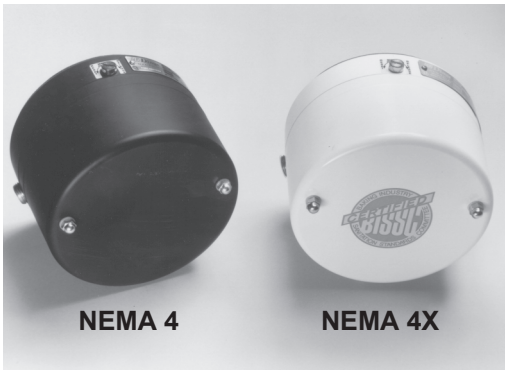
Ding's Co. DYNAMICS GROUP

60 Series End-Mount Brake Instructions

NEMA 4 & NEMA 4X Enclosure

Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.



DESCRIPTION

These magnetic disc brakes are direct acting, electromagnetically released and spring set. They use rotating friction and stationary disc contact to supply positive braking action. They mount directly onto NEMA 56C, 143TC, and 145TC frame motors, on the end opposite the drive shaft.

Models 60000-543 and 60000-5115 are mounted directly to a motor where a gasket between the brake and motor face prevents liquid media from enering the brake.

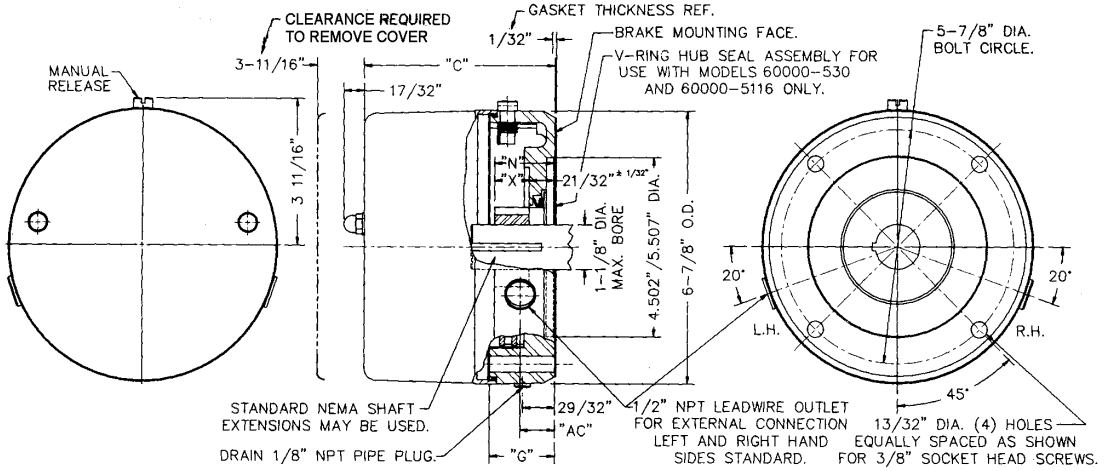
Models 60000-530 and 60000-5116 are for TEFC motors or foot mounting applications; brake design with hub seal prevents liquid media from entering the brake through opeings in the motor fan cover or foot mounting bracket.

Models 60000-543 and 60000-530 are standard end-mount series NEMA 4 Enclosure.

Models 60000-5116 and 60000-5115 are washdown NEMA 4X end-mount series (BISSC Std. #29).

WARNING: Do not install or use these brakes in an explosive atmosphere.

Figure 1



NEMA 4		NEMA 4X		No. of Discs	Torque Lb-Ft	Thermal Capacity HPS/MIN*	Inertia of Rotating Parts Lb-Ft²	Dimensions				
Without hub seal	with hub seal	Without hub seal	with hub seal					C	AC	G**	X	N
61001-543	61001-530	61001-5115	61001-5116	1	1.5	6	.006	4.812	.937	1.625	.875	1.531
61003-543	61003-530	61003-5115	61003-5116	1	3	6	.006	4.812	.937	1.625	.875	1.531
61006-543	61006-530	61006-5115	61006-5116	1	6	6	.006	4.812	.937	1.625	.875	1.531
62006-543	62006-530	62006-5115	62006-5116	2	6	6	.011	4.812	.937	1.625	.875	1.531
62010-543	62010-530	62010-5115	62010-5116	2	10	6	.011	4.812	.937	1.625	.875	1.531
62015-543	62015-530	62015-5115	62015-5116	2	15	6	.011	4.812	.937	1.625	.875	1.531
63010-543	63010-530	63010-5115	63010-5116	3	10	6	.017	5.125	1.250	1.937	1.187	1.844
63015-543	63015-530	63015-5115	63015-5116	3	15	6	.017	5.125	1.250	1.937	1.187	1.844
63020-543	63020-530	63020-5115	63020-5116	3	20	6	.017	5.125	1.250	1.937	1.187	1.844
63025-543	63025-530	63025-5115	63025-5116	3	25	6	.017	5.125	1.250	1.937	1.187	1.844
64025-543	64025-530	64025-5115	64025-5116	4	25	6	.022	5.437	1.562	2.250	1.343	2.000

