Dings CO.
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60 SERIES DOUBLE "C" FACE BRAKE INSTRUCTIONS

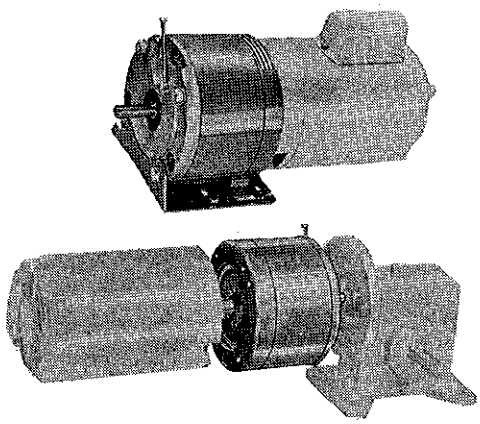

Figure 1. 60 Series Double C Face Brake Standard Housing

IMPORTANT

Read this bulletin carefully before installing or operating this brake. Failure to comply with these instructions cancels all warranties since the safety of the unit may be endangered by improper installation or operating procedures.

DESCRIPTION

This brake is direct acting, electro-magnetically released and spring set. It uses rotating and stationary disc contact to supply positive braking action. It retains quick release and setting capabilities at all times.

Simplicity of design has reduced maintenance to an absolute minimum. As with any electro-mechanical equipment, however, periodic inspection and adjustment will assure optimum performance. As the friction discs wear, the magnet gap will increase. The magnet gap should be checked periodically and adjusted when necessary.

