



# 60 SERIES ENCLOSED UNIPAC BRAKE INSTRUCTIONS

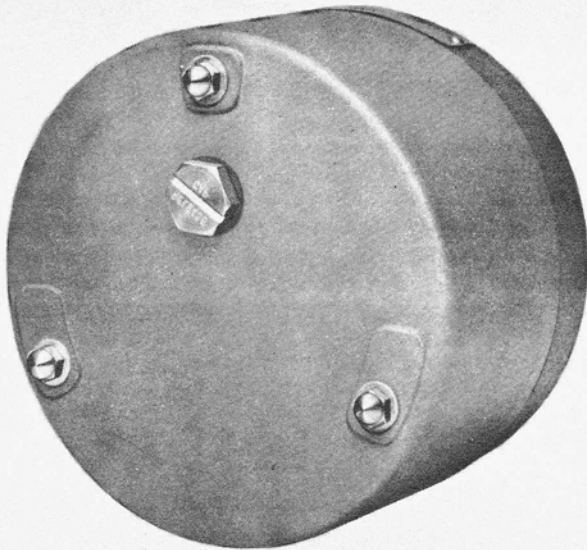


Figure 1. 60 Series Enclosed Housing

Model No.*	No. of Discs (Items 29 and 30)	Torque Lb. Ft.	Thermal Capacity Hps/Min	Inertia of Rotating Parts Lb. Ft. <sup>2</sup>
<b>Enclosed Housing with Hub Seal and Manual Release</b>				
4-61001-30	1	1-1/2	7	.0089
4-61003-30	1	3	7	.0089
4-62006-30	2	6	8	.0089
** 4-63009-30	3	9	9	.0127
4-62010-30	2	10	8	.0089
** 4-63010-30	3	10	9	.0127
4-63015-30	3	15	9	.0127
4-63020-30	3	20	9	.0127
<b>Severe Duty Housing without Hub Seal, without Manual Release</b>				
6-61001-40	1	1-1/2	7	.0089
6-61003-40	1	3	7	.0089
6-62006-40	2	6	8	.0089
** 6-63009-40	3	9	9	.0127
6-62010-40	2	10	8	.0089
** 6-63010-40	3	10	9	.0127
6-63015-40	3	15	9	.0127
6-63020-40	3	20	9	.0127
<b>Severe Duty Housing without Hub Seal, with Manual Release</b>				
6-61001-43	1	1-1/2	7	.0089
6-61003-43	1	3	7	.0089
6-62006-43	2	6	8	.0089
** 6-63009-43	3	9	9	.0127
6-62010-43	2	10	8	.0089
** 6-63010-43	3	10	9	.0127
6-63015-43	3	15	9	.0127
6-63020-43	3	20	9	.0127

\* Thru Shaft Models have a prefix letter "T" before model number.  
\*\* These models are replaced by 62010.

Table 1. List of Models

### IMPORTANT

Read this bulletin carefully before installing or operating this brake. Failure to comply with these instructions cancels all warranties.

### DESCRIPTION

This brake is a direct acting, electromagnetically released, spring set unit that utilizes rotating and stationary disc contact to supply positive braking action and retain quick release and setting capabilities at all times.

Simplicity of design has reduced maintenance of Dings Magnetic Disc Brakes to an absolute minimum. As with any electromechanical 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.

### 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 pre-alignment of rotating discs for ease of installation.

### INSTALLATION (See Figures 3 & 5, Table 2)

1. Remove hub (1) from brake and position on motor shaft with key as indicated in Table 2 and illustrated in Figure 3; use dimension "N" and measure from the face of C-flange or foot mount. Tighten hub setscrews to shaft at 8 - 10 lbs. ft. torque.
2. Remove capnuts (item 3) and gaskets (item 4). Remove cover (item 2), and position brake over hub on shaft. Bolt brake bracket (item 31) to motor flange or foot mount.
3. Connect coil wire leads as indicated in Figure 2.
4. Install cover (item 2), and start gaskets and capnuts on studs. Roll "O" Ring (item 5) down cover until it snaps into groove between bracket and cover. Tighten capnuts.