*Thermal capacity (HPS/MIN.) was determined under the following test conditions: a) Room temperature 72°F. b) Stopping time of one second or less. c) Brake mounted in a horizontal position. d) Equal on and off times. e) 1800 RPM f) Coil energized with 110% of rated voltage.
**G Length of mounting hole through bracket

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.

UNPACKING

When unpacking the brake, inspect it carefully for damage that may have occurred during transit.

GENERAL SAFETY INFORMATION

NOTE: These brakes are not intended for accurate positioning applications. They are designed for applications that require rapid stopping and holding power, such as on conveyors, door openers, etc.

1. For applications with high inertia-type loads or rapid cycling, the thermal capacity of the brake must be considered.
2. Observe all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
3. Brake motors and brake gearmotors must be securely and adequately grounded. This can be accomplished by wiring with a grounded metal-clad raceway system, by using a separate ground wire connected to the bare metal of the motor frame, or other suitable means. Refer to NEC Article 250 (Grounding) for additional information. All wiring should be done by a qualified electrician.
4. Always disconnect power before working on or near a brake motor, a brake gearmotor, or its connected load. If the power disconnect point is out of sight, lock it in the open position and tag it to prevent unexpected application of power.
5. When working on the brake, be sure the load is completely removed, secured or blocked to prevent injury or property damage.
6. Provide guarding for all moving parts.
7. Be careful when touching the exterior of an operating motor, gearmotor or brake. It may be hot enough to cause injury or to be painful. This condition is normal for modern motors, which operate at higher temperatures when running at rated load and voltage.
8. Protect all electrical lead wires and power cables against contact with sharp objects or moving parts.
9. Do not kink electrical lead wires and power cables, and never allow them to touch oil, grease, hot surfaces, or chemicals.

