

## INSTRUCTION SHEET

### For Type GH505 23" DC Magnetic Shoe Brake

#### DESCRIPTION OF OPERATION

On this brake, the magnet coil is a separately enclosed unit mounted between an inner and outer armature. When the coil is properly energized, the armatures are attracted to each other until their outer poles seal. The action of the armatures moves the shoes away from the wheel. The inner armature moves the inner shoe and the outer armature moves the outer shoe. When the coil is de-energized, the compression spring forces the armatures apart and presses the shoes against the wheel.

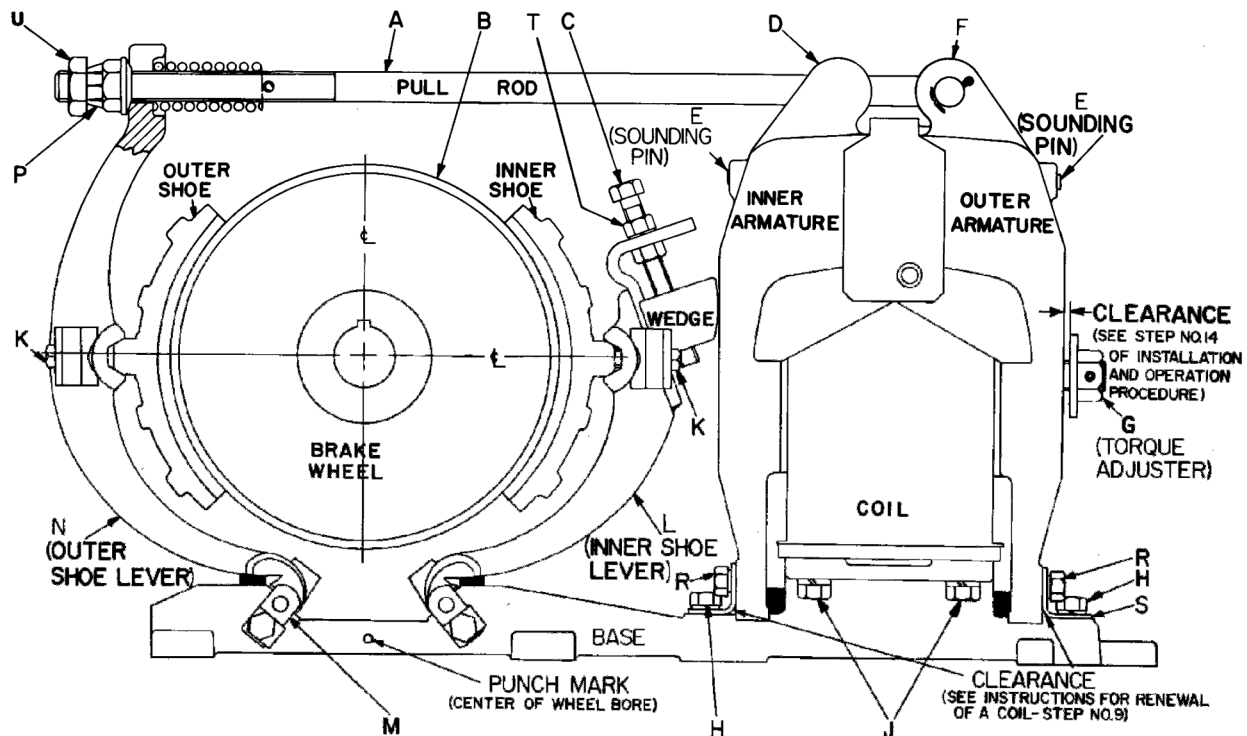


Figure 1

#### PROCEDURE FOR INSTALLATION AND OPERATION (Refer To Dimension Drawing For Mounting Dimensions)

1. Assemble brake wheel "B" on motor shaft
2. Back off lock nut "U" and pull rod nut "P" about one inch.
3. Back off lock nut "T". Turn screw "C" clockwise to lift the wedge at the top of the inner shoe lever "L".
4. Slide the brake into place around the brake wheel "B" and start bolts into the base mounting surface.
5. Loosen the holding screws "K" on both shoe levers leaving only a light grip.
6. Push the shoe levers "N" and "L" against the brake wheel "B" and check to insure shoes fit evenly across the wheel face.
7. Bump the base into the best position to get the most favorable fit of the shoes against the wheel "B". C/L of the wheel must be aligned with the punch mark of the base to obtain proper horizontal positioning of the brake, and with C/L of shoe pivot sockets to obtain the proper vertical positioning of the brake.
8. If the mounting surface is not flat or is not parallel to the shaft axis, shimming may be necessary. Tighten the holding bolts to hold the base firmly in place.

**PROCEDURE FOR INSTALLATION AND OPERATION – (Continued)**

9. Be sure there is some spring pressure tending to separate the two armatures "D" and "F". This can be tested by turning nut "G" clockwise. If nut "G" cannot be turned, the gland inside is tight against the stop on the screw and a maximum spring pressure is applied.
10. Turn the screw "C" on the top of the inner shoe lever counter-clockwise to move the wedge downward until the inner armature "D" sounding pin "E" is flush when pressed. Tighten locknut "T". Readjust after wheel has reached normal operating temperature to allow for thermal expansion of the brake wheel. Re-inspect and adjust if necessary after several operations.
