

SERVICE BULLETIN  
 INSTALLATION AND MAINTENANCE INSTRUCTIONS AND SPARE PARTS DATA

BULLETIN 106 TYPE "B" D.C. MAGNETIC BRAKES

Clark Bulletin 106 Type "B" brakes are designed for easy installation and maintenance. They are carefully tested and adjusted at the factory before shipment and will provide years of trouble-free service if properly installed and maintained as described herein.

INSTALLATION

Follow procedure outlined below. Torque is normally factory adjusted to the required value and the only adjustments that are ordinarily required at installation are those necessary to align the brake to the wheel.

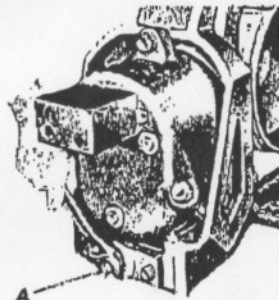


Fig. 1—Releasing brake torque to provide clearance between shoes during installation.

1. Mount wheel on motor shaft.
2. To provide ample clearance between shoes and wheel during installation, release torque by turning the torque adjusting screw (A in Fig. 1) counterclockwise. The lock nut that secures the torque adjusting screw must be loosened first.
3. Align so wheel and shaft centerline is midway between brake mounting holes. Slide brake into position with wheel centered between shoes. (If machinery interference prevents installing brake in this manner, see below for alternate method). Align brake with face of wheel, level and shim where necessary (shoe design permits wheel misalignment of  $\frac{3}{32}$ " maximum, horizontally or vertically on 8" brakes, and  $\frac{1}{8}$ " maximum on all other sizes).
4. Bolt brake down securely and connect coil leads.
5. Reset torque and check magnet air gap and shoe clearances, making necessary adjustments as described under "MAINTENANCE INSTRUCTIONS".

To Install Brake From Side Of Shaft

(where machinery interference prevents sliding brake over end of wheel):

- a. Remove Outer Arm Bearing Pin (B in Fig. 2), being careful to hold in Outer Shoe Arm (C) firmly to prevent springing out too quickly.
- b. Swing top Tie Bar Assembly (D) back over magnet as shown.
- c. Tilt magnet-end of brake up and jockey brake into position by sliding outer shoe arm under wheel. If severely crowded, either or both shoes or complete outer shoe arm may be removed for additional clearance.
- d. Reassemble brake and complete installation as described above.

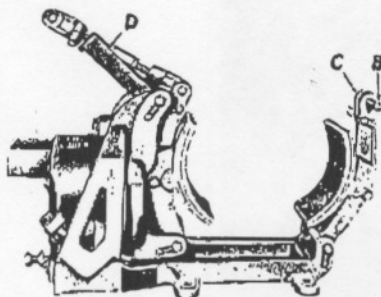


Fig. 2—Tie Bar Assembly swung back to permit installation of brake from side of shaft

MAINTENANCE INSTRUCTIONS

All adjustments are readily accessible. Torque adjustment is at the back of the brake and all other adjustments are at the top. The only tools needed to perform normal maintenance and adjustment operations are a standard 10" adjustable wrench and a screw driver.

TORQUE ADJUSTMENT

Torque is increased by loosening lock nut (E in Fig. 3) and turning Torque Adjusting Screw (F) clockwise. Torque is decreased by turning screw counterclockwise.

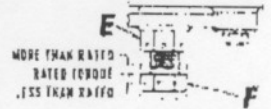


Fig. 3

For proper torque setting refer to table and sketch below.

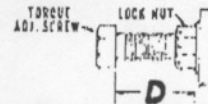


Fig. 4

Brake Size	TORQUE RATING 1/4 Hr. Ser./1 Hr. Sh./Rect.	Dim. "D"	TORQUE RATING 1 Hr. Ser./8 Hr. Sb.	Dim. "D"
8"	100	1 1/4"	75	1 1/4"
10"	200	1 1/2"	150	1 1/2"
13"	500	1 3/4"	400	1 3/4"
16"	1000	1 3/4"	750	1 3/4"
19"	2000	1 3/2"	1500	1 3/2"
23"	4000	1 3/2"	3000	1 3/2"

MAGNET AIR GAP ADJUSTMENT

As shoe linings wear, the magnet air gap will increase.