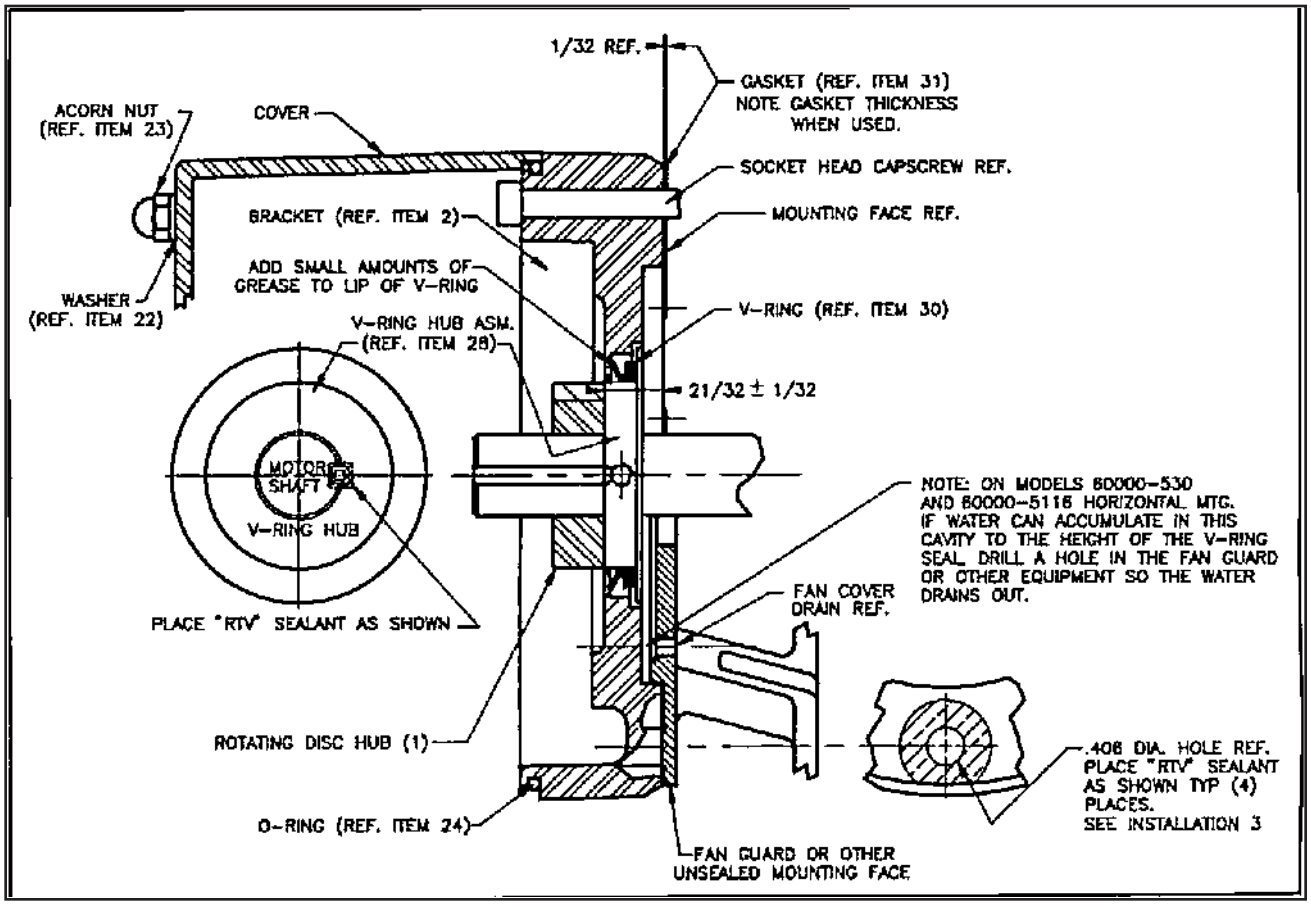


Figure 2

INSTALLATION

CAUTION: To preserve pre-alignment of rotating discs for ease of installation, do not operate manual release or energize brake coil before installation.

NOTE: The brakes are designed for horizontal mounting. Modification is required for vertical mounting. Brakes that are modified will have a suffix on the model number of VO (Vertical Over) or VU (Vertical Under).

Numbers in parentheses refer to parts illustrated in Figs. 2, 4 and 10.

Mounting Hub on Motor Shaft

For models 60000-543 and 60000-5115:

1. Place rotating disc hub (1), with key, onto motor shaft with part number facing away from motor to dimension shown in Fig. 2 ($^{21}/_{32} \pm {}^{1}/_{32}$). Measure from brake mounting face as shown.

For models 60000-530 and 60000-5116:

1. Remove V-ring (30) from V-ring hub assembly (28).
2. Place V-ring hub assembly (28) onto motor shaft with part number facing away from motor to dimension shown in Fig. 2 ($^{21}/_{32} \pm {}^{1}/_{32}$).

NOTE: If motor shaft keyway extends into V-ring area, install a key long enough to engage V-ring hub assembly (28) and rotating disc hub (1). See Step 3 before tightening setscrews. Tighten both setscrews to 35 lb-in torque.

3. Place RTV sealant as shown (small amount to fill crevices between V-ring hub assembly (.040" x 45° chamfer), motor shaft, hub keyway and motor shaft keyway. Use Dow Corning #739 RTV only; other types may form acetic acid during curing if subjected to water or high humidity. This will cause premature failure of zinc plated parts.

CAUTION: If this proecedure is bypassed, liquid media may seep into the brakes.

4. Replace V-ring (30) onto V-ring hub assembly as shown in Fig. 2. Apply a small amount of grease to lip of V-ring.
5. Place rotating disc hub (1) with key if not already in place, onto motor shaft with part number facing away from motor to dimension shown in Fig. 2 ($^{21}/_{32} \pm {}^{1}/_{32}$). Rotating disc hub will butt against the V-ring hub as shown.
6. Tighten both setscrews to 6 - 8 lb-ft torque.