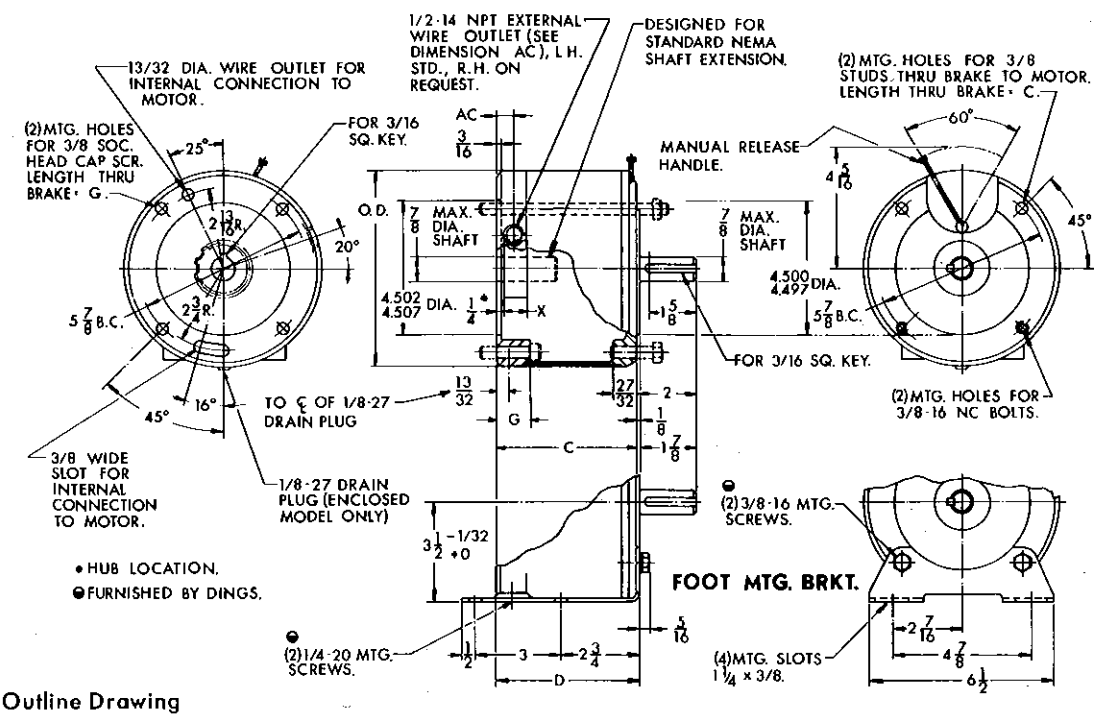

Figure 2. Outline Drawing

Model Std. Hsg.	Model Encl. Hsg.	Torque Lb. Ft.	Weight Lbs.	Thermal Capacity Hps/Min.	Inertia Wk^2 Lb. $Ft.^2$	DIMENSIONS						
						AC	C	D	G	X	O.D. Standard Housing	O.D. Enclosed Housing
6-61001-51A	4-61001-53A	1.5	11.5	7	.0061	9/16	4 31/32	5 3/32	1 3/16	7/8	6 7/8	6 15/16
6-61003-51A	4-61003-53A	3										
6-62006-51A	4-62006-53A	6	12	8	.0100							
6-62010-51A	4-62010-53A	10										
6-63015-51A	4-63015-53A	15	13	10	.0138	7/8	5 11/32	5 13/32	1 7/16	1 3/16		
6-63020-51A	4-63020-53A	20										

Table 1. List of Models and Dimensions

WARNING

Brake performance and features must be carefully matched to the requirements of the application.

Consideration must be given to torque requirements, especially where an overhauling condition exists, as well as thermal capacity, ambient temperature, atmospheric explosion hazards, type of enclosure and any other unusual conditions.

Improper selection and installation of a brake and/or lack of maintenance may cause brake failure which could result in damage to property and/or injury to personnel.

If injury to personnel could be caused by brake failure, additional means must be provided to insure safety of personnel.

Do not operate manual release or energize brake coil before installation in order to preserve prealignment of rotating discs for ease of installation.

INSTALLATION (See Figure 6)

For Models With Separate Hub

Mount hub (1A) with key on motor shaft per dimension shown. Stamped part number on hub should face away from motor. Key must extend to end of motor shaft. Tighten both setscrews to 6 - 8 ft. lbs. torque. Remove wrap cover (37) and place brake on motor "C" face. Secure with two 3/8" socket head cap screws in mounting holes near magnet assembly. Two mounting holes near manual release (24) are for through bolt mounting of brake to motor, or for mounting of other "C" face equipment through brake to motor. Two 3/8" — 16 tapped holes on brake "C" face are also to be used for equipment mounting.

For Models With Integral Hub and Shaft

Remove wrap cover (37). Insert key in brake hub (1) keyway, and slip brake onto motor shaft. Key must extend to end of motor shaft. Secure to motor "C" face with two 3/8" socket head cap screws in mounting holes near magnet assembly. Two mounting holes near manual release (24) are for through bolt mounting of brake to motor, or for mounting of other "C" face equipment through brake to motor. Two 3/8"—16 tapped holes on brake "C" face are also to be used for equipment mounting.

WIRING (See Figure 3)

Connect coil leads as indicated and replace cover.

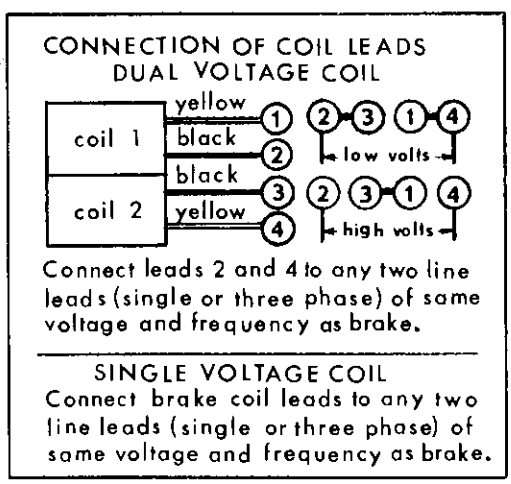

Figure 3. Wiring Diagram

MANUAL RELEASE (See Figure 6)

To manually release brake, move release lever (24) clockwise (facing motor) until it strikes case. Brake will remain in released position until manually reset, or automatically reset when electric power is applied.

