OH-327
NST, NS, NSP 20/30/40

ISO 9001 CERTIFIED CLARK

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Lexington, KY
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REPLACEMENT OF THE POTENTIOMETER ASSEMBLY:

1. Disconnect battery.

2. Disconnect the two potentiometer wires by separating the wire connectors.

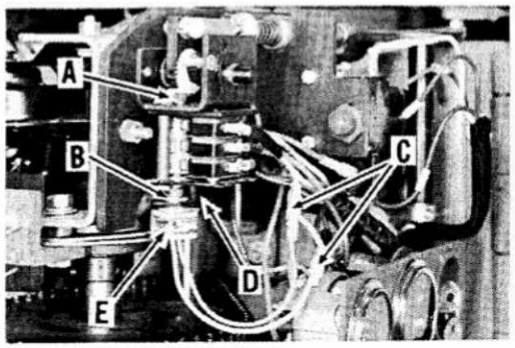

Fig. 22660

A. Screws (2)
B. Nut
C. Potentiometer connector
D. Holder plate
E. Potentiometer

3. Loosen the two screws that hold the bottom part of the control assembly to the upper "U" bracket. Carefully lower the bottom part of the control assembly to get access to the lower cam setscrew. Loosen the lower cam setscrew four turns.

4. Hold the potentiometer, and loosen it from the cam. Remove the potentiometer, holder plate, toothed lockwasher, and potentiometer holding nut.

5. Remove the hex nut, holder plate, and lockwasher. See the relation of each. Discard the toothed lockwasher.

6. Install a new toothed lockwasher, holder plate, hex nut on the new potentiometer. Tighten the hex nut by hand.

7. Install the potentiometer assembly in the speed control unit. Make sure the "U" slot in the holder plate is engaged with the locating stud. Tighten the bottom cam setscrew. Install the bottom part of the speed control assembly up to the "U" bracket with the Allen head screws, washers and lockwashers. Tighten the screws by hand.

8. Set the ohmmeter on the Rx100 scale. Attach the negative ohmmeter probe to the green or orange potentiometer wire, and the positive ohmmeter probe to the white potentiometer wire.

9. Install the control assembly linkage to the actuating arm.

10. Put the control assembly in the neutral position. Turn the potentiometer body until the ohmmeter shows 5500-6000 ohms (±10%).

A. Bell crank
B. Interlock Switch

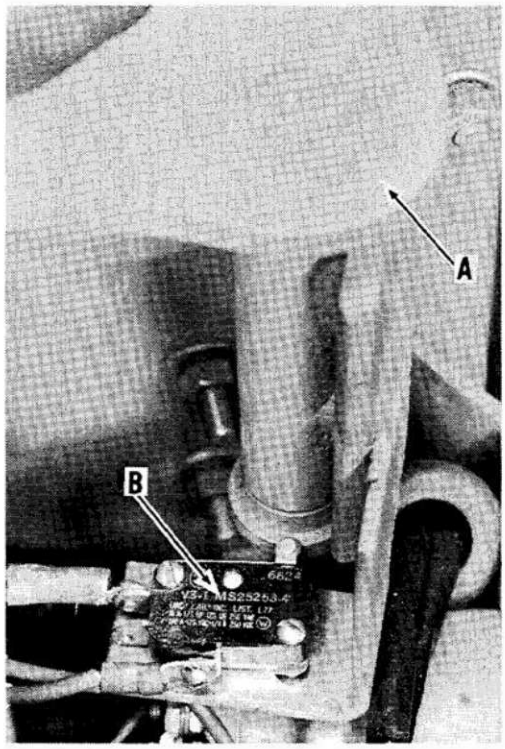

Fig. 22654

10. Move the control handle forward until the 1A switch actuates. Hold the control handle in this position and adjust the right hand stop [3,2 mm] .125 inch from arm (G). Make the same adjustment for reverse direction on the other stop. See Figures 22650 and 22655.

