



# CLASS 5060 10" ADJUSTABLE TORQUE BRAKE, FOLIO 1 & SERIES A 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. They provide fixed holding torque for parking and adjustable torque for controlled stopping.

The parking feature of the brake causes the brake to set upon loss of power. It is equipped with a partial voltage coil. A series resistor is inserted to limit the current to an excitation suitable for continuous energization.

The service section of the brake provides controlled braking torque. It is equipped with a coil having an intermittent duty rating. This coil is energized only during intervals of controlled stopping.

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

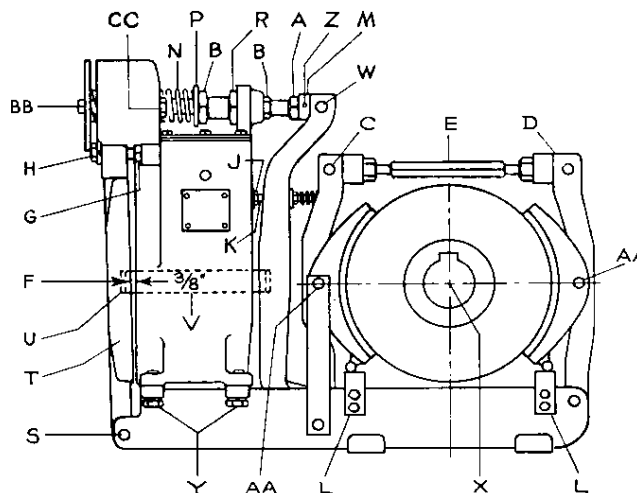
Consult nameplate for coil data including part numbers.

## LUBRICATION

All bearings and thrust pin surfaces are factory lubricated; however, an effective maintenance program should include the replacement of bearings and pins when wear or friction become evident. The frequency of replacement will be dependent on operating temperatures, air borne contaminants and severity of service. Failure to maintain bearings could result in greatly reduced brake torque.

## INSTALLATION

- Mount wheel on motor shaft.
- Release brake by tightening manual release nut (A) against the spring adjuster (B).
- Mount brake by sliding into position with wheel centered between shoes. Where machinery interference prevents sliding brake over end of wheel, the brake may be moved into position laterally as follows:  
Remove connecting rod pin (C); lower outer shoe lever (D) and connecting rod (E). Move brake into position; reassemble and insert connecting rod pin. Tighten set screws.
- Axially align brake so that the shoes are centered on the face of the wheel.
- Center punch marks are provided on the sides of the frame below the wheel to aid in properly centering of the brake. When properly mounted, the center of the brake wheel should coincide with the intersection "X" of two straight lines, a horizontal line passing through the centers of the shoe pins and a vertical line passing through the punch marks. The brake should be shimmed to attain this position. Care should be taken to assure the brake is properly aligned with the axis of the wheel.
- Bolt the base down securely and connect leads as per wiring diagram.
- Service armature gap "F" should be 3/8 inch. If not, loosen lock nut (G), adjust bolt (H) and retighten lock nut (G).

