TYPE AI MAGNETIC BRAKE—FRAMES 431, 631 & 831

INSTRUCTIONS

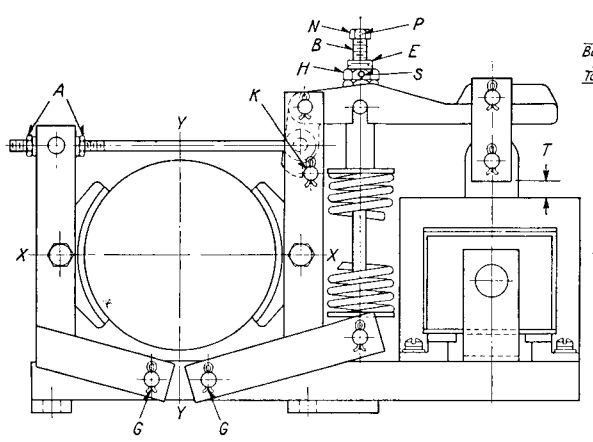


FIG. 1

General

The type AI magnetic brakes are designed so that when the magnet is energized the shoes will clear the wheel, and when de-energized the shoes are closed against brake wheel by means of a compression spring. The brake shoes have a friction pivot for self-alignment and preventing shoes dragging. Being a spring set brake, the torque is produced by the springs forcing the shoes against the wheel and the plunger movement or stroke (magnet) removes the spring force from the shoes, thus freeing the wheel. In order to maintain a quick-acting and full-rated brake, it is essential that all adjustments be the same as given on the nameplate marking.

Advantages

1. Frame is fabricated steel, giving maximum rigidity and minimum weight.

2. Laminated magnetic circuit is of the open type, has maximum ventilation, and is bolted directly into frame.

3. All adjustments are accessible from the top and easily made.

Mounting

Care should be taken to have the center of shaft at the intersection of lines x—x and y—y. These lines, indicated in above outline, are with y—y midway between arm pins G and x—x through center of the brake shoe bolts.

Motor mounted brakes, except the mountings, are identical with floor mounted brakes. To attach a motor mounted brake, proceed as follows:

1. Attach the brake and adapter to the motor with clamping bolts furnished. Sufficient clearance has been provided to allow the brake to be shifted to give correct alignment described in the foregoing paragraph.
   (a) Tighten the adapter clamping bolts securely.
   (b) Remove brake frame from adapter bracket.
   (c) Drill the motor frame and drive in securely the two dowel pins furnished with the brake The adapter has been drilled at the factory and may be used as a drill jig.
2. Replace brake on the adapter, tighten bolts securely and proceed with adjustments.

Adjustments

All brakes are properly adjusted for name plate rating before leaving the factory. The spring compression screw E is locked in place by means of the two lock nuts H which are fixed by set screw S so that the rating cannot be unintentionally increased above name plate rating and power of the coil. The following is a detail description of the procedure as briefly outlined on name plate #28479 which is attached to the brake.

1. **Alignment**—Assuming that the brake has been securely mounted and properly aligned as under MOUNTING, the spring should first be tightened firmly. The brake should then be energized and a line T drawn on the plunger even with the top of the stationary magnet core. This indicates the maximum position of the plunger in the closed position.
2. **Plunger Travel Stroke**—The brake should then be de-energized and marked line T brought to the dimension in inches as shown on name plate in No. 2. This is accomplished by adjusting the Nuts A.
3. **Shoe Clearance**—Energize the brake again and adjust bolt B by means of nut N until the clearance between each shoe and wheel is the same.
4. **Spring or Torque**—There are two stages to the spring adjustment; first, a balancing or no torque stage, and second, an adjustment for the rated torque of the brake C.

   After adjusting stroke and shoe clearance as in paragraphs 2 and 3 turn bolt E, controlling spring force, until plunger requires little or no effort to move up and down. With the parts balanced, measure the distance between top of bolt E and top of the trunnion block through which the bolt goes; then decrease this measurement by the

TYPE A1 MAGNETIC BRAKE—FRAMES 431, 631 & 831

INSTRUCTIONS—Continued

amount of spring compression C given on the name plate by turning bolt E. This last adjustment will give the rated torque. Lock bolt E in position with nut H. Set screw S locks nut H in place to prevent unintentional further compression of spring beyond rating and power of coil.

5. **Shoe Wear**—As the shoe lining wears down with use, the plunger travel stroke increases. This should be checked periodically, and the travel readjusted to the proper amount as shown on the nameplate (see par. 2 under adjustment). The plunger travel should not be allowed to exceed twice the value marked on nameplate because the coil will be liable to burn out. The maximum plunger travel is limited by pin K. This pin should always be in place when brake is in operation.
6. After adjustments, be sure all the lock nuts are securely tightened.
7. Manual release is obtained by removing pin P from nut on bolt B and screwing nut down far enough to release shoes. Nut must be securely fastened with pin when brake is in normal operation.

Brake Shoe Lining

Only the best grade of brake shoe material is used to meet the general trade requirements based on:

1. Uniformity of coefficient of friction over a wide range of temperatures.
2. Low wear factor.
3. Little change in coefficient in presence of oil or moisture.
4. Compressibility.

