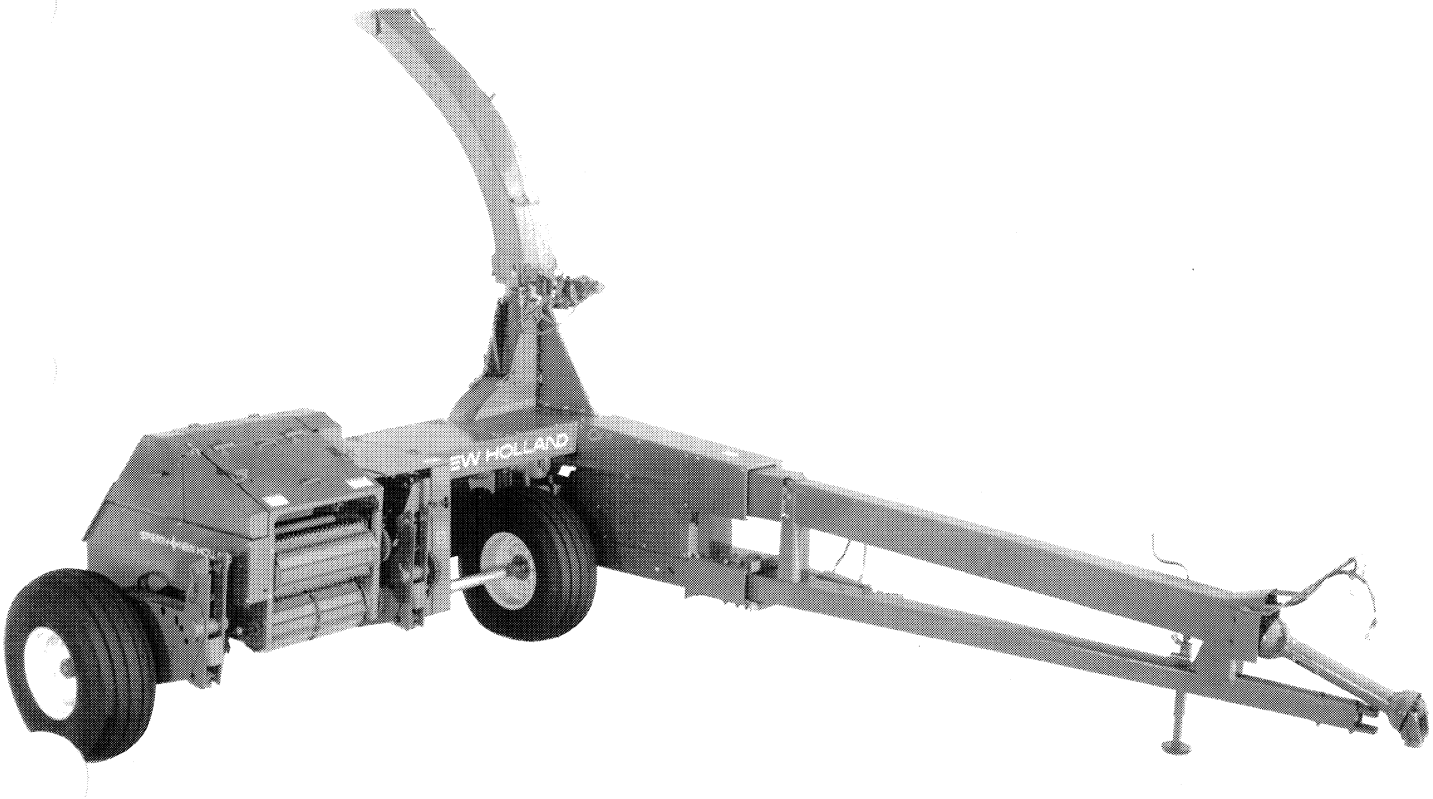
SERVICE MANUAL

HARVESTER 1600

SPERRY NEW HOLLAND



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Reprint

INTRODUCTION

This service manual provides the technical information needed to properly service the Model 160(harvester. This service manual, in addition to the operator's manual supplied with the harvester, will provide the necessary information to correctly service and maintain the harvester.

Whenever working on Sperry New Holland equipment, left and right sides of the machine are determined by standing behind the machine, looking in the direction of travel.

This manual details the procedures of removal, disassembly, reassembly, etc., found to be the easiest and least time-consuming. There may be several other ways of completing the same job, but it has been established that the methods in this manual are best. Modifications to these procedures are your own decision.

Certain hardware on the harvester must be tightened to specific torque specifications. If there are no specific torque specifications for the hardware, tighten to the torque listed in the "Specifications" section of this manual.

CAUTION!

SOME PICTURES IN THIS MANUAL SHOW SAFETY SHIELDS REMOVED OR OPEN TO SHOW PARTS BEING SERVICED OR FOR CLARITY. ALL SHIELDS SHOULD BE CLOSED OR REPLACED PRIOR TO OPERATING THE MACHINE.

ABOUT IMPROVEMENTS

Sperry New Holland is continually striving to improve its products. We must, therefore, reserve the right to make improvements or changes when it becomes practical and possible to do so, withou' incurring any obligation to make changes or additions to the equipment sold previously.

ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

CONTENTS

GENERAL INFORMATION

Install standard flat washers at all slotted holes, unless truss head bolts are used. Install special hardened washers where specified.

Install a lock washer on all bolts unless a jam nut or self-locking nut is specified.

Install standard Grade 2 bolts unless hardened Grade 5 bolts are specified. Grade 5 bolts are identified by three marks on the head of the bolts.

"Left" and "right" are determined from a position facing the direction of travel of the machine during operation.

SAFETY

YOUR SAFETY IS OF UTMOST CONCERN TO SPERRY NEW HOLLAND. PLEASE FOLLOW THE SAFETY RULES LISTED, NOT ONLY FOR YOUR OWN GOOD, BUT FOR THE PEOPLE AROUND YOU.

1. DO NOT ALLOW CHILDREN OR BYSTANDERS AROUND THE MACHINE WHILE IT IS BEING ADJUSTED, SERVICED, OR OPERATED.
2. ALWAYS USE A SAFETY STAND IN CONJUNCTION WITH HYDRAULIC JACKS OR HOISTS. DO NOT RELY ON THE JACK OR HOIST TO HOLD THE LOAD COMPLETELY, AS THEY COULD FAIL.
3. ALWAYS WEAR SAFETY GLASSES WHEN USING A HAMMER, CHISEL, OR OTHER TOOLS THAT MAY CAUSE CHIPS TO FLY OFF THE WORK.
4. KEEP WORK ORGANIZED AND CLEAN. WIPE UP OIL SPILLS OF ANY KIND TO MINIMIZE THE POSSIBILITY OF A FALL. KEEP TOOLS AND PARTS OFF THE FLOOR TO FURTHER REDUCE THE POSSIBILITY OF SERIOUS INJURY.
5. BE SURE TO REINSTALL THE SAFETY DEVICES SUCH AS GUARDS OR SHIELDS AFTER ADJUSTING OR SERVICING THE HARVESTER.
6. AFTER SERVICING THE HARVESTER, BE SURE ALL TOOLS, PARTS OR SERVICING EQUIPMENT ARE REMOVED FROM THE MACHINE.
7. WHEN USING A GAS TORCH, ALWAYS WEAR WELDING GOGGLES AND GLOVES. KEEP A FULLY CHARGED FIRE EXTINGUISHER WITHIN REACH. UTILIZE PROPER SHIELDING AROUND HYDRAULIC LINES.
8. ALWAYS USE THE LOCK-OUT PINS PROVIDED TO BLOCK THE HYDRAULIC CYLINDERS DURING SERVICE WORK. NEVER RELY ON THE MACHINE'S HYDRAULIC SYSTEM TO HOLD THE LOAD.
9. ESCAPING HYDRAULIC FLUID UNDER PRESSURE CAN HAVE ENOUGH FORCE TO PENETRATE THE HUMAN SKIN. HYDRAULIC FLUID MAY INFECT A MINOR CUT OR OPENING IN THE SKIN. IF INJURED BY ESCAPING FLUID, SEE A DOCTOR AT ONCE. DO NOT ATTEMPT TO REPAIR OR TIGHTEN HOSES THAT ARE UNDER PRESSURE. CYCLE ALL HYDRAULIC CONTROL VALVES TO RELIEVE ALL PRESSURE BEFORE DISCONNECTING THE LINES OR BEFORE DOING OTHER WORK ON THE HYDRAULIC SYSTEM. MAKE SURE ALL CONNECTORS ARE TIGHT AND HOSES AND LINES ARE IN GOOD CONDITION BEFORE APPLYING PRESSURE TO THE SYSTEM. TO LOCATE A LEAK UNDER PRESSURE, USE A SMALL PIECE OF CARDBOARD, NEVER USE YOUR HANDS.
10. USE PULLERS TO REMOVE BEARINGS, BUSHINGS, ETC. USE HAMMERS, PUNCHES, AND CHISELS ONLY WHEN ABSOLUTELY NECESSARY AND BE SURE TO WEAR SAFETY GLASSES.
11. BE CAREFUL WHEN USING COMPRESSED AIR. USE APPROVED AIR BLOW GUNS, DO NOT EXCEED 35 PSI (241 kPa) WEAR SAFETY GOGGLES, AND USE PROPER SHIELDING TO PROTECT EVERYONE IN THE WORK AREA.
12. DO NOT WEAR RINGS, WRIST WATCHES, OR LOOSE FITTING CLOTHING WHEN WORKING ON MACHINERY, AS THEY COULD CATCH ON MOVING PARTS AND CAUSE SERIOUS INJURY. WEAR STURDY WORK SHOES.

THE ABOVE IS ONLY A PARTIAL LIST OF SAFETY WORK RULES. IN ADDITION, ALWAYS REFER TO THE OPERATOR'S MANUAL FOR ADDITIONAL SAFE WORK RULES REGARDING THIS MACHINE.

SECTION 1
BEVEL GEARBOX

SPECIFICATIONS

Output shaft rolling torque - 3-6 in. lbs. (1.1-2.2 N·m

Input and output shaft rolling torque - 12-18 in. lbs. (4.4-6.7 N·m)

Gear tooth backlash - .006"-.015" (.15-.38 mm)

Oil capacity - 5½ qt. (1.26 l) 80W-90 GL5

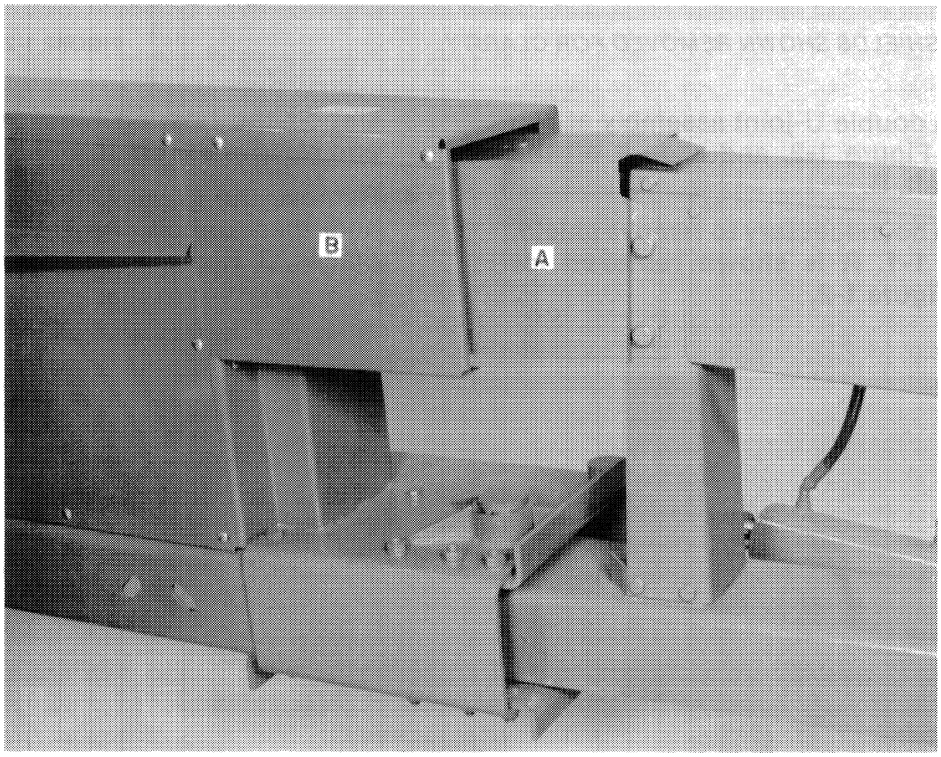
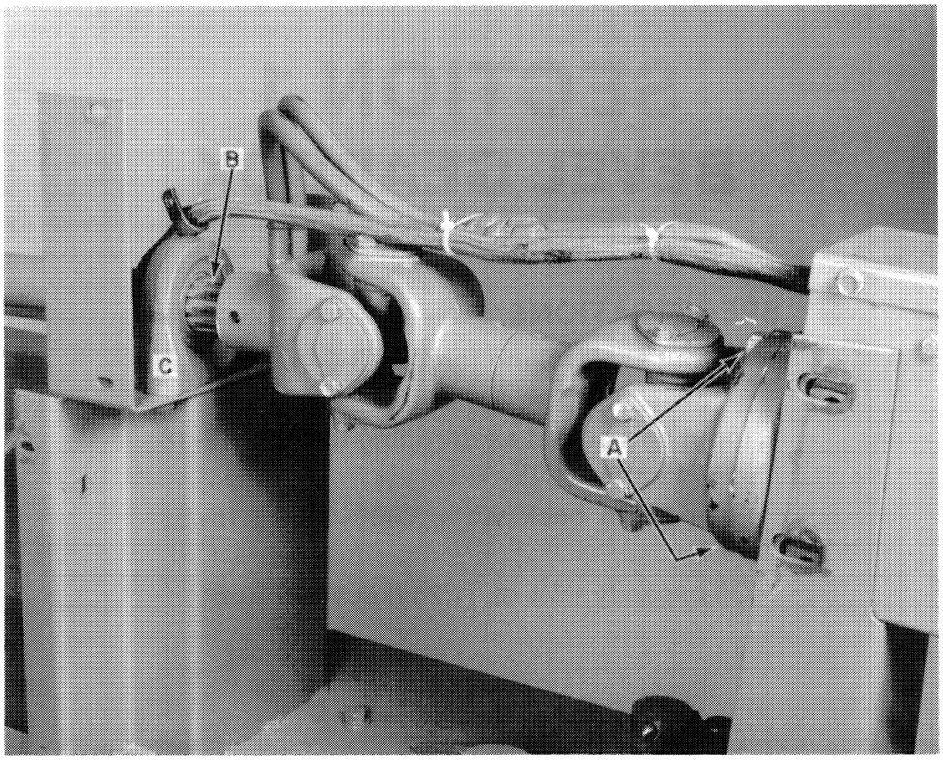