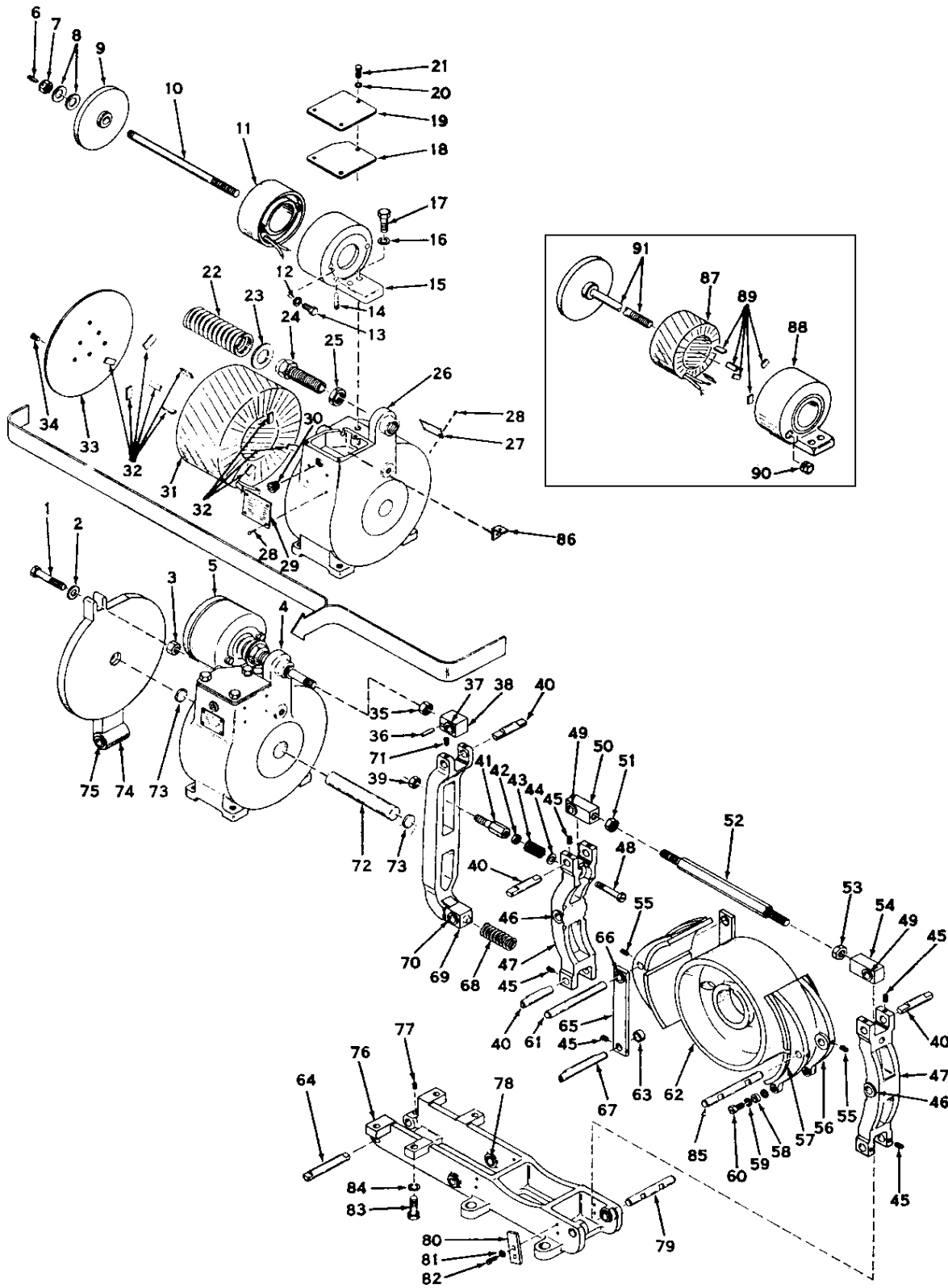


<b>SQUARE D COMPANY</b>																
<b>TYPE "AT" BRAKE</b>																
CLASS _____	SIZE _____ FOLIO _____															
VOLTS _____	SER. _____															
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<b>EC &amp; M DIVISION</b>	
<b>SQUARE D COMPANY</b>	
CLEVELAND, OHIO	
<b>10" TYPE "AT" BRAKE</b>	
PARKING TORQUE SETTING WITH 1/32" SHOE CLEARANCE	
PARKING TORQUE LB.-FT.	SPRING LENGTH INCH
50	5 1/4"
100	5 "
150	4 3/4"
200	4 3/8"
300	4 1/4"

- If accurately mounted, there will be a uniform shoe clearance of 1/32 inch. If not, the following adjustments must be made:
  - Unlock nut (J) (against the magnet case) of the equalizing screw (K) and turn the long hex section until the shoe clearance of the inner shoe at the center of the shoe is 1/32 inch. Lock nut (J) against the magnet case.
  - Unlock the lock nuts at both ends of the connecting rod (E) and turn the connecting rod until the outer shoe clearance at the center of the shoe is 1/32 inch. Lock both lock nuts.
  - Adjust cam rails (L) by loosening clamping bolts and sliding rails up or down as necessary to obtain uniform shoe clearances from top to bottom. Securely tighten the clamping bolts. Provisions are made for mounting the cams and rails on either side of the brake.
- Set brake by turning manual release nut (A) until it locks against the block (M) on the spring rod.