The following three brands of lining have proven by test and experience to give the best results for general industrial service.

1. Raybestos Gold Edge.
2. U. S. Industro Truck.
3. Ferodo Brake Lining.

We have no preference as to which of the above brands is used. On some applications one lining may give better service than another. However, this can only be determined through experience.

Table of Magnet Coils

Frame No.	Style Numbers					
	110 V. 60 Cyc.	110 V. 50 Cyc.	220 V. 60 Cyc.	220 V. 50 Cyc.	440 V. 60 Cyc.	440 V. 50 Cyc.
Cont. Duty 431	844304	856002	832942	844262	844303	844238
Cont. Duty 631	1109270	1109274	1109271	1109275	1109272	1109276
Cont. Duty 831	845402	856003	845401	844308	874126	844306

Maintenance

Lubrication. All bearings and pins should be kept lubricated. Judgment should be used as to quantity and how frequently. Excessive oiling accumulates dust. Where the dust is of an abrasive character, the bearings soon show the effects in the form of wear.

Brake Shoe. Inspection of brake shoes should be made at regular intervals. As the lining wears away, the clearance should be reduced, as explained above in paragraph 5 under "Adjustments".

To reline brake shoe, remove outside nut A, also the shoe bearing bolts and slide the shoe toward the top of brake wheel. Frequency of use and character of service will determine how often it will be necessary to reline shoes. Care should be used in maintaining the proper tightness of the shoe bearing bolt nuts to prevent unnecessary dragging on the wheel.

To Remove Magnet Coil

431 Brake. The stationary magnet is fastened to the frame by two bolts beneath coil and passing through bars and magnet punchings. Removal of these two bolts will permit moving stationary magnet diagonally away and free from operating lever. By removing spool bolts, the coil can be replaced.

631 and 831 Brakes. The stationary magnet is bolted to frame with four holding bolts and when removed permits moving magnet away from operating lever. The additional removal of link between plunger and operating lever permits removal of magnet parallel to axis of shaft which need be resorted to only where there is insufficient space at side of brake.

Coil Replacement

For coils not covered by above table, refer to the nearest Sales Office or to East Pittsburgh Works and give complete nameplate reading.

Failure to Operate

The magnet may fail to close for any of the following reasons:

1. The lead wire to the operating coil may be disconnected.
2. The operating coil may be open circuited.
3. There may be mechanical friction.
4. The voltage may be below normal.
5. Excessive magnet travel. Adjust periodically to maintain travel as shown on name plate.
6. Excessive spring compression.

Magnet Noise

Humming on the alternating-current magnet may develop. Should it become excessive, check to see if any of the following conditions exist:

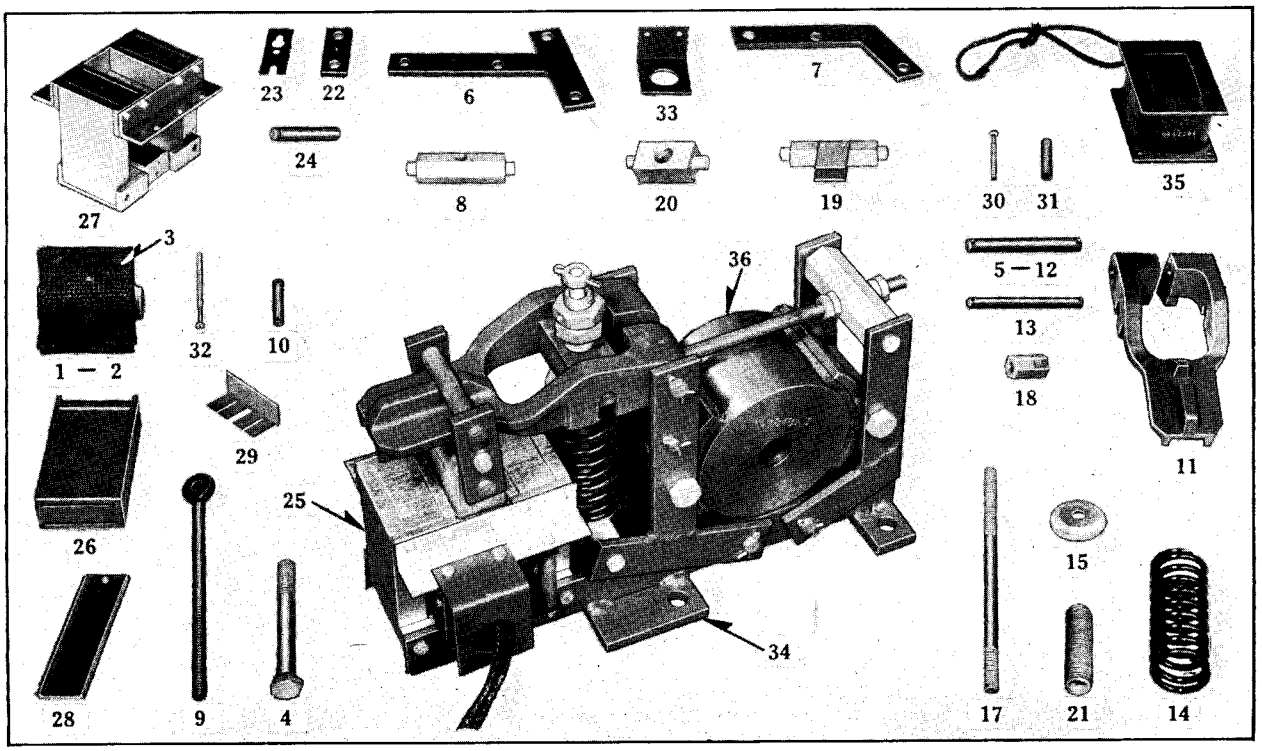
1. The pole face of the magnet may be corroded, which will not permit the magnet to seat properly.
2. The voltage may be below the minimum rating of the operating coil.
3. The shading coil on the magnet may be broken or the spring pressure may be too high.