FIGURE 1-1

REMOVAL

1. Remove shield, A, Figure 1-1.

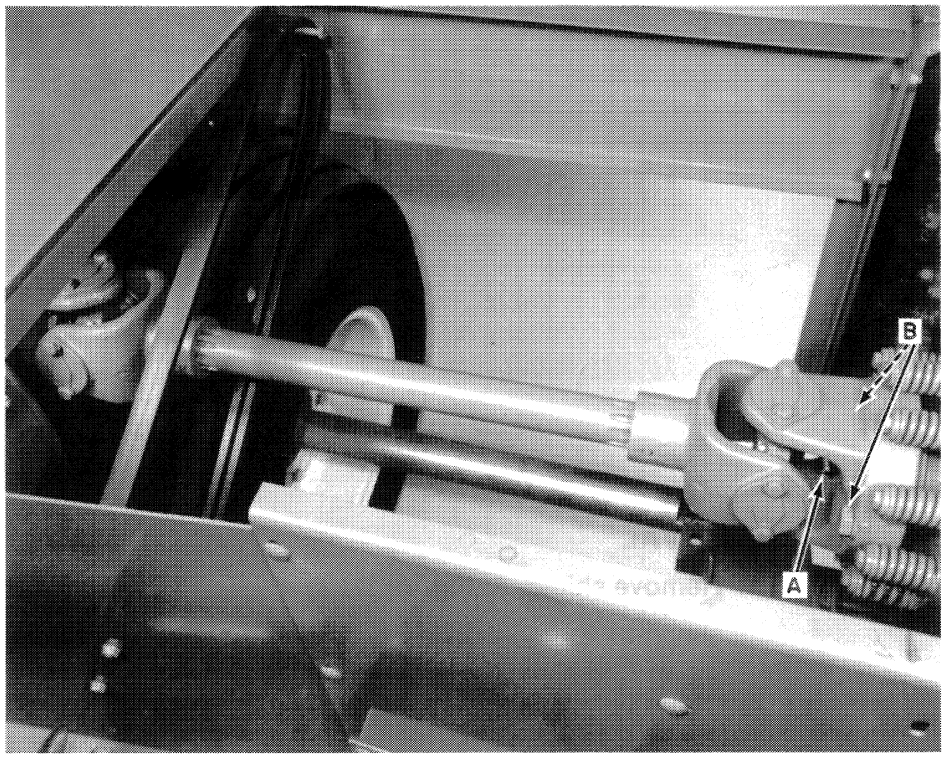


SHIELDS SHOWN REMOVED FOR CLARITY. **FIGURE 1-2**

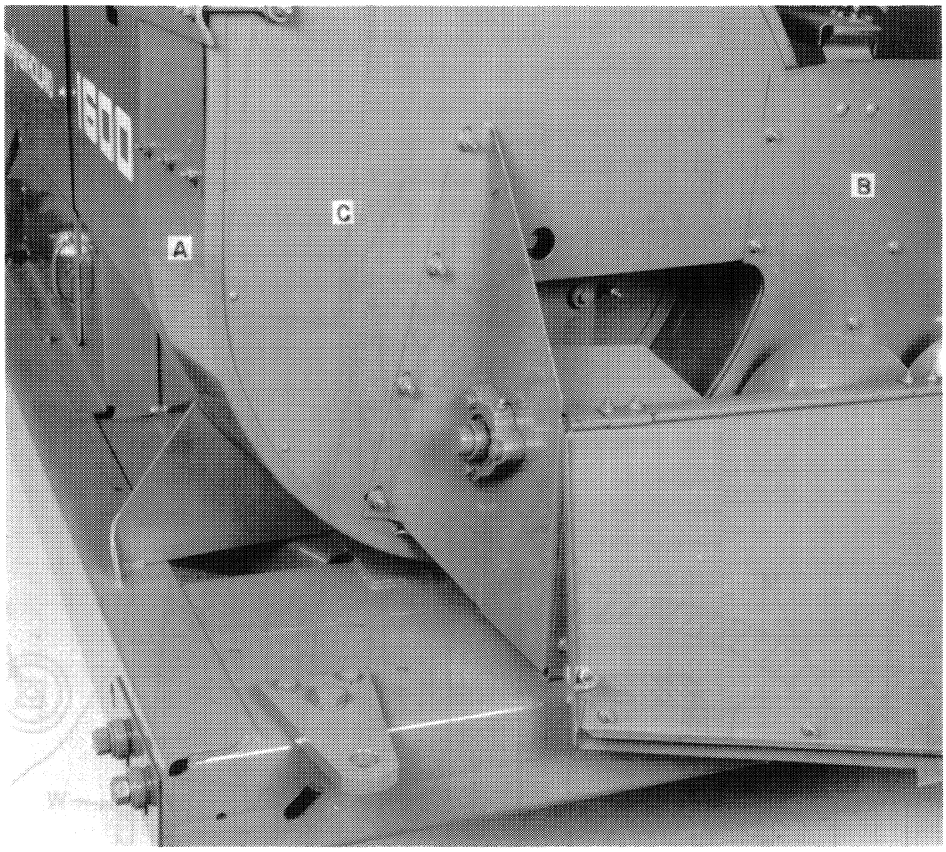
2. Unbolt the double U-joint assembly at two points, A, Figure 1-2, and slide it off the splined shaft, B.

   NOTE: It is not necessary to remove shield, B, Figure 1-1. It is shown removed for clarity in Figure 1-2.

3. Unbolt the bearing block, C, Figure 1-2, and remove the shaft.
4. Remove the grease fitting, A, Figure 1-3, and then unbolt the drive shaft at two places, B. Remove the shaft.



SHIELDS SHOWN OPEN FOR CLARITY. **FIGURE 1-3**



SHIELDS SHOWN OPEN FOR CLARITY. **FIGURE 1-4**

5. To remove the blower assembly from the gearbox shaft, remove band, A, Figure 1-4, and rear sheet, C, Figure 1-4. The hub is on a tapered spline. To loosen the hub, use a flat plate, Figure 1-4, as a puller. Figure 1-5 shows how the puller is used.

6. Remove the four gearbox mounting bolts, A, Figure 1-6, and remove the gearbox from the machine.

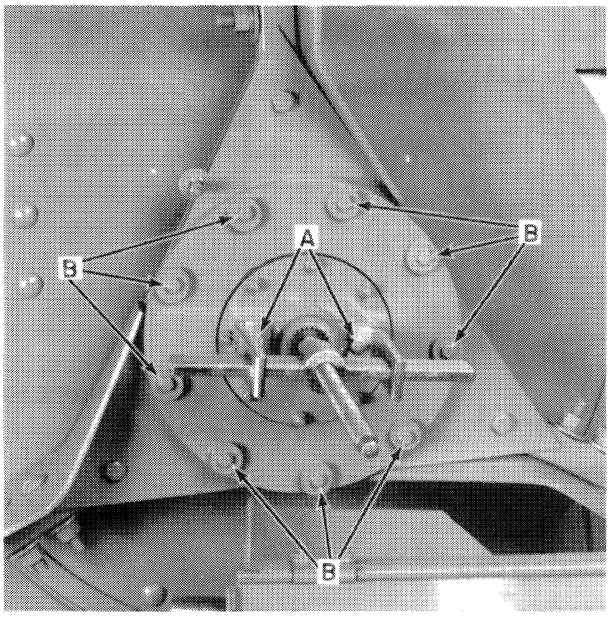


FIGURE 1-5
SHIELDS SHOWN REMOVED FOR CLARITY.

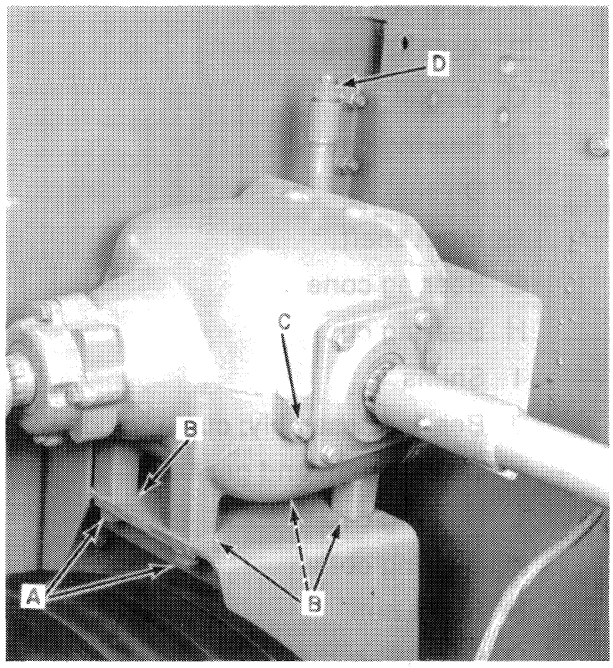


FIGURE 1-6
SHIELDS SHOWN REMOVED FOR CLARITY.

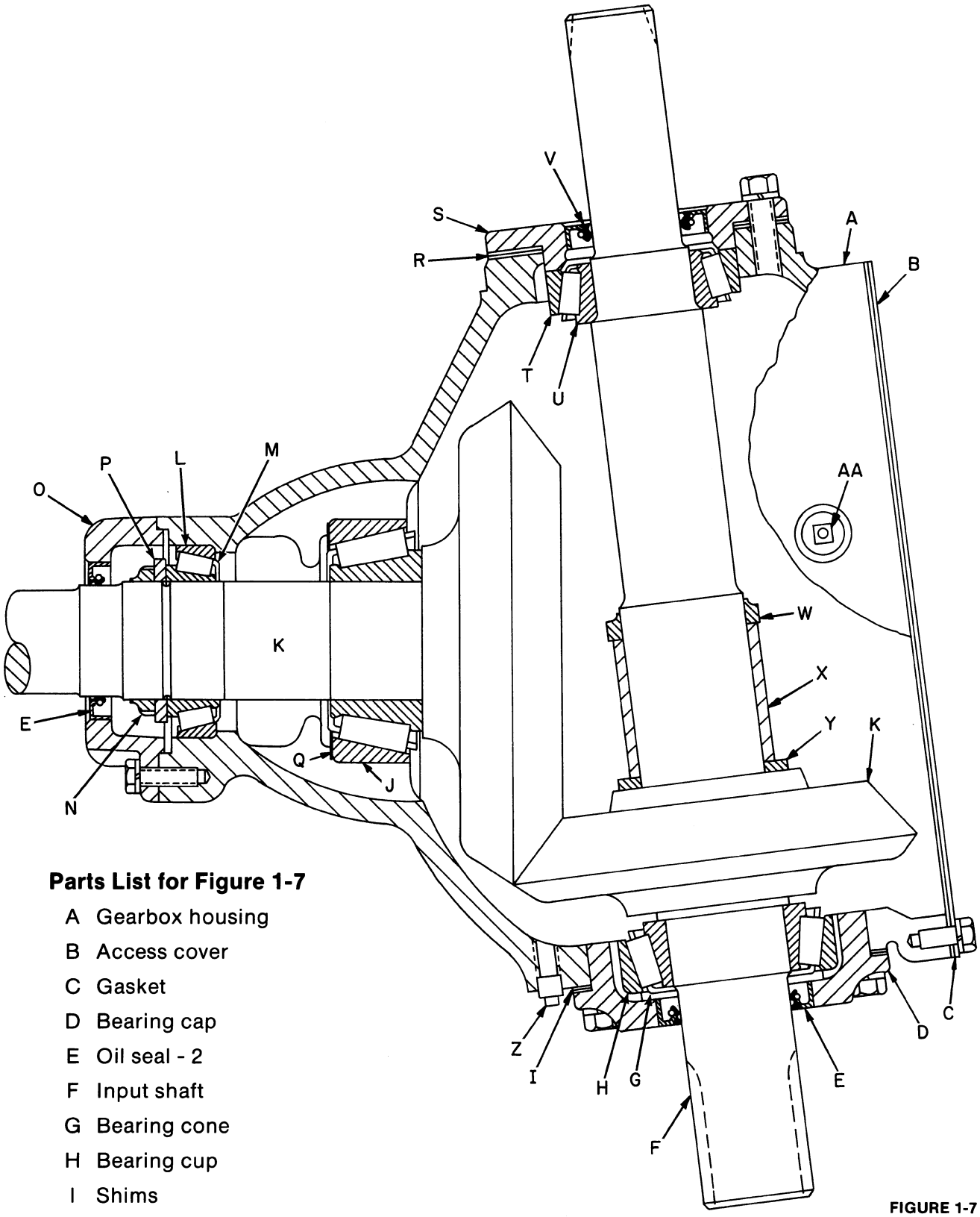


FIGURE 1-7

Parts List for Figure 1-7

A Gearbox housing
B Access cover
C Gasket
D Bearing cap
E Oil seal - 2
F Input shaft
G Bearing cone
H Bearing cup
I Shims
J Bearing assembly; cup and cone
K Output shaft and gear set
L Bearing cup
M Bearing cone
N Stake nut
O Cap
P Spacer
Q Shims
R Shims
S Bearing cap
T Bearing cup
U Bearing cone
V Oil seal
W Stake nut
X Spacer
Y Spacer
Z Check plug
AA Fill plug