TORQUE ADJUSTMENT (See Figure 6)

The 60 Series Brake is factory set for rated static torque. To increase stopping time and lower torque, turn two locknuts above torque springs (16) counterclockwise, increasing spring length. Each full turn decreases torque by approximately 10%. Do not adjust brakes for higher torque, as this will cause premature coil burnout.

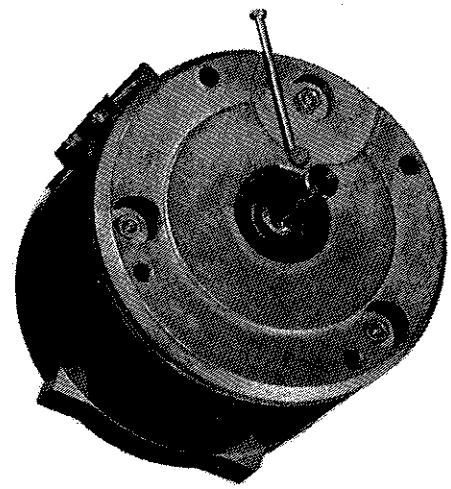

Figure 4. 60 Series Double C Face Brake Enclosed Housing

MAINTENANCE AND SERVICE

WEAR ADJUSTMENT (See Figures 5 & 6)

When armature plate (25) touches bracket (2), closing gap "B", adjustment for friction disc wear is required. To adjust, turn two screws (26) clockwise until magnet gap "A" measures .040" to .045" at narrowest gap, for 1 and 2 disc models, and measures .050" and .055 at narrowest gap, for 3 disc models. Any delay in adjusting gap will result in eventual loss of torque.

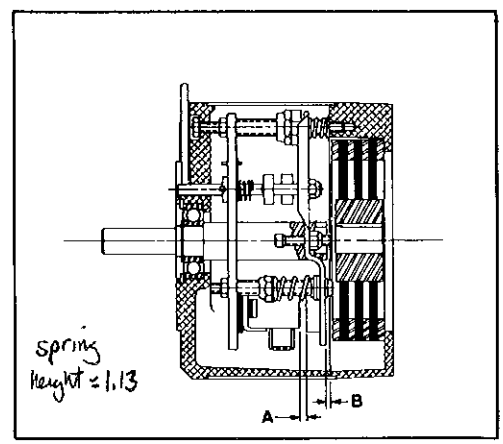

Figure 5. Brake Gap Adjustment

FRICTION DISC REPLACEMENT (See Figure 6)

When total wear on a rotating friction disc reaches 1/16", replace disc.

For Models With Separate Hub

Remove any equipment mounted to brake "C" face, and two through mounting bolts close to manual release. Remove release lever (24) by unscrewing. Remove wrap cover (37) and three nuts (31), and slide brake case (30) and shaft (1B) off of brake. Remove three nuts (27), operator assembly (6), and stationary disc (3). Replace worn friction disc (4), and reassemble disc pack and operator assembly. Start all three nuts (27), then turn two wear adjustment screws (26) counterclockwise to allow three posts (D) to seat against bracket (2), then tighten nuts. Readjust magnet gap (see "Wear Adjustment"). Reassemble brake case and shaft to brake, and install three nuts (31). Replace wrap cover, release lever, through mounting bolts, and previously attached equipment.

For Models With Integral Hub and Shaft

Remove brake from its associated equipment (reducer - motor - etc.). Remove retaining ring (34) and press shaft (1) out of bearing in brake case (30). A wheel puller, utilizing openings in side of case, can be used. Continue disassembling in this order: release lever (24), three nuts (31), case (30), three nuts (27), operator assembly (6) and discs (3) (4). Lay bracket (2) on a flat table. Place shaft (1) in center of bracket, with a 5/16" thick spacer under hub. Replace worn friction discs (4) and reassemble disc pack. Place operator assembly (6) over studs; start all three nuts (27), then turn two wear adjustment screws (26) counterclockwise, to allow all three posts (D) to seat against bracket (2), then tighten nuts. Readjust magnet gap (see "Wear Adjustment"). Route lead wires to desired location. Place case (30) over shaft (1) and press bearing (in case) onto shaft by applying pressure to bearing inner race. Complete assembly in this order: retaining ring (34), nuts (31) and release lever (24). Readjust magnet gap. (See "Wear Adjustment").

