CLASS 5060 13" ADJUSTABLE TORQUE BRAKE
FOLIO 1
FOR DC OPERATION

GENERAL INFORMATION

Type AT Brakes are electrically controlled service and parking brakes with wheel and mounting dimensions meeting AISE-NEMA Standards for mill motor brakes.

The parking section of the brake, a fail-safe device, is equipped with a partial voltage coil, and a series resistor is inserted by a relay to reduce the holding current to a value suitable for continuous energization.

The service section of the brake is equipped with a coil having an intermittent duty rating.

Periodic inspection and adjustment of the brake should be made to prolong life, insure reliable operation, and give greater safety to operators and equipment.

COILS

Consult Nameplate for coil data including Part Numbers.

LUBRICATION

All bearings are oil-filled, self-lubricating type; hydraulic grease-gun fittings are provided for lubricating each bearing to replace the original oil. The fittings have external check balls and any standard hydraulic grease-gun will fit. A grade of grease equivalent to Schaeffler No. 2 is recommended. Frequency of lubrication will depend upon the service and upon atmospheric conditions.

INSTALLATION

1. Mount wheel on motor shaft.
2. Release brake by turning up manual release nut (A) against the spring adjustment nut (B).
3. Mount brake by sliding into position with wheel centered between shoes. Where machinery interference prevents sliding brake over end of wheel:
   a. Remove connecting rod pin (H) (CAUTION: Do not lose spring AA.)

b. Lower outer shoe lever (P) and connecting rod (M).

c. Align and jockey brake into position.
d. Reassemble by raising outer shoe lever (P) and connecting rod (M).
e. Insert connecting rod pin (H). (Be sure to include spring AA.)

4. Align shoe with wheel face, level and shim where necessary.

5. Bolt securely and connect leads as per wiring diagram.

6. Set brake by returning manual release nut (A) as far as possible against the stop washer (Z) on the spring rod.

ADJUSTMENTS

If accurately mounted, the adjustments made on Type AT Brakes at the factory will not require changing. To assist in locating the brake, center lines are marked on the sides below the wheel and on the magnet end of the base casting. When properly mounted, the center of the brake wheel should coincide with the intersection (X) of two straight lines, the horizontal line being a straight line passing through the center of the shoe pins and the vertical line being an extension of the center-line marking on the side of the base casting. If the brake is not carefully aligned, the various adjustments outlined in the following paragraphs, must be remade. With the brake released, the shoes should completely clear the wheel, 1/2" is ample clearance.

SHOE CLEARANCE ADJUSTMENT

1. To adjust for shoe clearance or lining wear, close the parking torque armature (G) tightly against the magnet case (E) by turning up manual release nut (A) against the spring adjustment nut (B).

2. Adjust equalizing screw (J) until the clearance (L) on adjacent shoe (K) is about 1/2".

3. Adjust the hexagonal connecting rod (M) until the outer shoe clearance (L) is about 1/2".

4. If the clearance under either side is not uniform at the top and bottom points of the shoe, rotate the adjusting cams (S) bearing on (continued on page 4)
### 13" "AT" Brake, Folio 1, DC Operated

NOTE: Indented items are component parts of items immediately preceding.

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* Standard hardware, without a Square D part number, should be obtained from a local hardware supplier.
☆ Essential Parts for General Maintenance.  *Minor revision since previous issue.

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13" "AT" BRAKE, FOLIO 1, DC OPERATED

(continued from page 1)

cam rails (17), or adjust the cam rail (1) until the shoe clearance is
uniform. Provisions are made for mounting these cams and rails on
either side of the brake-base casting so that they will be readily
accessible regardless of brake mounting.

(5) When a uniform clearance of \( \frac{1}{8}" \), or slightly less, is obtained
on both shoes, the brake is properly adjusted. Lock all adjusting
screws by screwing the lock nuts down tight.

(6) Manual release nut (A) should now be backed off as far as it
can be turned against the stop washer (Z) on the spring rod. This
is important because, if not observed, the parking portion of the brake
may fail to hold.