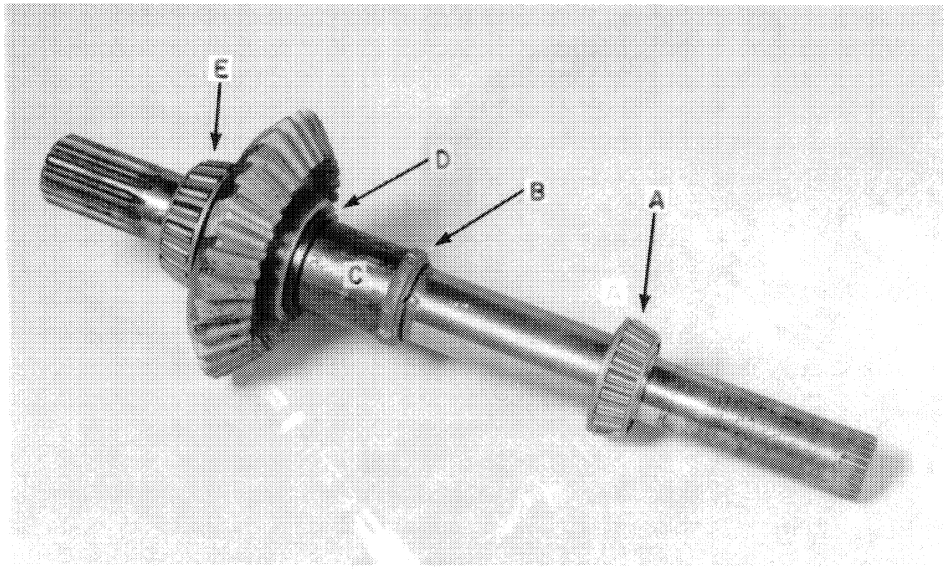


FIGURE 1-8

DISASSEMBLY

Input Shaft

1. Drain the oil and remove the access cover.
2. Remove the input shaft assembly by removing the bearing caps, D and S, Figure 1-7. The assembly will then come out through the access opening, B.
3. Remove bearing cone, A, Figure 1-8.
4. To remove the gear, the stake nut, B, Figure 1-8, must be removed. The stake nut is locked to the shaft. To unlock the nut, drive a chisel in the groove in the shaft. After the stake nut is removed, press the gear off.

Output Shaft

1. Remove the cap, O, Figure 1-7.
2. Drive a chisel in the groove in the shaft to unlock the stake nut, N.
3. Remove the stake nut and the shaft can be pushed into the housing.

NOTE: The output gear and shaft are available only as an assembly. Do not remove the gear from the shaft.

PARTS INSPECTION

Replace the gear set if the gears are chipped, pitted or show wear.

Replace the bearing any time there is internal damage.

Replace oil seals if they are damaged.

ASSEMBLY

NOTE: The gear set and output shaft are only serviced as a matched set.

NOTE: Bearing, J, Figure 1-7, is serviced only as a matched cup and cone.

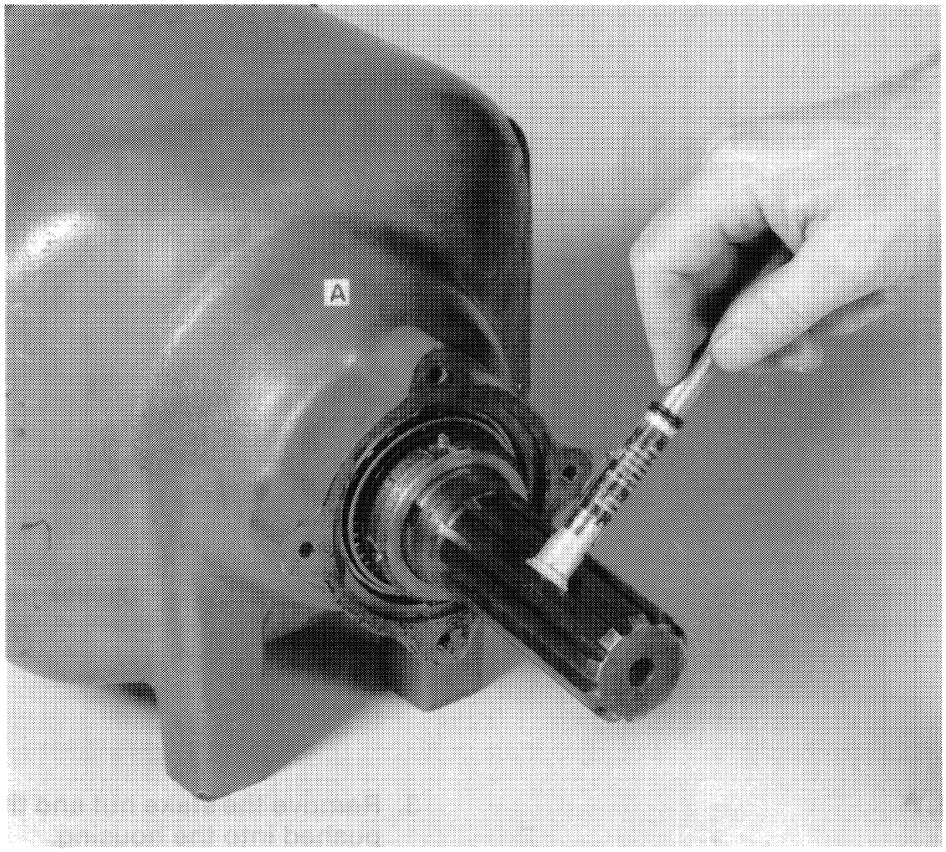


FIGURE 1-9

Output Shaft

1. The output shaft and gear must be precisely positioned in the housing using shims, Q, Figure 1-7. If a new bearing or gear and shaft is used, the number of shims required must be determined.

   For example: If the slip of paper with the new bearing has a "6" on it, the housing may have "8" stamped on the case at A, Figure 1-9, and the gear may have a "4" etched on it. This means all three numbers must be added together, giving a total of 18. This total (.018) (.46 mm) indicates the required shim thickness that must be used at Q, Figure 1-7. Shims are available in sizes of .003", .005", and .007" (.08 mm, .13 mm, and .18 mm). After the shim thickness is determined, press the bearing cone on the output shaft until it seats against the gear. Install the proper shim pack at Q, Figure 1-7 and bearing cup, J.

2. Install the shaft in the housing. Install bearing cup, L, cone, M, spacer, P, and stake nut, N.

3. Tighten the stake nut until the rolling torque of the shaft is 3-6 in. lbs. (1.1-2.2 N·m). See Figure 1-9 for one method of checking torque.

4. Use a punch to deform and lock the nut into the slot on the shaft.

   Do not install cap, P, Figure 1-7, at this time.

Input Shaft

1. Press the gear on the shaft with 5000-7000 lbs. (2222-3116 N) force to insure proper seating.

2. Install spacers, C and D, Figure 1-8, and the stake nut, B. Tighten the stake nut ¼ turn after it seats. Then deform and lock it into the groove in the shaft.

3. Install bearings, A and E, Figure 1-8, on the shaft.

4. Insert the shaft assembly in the housing.

5. Install bearing caps, D and S, Figure 1-7, without the oil seals installed.

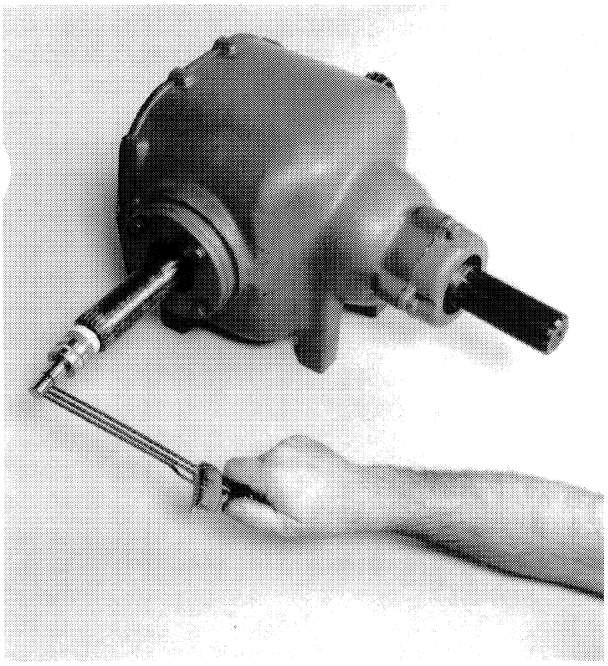


FIGURE 1-10

6. Add shims as required at I and R, Figure 1-7, to obtain a rolling torque on the input shaft of 12-18 in. lbs. (4.4-6.7 N·m). The torque can be measured as shown in Figure 1-10.
7. Measure the backlash as shown in Figure 1-11 after the proper rolling torque is obtained.
8. Adjust the backlash to .006"-.015" (.15-.38 mm) adding and removing an equal thickness of shims, from one side to the other at I and R, Figure 1-7. Shims are available in sizes of .003", .005", and .020" (.08, .13, .5 mm).
9. After the backlash is adjusted, install oil seals, E and V, Figure 1-7, and coat the threads of the bearing cap mounting bolts with Permatex®.

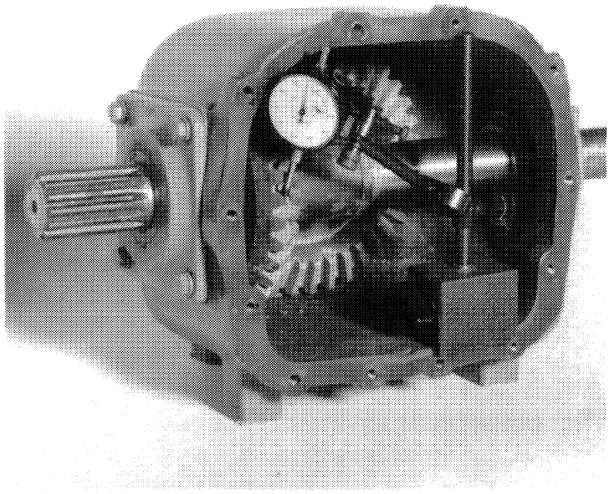


FIGURE 1-11

10. Install cap, O, and oil seal, E, Figure 1-7.
11. Install the access cover and gasket. Apply Permatex to the mounting bolt threads.

INSTALLATION

Installation is the reverse of removal. Use the following information for proper installation.

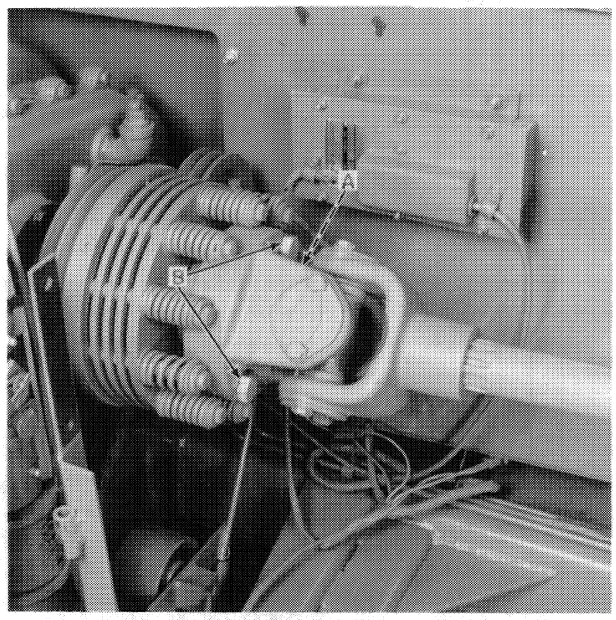
1. Install shims at B, Figure 1-6, so the gearbox slides into the opening in the blower side sheet.
2. Shim and position the input shaft bearing, C, Figure 1-2, so the coupler slides on the gearbox input shaft without binding.
3. Fill the gearbox with 5½ qt. (1.26 l) 80W-90 GL5 oil at D, Figure 1-6. Check oil level at C, Figure 1-6.
4. Make sure the hydraulic hoses and wiring harness at Figure 1-2 do not contact the U-joint assembly.

LABOR GUIDE

The following labor amount is listed as a guide only. Working conditions, experience, etc., will vary the time it actually takes.