Placing Brake on Motor Shaft

1. Remove acorn nuts (23), washers (22), and cover (20). Place brake on motor mounting face aligning hub splines into brake disc splines. Make sure gasket (31) is in place. Drain plug (25) to face down on horizontal models.

NOTE: for models 60000-530 and 60000-5116 only: If gasket (31) does not make contact around mounting face totally (360°), exclude gasket (31) and place RTV sealant around mounting bolt holes to approximately 1" dia. as shown in Fig. 2. Use Dow Corning #739 RTV only; other types may form acetic acid during curing if subjected to water or high humidity. This will cause premature failure of zinc plated parts.

If tapped holes in motor for mounting bolts are not totally enclosed, place RTV sealant around threads before bolting brake to motor. Use Dow Corning #739 RTV ony; other types may form acetic acid during curing if subjeted to water or high humidity. This will cause premature failure of zinc plated parts.

You may have to add drain in fan guard or other equipment as shown in Fig. 2.

2. Tighten mounting bolts to 25 lb-ft torque
3. Connect coil leads as outlined under "Connection of Coil Leads" and Fig. 3.
4. Let RTV #739 cure 24 hours before replacing cover.
5. Replace cover (20) and fasten with three acorn nuts (23) and washers (22). Tighten nuts to 5 lb-ft torque.

Connection of Coil Leads

After securing the brake to the motor, connect coil leads for proper voltage per wiring diagram (Fig. 3 shows dual voltage coil). Incorrect connection can result in brake failure.

CAUTION: The voltage supplied to the coil must match the voltage that the coils are connected for, or the coils will burn out.

Single voltage coil: Connect brake coil leads to any two line leads (single or three phase) of same voltage and frequency as brake.

Dual voltage coil: Connect leads 2 and 4 to any two motor line leads (single or three phase) of same voltage as brake. Connect leads 1 and 3 as shown for voltage desired. Brake must be energized with motor.