PARKING TORQUE ADJUSTMENT

Parking torque, which requires a deenergized parking brake coil,
results from the operating spring (BB) setting the brake shoes (K)
and (N) against the brake wheel. The torque is adjusted by turning
the spring adjustment nut (B), which is threaded into the base casting.
This is set at the factory for a parking torque based on the best data
available on the load to be held but can easily be changed after the
brake is put into service. When making parking torque adjustments,
refer to the calibration plate on the top of the brake. The calibration
plate relates the parking torque developed (pound-feet) to the gap
(Y) (inches) (with brake set and adjusted for \( \frac{1}{8}" \) shoe clearance).
Gap (Y) is the measured distance from the outer end of the spring
adjustment nut (B) to the finished surface (W) at the frame end.

SERVICE TORQUE ADJUSTMENT

Service torque is developed only after the parking brake has been
released (coil U energized). An energized service brake coil (V)
acting upon the main armature (C) moves the brake shoes (K) and (N)
against the brake wheel. The resulting torque can be adjusted from
approximately 100 to 835 lb-ft by varying the current through the
service brake coil at various control points. Braking torque for each
control point may be altered by moving the corresponding tap on the
service brake series resistor located on top of the brake controller.
The controller wiring diagram gives instructions for the resistor settings.

ADJUSTMENT FOR SHOE BLOCK WEAR

As the shoe blocks (K) and (N) wear, shoe clearances (L) and (R)
will increase. When lining wear has caused a shoe clearance of
\( \frac{1}{4}" \) or more between the shoe blocks and the brake wheel, equalizing
screw (J) should be turned out to restore the \( \frac{1}{8}" \) shoe clearance of
the adjacent shoe (K). Shoe clearance for the outer shoe (N) should
then be adjusted by turning hexagonal connecting rod (M). In no case
should the shoe clearances (L) or (R) between the shoe blocks and
brake wheel be allowed to exceed \( \frac{1}{2}" \).

BRAKE MAGNET REMOVAL

To remove brake magnet (E) withdraw armature hinge pins (D) and
(F), and the four cap screws securing the magnet to the base casting.
Lift magnet off the brake-base. Two lifting lugs welded to the brake
case have been provided for this purpose.

MOTOR ARMATURE REMOVAL

When a motor armature with attached brake wheel is to be
removed, release the brake by turning the manual release nut (A)
against the spring adjustment nut (B). Remove connecting rod pin (H)
[CAUTION: Do not lose spring AA]; lower outer shoe lever (P) and
connecting rod (A). The brake wheel will then clear the mechanism.
When the armature and wheel are reassembled, invert this action
and back off the release nut (A) as far as it can be turned against
the stop washer (Z) on the spring rod. The brake is now ready for
operation with all its former adjustments undisturbed.

CHANGING BRAKE COILS

To remove service coil (V) or parking coil (U), first remove brake
magnet (E) as described above. Open terminal box and disconnect
coil terminals from terminal board. Remove the nine screws holding
the coil cover in position and dig out coil. To install service or parking
coil, slide coil into magnet case and wedge with transite blocks.
Secure coil cover with nine 5/16 x 5/8 self-locking flat head cap
screws. Pour in compound and allow to set for 1 hour before applying
normal voltage. Reconnect coil terminals.

CHANGING BRAKE SHOES

Proceed as outlined in "Motor Armature Removal" except that the
motor armature need not necessarily be removed and the "former
adjustments" referred to therein must not be allowed to remain
undisturbed.

As the outer shoe becomes clear of interference, remove pin holding
shoe, replace with new shoe and replace pin. In a similar manner,
replace the inner shoe and reassemble the outer shoe lever (P) and
connecting rod (A) by reinserting connecting rod pin (H). Be sure to
include spring (AA).

Proceed as outlined in "Shoe Clearance Adjustment" to achieve
original factory conditions. Review "Adjustments" and "Parking Torque
Adjustments" procedure to verify \( \frac{1}{8}" \) shoe clearance.

CONNECTIONS

Brake, Controller, and Master Switch interconnections should be made
according to the factory wiring diagram. Relative polarity of the
service and parking windings must be additive. Polarity is wrong if,
with the parking release winding energized, applying power to the
service braking winding causes the parking section armature to open.
If this occurs, reverse leads of service or parking coil at terminal box,