Job	Man Hours
Remove and rebuild	4

SECTION 2
REVERSING GEARBOX



SHIELDS SHOWN OPEN FOR CLARITY. **FIGURE 2-1**

SPECIFICATIONS:

Electric clutch armature: clearance .010"-.060"

Shaft end-play: .001"-.003" (.03-.08 mm)

Brush holder torque: 15 ft. lbs. (20 N·m)

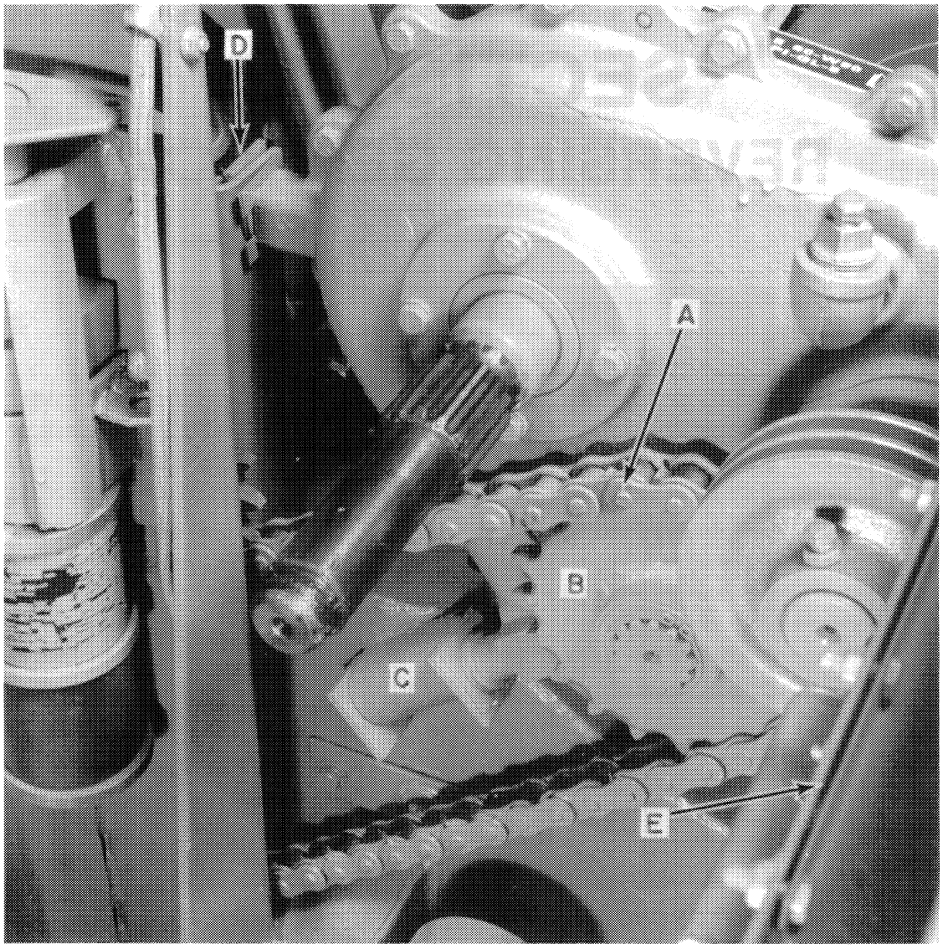
Magnet resistance: 2.62 ohms

Forward magnet hub torque: 125 ft. lbs. (169 N·m)

Oil capacity: 3½ qt. (.8 l) 80W90 GL5

REMOVAL

1. Remove grease zerk, A, and two bolts, B, Figure 2-1, to remove the drive hub.



SHIELDS SHOWN OPEN FOR CLARITY. **FIGURE 2-2**

2. Disconnect main drive chain, A, Figure 2-2. **NOTE: The main slip clutch is shown removed for clarity. It is not necessary to remove the clutch to remove the gearbox.**

   NOTE: Drive chain sprocket, B, Figure 2-2, may have to be partially removed.

3. Remove the mounting bolts and spacers at C and D, Figure 2-2.
4. Remove metal detector electronic box, E, Figure 2-2, on metal detector units.
5. Remove cover, A, Figure 2-3, and shield, B.

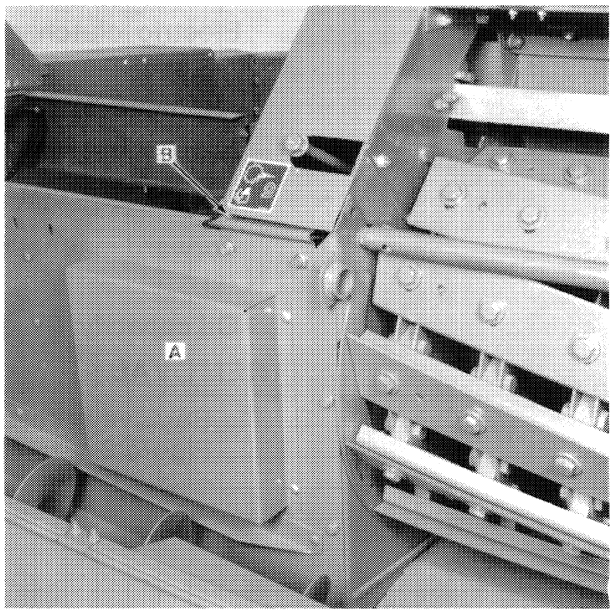


FIGURE 2-3
SHIELDS SHOWN REMOVED FOR CLARITY.

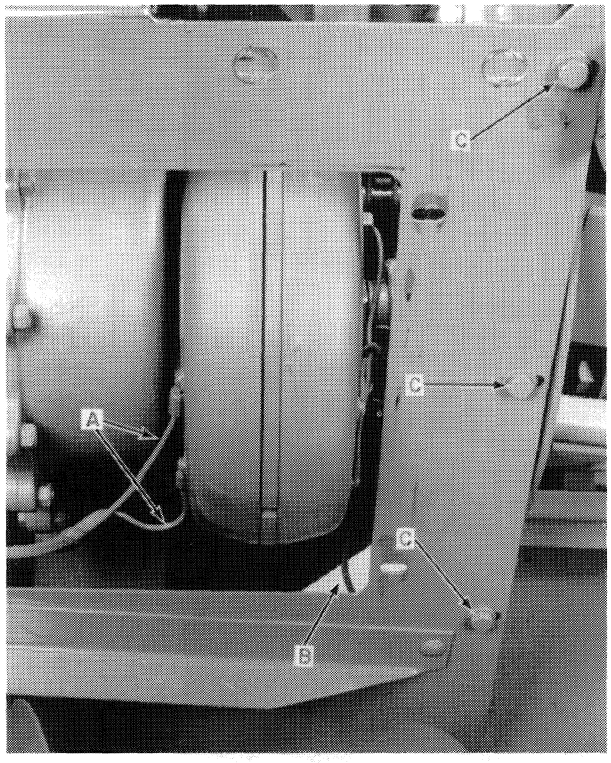
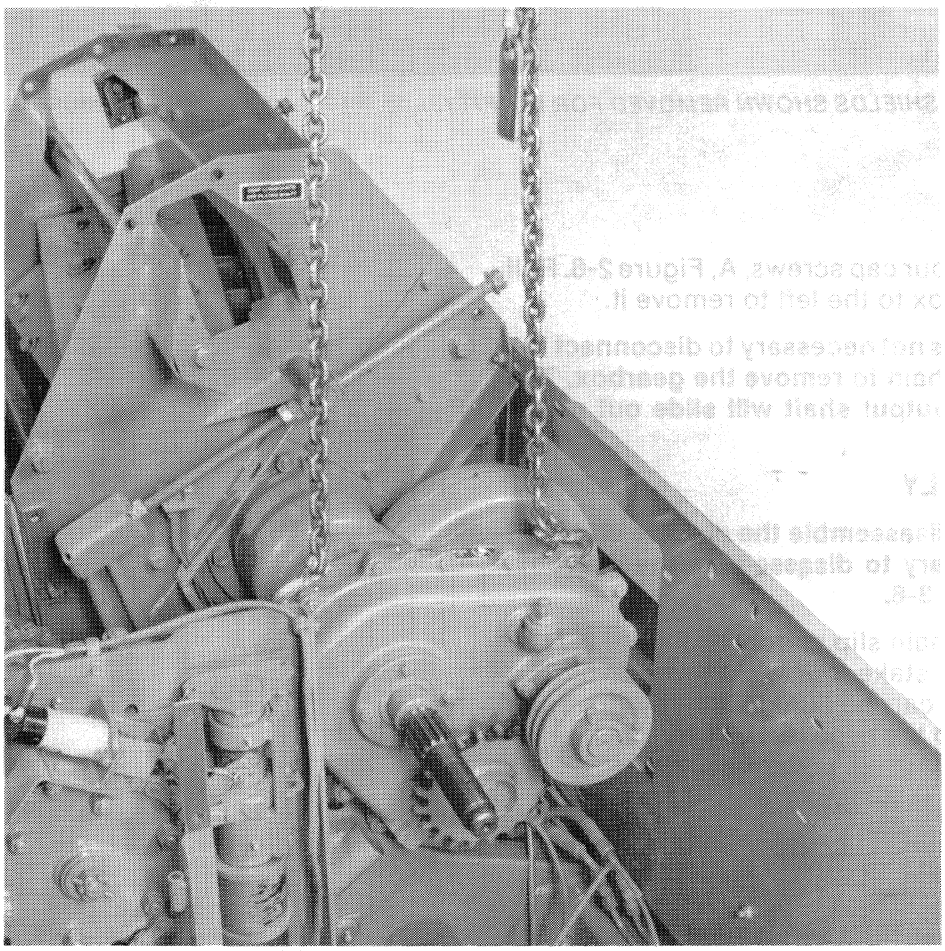
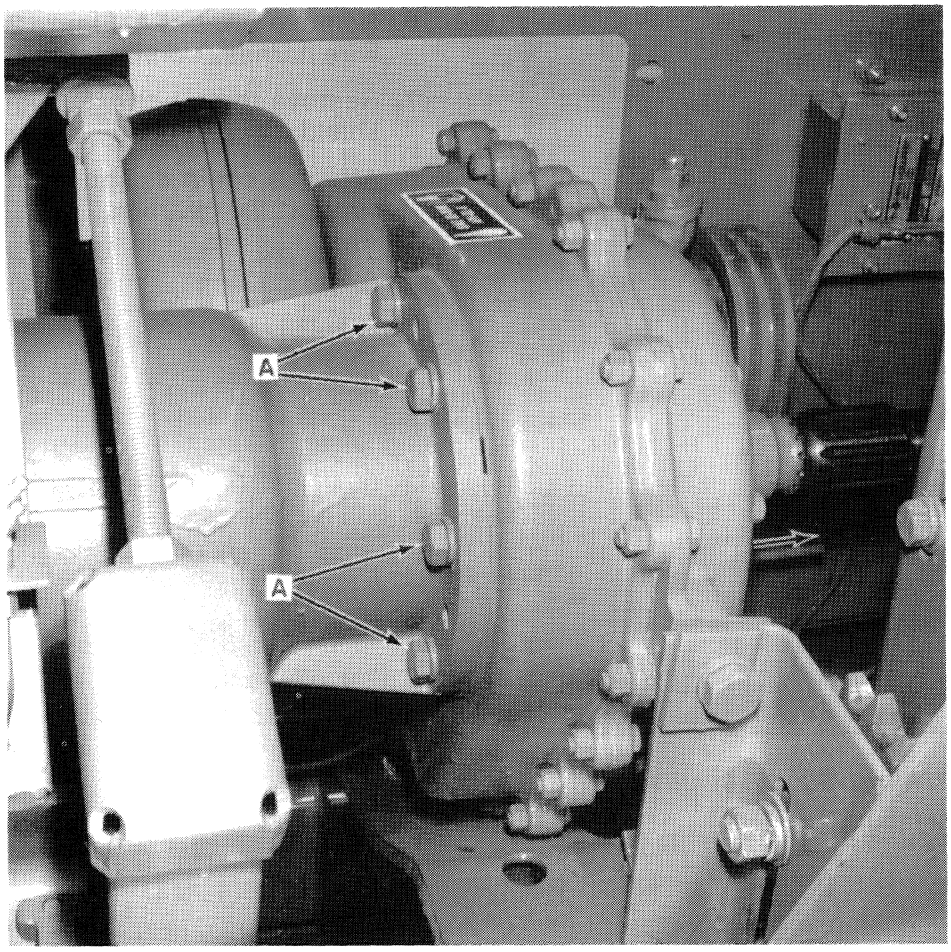


FIGURE 2-4
SHIELDS SHOWN REMOVED FOR CLARITY.

6. Remove wires at A, Figure 2-4. Disconnect wire harness connector at B.
7. Remove three bolts, C, Figure 2-4, so the shield can be pulled back slightly.
8. Attach a chain as shown in Figure 2-5, to support the gearbox.



SHIELDS SHOWN REMOVED FOR CLARITY. FIGURE 2-5



SHIELDS SHOWN REMOVED FOR CLARITY. **FIGURE 2-6**

9. Remove four cap screws, A, Figure 2-6. Pull the gearbox to the left to remove it.

   NOTE: It is not necessary to disconnect the coupler chain to remove the gearbox. The gearbox output shaft will slide out of the coupler.

DISASSEMBLY

NOTE: To disassemble the electric clutch, it is not necessary to disassemble the gearbox. Refer to steps 3-6.

1. Remove main slip clutch, A, Figure 2-7, by removing stake nut, A, Figure 2-8. The stake nut can be "unlocked" by driving a chisel into the groove, B, Figure 2-8.