A. Control handle
B. Control handle stops
C. Jam Nut
D. Clevis

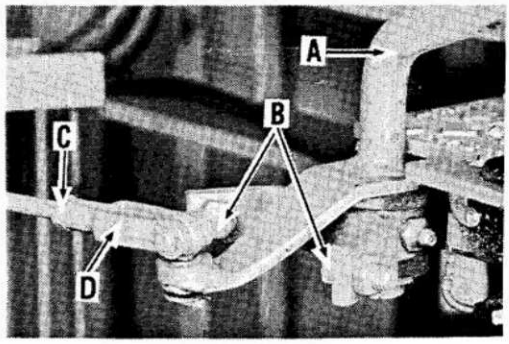

Fig. 22655

CHECK THE ADJUSTMENT:

1. All switch rollers must be in their detent positions when the control handle is in the neutral position.

2. The control handle arm (G) must be centered between the stops (H).

ASSEMBLE THE CONTROL ARM:
(See Fig. 22677)

1. Put the bearing (34) into the main angle bracket. Make sure the washer (36) is put under the flange of the near bearing.

2. Push the bearing (39) onto the shaft (35) (which is pressed into the control arm). Make sure the counterbored side of the bushing is toward the outside.

3. Install the washer (38) over the bushing, and against the control arm.

4. Install the torque spring (37).

N O T E

Wind up the torque spring so the two tangs are brought together and then crossed. Hold the two tangs in this position by sliding them in either side of the short drive pin (41).

5. Install the shaft. As the shaft passes through the bearings, make sure the torque spring engages the stop pin (40). Also, make sure the stop pin enters the slot in the control arm.

6. Install the retaining collar on the shaft. Tighten the setscrew to hold the retaining collar to the shaft.

Check Points:

A. Actuate the control arm (1) fully in both directions until the pin (40) stops at either end of the slot. It must move freely and the control arm must return to the centered position when released.

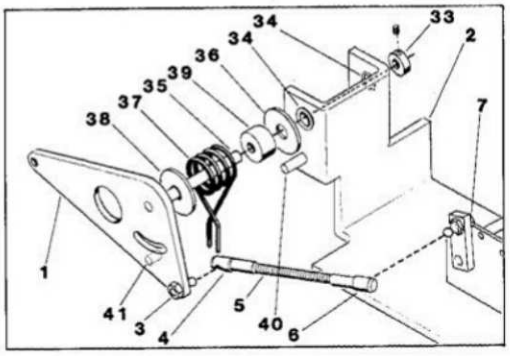

Fig. 22677

B. With the spring in the centered position, there may be only 1° of total backlash. If there is too much backlash, disassemble and replace the torque spring (37).

ADJUSTMENTS AND TESTS:

Linkage:

Install the swivel joints on both ends of the linkage rod (5), with approximately the same amount of thread engagement. The sockets must be aligned with the ball studs when both the control arm (1) and the actuating arm (24) are in the center position.

Cam:

1. Turn the camshaft so that the forward and reverse switches are both in the "off" position when the control arm is in the center position. Also, approximately the same angular movement is needed (in forward and in reverse direction) to actuate.

2. Move the control arm to the end of its travel in each direction, and listen for the 1A to actuate. (Some controllers have second and third speed switches instead of the 1A switch. There then will be two switches that actuate after the

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GENERAL MOTOR MAINTENANCE

DISASSEMBLY OF PUMP MOTOR:

1. Loosen and remove screw and nut from brush cover and lift off cover.

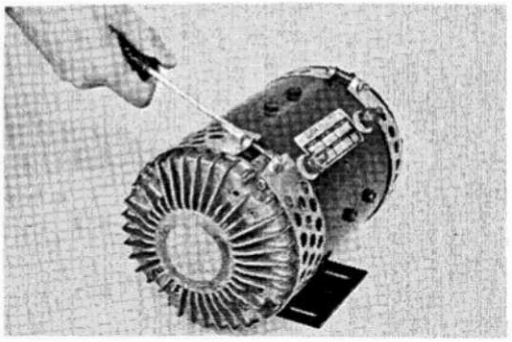

Fig. 20869

2. Lift brush springs, and pull the brushes from the holders.

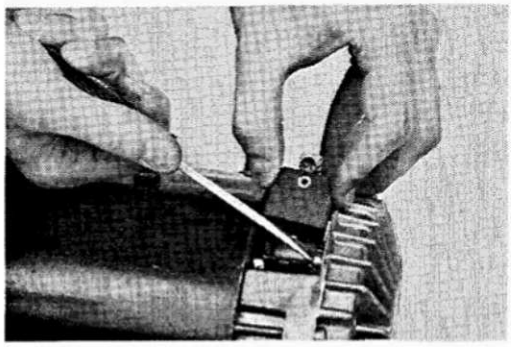

Fig. 20870

3. Remove brush terminal screws, and remove brushes.

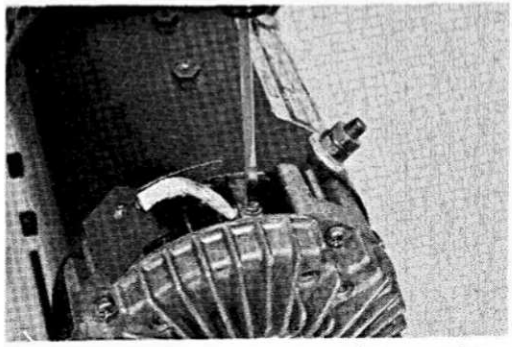

Fig. 20871

4. Remove the commutator end frame screws.

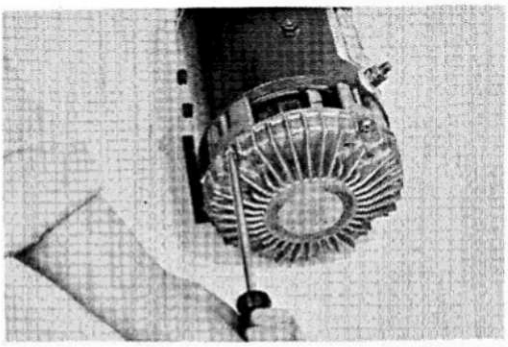

Fig. 20872

DISASSEMBLY OF CONTACTORS:

W A R N I N G

DISCONNECT THE BATTERY AND DISCHARGE THE CAPACITOR BEFORE YOU REPLACE COMPONENTS OR MAKE ADJUSTMENTS. SERIOUS INJURY OR DEATH MAY RESULT IF THIS WARNING IS NOT FOLLOWED.

To Replace Moveable Contact Tips:
(See Fig. 23334)

1. Remove the nut, lockwasher, and tip.
2. Replace the tip. Install the lockwasher and nut.
3. Tighten the nut to a torque of [2,15 N˙m] or 19 LB. IN.

To Replace Contact Tip Carriers or Springs:

1. Remove the screws, lockwashers, and washers from the stationary contact at the top of the contactor and from the underside of the body. Remove the stationary contact carrier.
2. Remove the switchette (Fig. 23335), switch mounting plate, and armature retainer. Push the moveable contact carrier and plate against the armature spring pressure, and slowly release the moveable contact carrier and plate until the armature spring (Fig. 23335) can be held.
3. Hold the spring until the moveable contact carrier and plate can be lifted away. Remove the armature spring from the recess in the magnet core in the coil.