## WIRING (See Figure 2)

Connect coil leads as indicated below.

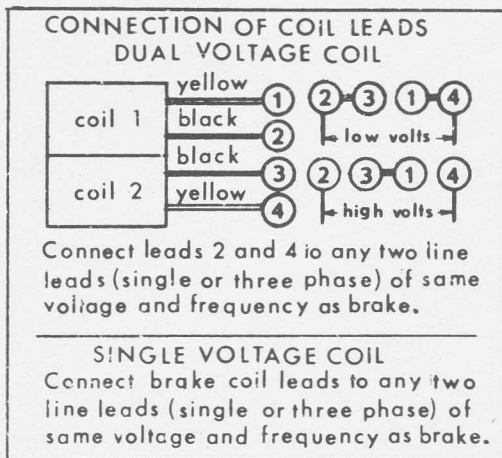


Figure 2. Wiring Diagram

## MANUAL RELEASE (See Figure 5)

To manually release the brake (Model Series 4-60000-30 and 6-60000-43), remove release cap (34). Rotate release camshaft (22) clockwise until stop pin on (7) restrains further rotation. The brake will remain in the released position until brake is manually reset or automatically reset when electric power is restored.

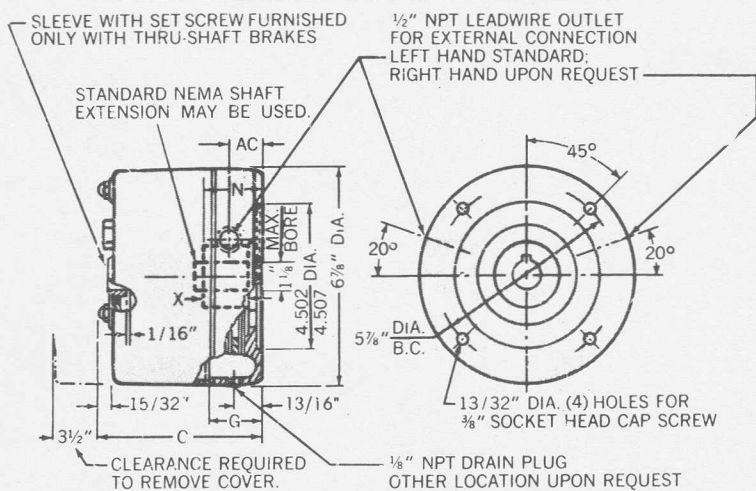


Figure 3. Outline Dimensions of Brake

MODEL NO.	DIMENSIONS				
	C	G	AC	X	N±1/32
4-61001-30	5	1-9/32	11/16	1-1/8	1-11/32
4-61003-30	5	1-9/32	11/16	1-1/8	1-11/32
4-62006-30	5	1-9/32	11/16	1-1/8	1-11/32
* 4-63009-30	5-3/8	1-21/32	1-1/16	1-7/16	1-21/32
4-62010-30	5	1-9/32	11/16	1-1/8	1-11/32
* 4-63010-30	5-3/8	1-21/32	1-1/16	1-7/16	1-21/32
4-63015-30	5-3/8	1-21/32	1-1/16	1-7/16	1-21/32
4-63020-30	5-3/8	1-21/32	1-1/16	1-7/16	1-21/32
6-61001-40	5	1-9/32	11/16	7/8	1-11/32
6-61003-40	5	1-9/32	11/16	7/8	1-11/32
6-62006-40	5	1-9/32	11/16	7/8	1-11/32
* 6-63009-40	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32
6-62010-40	5	1-9/32	11/16	7/8	1-11/32
* 6-63010-40	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32
6-63015-40	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32
6-63020-40	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32
6-61001-43	5	1-9/32	11/16	7/8	1-11/32
6-61003-43	5	1-9/32	11/16	7/8	1-11/32
6-62006-43	5	1-9/32	11/16	7/8	1-11/32
* 6-63009-43	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32
6-62010-43	5	1-9/32	11/16	7/8	1-11/32
* 6-63010-43	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32
6-63015-43	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32
6-63020-43	5-3/8	1-21/32	1-1/16	1-3/16	1-21/32

\* These Models are replaced by 62010.