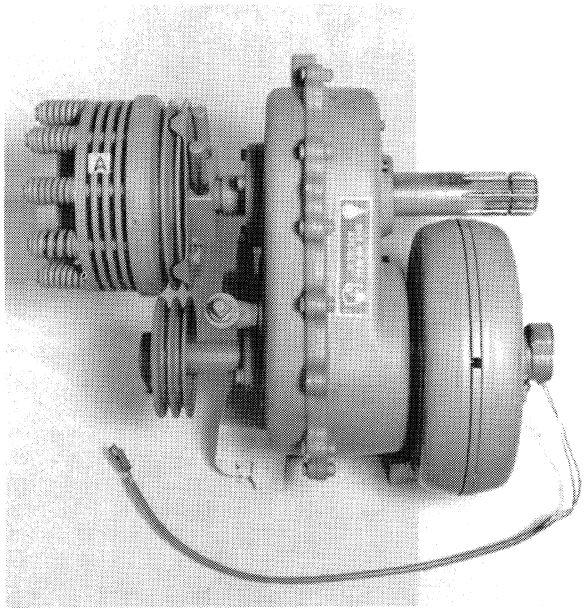
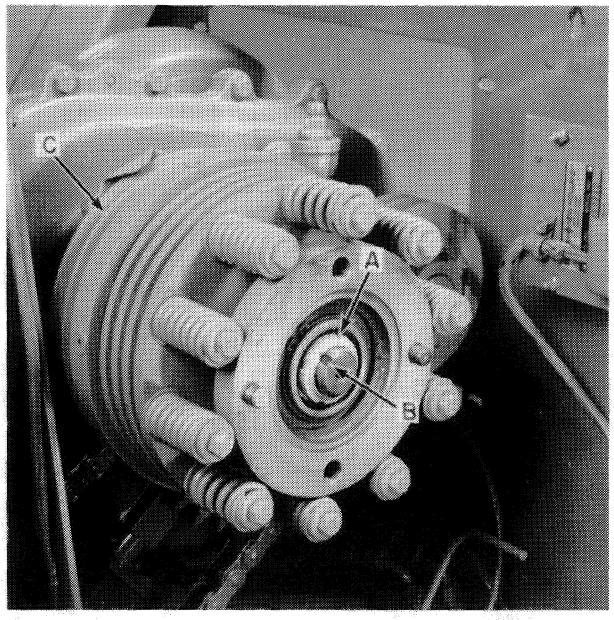


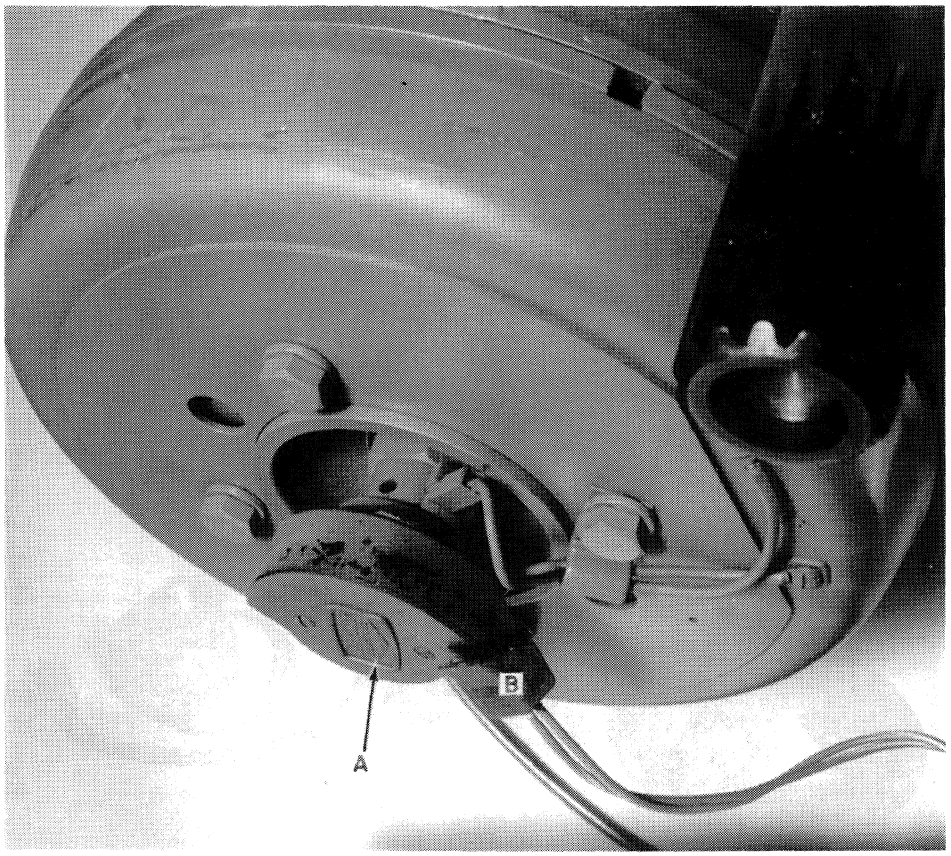
FIGURE 2-7



PARTS SHOWN REMOVED FOR CLARITY.

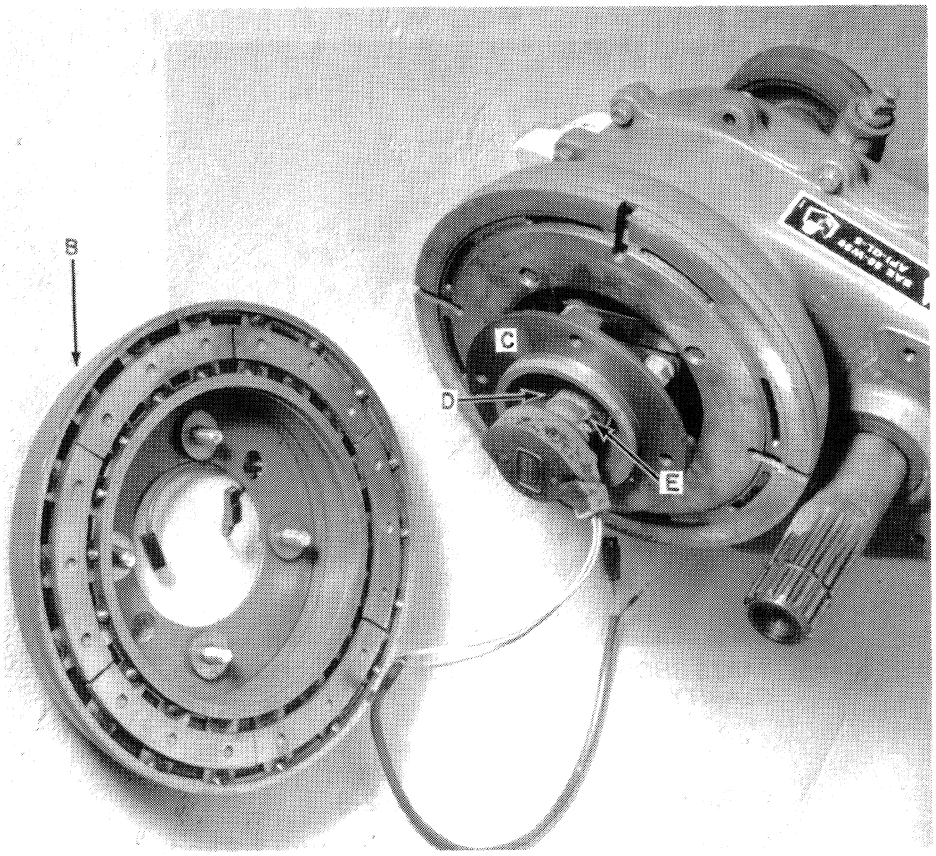
FIGURE 2-8

2. Remove sheave, C, Figure 2-8.
3. Remove brush assembly, A, Figure 2-9 and 2-11. This is done by removing the wire plugs, B, Figure 2-9, and unscrewing the assembly.



PARTS SHOWN REMOVED FOR CLARITY.

FIGURE 2-9



PARTS SHOWN REMOVED FOR CLARITY.

FIGURE 2-10

4. Remove forward magnet, B, and hub assembly, C, Figure 2-10 and 2-11, by bending locking tab, D, down and removing nut, E.

NOTE: The hub is on a tapered spline.

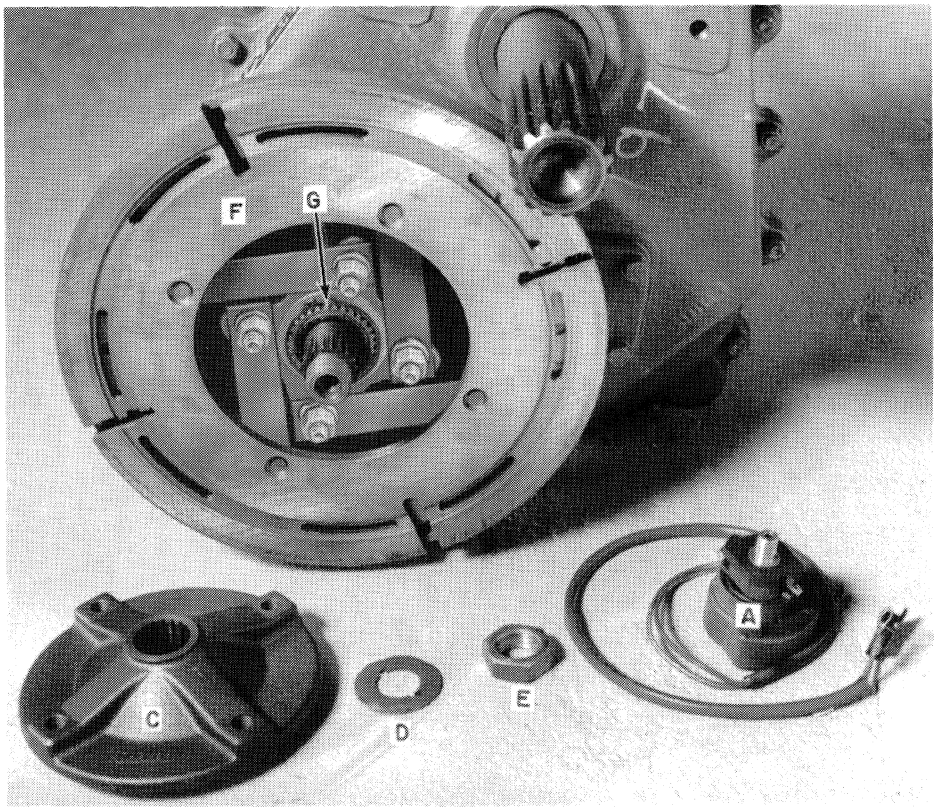


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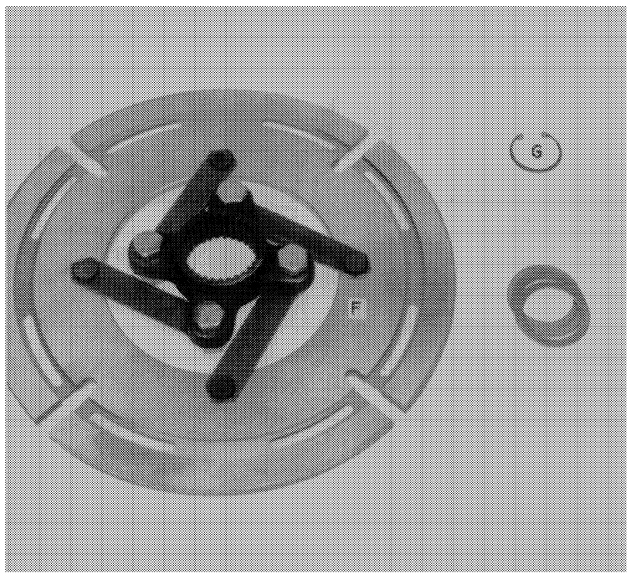
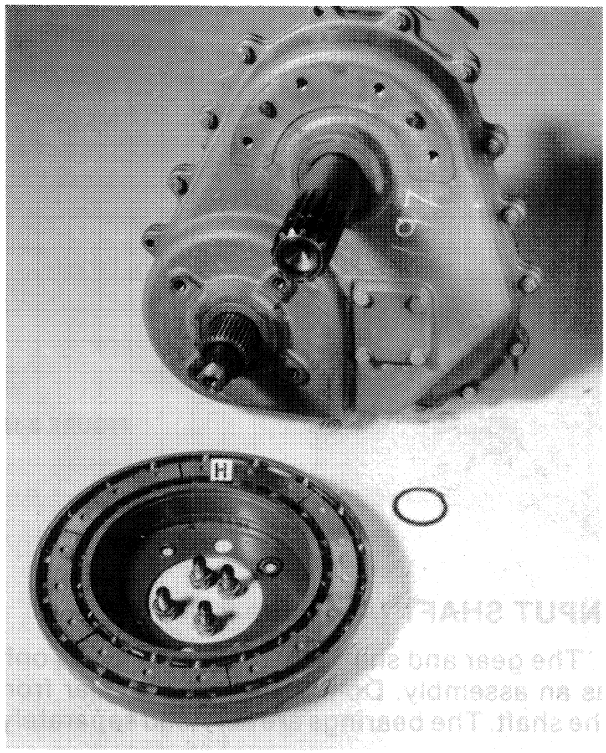
FIGURE 2-11