Normal magnet air gaps, as set at the factory, and maximum allowable air gaps are indicated in the following table:

BRAKE SIZE	8"	10"	13"	16"	19"	23"
*Normal Air Gap	3/16"	1/8"	1/4"	1/4"	1/4"	1/4"
*Max. Allowable Air Gap	1/8"	1/8"	1/4"	1/4"	1/4"	1/4"

\*Measurement of gap between bottom edge of armature and magnet case with torque applied (magnet de-energized).

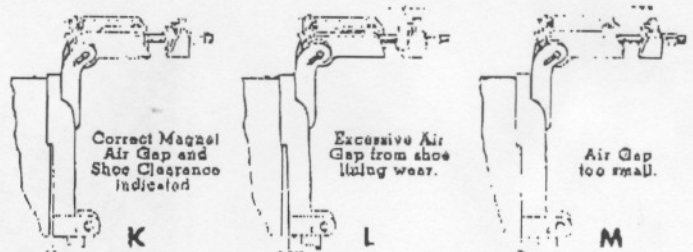


Fig. 5

LINING WEAR ADJUSTMENT

Adjustment for lining wear is required when the maximum allowable air gap is exceeded. This will be indicated by the amount of mis-match between the gauge surfaces of the lining wear indicator (see Fig. 5). Adjust for lining wear as follows:

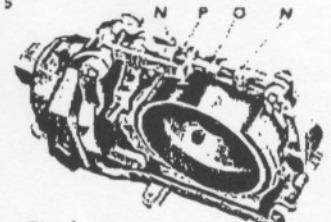


Fig. 6

Loosen the two Bar Eye Clamp Bolts (N in Fig. 6) and turn Adjusting Bar (O) until bar collar is aligned with Gauge Pin (P) per Fig. 5, Diagram K. This will restore magnet air gap to normal amount provided shoes have equalized clearance (see instructions on Page 6). No further adjustments are required. Retighten clamp bolts (N).

As shoe linings wear, the magnet air gap will increase, slightly reducing braking torque and operating speed. This increased air gap is indicated by misalignment of the gauge pin and bar collar.

(Maintenance Instructions Cont'd. page 5)

**INSTALLATION AND MAINTENANCE INSTRUCTIONS**

(Continued from page 1)

**EQUALIZING SHOE CLEARANCE**

With brake released†, loosen Lockbolt (S in Fig. 6A) and rotate Eccentric Bushing (T) until clearance between wheel and each shoe is equal. Clearance at the center of shoe should be  $\frac{1}{64}$ " to  $\frac{1}{32}$ ". Tighten Lockbolt firmly.

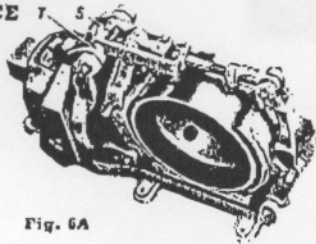


Fig. 6A

**SHOE REPLACEMENT 8" BRAKES (Fig. 7)**

Each shoe is held in place by two retainer plates (U in Fig. 7), one on either side of shoe. Only the plate on the side from which shoe is being removed need be loosened for shoe removal. Follow this procedure:

With brake released†, loosen (but do not remove) screw (V) approximately six turns until shoe retainer plate (U) clears brake shoe pin (W) and swing retainer plate aside. Slide shoe out from between brake arm and wheel.



Fig. 7—8" Brake

Shoes should be replaced when linings are worn down to  $\frac{1}{16}$ " thick.

When replacing worn shoes, it is necessary to provide clearance between brake arms and wheel to accommodate new shoes with unworn lining. This clearance is easily obtained by loosening the two Bar Eye Clamp Bolts (N in Fig. 7) and turning Adjusting Bar (O in Fig. 7) to spread arms apart. Slide the shoe into place from side of brake; swing retainer plate back into place over shoe pin and tighten retainer screw. After brake has been set (magnet de-energized), final adjustments must be made to return Air Gap to normal opening and to re-align gauge surfaces. Readjust shoe clearance if necessary.