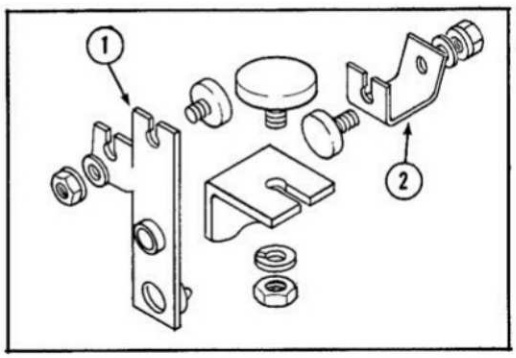

Fig. 23334

1. Moveable Contact Carrier
2. Stationary Contact Carrier

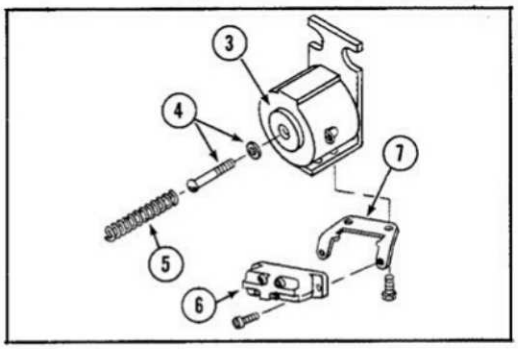

Fig. 23335

3. Magnet Core
4. Coil Mounting Screw and Washer
5. Armature Spring
6. Switchette
7. Switch Mounting Plate

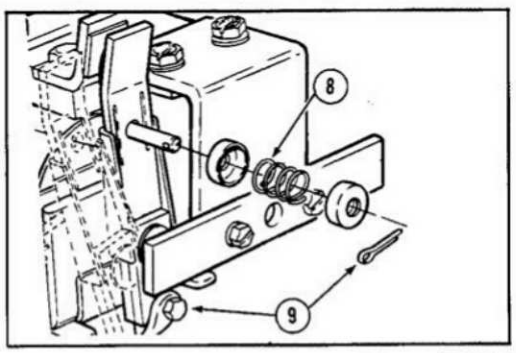

Fig. 23336

8. Return Spring
9. Items to be removed

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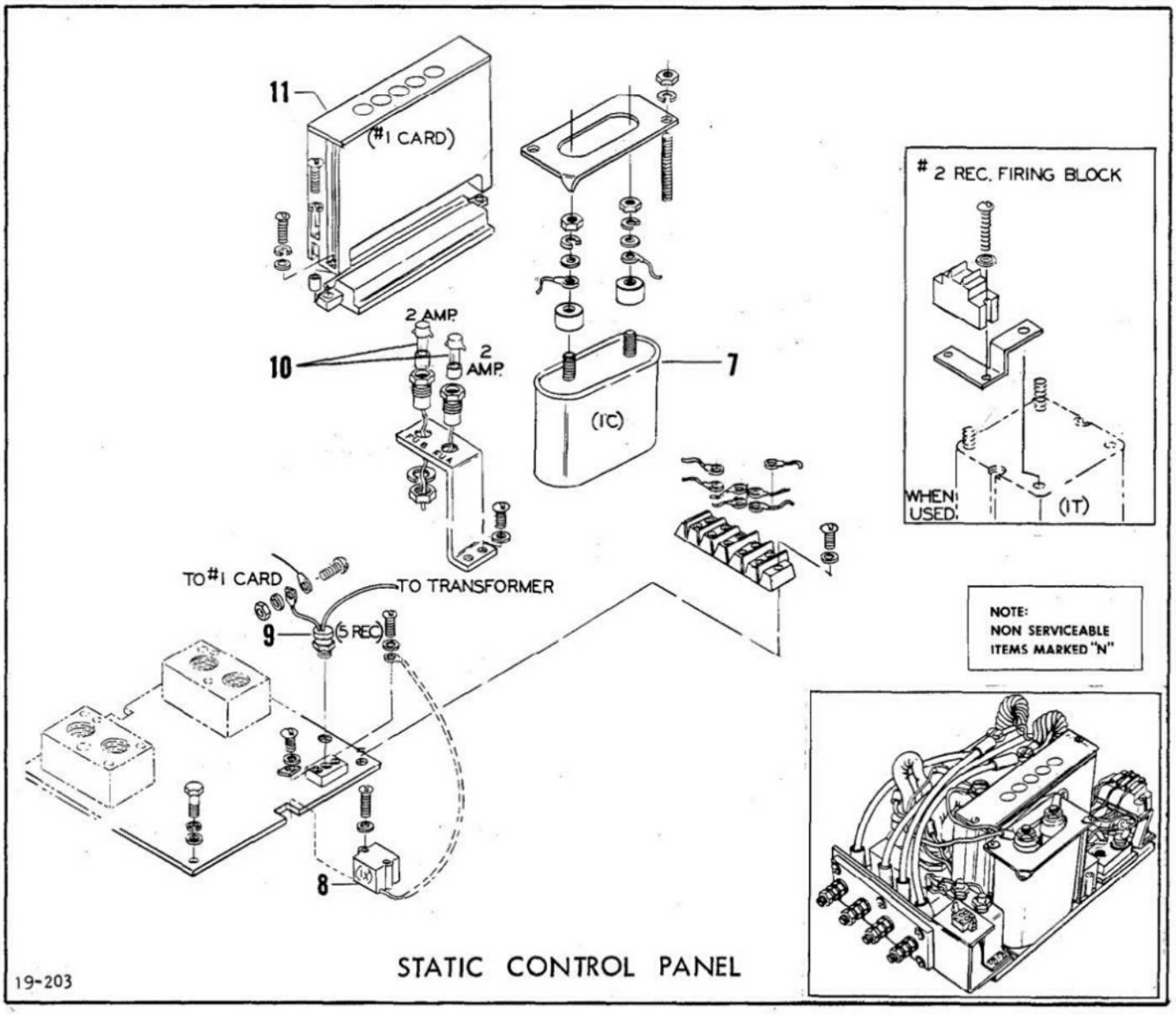
H. B. ELECTRICAL CONTACTOR OVERHAUL