MAGNET ASSEMBLY REPLACEMENT (See Figure 6)

To replace magnet assembly, remove brake case (30) as outlined under "Friction Disc Replacement." Unscrew two flat head screws (13), and remove shoulder nuts (12), rubber washers (11), and magnet assembly (9). Replace complete magnet assembly and reassembly parts in reverse order.

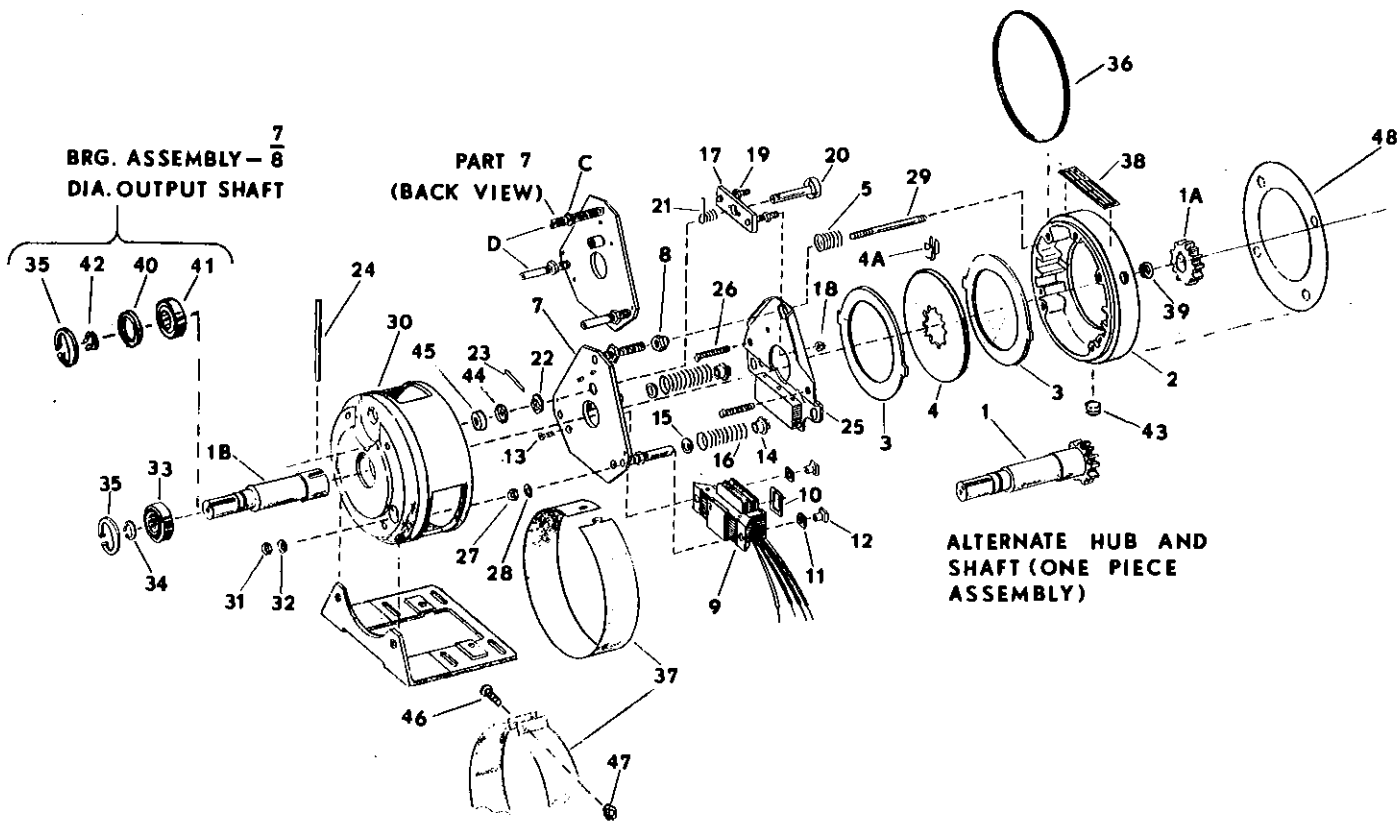

Figure 6. Exploded View of Brake

ITEM NO.	PIECES REQ'D.	NET WT. (REF.) PER PIECE (OZ.)	DESCRIPTION	PART NUMBER	
				Std. Hsg.	Encl. Hsg.
1A	1	11	HUB WITH SET SCREWS (SPECIFY BORE &KEYWAY) †	K60107	
1B	1	12	SHAFT (SPECIFY DIAMETER & KEYWAY) †	K60180	
1	1	23	HUB & SHAFT ASSEMBLY (SPECIFY BOTH DIAMETERS & KEYWAYS)	L60134 L60168	L60169
2	1	21	BRACKET - 1-1/2, 3, 6 & 10 FOOT-POUND MODELS	L60118	K60284
2	1	28	BRACKET - 15 & 20 FOOT-POUND MODELS	L60119	K60284
3	**	7	STATIONARY DISC	H60147	
4	*	7	ROTATING DISC	H60157-1	
5	1	1	COMPRESSION SPRING	G60297	
6	1	59	OPERATOR ASSEMBLY (INCLUDES ITEMS 7 THRU 26)	K60176	
7	1	32	END PLATE ASSEMBLY (INCLUDES ITEM 8)	H60201	
8	1	1	PIVOT NUT	G60267	
9	1	24	MAGNET ASSEMBLY (INCLUDES ITEM 10) 1-1/2, 3, & 6 FOOT-POUND MODELS	H60199	
9	1	24	MAGNET ASSEMBLY (INCLUDES ITEM 10) 10 & 15 FOOT-POUND MODELS	H60200	
9	1	24	MAGNET ASSEMBLY (INCLUDES ITEM 10) 20 FOOT-POUND MODEL	H60230	
10	1	1	SHADING COIL	G60346	
11	2	1	RUBBER WASHER	G60310	
12	2	1	SHOULDER NUT	G60305	
13	2	1	FLAT SOCKET HEAD CAP SCREW WITH NYLOK INSERT #10-32 X 1/2 LONG	1-17-3	