**SHOE REPLACEMENT 10" AND LARGER BRAKES (Figs. 8 & 9)**

With brake released†, rotate Shoe Clamp Shaft (X in Figs. 8 and 9) fully to mechanical stop (it will only go one way). Shoe will be completely disengaged only when Stop Pin on shaft (Y in Fig. 9) rests against underside of shoulder (Z in Figs. 8 and 9) on Shoe Arm. Shoe may now be slid out from either front or rear of brake (see Fig. 8).

Shoes should be replaced when linings are worn down to  $\frac{1}{16}$ " thick on 10" brakes or to  $\frac{3}{16}$ " thick on all other larger sizes of brakes.

When replacing worn shoes, it is necessary to provide clearance between brake arms and wheel to accommodate new shoes with unworn lining. This clearance is easily obtained by loosening the two

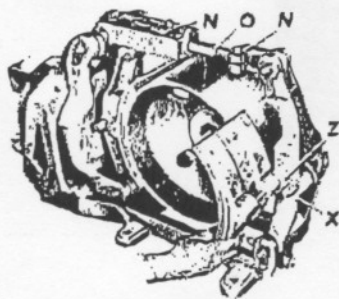


Fig. 8—10" and larger Brakes. With brake torque released and shoes unclamped, shoes can be removed from either side of brake.

**SHOE REPLACEMENT (cont'd) 10" AND LARGER BRAKES (Figs. 8 & 9)**

Bar Eye Clamp Bolts (N in Fig. 8) and turning Adjusting Bar (O in Fig. 8) to spread arms apart. Slide new shoes in from either side, being sure the clamp is still fully released, and lock in place by turning Shoe Clamp Shaft to original position. **Shaft must rotate fully to mechanical stop to assure positive locking of shoes.** Apply torque to brake and readjust air gap. Check shoe clearance and equalize if necessary.



Fig. 9—Shoes are secured to arms by spring-clamp mechanism shown in the left hand diagram. Eccentric Clamp Shaft (X), rotated as shown in the right hand figure, moves clamp in to release tension and up to free shoe.

**MAGNET AND COIL REMOVAL (All Sizes)**

Remove Terminal Shields (AA in Fig. 10) and Terminal Legs (BB). (Wires need not be removed from legs). Remove three Magnet Case Bolts (CC) and slide Magnet Case out of Frame. Brake adjustments are not disturbed and full torque remains on the wheel.

Remove Magnet Coil Bolts (DD) and slide coil out of Magnet Case as shown in Fig. 11. This is a "dry" coil and requires no heating or chipping for removal.

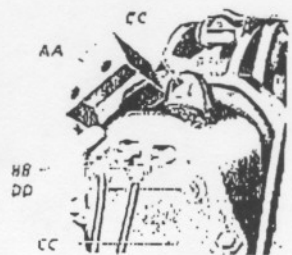


Fig. 10

Fig. 11—Coil slips out of case freely after removal of coil bolts.

**BRAKE WHEEL & MOTOR ARMATURE REMOVAL (All Sizes)**

With brake released†, remove Outer Arm Bearing Pin (B in Fig. 12) being careful to hold in Outer Shoe Arm (C) firmly to prevent swinging out too quickly. Swing top Tie Bar Assembly (D) back over magnet as shown. Motor armature and brake wheel may now be lifted out as a unit. Brake adjustments are not disturbed.

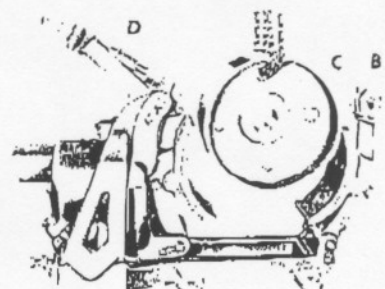


Fig. 12

†Brake can be released by one of 3 methods: (1) energizing magnet, (2) mechanically holding armature against magnet, (3) releasing tension of main torque spring by turning Torque Adjustment Stud counter-clockwise. If method 3 is used, torque setting is easily restored by turning Torque Adjusting Stud clockwise until proper distance is obtained as shown in Table on page 1.