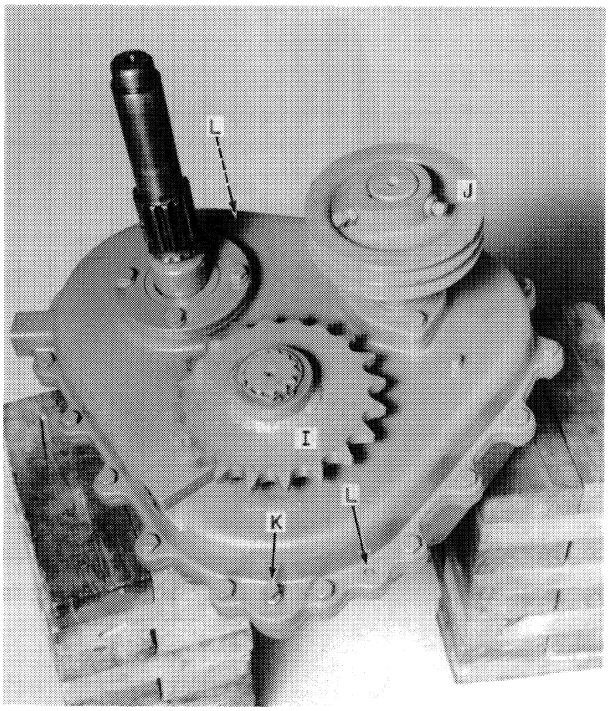


PARTS SHOWN REMOVED FOR CLARITY. **FIGURE 2-12**

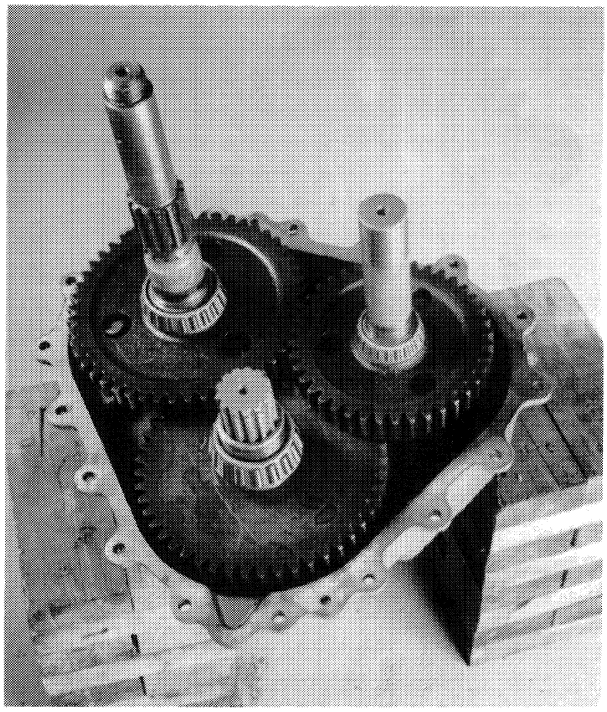


PARTS SHOWN REMOVED FOR CLARITY. **FIGURE 2-13**

5. Remove armature assembly, F, Figures 2-11 and 2-12, by removing snap ring, G, on the shaft.
6. Remove reverse magnet, H, Figure 2-13, by unbolting it from the gearbox.
7. Remove output sprocket, I, Figure 2-14, and reverse drive sheave, J, Figure 2-14, and drain the oil from the gearbox at K, Figure 2-14.
8. Separate the gearbox by removing the two gearbox half aligning pins, L, Figure 2-14, and the cap screws holding the gearbox together.
9. The shafts can be lifted out. See Figure 2-15.



PARTS SHOWN REMOVED FOR CLARITY. **FIGURE 2-14**



PARTS SHOWN REMOVED FOR CLARITY. **FIGURE 2-15**

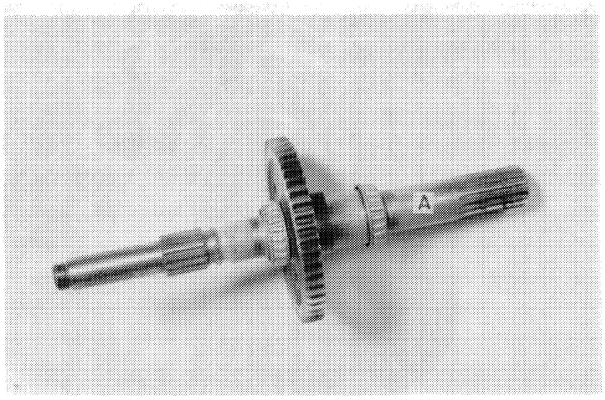


FIGURE 2-16

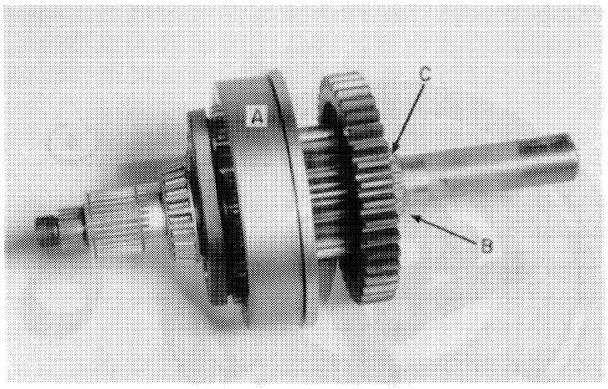


FIGURE 2-17

INPUT SHAFT (A, Figure 2-16)

The gear and shaft assembly is serviced only as an assembly. Do not remove the gear from the shaft. The bearings are serviced separately.

INTERMEDIATE SHAFT (Figures 2-17 and 2-18)

1. The planet gear assembly, A, should slide easily off the shaft.
2. Remove snap ring, B, Figure 2-17, and press gear, D, Figure 2-18, far enough that retaining ring, E, Figure 2-18, can be removed. Remove the gear and then press bearing, C, Figure 2-17, off the shaft.

OUTPUT SHAFT (Figure 2-19)

Remove bearing, A, and snap ring, B. The gear, C, will slide off the splines.

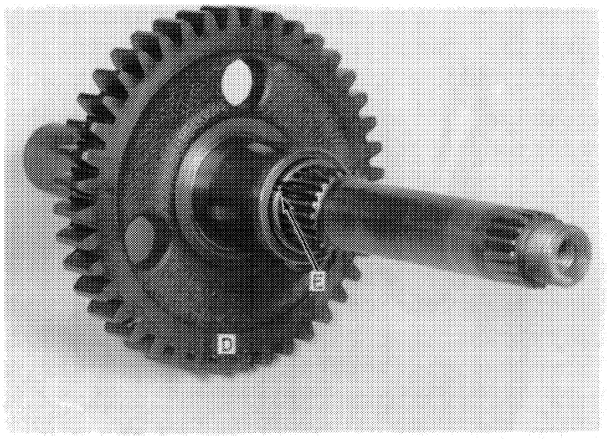


FIGURE 2-18

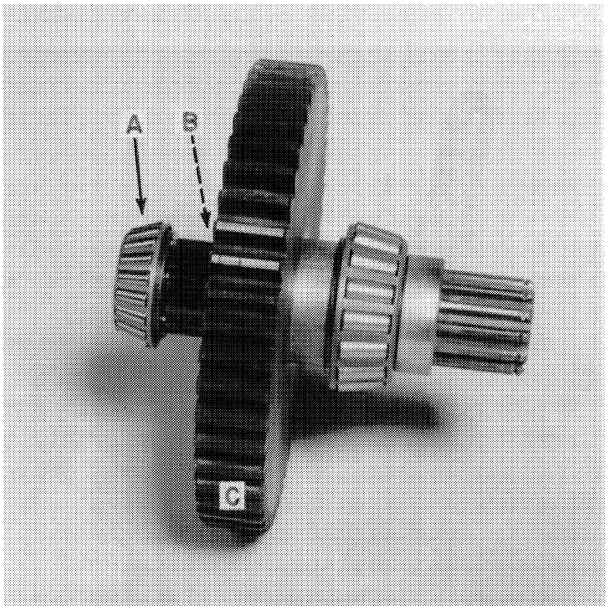


FIGURE 2-19

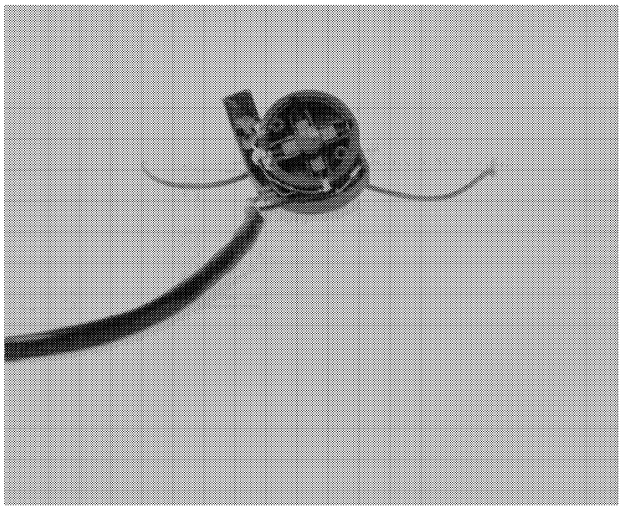


FIGURE 2-20

PARTS INSPECTION

Magnets and Armature

Wear grooves appear on the armature and magnet surfaces. This is a normal wear condition, and does not impair functioning of the unit. Never machine either the armature or magnet contact surfaces to remove grooves or score marks resulting from wear.

Re-machining the face of a worn armature is not recommended. If a replacement armature is to be used with a used magnet, it is necessary to re-machine the worn magnet face. To re-face a magnet:

(1) Machine only enough material to clean the complete face of the magnet.

(2) Hold the face within .005" (.13 mm) of parallel with the mounting plate.

Normally the magnet and armature, as a mating pair, will wear at the same rate. It is the usual recommendation that both components be replaced at the same time.

Replace the armature if it is less than 3/16" (5 mm) thick or is warped.

Oil and grease should be cleaned from the magnet and armature as well as any surrounding surface which would allow lubricants to deposit on the clutch.

A severe loss of driving ability will occur if the clutch mating parts are lubricated.

Magnet resistance - 2.62 ohms - replace if resistance is very high. Voltage must be a minimum of 10 volts. Loss of driving ability will occur below 10 volts.

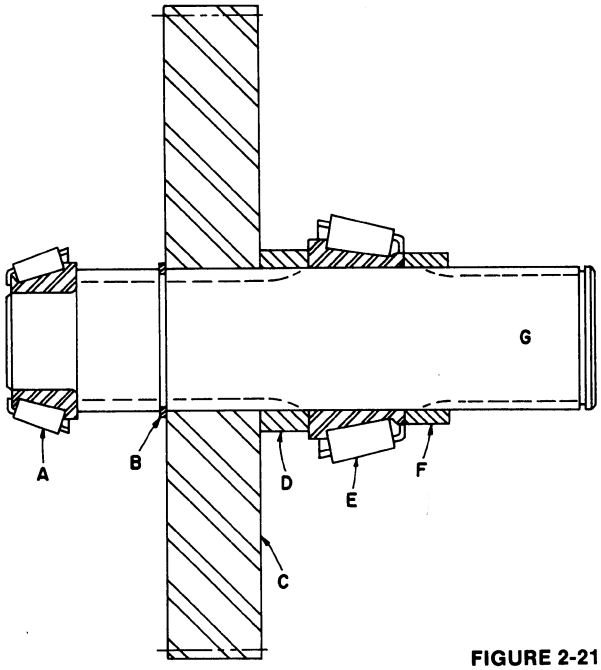
Brush Holder (Figure 2-20) - To service the brush holder, remove the two screws from the cover as shown in Figure 2-20. Pull out the four brushes and diode. If the brushes show wear or the diode allows current to pass in both directions, they should be replaced.

A #647832 service kit includes four brushes, the diode, and two cover screws.When installing the diode, be sure the long leg is located in one of the bottom brush contacts.

Bearings - Replace all bearings if there is internal damage to the gearbox.

Seals - Replace worn or damaged seals.

Gears - Replace gears that show signs of wear.



A Bearing cone
B Snap ring
C Gear
D Spacer
E Bearing cone
F Spacer
G Shaft

FIGURE 2-21

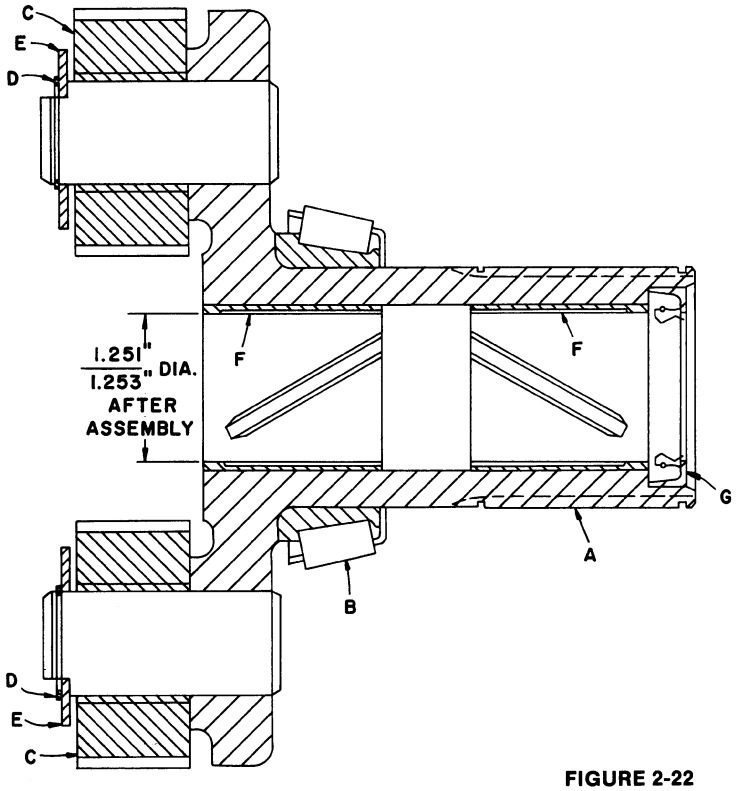
ASSEMBLY

Output Shaft - Refer to Figure 2-21 for assembly.

INTERMEDIATE SHAFT

Planetary Gear Assembly (Figure 2-22)

Install bushings, F, with the oil grooves positioned as shown. Ream to an I.D. of 1.251" to 1.253" (3 x 1.78 mm to 3 x 1.83 mm) after assembly.



