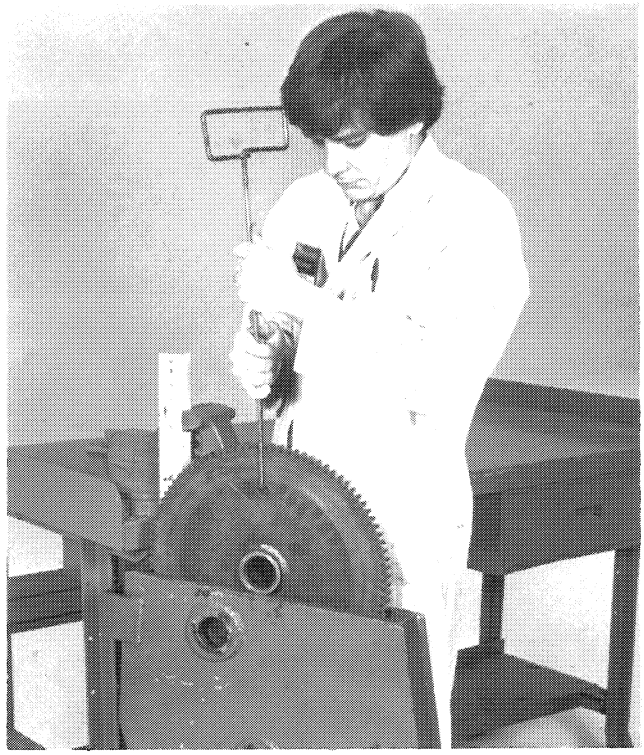


FIGURE 1-10

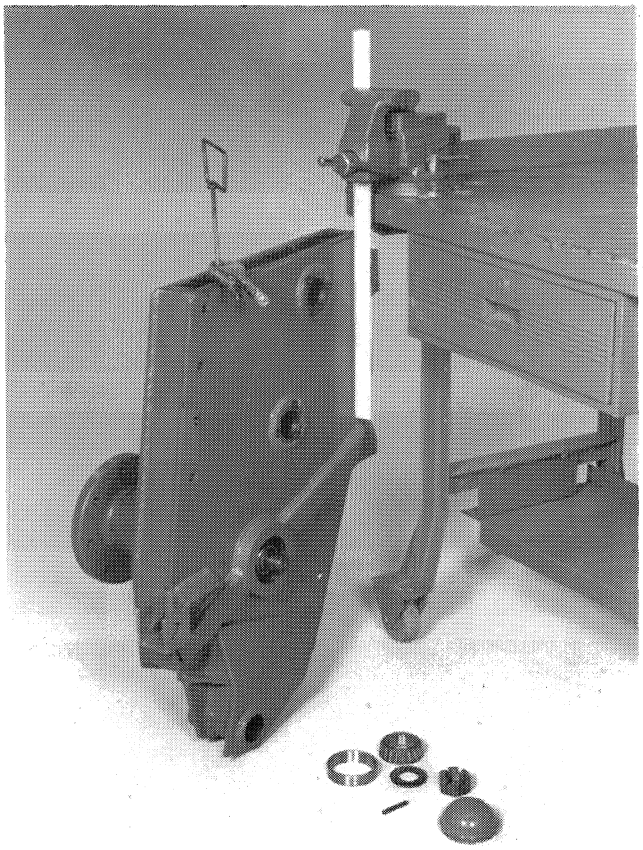


FIGURE 1-11

D. INSPECTION

Clean all parts in solvent and remove loose chips.

1. Case Weld Assembly
   a. Check bores for the six bearing cups for wear or burrs. The cups will be a push or drive fit in the case. Intermediate and top shaft bearing holes in the case are 1.9810" to 1.9820." The cup (5) outside diameters are 1.9800" to 1.9810". The axle shaft hole is 4.1305" to 4.1315" for the large bearing. The cup (21) outside diameter is 4.1331" to 4.1339". The axle shaft hole is 3.263" to 3.264" for the smaller bearing. The cup (17) outside diameter is 3.265" to 3.266". See Figures 1-4 and 1-5.
   b. Clean the surfaces for the top and side cover gaskets.
   c. Remove all burrs and chips from inside the case. Clean the inside of the case thoroughly.
2. Shafts
   a. Remove any nicks or burrs from the seal area of input and axle shafts.
   b. Splines - Check for excessive wear. There will be slight movement between gears and shafts.
   c. Bearing cone seats should not show wear or burrs. The cones are a press