11. Tighten the pull rod nut "P" until the outer armature "F" sounding pin "E" is flush when pressed. Tighten locknut "U". Readjust after wheel has reached normal operating temperature to allow for thermal expansion of the brake wheel. Re-inspect and adjust if necessary after several operations.
12. Full torque is obtained by turning the torque adjuster "G" until the gland inside is snug against the stop. Less than full torque is obtained by turning the torque adjuster "G" counter-clockwise. Check the nameplate on the brake and the table in paragraph 14 for maximum torque setting for the duty rating of the brake.

13. With the brake set, tighten screws "K" on the shoes.
14. Note that when the brake is correctly adjusted for proper stroke, the torque adjuster washer face stands clear of the armature "F" surface. As the lining wears this clearance decreases. If the adjustment is neglected, the brake operation can become sluggish and when the torque adjuster washer touches the armature, the torque drops rapidly reaching zero when the flexure of the lever is used up. The clearance dimension is not a measurable value but is determined by proper adjustment of individual brakes.

**TORQUE ADJUSTMENT**

| Size Of Brake  | Coil Winding | Duty   | Rated Torque | Turn "G" Clock wise To Solid | Back Off Turns If "G" From Solid |
|----------------|--------------|--------|--------------|------------------------------|----------------------------------|
| 23"            | Shunt        | Int.   | 4000         | X                            | 0                                |
|                | Shunt        | Int.   | 3000         | X                            | 1-5/6                            |
|                | Series       | ½ Hour | 4000         | X                            | 0                                |
|                | Series       | 1 Hour | 2600         | X                            | 2-3/6                            |
| Minimum Torque |              |        | 1000         | X                            | 3-4/6                            |