Wiring Diagrams

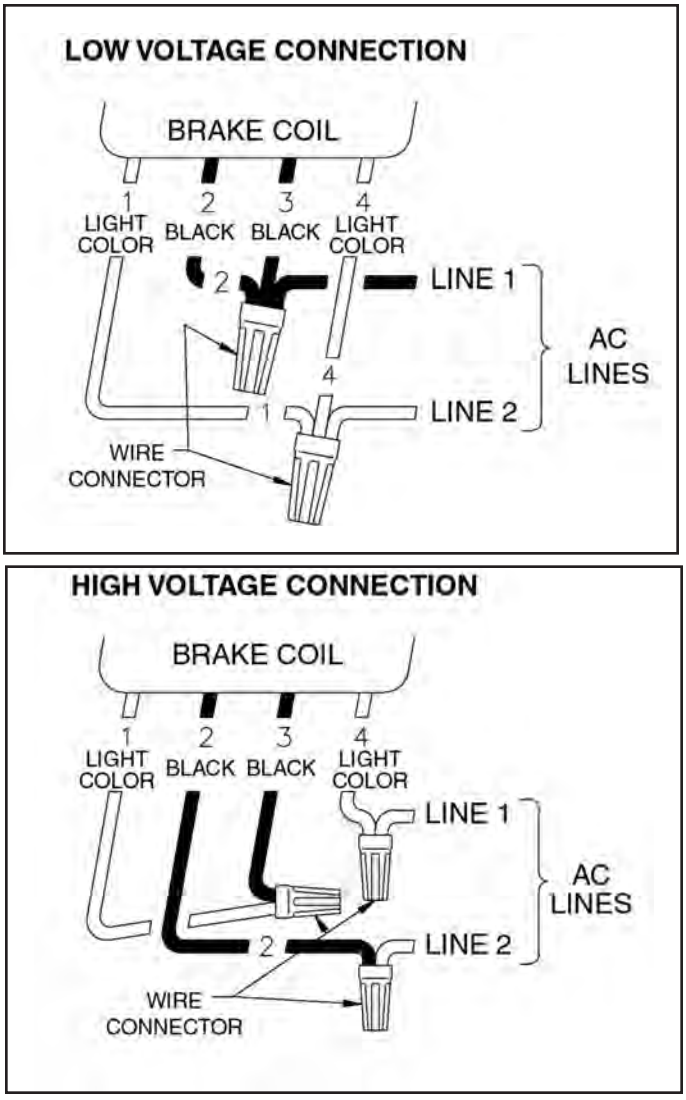


Figure 3

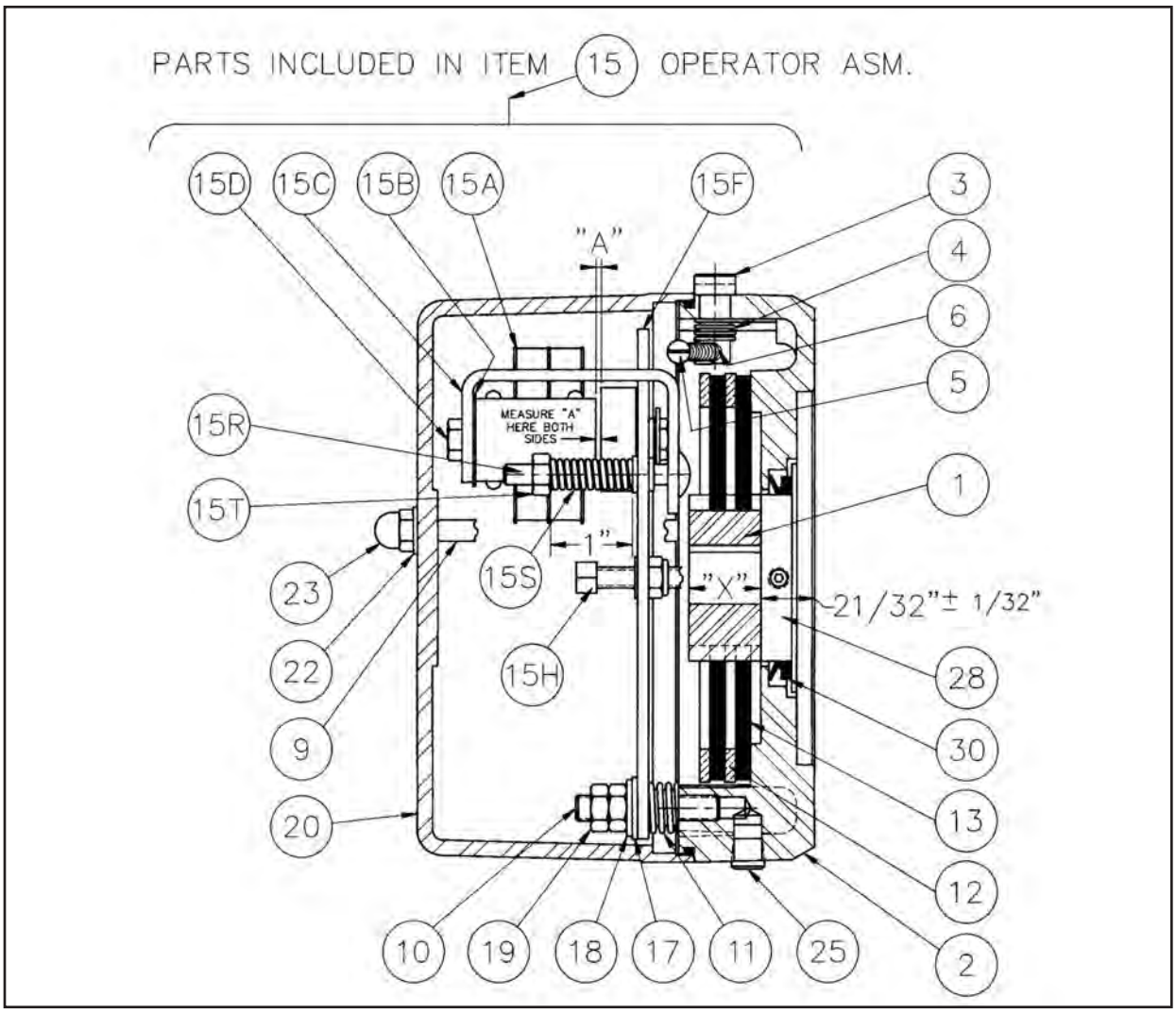


Figure 4

OPERATION

These brakes are spring set devices with an electrical (magnet) release. They contain a rotating friction disc which is driven by a hub mounted on the motor shaft. When energized, the magnet compresses the torque springs, removing the force pressing the stationary disc and friction disc together. This permits free rotation of the shaft.