14	2	1	BUSHING	G60268	
15	2	1	WASHER	G60294	
16	2	1	TORQUE SPRING, 1-1/2 FOOT-POUND MODEL	G60275-1 Blue	
16	2	1	TORQUE SPRING, 3 & 6 FOOT-POUND MODELS	G60275-2 Silver	
16	2	1	TORQUE SPRING 10 & 15 FOOT-POUND MODELS	G60275-4 Gold	
16	2	1	TORQUE SPRING 20 FOOT-POUND MODEL	G60275-5 Green	
17	1	6	LIFT BAR ASSEMBLY (INCLUDES ITEMS 18 & 19)	G60295	
18	2	1	LOCKNUT, ESNA 1/4-20	3-13-1	
19	2	1	JAM NUT 1/4-20	3-7-1	
20	1	2	RELEASE CAMSHAFT	K60105-7	
21	1	1	RETURN SPRING	G60277	
22	1	1	WASHER	4-5-1	
23	1	1	ROLLPIN, 5/32 X 1-1/2	5-3-112	
24	1	1	RELEASE LEVER	G60458	
25	1	20	ARMATURE PLATE ASSEMBLY (INCLUDES ITEM 26)	H60162	
26	2	1	SET SCREW, SQUARE HEAD 1/4-20 X 1-1/2	2-3-1	
27	3	1	HEX NUT 1/4-20	3-2-1	
28	3	1	LOCKWASHER 1/4	4-7-9	
29	3	1	STUD	G60337	
30	1	40	BRAKE CASE	L60121-1	L60121-2
31	3	1	HEX NUT 1/4-20	3-2-1	3-1-13
32	3	1	WASHER	4-7-9	11-3-6
33	1	4	BALL BEARING - DOUBLE SEAL 5/8 OR 3/4 OUTPUT SHAFT	9-1-1	
34	1	1	RETAINING RING - TRUARC 5/8 OR 3/4 OUTPUT SHAFT	6-7-1	
35	1	1	RETAINING RING - TRUARC ALL MODELS	6-2-1	
36	1		"O" RING		6-1-19
37	1	6	WRAP COVER	K60175-3	K60283
38	1	1	NAMEPLATE	K60210	
39	1	1	CAPLUG	8-3-1	
40	1	1	SPACER, BALL BEARING	G60531	
41	1	4	BALL BEARING 7/8 OUTPUT SHAFT	9-1-9	
42	1	1	RETAINING RING - TRUARC 7/8 OUTPUT SHAFT	6-7-2	
43	1	1	PIPE PLUG 1/8 NPT		10-2-1
44	1	1	SEAL		G60499
45	1	1	SEAL WASHER		4-5-1
46	2	1	RD. HD. SCREW #10-32 X 1-1/4		1-2-82
47	2	1	LOCKNUT #10-32		3-1-11
48	2	2	GASKET - BRAKE MTG.		H60344-1