**RENEWAL PARTS**

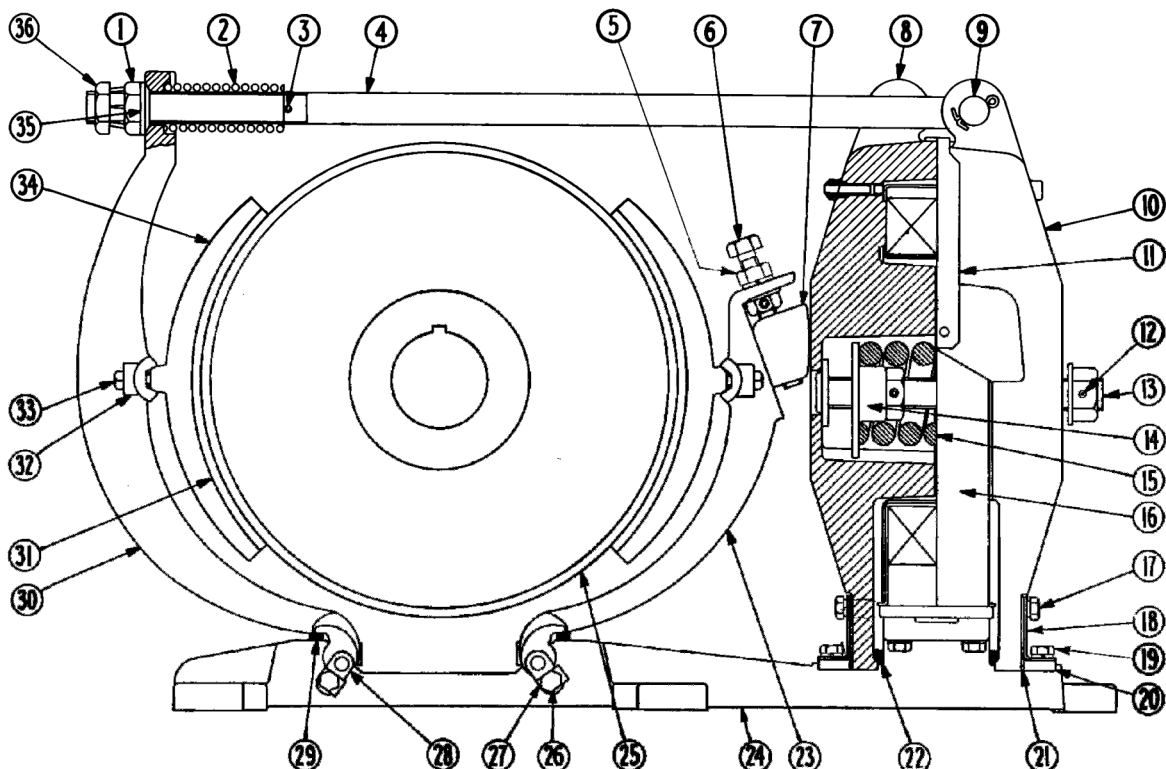


Figure 2

**RENEWAL PARTS**

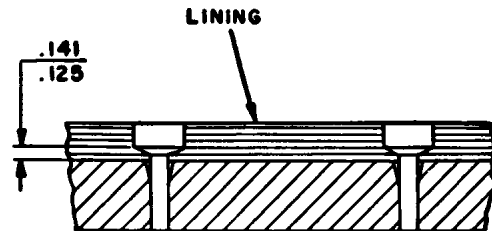
(Refer to Fig. 2, Page 2)