(Continued on page 4)



## PARTS LIST FOR 10" AT BRAKE, FOLIO 1 &amp; SERIES A, DC OPERATED

Item No.	Part No. ■	Description	Item No.	Part No. ■	Description
1		½" - 13 x 2¼" H. Cap Screw	49	29005-40242	Bearing, (4 Req'd.)
2	B5-0502-003-33	Armature Stop Washer	50	A5-1009-029-01	Link, R.H.
3		½" - 13 H. Nut	51	23218-00330	⅜" - 18 Nut, R.H.
4	A5-1009-049-50	Magnet Assembly, includes Items 11 through 21, and 26 through 34, Series A.	52	B5-0502-326-08	Connecting Rod
5	A5-1009-051-50	Auxiliary Magnet, includes Items 11 through 15, Series A	53	W-10086	⅜" - 18 Nut, L.H.
	A5-1009-052-50	Assembled Spring Rod, includes Items 6 through 10	54	A5-1009-029-02 W-10004-A	Link, L.H.
6	24209-12480	⅜" x 1½" Roll Pin, Series A			Shoe Assembly, includes Items 55 through 57, (2 Req'd.)
7	A5-1009-053-01	⅜" - 18 Jam Nut, Series A	55	21801-22160	⅜" - 18 x ½" Cup Pt. Set Screw, Stainless, (2 Req'd.)
8	23690-01420	Spherical Washer, 1 Set of 2, Series A	•† 56	W10004A	Shoe
9	A5-1009-052-02	Auxiliary Armature, Series A	•† 51001-070-01		Rivet, (8 Req'd.) per Shoe
10	A5-1009-052-01	Spring Rod, Series A	•† 51001-071-51		Brake Block, (2 Req'd.) per Shoe
11	*	Auxiliary Magnet Coil, Series A	58	W-10117	Adjusting Ring (2 Req'd.)
12	23701-00240	⅝" Lock Washer, (2 Req'd.), Series A	59		⅜" Lock Washer, (2 Req'd.)
13		⅝" - 16 H. Cap Screw, (2 Req'd.), Series A	60		⅜" - 18 x 1" H. Cap Screw, (2 Req'd.)
14		⅝" x 1½" Insulation Tubing, Series A	• 61	51009-058-02	Shoe Pin (Inboard Lever)
15	A5-1009-056-01	Auxiliary Magnet Case, Series A	62	*	Brake Wheel
16		½" Lock Washer, (2 Req'd.)	• 63	50502-051-19	Anti-Drag Lever Spacer, (2 Req'd.)
17		½" - 13 x 1½" H. Cap Screw, (2 Req'd.)	64	W-10081	Hinge Pin
18	A5-1009-028-02	Terminal Box Gasket			Anti-Drag Lever Assembly, includes Items 65 and 66, (2 Req'd.)
19	A5-1009-028-01	Terminal Box Cover	65	A5-1009-017-01	Anti-Drag Lever
20		¼" Lock Washer, (3 Req'd.)	• 66	29005-40242	Bushing
21		¼" - 20 x ½" H. Cap Screw, (3 Req'd.)	• 67	51009-058-01	Drag Link Pin
22	W-10078	Operating Spring	68	LZA-6149	Release Spring
23	B5-0502-003-29	Spring Adjuster Washer			L-Lever Assembly, includes Items 69, 70 and 71
24	A5-1009-018-01	Spring Adjuster	69	C5-1009-015-01	L-Lever
25	W-16080	1" - 14 Lock Nut	70	29005-40242	Bushing, (2 Req'd.)
26	C5-1009-023-01	Main Magnet Case	71	21801-22160	⅜" - 18 x ½" Cup Pt. Set Screw, Stainless, (2 Req'd.)
27	A5-1139-027-01	Nameplate	72	A5-1009-020-01	Thrust Pin
28	21008-06080	No. 6 x ¼" Drive Screw, (8 Req'd.)	73	A5-1009-019-01	Thrust Pad, (2 Req'd.)
29	A5-1139-028-022	Calibration Plate			Main Armature Assembly includes Items 74 and 75
30		¾" Pipe Plug	74	B5-1009-011-01	Main Armature
31	*	Service Brake Coil Assembly	75	FP-24B-45	Bushing, (2 Req'd.)
32	W-8086	Coil Spacer, (9 Req'd.)			Frame Assembly, includes Items 76 through 78
33	A5-1009-039-01	Coil Retaining Plate	CF-1009-010-50		Frame
34		¼" - 20 x ½" H. Socket Flat Head Cap Screw, (6 Req'd.)	76	C5-1009-010-01	⅜" - 18 x ½" Cup Pt. Set Screw, (2 Req'd.)
35		⅝" - 18 Nut	77		Bushing, (4 Req'd.)
36	24209-12400	Roll Pin	• 78	29005-40240	Outboard Shoe Lever and Frame Pin
	A5-1009-022-50	Spring Rod Link Assembly, includes Items 37 and 38	• 79	51009-058-03	Adjusting Rail
37	29005-40242	Bearing, (2 Req'd)	80	W-10116	⅜" Shakeproof Lock Washer, (4 Req'd.)
38	A5-1009-022-01	Spring Rod Link	81		⅜" - 8 x ¾" H. Cap Screw, (4 Req'd.)
39		⅜" - 18 H. Nut	82		½" - 13 x 1½" H. Cap Screw, (4 Req'd.)
40	51009-058-04	Pin, (4 Req'd.)	83		½" Plain Lock Washer, (4 Req'd.)
41	B5-0502-801-05	Centering Spring Stud	84		Outboard Shoe Lever Pin
42		⅜" - 18 x ½" Jam Nut	85	W-10032	Terminals, (8 Req'd.)
43	B5-0502-601-09	Centering Spring	86	25009-07161	
44		⅜" Plain Washer			Brakes built before January 31, 1965 were supplied with a parking coil using the following parts:
45	21801-22160	Shoe Lever Assembly, includes Items 45, 46 and 47, (2 Req'd.)	87	*	Magnet Coil
		⅜" - 18 x ½" Cup Pt. Set Screw, Stainless, (4 Req'd.)	88	51009-056-01	Magnet Case
46	29005-40240	Bushing, (2 Req'd.)	89	W-8086	Coil Spacer, (6 Req'd.)
47	B5-1009-014-01	Shoe Lever	90	FP-74A-10	Grommet
48	B5-0502-526-04	Centering Spring Stud Screw			Brakes built before December 11, 1964 were supplied with the following spring rod assembly:
	A5-1009-016-50	Connecting Rod Assembly, includes Items 49 through 54	91	A5-1009-013-50	Spring Rod Assembly