FORWARD AND REVERSE CONTACTORS



IDENTIFICATION:

7. Capacitor
8. Choke
9. #5 REC
10. Fuses
11. #1 Card

Rectifier Installation:

Apply G.E. Versilube G-350-M heat transfer grease to the threads of the rectifier.

SCR Component-to-Mounting Board Installation:

Apply heat conductive compound between the SCR components and the mounting board. This compound is available from Central Parts Division, part #1801480.

7. Replace drive gear bearing.

   A. Remove the nut that is locked on the shaft.
   B. Use a puller to remove the bearing.

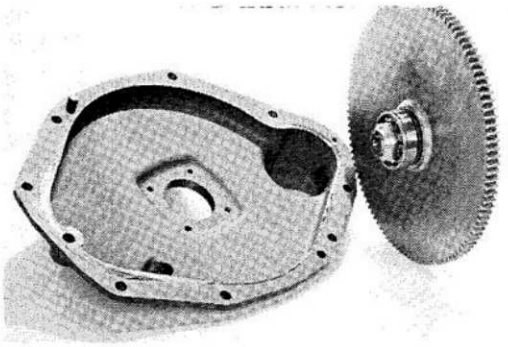


Fig. 9983

8. Remove the axle shaft.

   A. Remove the retaining rings.
   B. Remove the grease fitting nut. Use a wood block between the reduction gear and housing to prevent the reduction gear from turning.
   C. Use a puller to remove the axle shaft.
   D. Remove drive wheel from the drive unit.