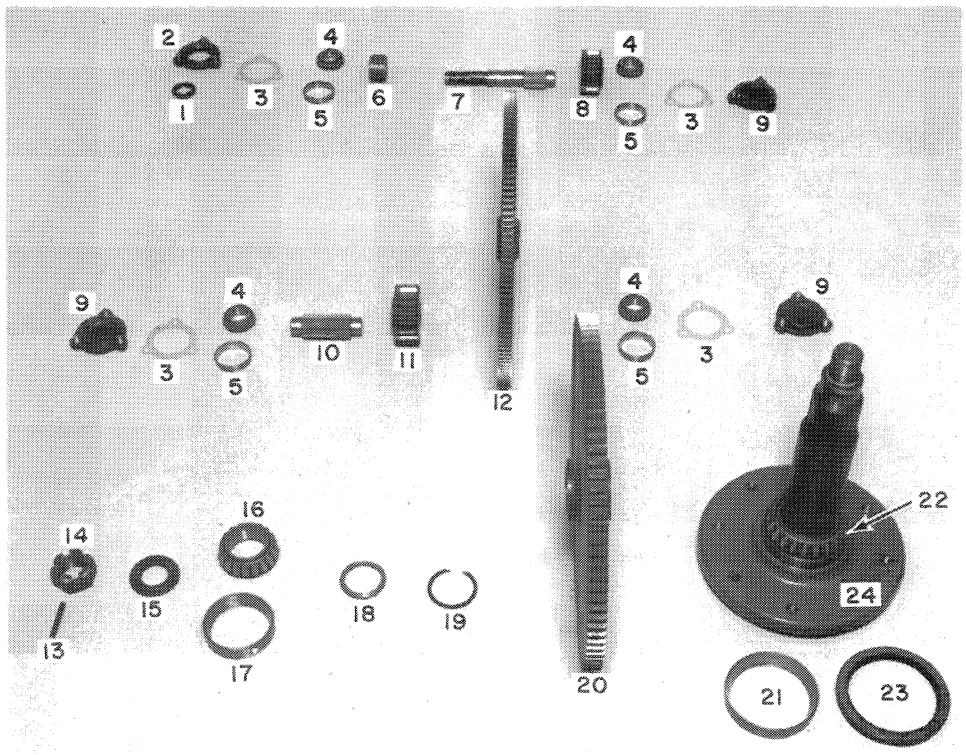


FIGURE 1-12

or drive fit on the shafts. The intermediate (10) and top shaft (7) bearing seats are 1.0015" and 1.0025". The inside diameter of the bearing cones (4) is 1.0000" to 1.0008". The axle shaft bearing seat for the larger bearing is 2.5605" to 2.5610". The inside diameter of bearing cone (22) is 2.5585". The axle shaft bearing seat for the small bearing is 1.7510" to 1.7515". The inside diameter of the bearing cone (16) is 1.7500" to 1.7505". See Figures 1-4 and 1-5.

3. Gears

   a. Teeth - Check for wear, bad burrs, etc.

   b. Splines - Check for wear, remove burrs from end of splines (gears should slide easily on shafts).

4. Bearings

   Check carefully. Replace both cup and cone if bearing shows wear or is questionable.

5. Seals and Gaskets

   Install new ones.