Table 2. Dimensions for Brake Installation

# MAINTENANCE AND SERVICE

## WEAR ADJUSTMENT (See Figures 4 & 5)

When armature plate (item 24) makes contact with bracket (item 31), closing gap "B," adjustment for wear is necessary. Turn screws (item 25) clockwise until magnet gap "A" shows .040" to .045" at narrowest gap for 1 and 2 disc models and .050" to .055" for 3 disc models. Any delay in adjusting gap will result in eventual loss of torque.

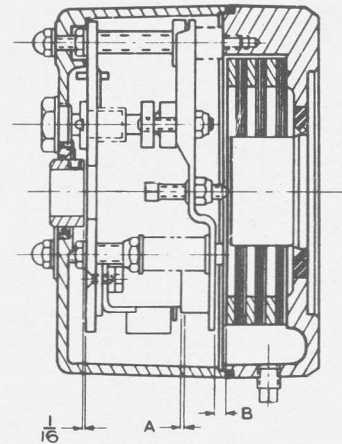


Figure 4. Brake Gap Adjustment

## TORQUE ADJUSTMENT

The 60 Series Brake is factory set for rated static torque. To increase stopping time and lower torque, turn locknuts above torque springs (item 16) counterclockwise, increasing spring length. Each full turn decreases torque by approximately 10%.

## FRICION DISC REPLACEMENT (See Figure 5)

When total wear on rotating friction disc reaches 1/16", replace friction discs as follows:

For brake models with manual release, Series 4-60000-30 and 6-60000-43, remove capnuts (3), gaskets (4) and cover (2). With manual release knob in released position, remove hex nuts (26), and lockwashers (27), enabling entire operator assembly (6) to slide out as a unit. Remove stationary disc (or discs in multiple disc brakes), item (29). Replace worn friction discs (30), and reassemble all parts in reverse order. After reinstalling operator assembly unit, and starting hex nuts (26) and lockwashers (27), turn two screws (25) counterclockwise to allow the three posts of end plate assembly (7) to seat against the bracket, then tighten nuts (26). Readjust magnet gap as covered under WEAR ADJUSTMENT. Replace cover.

For brake models without manual release, Series 6-60000-40, replacement of friction discs is accomplished by methods outlined in previous paragraph, with the exception of operator assembly removal. Without manual release parts, operating mechanism is not removable as a unit. After removing hex nuts (26), and lockwashers (27), the end plate assembly (7) and magnet assembly (11) will come out as a unit. Washers (15), springs (16),

and bushings (10) will be loose parts, so care must be taken, while removing end plate assembly, to prevent loss of these parts.

Next, remove armature plate assembly (24). Discs are now accessible for replacement.

After replacing discs, replace armature plate assembly (24), and install items (15, 16, and 10), on two lower posts of end plate assembly. Replace end plate assembly, and turn two screws (25) counterclockwise until 3 posts of end plate seat against bracket (31). Tighten nuts (26). Readjust magnet gap (see WEAR ADJUSTMENT).