Westinghouse Electric & Manufacturing Company

East Pittsburgh, Pa.

Printed in U.S.A. (Rev. 6-41)
Westinghouse Press

Type AI Magnetic Brake, Frames 431, 631, and 831
Renewal Parts Data



RECOMMENDED STOCK OF RENEWAL PARTS

Ref. No.	Description of Part	1 091 267,A 431-AI	1 091 268,A 631-AI	1 091 269,A,B 831-AI	No. Per Brake	Brakes in Use 1	Brakes in Use 5
		Style Number of Part				Recommended for Stock	
1	Brake Shoe with Lining	846 426	849 784	1 186 914	2	0	2
2	Brake Shoe Lining	845 384	968 204	487 565	2	2	4
3	Countersunk Head Brass Rivets	1/8"x5/8"(12)	1/8"x5/8"(16)	3/16"x3/4"(16)	( )	16	32
4	Brake Shoe Bolt—Hex. Hd. Steel	1/2"–13x4 1/2"	1/2"–13x5"	5/8"–11x4 1/2"	2	0	0
5	Brake Arm Pin	805 999	885 624	885 664	2	0	0
6	Brake Arm—Magnet End	1 239 976	1 239 990	1 186 915	2	0	0
7	Brake Arm—Opposite Magnet End	1 239 977	1 239 991	1 186 916	2	0	0
8	Brake Arm Hinge Block	1 239 983	846 429	1 186 917	1	0	0
9	Eye Bolt	846 430	1 089 871	1 186 918	1	0	0
10	Pin for Eye Bolt	768 396	768 396	763 548	1	0	0
11	Magnet Arm	1 239 978	1 239 985	1 186 913	1	0	0
12	Pin for Magnet Arm	805 999	885 624	885 623	1	0	0
13	Stop Pin for Magnet Arm	665 072	107 356	63 617	1	0	0
14	Spring	846 427	849 765	849 765	1	0	1
15	Spring Seat	846 432	849 788	849 788	2	0	0
*16	Clearance Equalizer Stud with Nut	1 239 979	1 239 986	1 186 920	1	0	1
17	Clearance Equalizer Stud	1 239 981	1 239 987	1 239 993	1	0	0
18	Clearance Equalizer Stud Nut	861 539	861 539	1 239 994	1	0	0
19	Clearance Equalizer Stud Hinge Block	1 109 299	849 781	1 186 919	1	0	1
20	Magnet Arm Hinge Block	1 239 980	1 239 980	1 186 922	1	0	1
21	Spring Adjusting Spacer	1 239 984	1 239 988	1 186 921	1	0	0
22	Link for Moving Core	1 129 360	1 129 361	1 129 362	2	0	0
23	Locking Plate for Link	1 129 363	1 129 364	1 129 365	2	0	0
24	Link Pin	1 129 359	1 129 358	1 129 358	2	0	0
25	Magnet Complete	792 964	792 959	792 959	1	0	0
26	Moving Core	849 799	849 801	849 801	1	0	0
27	Stationary Core	849 798	849 800	849 800	1	0	0
28	Antifreeze Shim	861 541	861 547	861 547	2	0	0
29	Non-Magnetic Shim	1 129 366	1 129 367	1 129 367	2	0	0
30	Fil. Hd. S. Mach. Sc. for Mtg. Coil	".190–32x2 3/4"	1/4"–20x3 1/2"	1/4"–20x3 1/2"	4	0	0
31	Spacers for Screws	861 542	861 549	861 549	4	0	0
32	Fil. Hd. S. Mach. Sc. for Antifreeze Shim	".190–32x3 1/2"	".190–32x3 1/2"	".190–32x3 1/2"	1	0	0
33	Conduit Support	1 035 101	1 240 111	1 240 111	1	0	0
34	Brake Base	1 239 982	1 239 989	1 239 995	1	0	0
35	Magnet Coil	†	†	†	1	1	1
36	Brake Wheel	‡	‡	‡	1	1	1

† When ordering specify identification number stamped on old Coil. See table of commonly used coil on page 2.
‡ When ordering specify identification number stamped on old wheel.
Parts indented are included in the part under which they are indented.
* Not illustrated.
( ) Figures in parenthesis indicate the number per brake.