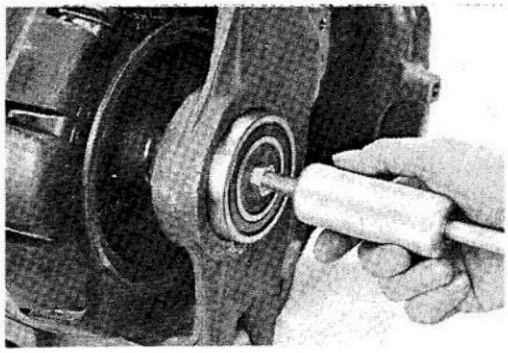


Fig. 9984

9. Use a hammer to hit a pry bar into the reduction gear seal to remove it from the housing.

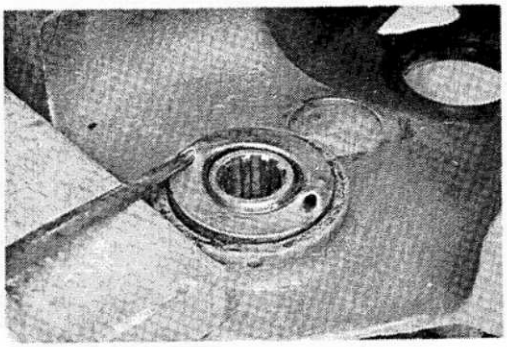


Fig. 23343

10. Remove the reduction gear retaining ring.

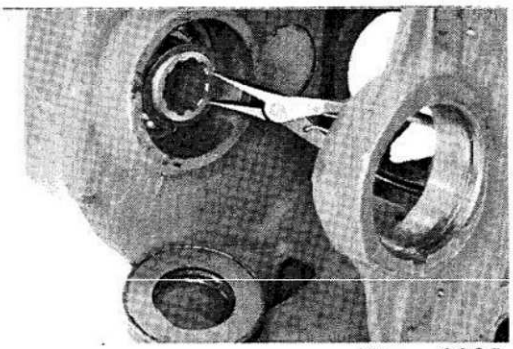


Fig. 9985

CLEAN AND INSPECT:

1. Clean all parts in denatured alcohol or hydraulic brake fluid. Do not use mineral base solvents as it will damage rubber parts.

2. Make sure there is no dirt, metal filings, etc. when the cylinder is ready to be assembled.

3. Use a lint free cloth for cleaning, as particles of lint may cause a restriction in the vent port when it is put into operation.

4. Hold the cylinder body toward a strong light and look through the bore for pressure marks, scratches, etc.

5. Pressure marks and scratches may be polished with crocus cloth.

N O T E

Do not use emery cloth or sandpaper.

6. Deep scratches must be honed to put a new surface on the cylinder wall.

N O T E

Do not hone cylinder bodies made of aluminum.

I M P O R T A N T

ANY MASTER CYLINDER THAT IS HONED TOO MUCH MUST BE DISCARDED AND REPLACED.

Honing specifications for these cylinders are:

Cylinder Size		Actual I.D.	
mm	inches	mm	inches
19,05	0.7500	19,05-19,23	0.7500-0.7570
25,40	1.0000	25,40-25,58	1.0000-1.0070
26,98	1.0625	26,96-27,16	1.0615-1.0695
28,62	1.1250	28,62-28,75	1.1250-1.1320
31,75	1.2500	31,75-31,93	1.2500-1.2570
38,10	1.5000	38,10-38,28	1.5000-1.5070
44,45	1.7500	44,45-44,63	1.7500-1.7570
50,80	2.0000	50,80-50,97	2.0000-2.0070

7. Use a "Go-No-Go" plug gauge to check the size of the cylinder bore.

8. Honing a cylinder bore causes rough edges to appear in the cylinder vent port opening. The rough edges will damage the primary cup unless they are removed. These rough edges can be removed with special pliers (Wagner tool #FL-134).

9. Clean the cylinder in hydraulic brake fluid before assembling the cylinder.

10. Inspect all parts. Replace if necessary.

ASSEMBLY:

1. Put the cylinder body in a vise that has soft jaws. The push rod end of the cylinder must be up. Do not tighten the jaws of the vise too much, or distortion of the cylinder bore may occur.

2. Install the piston return spring into the cylinder bore.

3. Install the primary cup.

DISASSEMBLY:

1. Remove the brake line from the brake cylinder.

2. Disconnect the wires from the brake switch (1).

3. Remove the acutating spring (2) from the brake adjusting mounting bracket (3) and the spring anchor (4).

4. Remove the brake arm mounting bolts (5).

5. Remove the complete brake assembly.

6. Remove the anchor pin (6). Remove the brake shoe and lining (7) from the brake arm (8).

REMOVAL OF BRAKE CYLINDER FROM THE BRAKE ARMS:

1. Remove the bolt and washer (9), and the nut and lockwasher (10).

2. Remove the brake cylinder guide (11).

3. Remove the nuts (12 & 13) from each end of the brake cylinder (14).

4. Remove the brake cylinder (14) from the brake arms.

If it is necessary to overhaul the brake cylinder, see the correct group and section.