WARNING: Observe proper safety precautions in applications where a brake failure would allow the load to move in such a manner as to injure personnel. KEEP PERSONNEL AWAY FROM LOAD AREAS.

If brake torque rating is higher than motor full-load torque rating, use brake rating rather than motor rating when selecting other drive components.

Take the following precautions when operating the brake:

1. Do not operate the brake at higher than normal static torque capacity.
2. For applications with high inertia-type loads or rapid cycling, the thermal capacity of the brake must be considered.
3. High start-stop rates may damage motor. Consult motor manufacturer if high cycling rates are expected.
4. Be sure power supply conforms to electrical rating of brake.

Manual Release

The brake is equipped with a manual release. Turn the release knob (3) clockwise to stop position to release the brake. The brake will remain released until the release knob is turned counterclockwise (approx. 65°) or until the brake coil is energized, automatically resetting the brake.

MAINTENANCE

CAUTION: Before attempting to service or remove any components, make certain that the power is disconnected and that the load is completely removed, secured or blocked to prevent injury or property damage.

Wear Adjustment

CAUTION: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

Refer to Fig. 4.

Before air gap "A" reaches .100", adjustment is required. Any delay in adjusting the magnet air gap will result in eventual loss of torque.

1. To adjust, remove cover acorn nuts (23), washers (22), and pull cover (20) off to expose adjusting screws (15H) and magnet air gap "A". (You may have to tap lightly with a rubber mallet.)
2. Measure air gap "A" using 3/8" to 1/2" wide feeler gauge. (Measure at center of magnet.)
3. Turn two square head adjusting screws (15H) until air gap "A" measures:

   .045/.050 for 1 disc models
   .050/.055 for 2 disc models
   .060/.065 for 3 or 4 disc models

   Air gap should be the same on both sides.

Torque Adjustment

Caution: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

Refer to Fig. 4.

The magnetic disc brake is factory set for rated static torque. The brake can be adjusted to reduce torque which increases stopping time. Do not attempt to adjust brake for higher torque, as this will cause premature coil burnout.

1. To adjust, remove acorn nuts (23), washers (22), and pull cover (20) off to expose torque locknuts (15T), which are above torque springs (15S).
2. To increase stopping time and reduce torque, turn two locknuts (15T) counterclockwise, increasing spring length. Each full turn reduces torque 7% to 10% depending upon the model.

Pivot Stud Adjustment

CAUTION: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

This adjustment is made at the factory and may be required when replacing the magnet assembly (15A) or the armature (15J).

The purpose is to regulate the height of the armature plate (15F) so that when the magnet (15A) is energized, the armature (15J) is parallel with it. This is required for quiet operation.

1. Remove cover acorn nuts (23), washers (22), and pull cover (20) off. (You may have to tap lightly with a rubber mallet.)
2. To adjust, hold the nut (19) which is adjacent to washer (18) and loosen the other nut (19) and remove it from the stud.
3. Energize the magnet and turn remaining nut (19) counterclockwise slowly until the magnet becomes noisy. Turn magnet on and off serveral times until you find the position where the magnet first becomes quiet.
   At this point, turn nut (19) 1/3 turn (two flats) in a clockwise direction. Hold nut in this position and turn magnet on and off to make sure the magnet does not become noisy.
4. Holding this nut in place, screw on other nut and tighten it against the nut you are holding to 11-13lb-ft of torque.
5. Operate the manual release. If the release does not operate properly, see "Manual Release Adjustment" on page 7.

Friction Disc Replacement

Caution: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

If brake model number has a suffix VO or VU, see page 8.

When total wear on a rotating friction disc (13) reaches 1/16", replace disc, referring to Figs. 4 and 10:

1. Disconnect power.
2. Remove cover per step 1 under "Wear Adjustment".
3. Remove operator assembly (15) by removing screws (16) and pivot stud (10). Item 10 has a hex socket in end of stud for removal.
   NOTE: Do not loosen nuts (19) on pivot stud (10), or "Pivot Stud Adjustment" (on page 6) will have to be made. Retain loose parts; washer (18), bushing (17), and compression spring (11).

