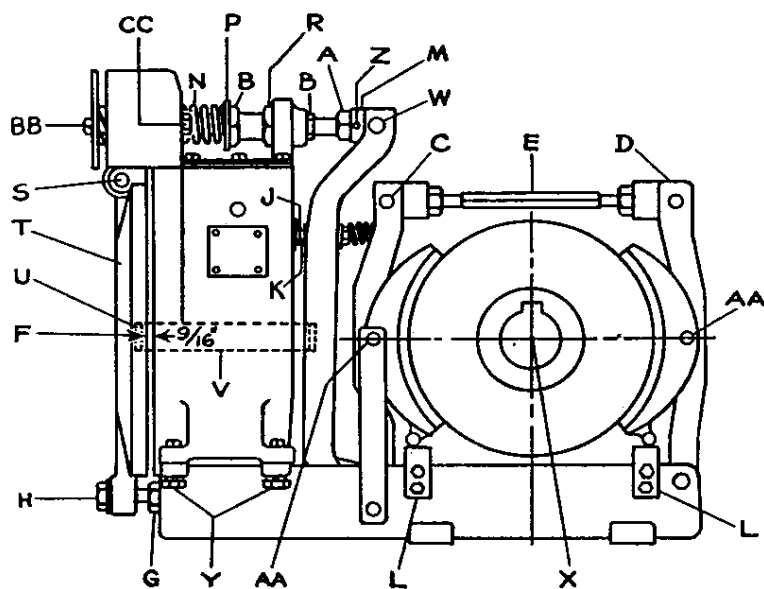


CLASS 5060 16" TYPE AT ADJUSTABLE TORQUE BRAKE SERIES B



SQUARE D COMPANY CLEVELAND, OHIO		
TYPE AT BRAKE		
CLASS	SIZE	VOLTS
VOLTS	SER.	
SERVICE		PARKING
COIL		
VOLTS		
DUTY		
TORQUE		

SQUARE D COMPANY CLEVELAND, OHIO		
16" TYPE AT BRAKE		
PARKING TORQUE LB.-FT.	SPRING LENGTH INCHES	
250	4 1/2	
300	4 1/4	
750	4 1/2	
1000	3 1/2	

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 and do not require further lubrication.

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.

(4) Axially align brake so that the shoes are centered on the face of the wheel.

(5) Center punch marks are provided on the sides of the frame below the wheel to aid in properly centering 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. Maximum allowable misalignment is $\pm 1/16$ inch.

(6) Bolt the base down securely and connect leads as per wiring diagram.

(7) Service armature gap "F" should be $9/16$ inch. If not, loosen lock nut (G), adjust bolt (H) and retighten lock nut (G).

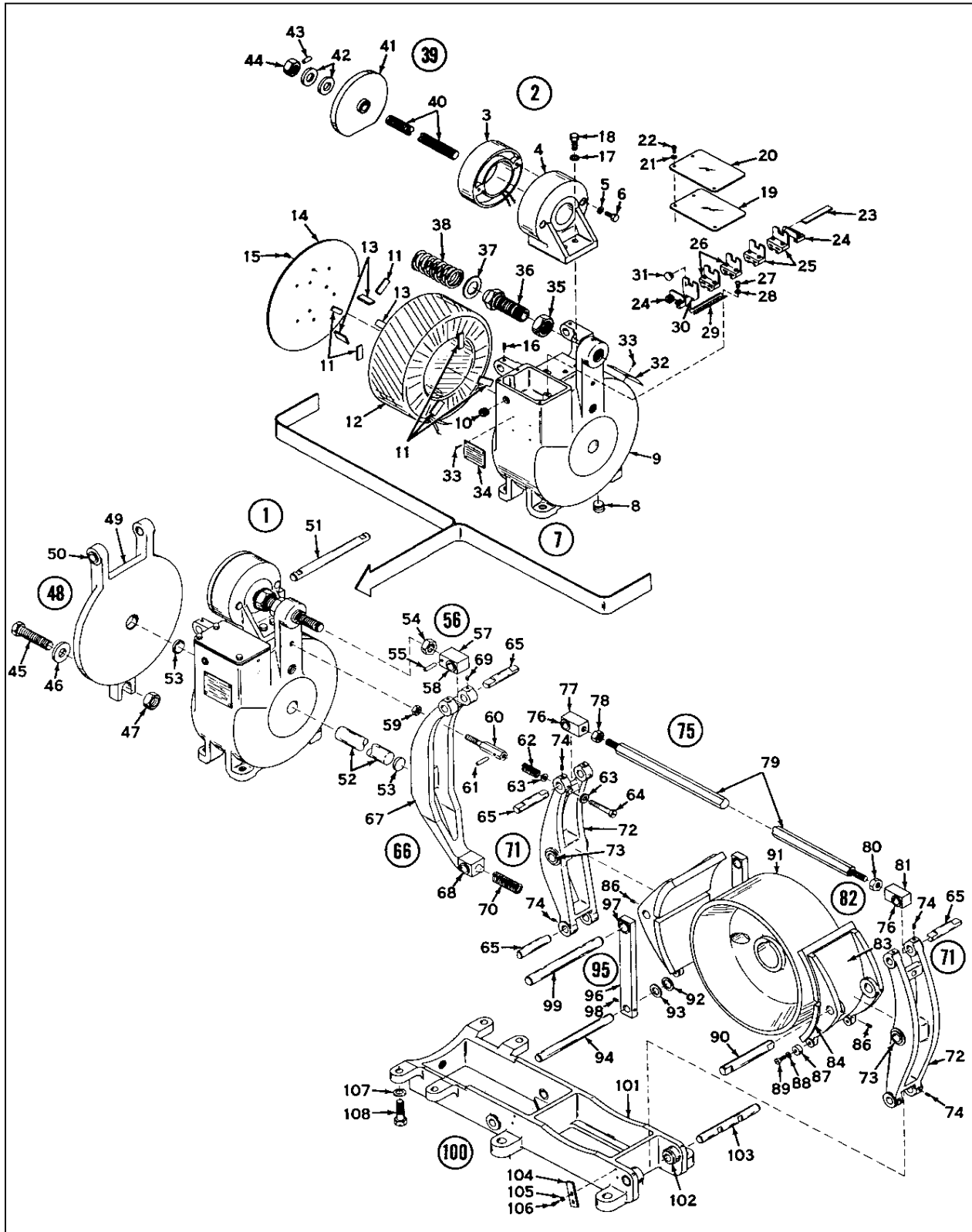
(8) If accurately mounted, there will be a uniform shoe clearance of $1/32$ inch. If not, the following adjustments must be made:

- 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.

(9) Set brake by turning manual release nut (A) until it locks against the block (M) on the spring rod.

(continued on page 4)

16" TYPE "AT" BRAKE, SERIES B



16" TYPE "AT" BRAKE, SERIES B

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

Item No.	List No.	Description	Item No.	List No.	Description
1	A51011-056-50	Magnet Assembly, includes items 2 and 7, and items 17 through 34	56	A51011-022-50	Spring Rod Link Assembly, includes items 57 and 58
2	A51011-047-50	Parking Magnet Assembly, includes items 3 through 6	57	A51011-022-01	Spring Rod Link
3	A51011-049-51	Parking Magnet Coil	58	FP-24J-19	Bushing, 2 req'd.
4	A51011-048-01	Parking Magnet Case	59	23003-00320	5/8"-11 Jam Nut
5	23701-00240	3/8" Plain Lock Washer, 2 req'd.	60	A51011-063-01	Centering Spring Stud
6	21401-24280	3/8"-16 x 7/8" H. Cap Screw, 2 req'd.	61	24209-08241	1/8" x 3/4" Roll Pin
7	A51011-057-50	Service Magnet Assembly, includes items 8 through 16	62	B50502-601-43	Centering Spring
8		3/8" csk. Pipe Plug	63	23601-00280	1/2" Plain Washer, 2 req'd.
9	B51011-059-01	Service Magnet Case	64	21401-28720	1/2"-13 x 3" H. Cap Screw
10		1" Pipe Plug, 2 req'd.	65	AT-13028	Pin, 4 req'd.
11	W-8086	Coil Spacer, 6 req'd.	66	B51011-015-50	L-Lever Assembly, includes items 67 through 69
12	A51011-024-52	Service Magnet Coil	67	B51011-015-01	L-Lever
13	B50512-154-22	Coil Spacer, 3 req'd.	68	FP-24J-19	Bushing, 2 req'd.
14	A51011-030-01	Coil Retaining Plate	69	22903-24200	3/8"-16 x 5/8" Alloy Steel Socket Half Dog Point Set Screw, 2 req'd.
15		5/16"-18 x 5/8" H. Socket Flat Cap Screw, 9 req'd.	70	B50502-601-22	Release Spring
16	22903-24200	3/8"-16 x 5/8" Alloy Steel Socket Half Dog Point Set Screw	71	B51011-014-50	Shoe Lever Assembly, includes items 72 through 74, 2 req'd.
17		1/2" Plain Lock Washer, 2 req'd.	72	B51011-014-01	Shoe Lever, 2 req'd.
18		1/2"-13 x 1 1/2" H. Cap Screw, 2 req'd.	73	FP-24B-32	Bushing, 4 req'd.
19	A51011-031-02	Terminal Box Gasket	74	22903-24200	3/8"-16 x 5/8" Alloy Steel Socket Half Dog Point Set Screw, 8 req'd.
20	A51011-031-01	Terminal Box Cover	75	A51011-016-50	Connecting Rod Assembly, includes items 76 through 81
21		1/4" Plain Lock Washer, 3 req'd.	76	FP-24J-19	Bushing, 4 req'd.
22		1/4"-20 x 1/2" R. Machine Screw, 3 req'd.	77	A51011-029-50	Link, R.H.
23	1828-C23-X4	Marking Strip	78	B50502-551-06	7/8"-14 H. St. Nut, R.H.
24	1828-D57-G1	End Clamp Assembly, 2 req'd.	79	B50502-326-19	Connecting Rod
25	1828-D55-G1	Terminal Block Assembly, 2 req'd.	80	B50502-551-05	7/8"-14 H. St. Nut, L.H.
26	1828-D54-G1	Terminal Block Assembly, 2 req'd.	81	A51011-029-51	Link, L.H.
27		No. 8-32 x 5/16" R. Machine Screw, 2 req'd.	82	W-16004-A	Shoe Assembly, includes items 83 through 86, 2 req'd.
28		No. 8 Plain Lock Washer, 2 req'd.	83	W-16005-A	Brake Shoe, 2 req'd.
29	1828-C22-X4	3 3/4" Mounting Track	84	W-16043	Brake Block, 4 req'd.
30	1828-C18-X1	Barrier	85	W-16046	Rivet, 24 req'd.