INSPECTION:

1. Check all parts for wear or distortion. Check parts with threads for damage.

2. Check for a weak or damaged actuating spring.

3. Inspect the brake shoes and linings for wear. If the linings are smooth, they can be made rough with coarse sandpaper.

4. If necessary, replace brake shoes and lining as a complete assembly. Use new roll pins to assemble brake shoes (7) to the brake arms (8).

I M P O R T A N T

DO NOT PERMIT THE BRAKE DRUM OR LININGS TO COME IN CONTACT WITH OIL OR GREASE.

ASSEMBLE THE BRAKE:

Follow disassembly steps in reverse order.

DISASSEMBLY OF HYDRAULIC LIFT PUMP:

1. Remove the eight bolts joining shaft end cover to outlet cover.

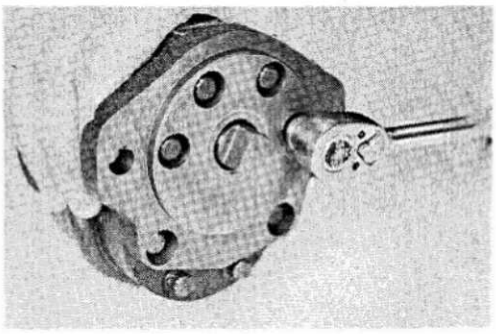


Fig. 20838

2. Separate shaft end cover from pump cartridge and outlet cover.

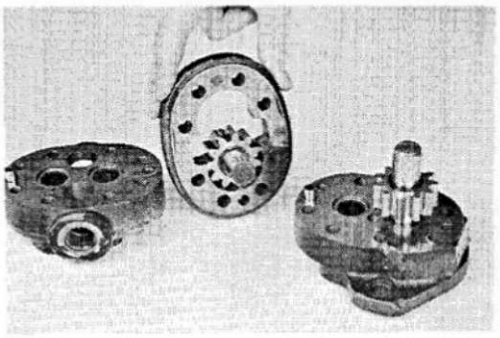


Fig. 20839

3. Inspect shaft end shim for cuts or other damage. Do not remove unless replacement is necessary.

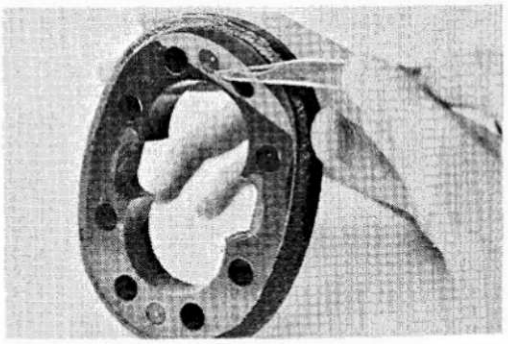


Fig. 20840

4. Remove drive shaft and gear assembly.

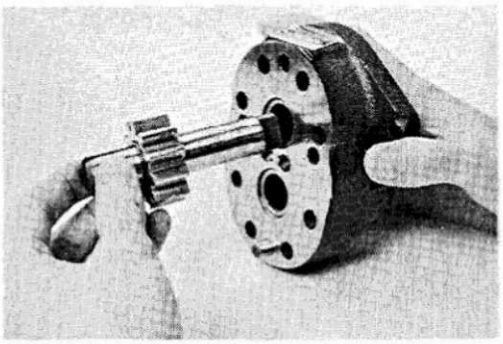


Fig. 20841

GROUP
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SECTION
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H Y D R A U L I C P U M P O V E R H A U L -

C E S S N A " B " S E R I E S S I N G L E P U M P