4. ***Replacing the friction disc***

   Remove worn rotating discs (13) and stationary discs (12). Replace worn discs and install new discs in the same order. Install stabilizer clip (14), if furnished, on rotating discs prior to installing.
5. ***Re-assembly of operator assembly (15)***

   Turn two screws (15H) counterclockwise five turns. Place operator assembly (15) onto brake bracket (2) and install two screws (16). Replace compression spring (11), bushing (17), washer (18), and pivot stud (10) which has the two nuts (19) in place. Tighten firmly.
6. Readjust magnet air gap "A" as described under "Wear Adjustment".
7. Check manual release operation before replacing cover. Adjust per "Manual Release Adjustment" on page 7 if required.
8. Replace cover (20), washers (22), and acorn nuts (23). Tighten nuts to 5 lb-ft. of torque.

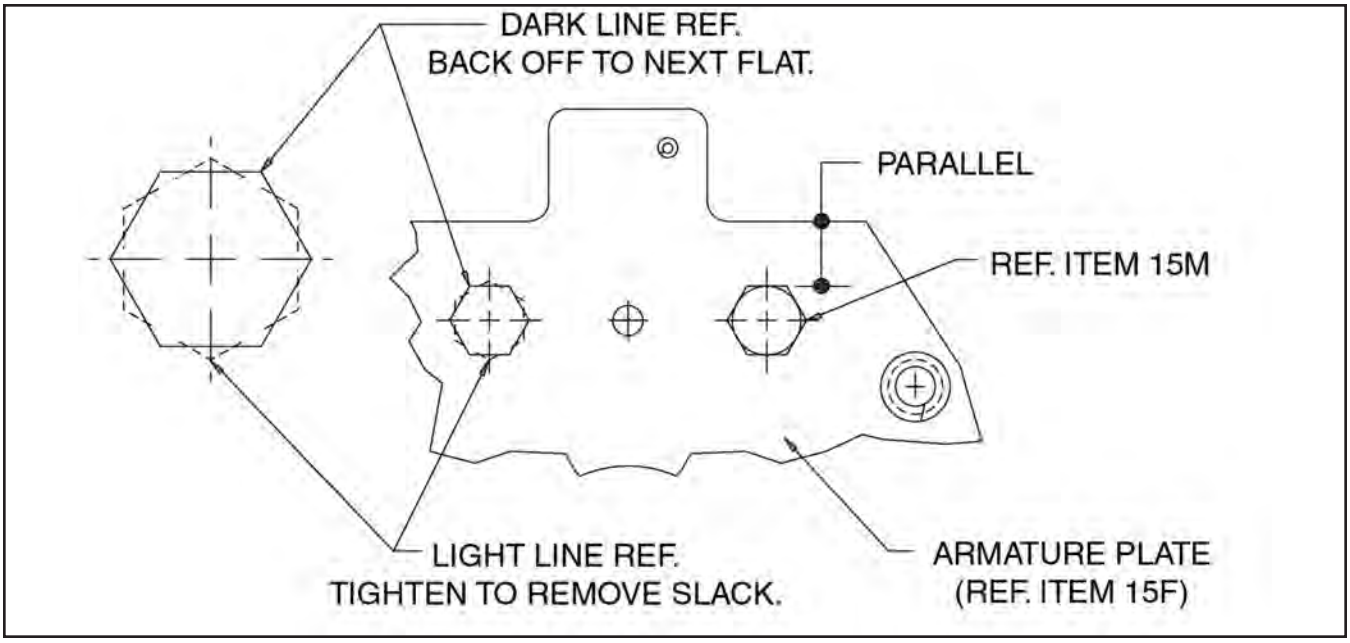


Figure 5

Magnet Assembly Replacement

CAUTION: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

Refer to Figs. 4, 6, and 10.

1. Disconnect power supply.
2. Remove acorn nuts (23), washers (22), and pull cover (20) off. (You may have to tap lightly with a rubber mallet.
3. Remove two capscrews (15D), magnet assembly (15A), and shock mount (15B).
4. Replace with new maget assembly, making sure shock mount is in place. Feed coil wires through hole in back of bracket (15C) as shown in Fig. 6. Tighten mounting screws to 55-60 lb-in torque.
5. Set air gap “A” as described under “Wear Adjustment”.
6. Energize coil. Magnet should be quiet; if not, refer to “Pivot Stud Adjustment” on page 5.
7. Check manual release. If it does not operate properly, adjust as outlined under “Manual Release Adjustment” on page 7.
8. Replace cover (20), washers (22), and acorn nuts (23). Tighten nuts to 5 lb.ft. torque.