* NUMBER OF ROTATING DISCS IS SHOWN IN MODEL NUMBER.
EXAMPLE: 6-62006-51A HAS TWO ROTATING DISCS.

** NUMBER OF STATIONARY DISCS IS ONE MORE THAN NUMBER OF ROTATING DISCS.

† INCLUDES KEY FOR SHAFT EXTENSION.

TABLE 2: PARTS LIST

TROUBLE SHOOTING

BRAKE DOES NOT RELEASE

Check for failure of power supply to brake.
Check brake visually for broken or damaged parts.
Check for broken leadwire or bad electrical connection.
Check for correct voltage. Voltage must correspond to that listed on brake nameplate. If voltage is more than 10% below figure stamped on nameplate, magnet will not pull in, causing coil to burn out within minutes. If voltage is more than 10% above, coil will overheat and burn out.
Check for burned out coil (coil may be charred or burned).

BRAKE DOES NOT STOP

Check that manual release is in normal reset position.
Check brake visually for broken or damaged parts.
Check disc wear (See "Wear Adjustment").
Check for broken friction disc.
Make certain hub has not shifted position on shaft and that all rotating discs are fully engaged on hub.

BRAKE CHATTERS OR HUMS

Clean magnet faces if dirty. Insert a clean sheet of paper between magnet faces and energize brake. Move paper around between faces to dislodge dirt. Finally, remove paper.
Check that magnet faces are parallel in closed position. If not parallel along length of magnet, check bushings (14) under torque springs for binding or excessive wear. If not parallel along width of magnet, adjust pivot nut (item 7, part A) on post to obtain minimum magnet hum. Check magnet gap "A" and adjust if necessary (See "Wear Adjustment"). Operate manual release (24) and adjust if necessary. ("Manual release does not work").

MANUAL RELEASE DOES NOT WORK

Check for broken or damaged parts.
Check return spring (21). Brake will not reset automatically if this spring is broken.
Check magnet gap "A" with knob in released position. Gap must be .030" at narrowest point. If gap is too wide, motor shaft will not turn freely. If gap is too small, knob will not return automatically when power is applied. Adjustment for correct magnet gap is made by turning nuts (18 and 19). Make sure nuts are tight against armature plate (25) after adjusting release.