E. ASSEMBLY OF THE AXLE SHAFT (See Figures 1-12, through 1-15)

1. Install the axle cups (17 and 21) in the housing with a plastic mallet or a mild steel drift.

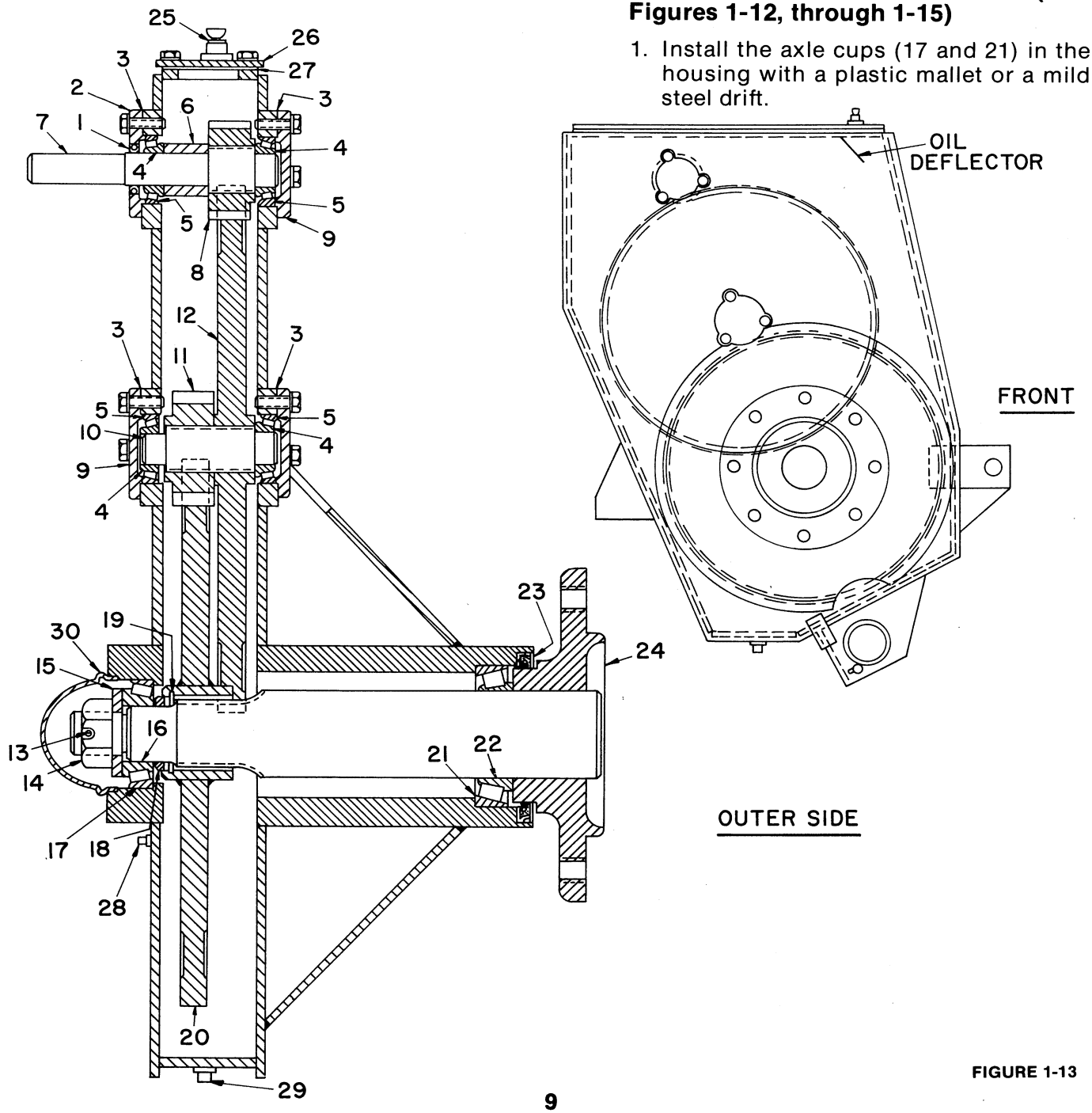


FIGURE 1-13

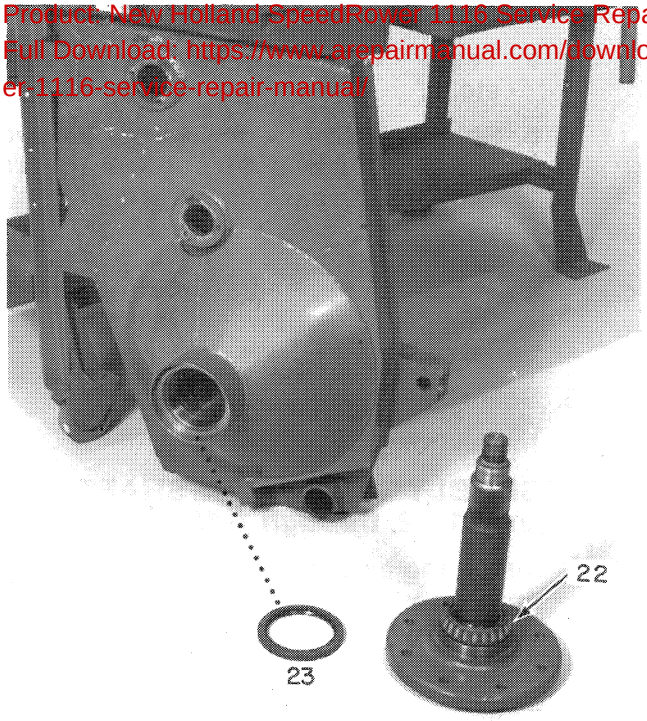


FIGURE 1-14

2. Install the outer bearing cone, 22, Figure 1-14, on the axle. Pack the two bearing cones. Install the oil seal, 23, Figure 1-14, in the housing. Oil the seal lip. Install retaining ring (19) in axle gear. Use hook to place the axle gear in the housing with the retaining ring away from the wheel.
3. Start the gear on the splines and slide the axle through the gear.

   Install the spacer (18) on the axle with the chamfer away from the retaining ring and axle hub. See Figure 1-15.