A Hub
B Bearing cone
C Planet gear
D Snap ring
E Washer
F Bushing
G Oil seal

FIGURE 2-22

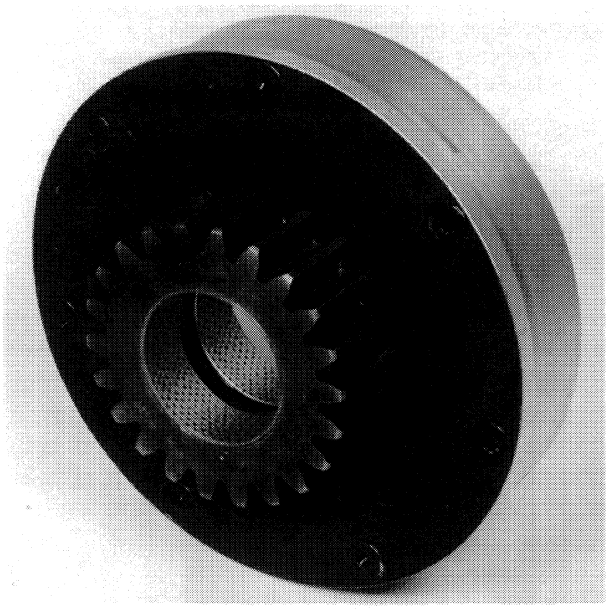


FIGURE 2-23

Ring Gear

Install the bushings as shown in Figure 2-23.

I.D. after assembly should be 2.1255" to 2.1290" (5 x 3.99 mm to 5 x 4.08 mm).

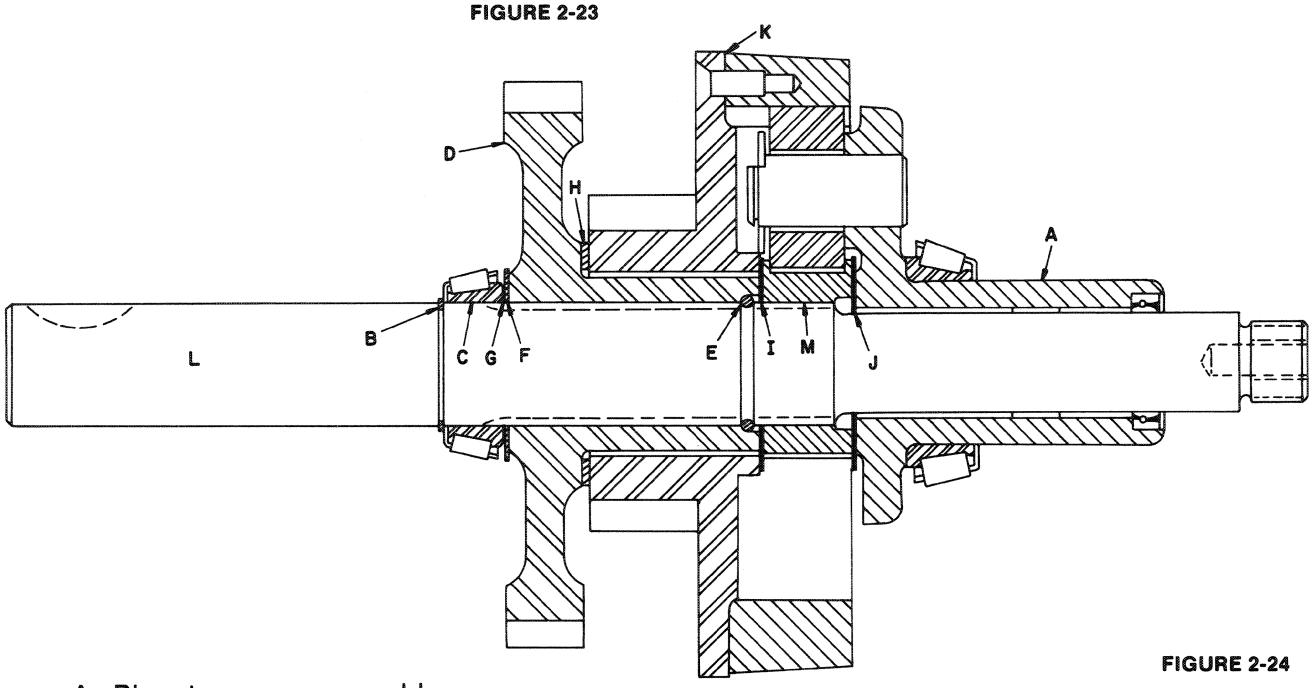


FIGURE 2-24

A Planetary gear assembly
B Snap ring
C Ball bearing
D Gear
E Retaining ring
F Washer
G Shims
H Washer
I Washer
J Washer
K Ring gear assembly
L Shaft
M Sun gear

Shaft Assembly (Figure 2-24)

1. Install the gear, D, on the shaft and install retaining ring, E. Seat the gear against the retaining ring.
2. Install washer, F, and bearing, C, with enough shims, G, to reduce the clearance between the bearing and snap ring, B, to a maximum of .007" (.18 mm). The shims are .005" (.13 mm).

   NOTE: Bearing cone, C, Figure 2-24 and cup are a matched set. Replace only as a matched set.
3. Install washer, H, and ring gear, K.
4. Install washer, I, and gear, M.
5. Install washer, J, and sun gear assembly, A.

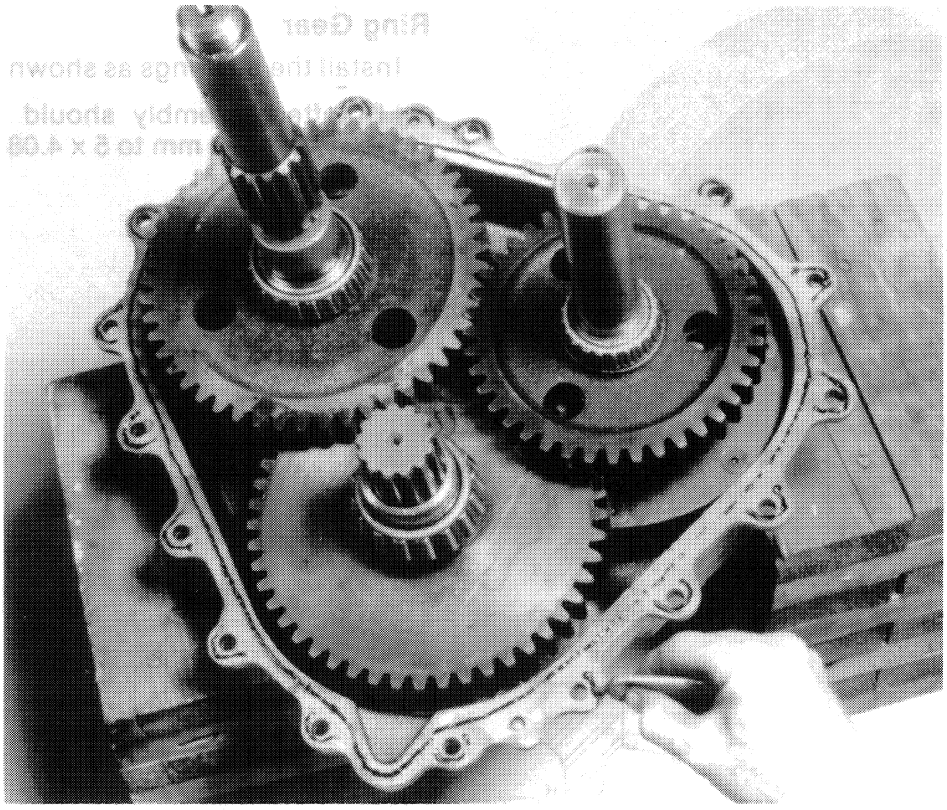


FIGURE 2-25

Gearcase Assembly (Figure 2-25)

1. Install shaft assemblies in housing.
2. Put gasket replacer on the gearbox housing flange. A continuous 1/16" (2 mm) bead around the box and a bead at each mounting bolt. See Figure 2-25. **NOTE: One full tube will do one gearbox.**
3. First install the aligning pins, then bolt the gearcase housings together.
4. Shim three bearing caps, T, U, and V, Figure 2-26, to obtain .001"-.003" (.03-.08 mm) shaft end-play.

   NOTE: At final assembly coat the ID of the shim pack with Permatex.
5. Install reverse magnet, H, Figure 2-26. Coat the threads of the mounting bolts with Permatex.
6. Install snap ring, P. Install the armature assembly, F. Position a thick shim (.060") (1.52 mm), S, and sufficient shims, G, (.020") (.5 mm), to obtain .010"-.060" (.76-1.52 mm) clearance. The clearance will vary around the magnet.
7. Fill gap between the hub and snap ring using shims, G, (.020") (.5 mm), washer, thick shim, S, (.060") (1.52 mm) then install snap ring, R.
8. Install hub, C. Use a washer and locking tab, D, under nut, G. Torque the nut to 125 ft. lbs. (169 N·m). Then bend the locking tab down.
9. Install forward magnet, B. Install shims, Q, to obtain .010" -.060" (.76-1.52 mm) clearance to the armature. The clearance will vary around the magnet.
10. Install brush holder, A. Torque the holder to 15 ft. lbs. (20 N·m).
11. Connect the wires to the brush holder. **NOTE: The wires can be hooked to either terminal.**

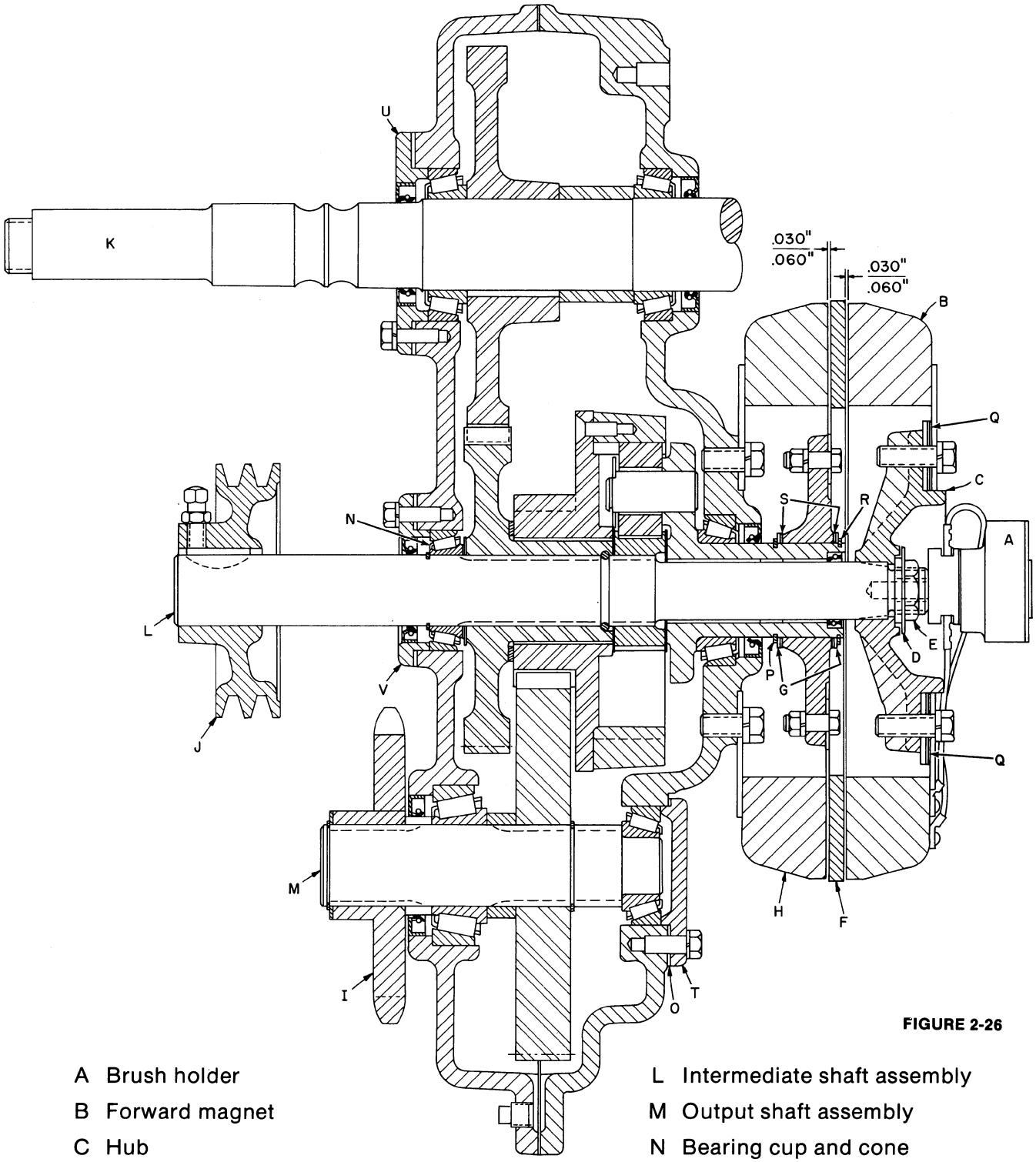


FIGURE 2-26

A Brush holder
B Forward magnet
C Hub
D Locking tab
E Nut
F Armature
G Shims
H Reverse magnet
I Output sprocket
J Sheave
K Input shaft assembly
L Intermediate shaft assembly
M Output shaft assembly
N Bearing cup and cone
O Shims
P Snap ring
Q Shims
R Snap ring
S Washer
T Bearing cap (output)
U Bearing cup (input)
V Bearing cup (intermediate)

INSTALLATION

Installation is the reverse of removal. The following information will aid in installation.

1. Leave the chain coupler assembled. To help line up the gearbox shaft with the coupler, use long cap screws at A, Figure 2-6.
2. Tighten the mounting bolts, A, Figure 2-6, before installing any other mounting bolts to insure proper shaft alignment.
3. Install enough shims and spacers at C and D, Figure 2-2, to fill the gap.
4. Wires, A, Figure 2-4, can be attached to either terminal.

RUN-IN

1. Fill the gearbox with 80W-90 GL5 oil to the check plug (3½ qt. - .8 l).
2. Burnish electric clutch. Run gearbox at rated PTO RPM. Engage forward and reverse alternately for five seconds maximum. Repeat cycle five times.

LABOR GUIDE

The following labor amount is listed as a guide only. Working conditions, experience, etc., will vary the time it actually takes.