VERTICAL MOUNTING
INSTALLATION AND ADJUSTMENT

Installation and adjustment of the vertically mounted brake is the same as on the standard model (this bulletin, pages 1 through 3).

FRICTION DISC REPLACEMENT

When replacing friction discs, follow procedure outlined on page 3, with this addition:

Care must be taken to insure proper insertion of disc separating springs. Springs are color coded for easy identification, and reference is made to spring color, (see Figure 7 and Table 3). The installation order of the disc springs is dependent on brake mounting position, (above or below motor), so make sure to consult the correct diagram for spring location.

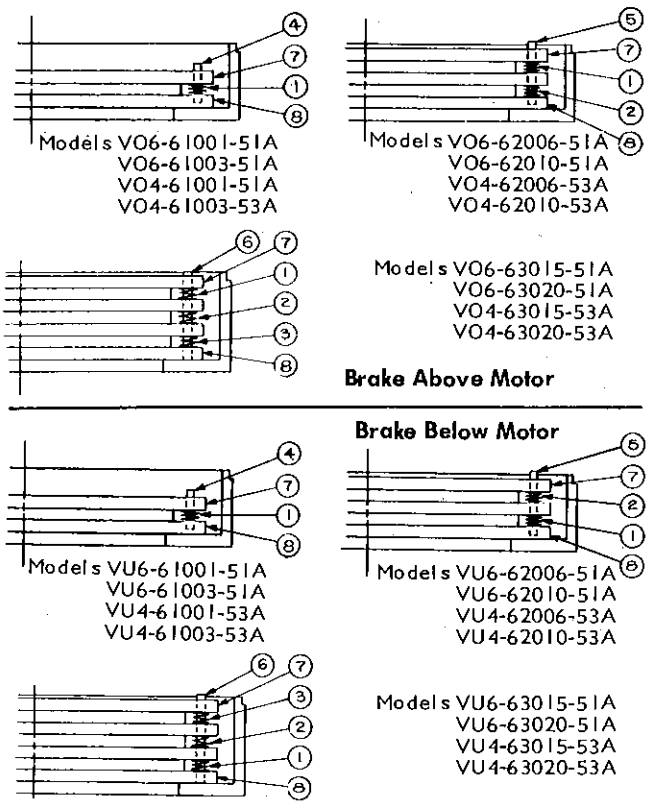

Figure 7. Vertical Mounting Brakes

ITEM	DESCRIPTION	PART NO.	NO. OF ROT. DISCS		
			1	2	3
1	SPRING (SILVER)	G60350-1	2	2	2
2	SPRING (BLACK)	G60350-2	–	2	2
3	SPRING (BRONZE)	G60350-3	–	–	2
4	ROLL PIN - 1/8" x 5/8"	59-028-125-0625	2	–	–
5	ROLL PIN - 1/8" x 1"	59-028-125-1000	–	2	–
6	ROLL PIN - 1/8" x 1-3/8"	59-028-125-1375	–	–	2
7	STATIONARY DISC	H60203-4	1	2	3
8	STATIONARY DISC	H60203-3	1	1	1

Table 3. Parts for Vertical Mounting

BRAKE SPECIFICATIONS

TORQUE: 1-1/2 thru 20 lb. ft.

NEMA MOTOR FRAME SIZES: 56C, 66C, 143TC and 145TC.

ENCLOSURES: Standard or Enclosed (material: aluminum and steel).

VOLTAGE: All NEMA single phase voltages and frequencies are standard. Others optional.

DUTY: Rated for continuous duty.

MOUNTING: Direct to NEMA "C" face, with one additional "C" face for mounting of equipment to brake. Foot mounting bracket available. Horizontal or vertical position with slight modifications.

ORDERING INFORMATION

The following data should be furnished with your parts order:

Brake Model Number.
Serial Number if available.
Part Number from Table 2.
Part Description from Table.
(On hub order, specify bore dia. &keyway dimensions. On electrical parts, specify voltage, phase & frequency.)

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