31	1828-D71-X1	Nylon Plug, 2 req'd.	86	22903-24200	3/8"-16 x 5/8" Alloy Steel Socket Half Dog Point Set Screw, 4 req'd.
32	A51139-027-01	Nameplate	87	W-16163	Shoe Adjusting Cam, 2 req'd.
33		No. 6 x 1/4" Type "U" Drive Screw, 8 req'd.	88		3/8" Lock Washer, 2 req'd.
34	A51139-028-03	Calibration Plate	89		3/8"-16 x 1" H. Cap Screw, 2 req'd.
35	B50502-551-04	Spring Adjuster Nut	90	W-16032	Shoe Pin
36	A51011-018-01	Spring Adjuster	*91		Brake Wheel
37	B50502-003-44	Spring Adjuster Washer	92	WB-3227	Drag Pin Washer, 2 req'd.
38	W-16154	Operating Spring	93	B50502-003-45	Drag Link Spacer, 2 req'd.
39	A51011-061-51	Spring Rod Assembly, includes items 40 through 44	94	A51011-036-01	Drag Link Pin
40	A51011-050-01	Spring Rod	95	A51011-017-50	Drag Link Assembly, includes items 96 through 98, 2 req'd.
41	A51011-058-01	Parking Magnet Armature	96	A51011-017-01	Drag Link, 2 req'd.
42	23690-01650	Spherical Washer	97	FP-24B-44	Bushing, 2 req'd.
43	24209-12480	Roll Pin	98	22903-24200	3/8"-16 x 5/8" Alloy Steel Socket Half Dog Point Set Screw
44	A51009-053-02	1"-14 Special Nut	99	A51011-036-02	Shoe Pin
45	21401-38840	1"-8 x 4 1/2" H. Cap Screw	100	D51011-010-50	Frame Assembly, includes items 101 and 102
46	B50502-003-46	Armature Stop Washer	101	D51011-010-01	Frame
47	23002-00380	1"-8 H. Nut	102	FP-24J-19	Bushing, 4 req'd.
48	C51011-011-50	Service Brake Armature Assembly, includes items 49 and 50	103	A51011-036-03	Shoe Lever Pin
49	C51011-011-01	Service Brake Armature	104	W-16162	Shoe Adjusting Rail, 2 req'd.
50	FP-24J-19	Bushing, 2 req'd.	105		5/16" Shake Proof Lock Washer, 4 req'd.
51	A51011-036-01	Armature Pin	106		5/16"-18 x 3/4" H. Cap Screw, 4 req'd.
52	A51011-020-01	Thrust Pin	107		3/4" Plain Lock Washer, 4 req'd.
53	A51011-019-01	Thrust Pad, 2 req'd.	108		3/4"-10 x 2 1/4" H. Cap Screw, 4 req'd.
54	23004-00400	1"-14 H. Nut			
55	24209-12480	Roll Pin			

†Essential Parts for General Maintenance.

*FURNISH NAME PLATE MARKING WHEN ORDERING PARTS

16" TYPE "AT" BRAKE, SERIES B

(continued from page 1)

PARKING TORQUE ADJUSTMENT

First adjust for proper shoe clearance as in step 8 of Installation Instructions on page 1. Next set the brake by removing all power. 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 sacle 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 200 to 1500 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 advisable. 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 nut (A) against spring adjuster (B).

(2) Loosen nut (G) and remove bolt (H). Remove armature hinge pin (S). 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). Replace armature (T) and secure with pin (S). Tighten set screws. Replace bolt (H) and nut (G). Adjust gap (F) to 9/16" and tighten lock nut (J). Replace shoe adjusting screw (K) and lock nut (J).

(11) Readjust brake per items 8 and 9 under Installation.

PARKING BRAKE COIL REPLACEMENT

(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.