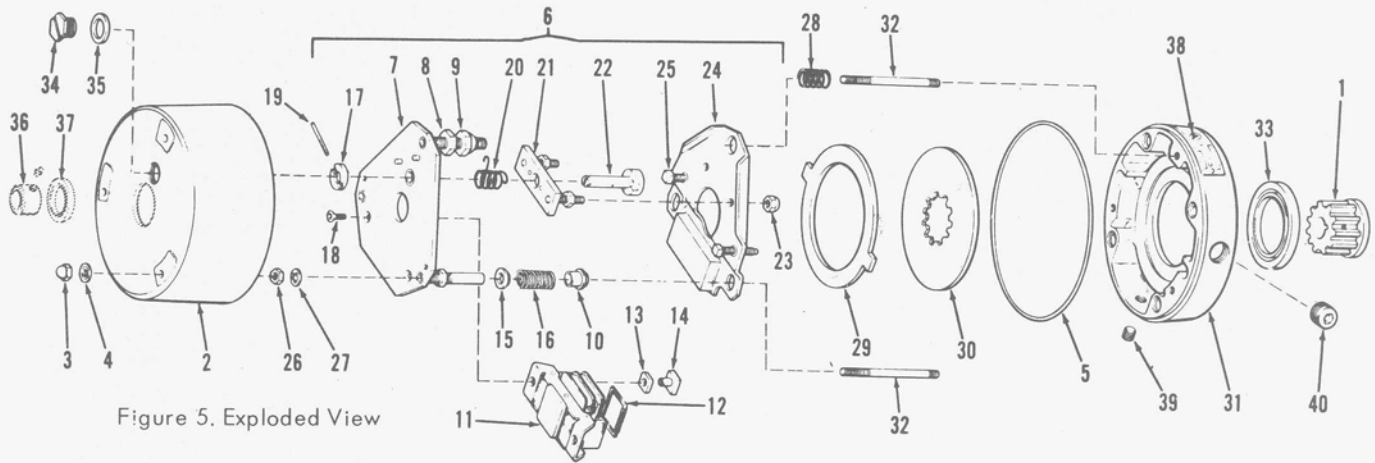


Figure 5. Exploded View

Table 3. Parts List

ITEM NO.	PCS REQD	DESCRIPTION	4-60000-30	6-60000-40	6-0000-43	MODEL NUMBERS
			SERIES	SERIES	SERIES	
			PART NO.	PART NO.	PART NO.	
1	1	Hub (with flange)	K60122			
	1	Hub (no flange req'd)		K60107	K60107	
2	1	Cover	K60120-1	K60120-3	K60120-1	
	1	Cover*	K60120-2	K60120-5	K60120-2	
3	3	Cap Nut	3-5-1	3-5-1	3-5-1	
4	3	Gasket	11-2-5	11-2-5	11-2-5	
5	1	O-Ring	6-1-7	6-1-7	6-1-7	
6	1	Operator Assembly	K60135	K60148	K60135	
7	1	End Plate Assembly	K60121-1	H60223-1	K60121-1	
8	1	Lock Nut	3-1-18	3-1-18	3-1-18	
9	1	Pivot Nut	G60267	G60267	G60267	
10	2	Bushing	G60268	G60268	G60268	
11	1	Magnet Assembly	***	***	***	
12	1	Shading Coil	G60346	G60346	G60346	
13	2	Shock Mount	G60310	G60310	G60310	
14	2	Shoulder Nut	G60305	G60305	G60305	
15	2	Washer	G60294	G60294	G60294	
16	2	Torque Spring	G60275-1	G60275-1	G60275-1	61001
	2	Torque Spring	G60275-2	G60275-2	G60275-2	61003, 62006, 63009
	2	Torque Spring	G60275-3	G60275-3	G60275-3	63010
	2	Torque Spring	G60275-4	G60275-4	G60275-4	62010, 63015
	2	Torque Spring	G60275-5	G60275-5	G60275-5	63020
17	1	Washer	4-5-1		4-5-1	
18	2	Capscrew Fl. Soc. Hd.	1-17-3	1-17-3	1-17-3	
19	1	Roll Pin	5-3-112		5-3-112	
20	1	Return Spring	G60277		G60277	
21	1	Lift Bar Assembly	G60295		G60295	
22	1	Release Camshaft	K60105-3		K60105-3	
23	2	Lock Nut	3-13-1		3-13-1	
24	1	Armature Plate Assembly	H60162-1	H60162-1	H60162-1	61001, 61003
	1	Armature Plate Assembly	H60162-2	H60162-2	H60162-2	62006, 63009, 62010, 63010, 63015, 63020
25	2	Setscrew Sq. Hd.	2-3-1	2-3-1	2-3-1	
26	3	Hex Nut	3-2-1	3-2-1	3-2-1	
27	3	Lockwasher	4-7-9	4-7-9	4-7-9	
28	1	Compression Spring	G60297	G60297	G60297	
29	**	Stationary Disc	H60147	H60147	H60147	
30	**	Rotating Disc	H60157	H60157	H60157	
	**	Heavy Duty Rotating Disc	H60398-1	H60398-1	H60398-1	
31	1	Bracket	L60059-3	L60059-3	L60059-3	61001, 61003, 62006, 62010
	1	Bracket	L60059-4	L60059-4	L60059-4	63009, 63010, 63015, 63020
32	3	Stud	G60337	G60337	G60337	
33	1	Oil Seal	11-1-3			
34	1	Release Capscrew	G60170		G60170	
35	1	Washer Gasket	G70381		G70381	
36	1	Sleeve W/Setscrew	H60189	H60189	H60189	
37	1	Seal	11-1-9	11-1-9	11-1-9	
38	1	Nameplate W/Screws	K50034	K50034	K50034	
39	1	Pipe Plug Hex. Soc.	10-2-1	10-2-1	10-2-1	
40	1	Pipe Plug Hex Soc.	10-2-4	10-2-4	10-2-4	