| Item No. | Description Of Part                                     | No. Req. | Part No.   | Item No. | Description Of Part   | No. Req. | Part No.   |
|----------|---|----------|------------|----------|---|----------|------------|
| 1        | Locknut 1½ - 6 .....                                    | 1        | 15-673     | 18       | Angle Bracket .....   | 2        | 79-15572-5 |
| 2        | Spring .....  | 1        | 69-1987    | 19       | 5/8-11 X 1.25 Hex Head Bolt .....                             | 4        | 11-3558    |
| 3        | Spring Pin .3125 X 2.25" Long .....                     | 1        | 13-3186-13 | 20       | 5/8 Helical Washer .....                                      | 4        | 916-1363Z  |
| 4        | Pull Rod (includes items 2 & 3) .....                   | 1        | 61-1008    | 21*      | Stop Block .....  | 2        | 19-972-6   |
| 5        | Locknut .....   | 1        | 915-1682Z  |          | Stop Plate .....  |          | 19-3220-9  |
| 6        | Wedge Adj Screw Assembly.....<br>(includes item 5)..... | 1        | 54-11507-4 | 22       | .093 thickness .....  | 2        | 19-3220-11 |
| 7        | Adjusting Wedge .....                                   | 1        | 54-2764    | 23       | .102 thickness .....  |          | 19-3220-12 |
| 8        | Inner Armature .....                                    | 1        | 48-636-4   | 24       | .105 thickness .....  | 2        | 32-467-11  |
| 9        | Sounding Pin .....                                      | 1        | 13-3485-3  | 25       | Gasket .....  | 1        | 24-3304-8  |
| 10       | Sounding Pin Bushing .....                              | 1        | 29-2762-3  | 26       | Inner Shoe Lever (includes item 7)                            | 1        | 24-3304-8  |
| 11       | Pin .....   | 1        | 13-1181-16 | 27       | Base (includes items 22, 26, 27,<br>28, 29) .....             | 1        | 17-8047    |
| 12       | Outer Armature .....                                    | 1        | 48-636-12  | 28       | Brake Wheel (give complete<br>nameplate data) .....           | 1        | .....      |
| 13       | Sounding Pin .....                                      | 1        | 13-3485-3  | 29       | Screw 5/8-11 X .625" Long .....                               | 4        | 11-2051-2  |
| 14       | Sounding Pin Bushing .....                              | 1        | 29-2762-3  | 30       | Lock Bracket .....  | 4        | 79-4180-28 |
| 15       | Rubber Guard .....                                      | 1        | 73-1017-6  | 31       | Retainer .....  | 4        | 55-1548    |
| 16       | Spring Pin .3125 X 1.75" Long                           | 1        | 13-3186-12 | 32       | Gasket .....  | 2        | 32-467-6   |
| 17       | Torque Adjusting Screw .....                            | 1        | 11-4625-6  | 33       | Outer Shoe Lever .....  | 1        | 24-3305-4  |
|          | (includes items 12 & 14) .....                          |          |            | 34       | Shoe Lining (for riveted shoe only<br>Groov-Pin (rivet) ..... | 2        | 48-1818-6  |
|          | Gland .....   | 1        | 49-2201-2  | 35       | Clamp .....   | 80       | 13-4762    |
|          | Torque Spring .....                                     | 1        | 69-1692    | 36       | Self-Locking Bolt 5/8-11 X 2.75" ...                          | 4        | 11-3046-4  |
|          | Coil (Give No. On Coil) .....                           | 1        | .....      |          | Shoe (w/ riveted lining) .....                                | 2        | 48-633-4   |
|          | Self-Locking Screw 5/8" -11 X 1.25                      | 4        | 11-4642    |          | Spherical Washer .....  | 1        | 16-1598-5  |
|          | Angle Brkt Bushing (not shown)                          | 4        | 29-5535-4  |          | Hex Jam Nut 1-1/2-6 .....                                     | 1        | 915-2382Z  |

\* Choose the plate thickness which gives the minimum gap between armature item 10, the stop block item 20, and the base item 24.

**RENEWAL OF BRAKE SHOE LININGS**  
(Linings Fastened with Groov-Pins)

1. After removing the old lining and groov-pins, clamp the new lining so it lies closely in the shoe.
2. Drill through the lining from the rear of the shoe with no. 13 (.185) drill.
3. Counter-bore 9/16" to dimensions shown in the sketch to the right. Bottom of counter-bore to be 135° included angle. (number of holes required per table below)



**SECTION THROUGH SHOE ASSEMBLY**

**BRAKE LININGS FASTENED WITH GROOV-PIN**

| Brake Size | Groov-Pin          |          | Hole In Lining     | Hole in Shoe                                   | Counter-Bore Lining                   |
|------------|--------------------|----------|--------------------|--|---------------------------------------|
|            | No. Req'd Per Shoe | Part No. |                    |  |                                       |
| 23"        | 48                 | 13-4762  | # 13 (.185") drill | 3/16" Ream and 20° Cts'k to .210-.220 Diameter | 9/16" Diameter Depth Per Above Sketch |