Job	Man Hours
Remove, rebuild, and replace	6

SECTION 3
MAIN DRIVE CLUTCH

REMOVAL

Refer to "Reversing Gearbox Removal," Step I, Figure 2-1, and disassembly, Figures 2-7 and 2-8.

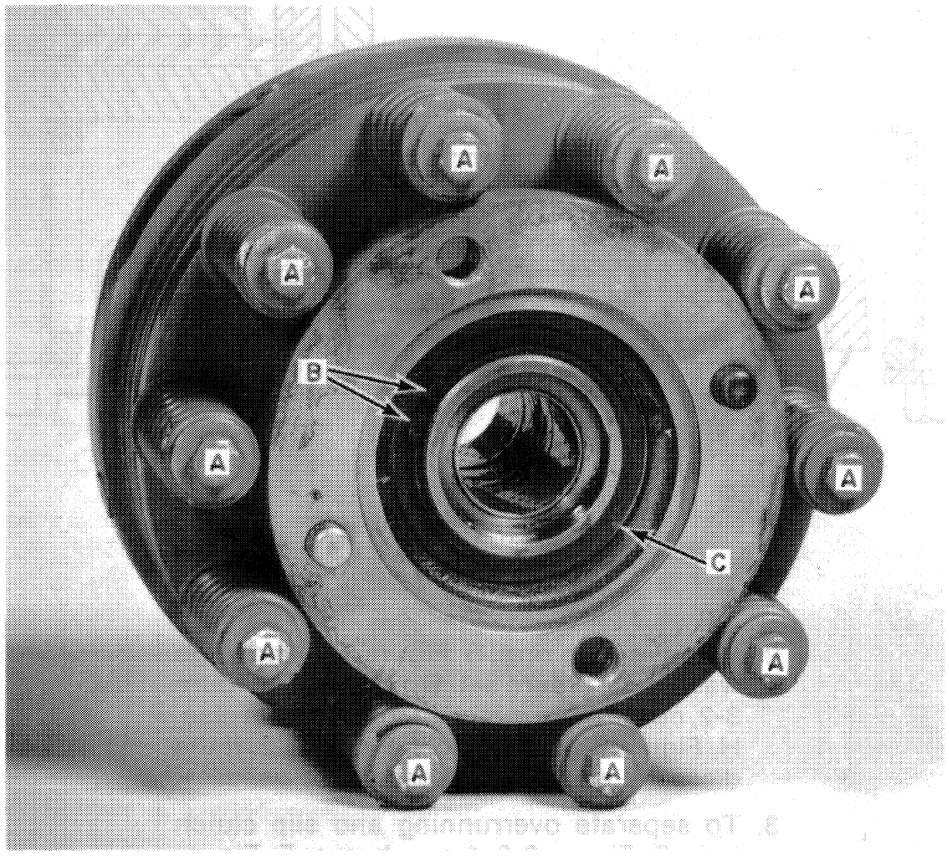


FIGURE 3-1

DISASSEMBLY

1. Remove the cap screws, flat washers and springs from the clutch at A, Figure 3-1.

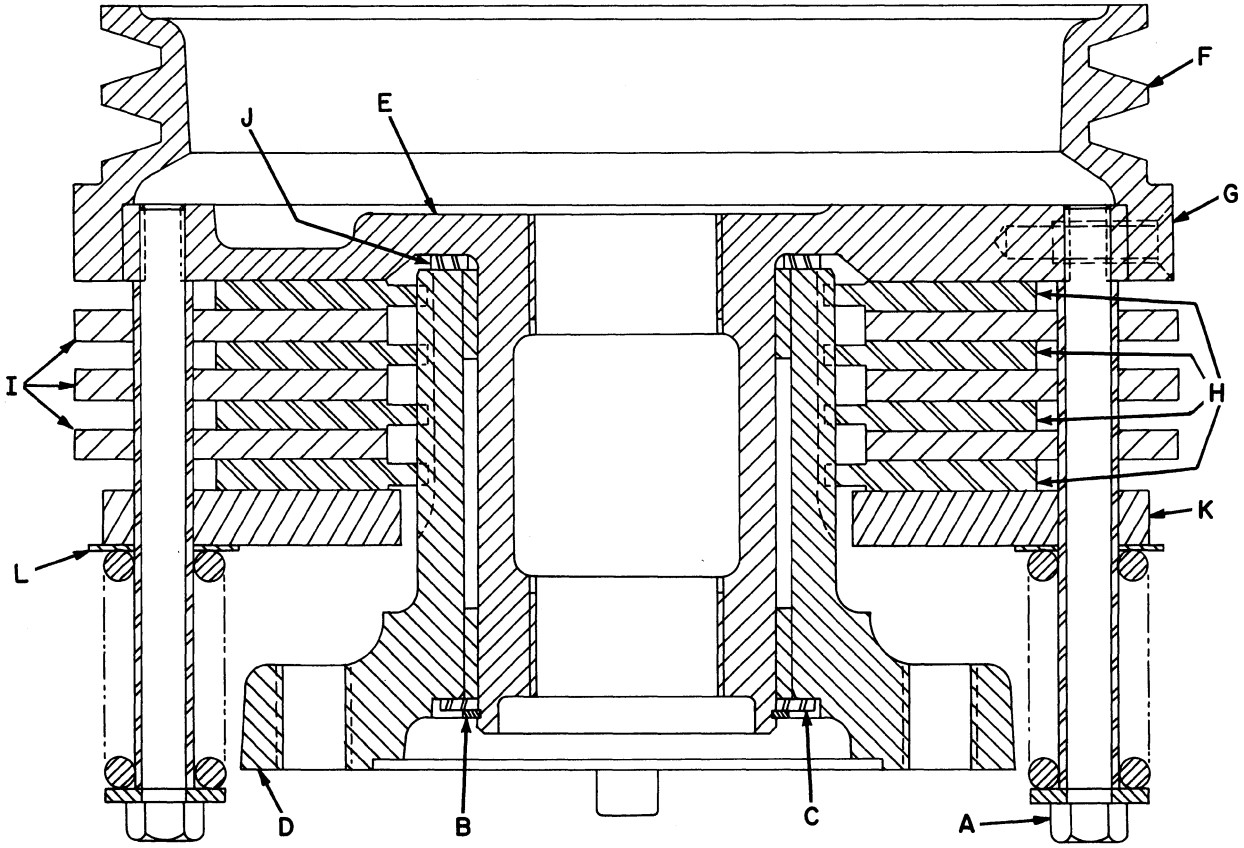
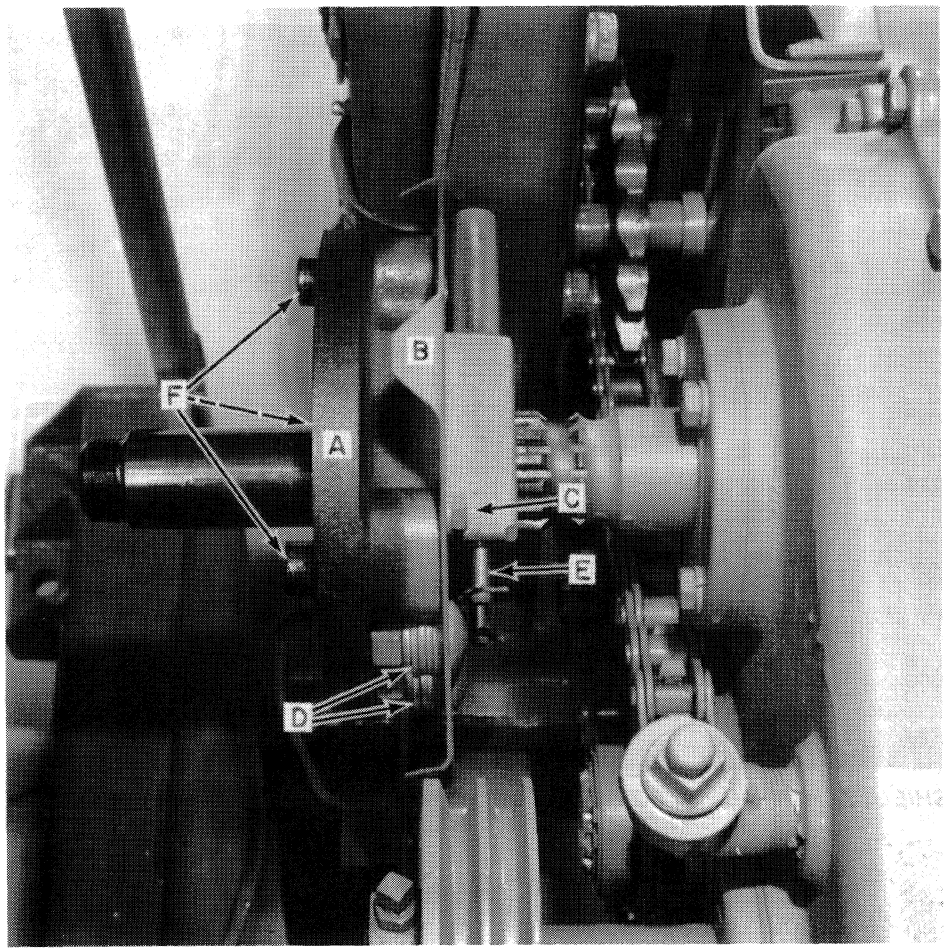


FIGURE 3-2

2. Remove snap ring, B, Figure 3-1, and large washer, C, Figure 3-1. Drive hub, D, Figure 3-2, can now be removed from friction disc, H, Figure 3-2, and disc, I, Figure 3-2. If the discs are warped, a press may be used.
3. To separate overrunning and slip clutch hub, E, Figure 3-2, from sheave, F, Figure 3-2, remove the five allen head cap screws, G, Figure 3-2.



SHIELDS SHOWN REMOVED FOR CLARITY. **FIGURE 3-3**

4. Slide the reversing clutch assembly off the reversing gearbox input shaft as shown in Figure 3-3.
5. To separate the housing, A, Figure 3-3, from the disc, B, remove the two cap screws, C, Figure 3-3. **NOTE: Housing, A, cannot be purchased separately. The flat washers at D, Figure 3-3, are used for balance.**

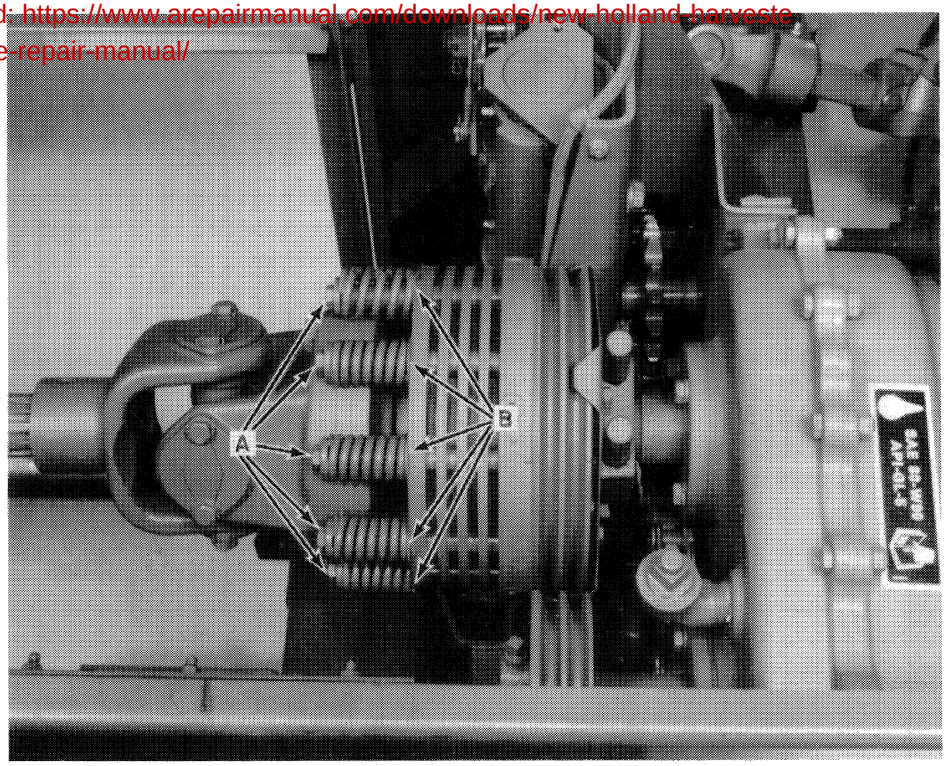
INSPECTION

1. Check and replace friction discs, H, Figure 3-2, and discs, I, if warped or worn.
2. Check splines for wear or loose fit.
3. The bushing should be a tight fit in the overrunning and slip clutch hub, E, Figure 3-2, and also drive hub, D, Figure 3-2.

ASSEMBLY

Apply wheel bearing grease to the two pins, E, and three pins, F, Figure 3-3.

Reassemble the slip clutch assembly in reverse order of disassembly. Make sure the thick washer is installed at J, Figure 3-2, and disc, K, Figure 3-2, is thicker than the other discs, I, Figure 3-2. Also, note that a thinner washer, L, Figure 3-2, is used under the springs. The thicker washer is used at A, Figure 3-2. Apply Loctite to five allen head cap screws, G, Figure 3-2.



SHIELDS SHOWN OPEN FOR CLARITY. **FIGURE 3-4**

CLUTCH ADJUSTMENTS

Main Drive Clutch

The main clutch should be adjusted to slip at 1475 to 1525 lbs. (2000 to 2067 N·m). To increase slip torque, remove spring bolts, A, Figure 3-4, and add shims at B. It is not necessary to add shims to all springs. Shims should be added to equally spaced springs. Tighten the bolts against the internal spacer.