\*Thru Shaft Models Only \*\*Refer to Table 1, Page 1 \*\*\*Specify Model No., Voltage and Frequency  
NOTE: For Models 6-60000-40 Series, Operator Assembly Parts are Shipped as Loose Parts.

## MAGNET ASSEMBLY REPLACEMENT

Remove cover according to installation instructions. Un-screw hex socket flat head screws (item 18) and remove shoulder nuts (item 14) and shock mounts (item 13). Remove and replace magnet assembly (item 11). Reassemble in reverse order. Magnet and armature faces must be clean and parallel to each other to insure quiet operation. If magnet is noisy, turn pivot nut (9) and locknut (8) until maximum quiet operation is obtained. Lock with nut (8). Set magnet gap (see WEAR ADJUSTMENT).

**MANUAL RELEASE MODELS.** If manual release mechanism does not operate properly after adjusting pivot nut, set magnet gap "A" (refer to figure 4) to .040". Turn release camshaft (item 22) clockwise until it strikes stop pin and releases brake. Adjust locknuts (item 23) and jam nuts on life bar assembly (item 21) until magnet gap is .030" at narrowest point. **MANUAL RELEASE MUST BE IN "RELEASE" POSITION IN ORDER TO MAKE THIS MEASUREMENT.**

## 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 coils (coils may be charred or burned).  
Check for excessive magnet gap.  
(See WEAR ADJUSTMENT)

### 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 with tolerance. Re-adjust magnet gap. (See WEAR ADJUSTMENT).  
Check if shading coil (12) is cracked, broken or out of position. Replace magnet assembly if cracked or broken.  
Check for low voltage. Magnet will not pull in and coil will burn out if voltage is more than 10% below figure stamped on nameplate.

### MANUAL RELEASE DOES NOT WORK

Check for broken or damaged parts.  
Check return spring (20). Brake will not reset automatically if this spring is broken.  
Check magnet gap with brake in released position. (See WEAR ADJUSTMENT).

### SPECIFICATIONS

**NEMA FRAMES** — 56C, 143TC, 145TC  
**HOUSINGS** — Enclosed and severe duty — all cast iron.  
**VOLTAGES** — All standard NEMA voltages and frequencies available. Other voltages and frequencies optional.

**MOUNTING** — Direct to NEMA "C" motor flanges. Adaptors for larger or smaller frames, foot mounting and vertical mounting are available.

**SHAFTS** — NEMA standard length motor shafts and thru shafts may be used on all models. (Cover modification required for thru shafts).

### THE FOLLOWING DATA SHOULD BE FURNISHED WITH YOUR ORDER FOR:

#### ORDERING INFORMATION

#### REPLACEMENT PARTS

Brake Model Number  
Serial Number if available  
Part Number from Table 3.  
Part Description from Table.  
(On hub order, specify bore dia. & keyway dimensions. On electrical parts, specify voltage, phase & frequency.)

#### REPLACEMENT BRAKE

Model Number  
Serial Number if available.  
Voltage, Phase & Frequency.  
Hub Bore & Keyway Dimensions.  
Mounting — Horizontal or Vertical.  
(If vertical, specify whether above or below motor. If brake includes foot mounting bracket or adaptor, specify.)

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