† Essential Parts for General Maintenance.

• Minor revision since previous issue.

■ Standard hardware, listed without a Square D Part Number, should be obtained from a local hardware supplier.

## \*FURNISH NAMEPLATE MARKING WHEN ORDERING PARTS

### PARKING TORQUE ADJUSTMENT

To change parking torque adjustment, unlock nut (R) and turn spring adjuster (B) until the desired spring length is attained in accordance with the calibration plate. This length is measured by placing a scale along side the spring (N) and through the hole in the parking brake case with one end against the armature of the parking brake and measuring the distance to the spring side of the washer (P).

### SERVICE TORQUE ADJUSTMENT

The service torque can be varied from 20 to 330 lb. ft. by controlling the service brake coil current. Braking torque for each point of the braking control switch can be altered by changing taps on the service brake resistor mounted on the brake controller.

See the controller wiring diagram for adjustment information.

### ADJUSTMENT FOR SHOE LINING WEAR

As the brake shoe linings wear, the shoe clearance will increase with the brake released. When this clearance exceeds 3/32 inch readjustment is mandatory. Failure to keep linings in proper adjustment may prevent release of shoes and severe overheating of linings and wheel. This is accomplished by releasing the brake by tightening the manual release nut (A) against spring adjuster (B) and proceeding in accordance with steps 8 and 9 under Installation.

### MOTOR ARMATURE REMOVAL

To remove a motor armature with attached brake wheel, first release the brake by tightening the manual release nut (A) against spring adjuster (B). Remove connecting rod pin (C) and swing the outer shoe lever (D) and connecting rod (E) out of the way. When the armature and wheel are replaced, the brake must be reassembled. The manual release nut (A) should be tightened against the block (M) on the spring rod.