**PROCEDURE FOR REMOVAL OF A SHOE**

(Refer to Fig. 1 page 1)

1. Back off locknut "U" and nut "P" on the pull rod "A". or loosen locknut "T" and turn screw "C" clockwise to lift the wedge to relieve the pressure between the chosen shoe and wheel.
2. Remove screws "K" from the shoe being removed.
3. Slide the shoe out sideways
4. Re-assemble new shoe into groove in shoe lever. Do not tighten screws at this time.
5. Press the shoe against the wheel and tighten screws "K".
6. Readjust brake.

**PROCEDURE FOR REMOVAL OF A SHOE LEVER**

(Refer to Fig. 1, Page 1)

1. If removal of the outer shoe lever "N" is required, loosen locknut "U" and back off nut "P" until the pull rod "A" may be lifted up around the pivot in the outer armature "F".
2. Refer to shoe retainer "M". Both sides of the shoe lever are equipped with a lock bracket, screw, and retainer plate. Bend back tab of the lock bracket. Remove screw and retainer plate. When re-installing and after tightening the screw, bend the tab of the lock bracket against the flat of the screw.
3. With the retaining plate removed, slide the outer shoe lever "N" to either side of the brake.
4. To remove the inner shoe lever "L", loosen locknut "T" and turn screw "C" clockwise until the pressure of the shoe against the wheel is relieved. Refer to shoe retainer "M". Both sides of the shoe lever are equipped with a lock bracket, screw, and retainer plate. Bend back tab of the lock bracket. Remove screw and retainer plate. When re-installing and after tightening the screw, bend the tab of the lock bracket against the flat of the screw.
5. With the retaining plate removed, slide the outer shoe lever "L" to either side of the brake.

**REPLACEMENT OF A COIL**

(Refer to Fig. 1, Page 1)

1. Turn torque adjuster "G" counter clockwise until the torque spring is loose.
2. Disconnect the pull rod end from the outer armature "F".
3. Remove screws "H" from base.
4. Lift the outer armature "F" out of the pocket in the base and pull outward.
5. Remove the screws "J" used to attach the coil to the base pedestal and slide coil from base pedestal.
6. Set the new coil on the pedestal and install mounting screws "J". Do not tighten at this time.
7. Set the armature "F" back into position. The spring gland of the torque adjuster must be centered in the hole of the inner armature "D". Assemble angle bracket and screws "H" and "R" with screws hand tight only.
8. Attach pull rod "A" to armature "F".
9. Pull armatures "F" and "D" together magnetically or by using a clamp. Tighten screws "H" and the base such that a clearance of  $0.25 \pm 0.015$  will be maintained between the armature "F" and bracket "S". The clearance should be uniform. Remove clamp (if used).
10. Adjust the torque spring and shoe positions as described in the installation instructions.

**PROCEDURE FOR RE-ADJUSTMENT FOR LINING WEAR**

(Refer to Fig. 1, Page 1)

Periodic checks should be made on the installation and when the sounding pins depress more than  $1/64$ " below surface, adjustments should be made to compensate for normal lining wear. This check and the adjustments should be made when the wheel is at normal operating temperature to allow for thermal expansion of the wheel. Re-inspect after several operations.

1. Loosen the locknut "U" and tighten nut "P" on the outer end of pull rod "A" until the sounding pin in the outer armature is flush with the surface when it is pressed.

2. Loosen locknut "T". Turn screw "C" counter-clockwise to move the wedge downward until the inner armature sounding pin is flush when it is pressed inward.
3. Tighten locknuts "U" and "T".

It is recommended the brake shoe linings be replaced when the lining thickness at the center of the shoe has decreased to .125" for riveted construction and .062 for bonded construction. **Use genuine OEM lining material only to insure brake maintains rated torque.**

(See paragraph 14, Page 2)