4. Install inner bearing cone (16) on the axle shaft, Figure 1-16. Install hardened washer (15) and slotted nut (14).

   Use a 1⅞" socket on the slotted nut and rotate the axle assembly while tightening the slotted nut to just remove axle end play.
5. Check the rolling torque with an inch-pound torque wrench. Tighten the slotted nut until the rolling torque is 15 to 40 in. lbs. (1.7 N·m to 4.5 N·m). See Figure 1-17.
6. Then, use the torque chart, Figure 1-18, to obtain the final bearing setting. Tap on the end of the hub several times while rotating the axle. Install the spring pin (13). Apply Permatex to the hub cap (30) and install in the housing.

   NOTE: This method of bearing adjustment cannot be used if intermediate gears are in place. See "Final Drive Repair" in this manual for replacing axle parts only.

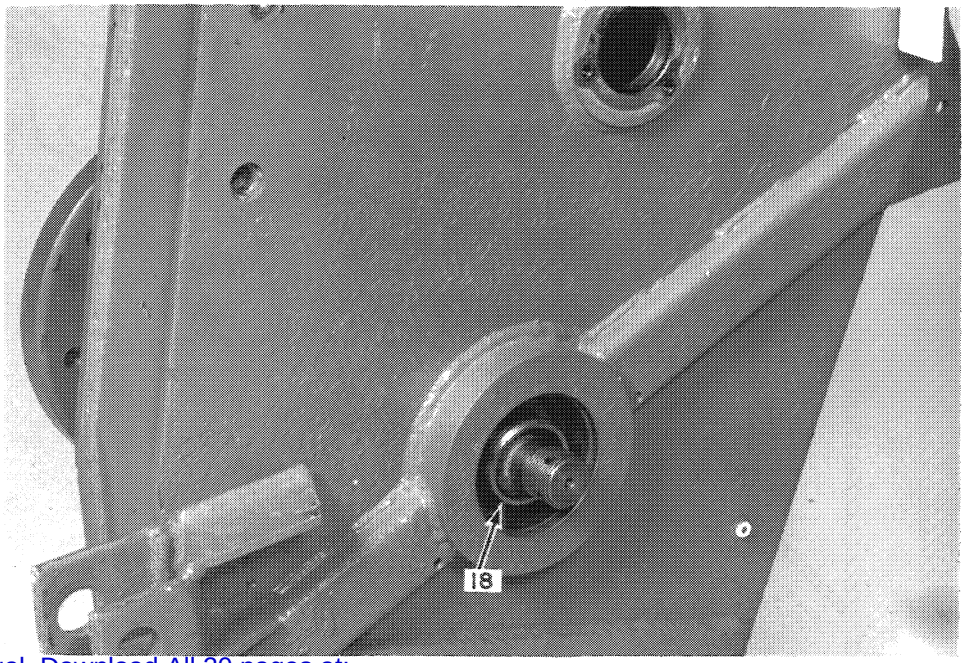


FIGURE 1-15