### BRAKE SHOE REPLACEMENT

1. Release the brake by tightening nut (A) against spring adjuster (B). Remove pin (C) and swing lever (D) and adjusting rod (E) away.
2. Remove brake shoe pins (AA) by first loosening set screws. Slide shoes around wheel until they can be removed.
3. Install new or relined shoes, holding them in place with pins (AA). Tighten set screws.
4. Loosen the lock nuts on shaft (E) and return lever (D) and shaft (E) to their normal position. It will be necessary to turn rod (E) in order to reinstall pin (C). Tighten set screws.
5. Readjust brake in accordance with Installation instructions.

### SERVICE BRAKE COIL REPLACEMENT

In order to replace a service brake coil, it is necessary to remove the magnet assembly.

1. Release brake by turning out (A) against spring adjuster (B).
2. Loosen nut (G) and remove bolt (H). Open armature (T) fully. Should armature removal be required, remove hinge pin (S) and then remove armature (T) being careful that thrust pad (U) remains in place. Remove thrust pin (V).
3. Loosen lock nut (J) and unscrew shoe adjusting screw (K) from the magnet case.
4. Remove lever pin (W) by first loosening set screws.
5. Remove the four bolts (Y) and lift the magnet assembly free from the brake.

6. Remove coil retaining plate by removing the flat head screws. Disconnect coil leads in terminal box.
7. Cut inner and outer rings of potting compound with a knife. Invert magnet and jar the coil loose. Clean cavity.
8. Position the magnet case level with the cavity opening on top. Place 3 spacers at approximately equal spacing on the bottom of the case. Place new coil in cavity carefully guiding leads into terminal box. Place 3 more spacers on top of coil. Tape in place with electrical tape. Wedge 3 spacers between inside diameter of coil and center core. Caulk around leads in terminal box to prevent leakage of potting compound.
9. Fill cavity with properly mixed potting compound level with the seat for the coil retaining plate. Allow to set for one hour. Replace coil retaining plate and connect leads to terminals.
10. Set magnet assembly on brake frame and bolt securely. Replace pin (W) and tighten set screws. Replace thrust pin (V). Close armature (T). If removed, replace armature (T) and secure with pin (S). Tighten set screws. Replace bolt (H) and nut (G). Adjust gap (F) to 3/8" and tighten lock nut (G). Replace shoe adjusting screw (K) and lock nut (J).
11. Readjust brake per Items 8 and 9 under Installation.

### PARKING BRAKE COIL REPLACEMENT (FOLIO 1)

In order to replace a parking brake coil, it is necessary to remove the magnet assembly. Proceed per instructions 1 through 5 under Service Coil Replacement.

1. Unlock nuts (R) and (A). Release spring pressure by turning spring adjuster (B). Drive out roll pin (Z). Unscrew block (M) and nut (A) and remove armature assembly.
2. Position the magnet case level with the cavity opening on top. Place 3 spacers at approximately equal spacing on the bottom of the case. Place new coil in cavity carefully guiding leads into the terminal box. Wedge 3 spacers between the coil inside diameter and case. Caulk around leads in terminal box to prevent leakage of potting compound.
3. Fill cavity with properly mixed potting compound to approximately 1/32 inch below top of case. Allow to set for one hour. Connect leads to terminals. Replace armature assembly and nut (A).
4. Screw armature assembly into block (M) and replace roll pin.
5. Reassemble per item 10 under Service Brake Coil Replacement and then readjust the complete brake as indicated under Installation.

### PARKING BRAKE COIL REPLACEMENT (Series A)

1. Unlock nut (R) and release spring pressure by turning spring adjuster (B).
2. Remove roll pin through nut (BB) and remove nut (BB). Remove the two spherical washers and armature.
3. Disconnect coil leads in terminal box.
4. Remove two cap screws (CC) and remove coil.
5. Put in new coil and hold in place with two cap screws (CC).
6. Connect coil lead in terminal box.
7. Replace armature, spherical washers, nut, and roll pin.
8. Return the spring adjuster (B) to approximately its original position.
9. Readjust brake per Items 8 and 9 under Installation and Parking Torque Adjustment.