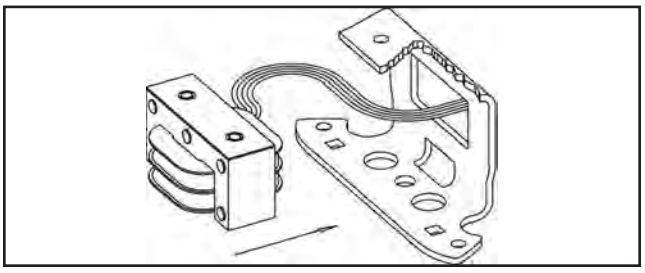


Figure 6

Armature Replacement

CAUTION: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

Refer to Figs. 4, 5, and 10.

If you replace the magnet assembly, it may be necessary to replace the armature (15J). If it is badly deformed, it will be difficult to make the magnet quiet.

1. Disconnect power.
2. Remove cover per step 2 under “Magnet Assembly Replacement”.
3. Remove operator assembly (15) per step 3 under “Friction Disc Replacement”.

   Remove nuts (15T), springs (15S), and carriage bolts (15R). This will allow the armature plate assembly to be removed from magnet bracket (15C).
4. Remove screw (15Q), lockwasher (15P), locking plate (15N), two screws (15M), spacers (15L), and armature (15J). Inspect these parts and shock mount (15K). If worn, replace them also.
5. Put armature in place (ground side up) and install spacers (15L) and screws (15M). Make sure shock mount (15K) is in place.

   NOTE: Screws (15M) should be tightened to 5lb-in to remove slack only. Then back off, counterclockwise on screw so the next flat on screw is parallel with the edge of the armature plate (15F). See Fig. 5.

   Replace locking plate (15N), lockwashers (15P), and screw (15Q). Tighten screw (15Q) with 30 lb-in torque.
6. Reassemble to magnet bracket (15C) using items (15R), (15S) and (15T). Reassemble operator assembly (15) to brake bracket. Set magnet air gap “A” and set torque springs (15S) to 1” for all models.
7. Replace cover (20), washers (22), and acorn nuts (23). Tighten nuts to 5 lb-ft torque.

Manual Release Assembly

Refer to Fig. 7.

1. Place small amount of high temperature Neverseize grease around O-ring (32) located on release knob (3) and in release hole located at the top of bracket (2).
2. Place shaft of release knob (3) through hole in bracket (2).
3. Slide return spring (4) over shaft; straight leg of spring should enter shaft first with leg in the position shown.
4. Slip spring (6) over screw (5) and install in tapped hole in release shaft. Screw in until it stops. Make sure spring (4) is not caught under spring (6).
5. Engage bent end of spring (4) over spring (6) as shown. Pull it over with a needle-nose pliers or screwdriver.
6. Adjust release. See “Manual Release Adjustment”.

Manual Release Adjustment

CAUTION: Load to be removed or blocked. Brake will be inoperative during this procedure.

The manual release (3) may require adjustment after replacing the operator assembly (15), magnet (15A), or armature (15J). It also may be required if adjustments are made on the pivot stud nuts (19).

The release is working properly if:

a) you turn release knob (3) clockwise to stop and the brake is released;

b) the release knob returns to its normal position automatically when power is applied to the magnet.

NOTE: Cover (20) must be removed to make this adjustment.

1. To adjust: Set air gap “A” as described under “Wear Adjustment” on page 5.
2. If the brake does not release, turn adjusting screw (5) counterclockwise 1/4 turn and try again.
3. If the release knob (3) does not return to its normal position automatically, turn screw (5) clockwise 1/4 turn and try again.

NOTE: You may have to repeat Steps 2 or 3 to get the release to operate properly.

It is important that the release knob returns to its normal position automatically when power is applied to the magnet.

4. Replace cover (20, washers (22), and acorn nuts (23). Tighten nuts to 5 lb-ft torque.

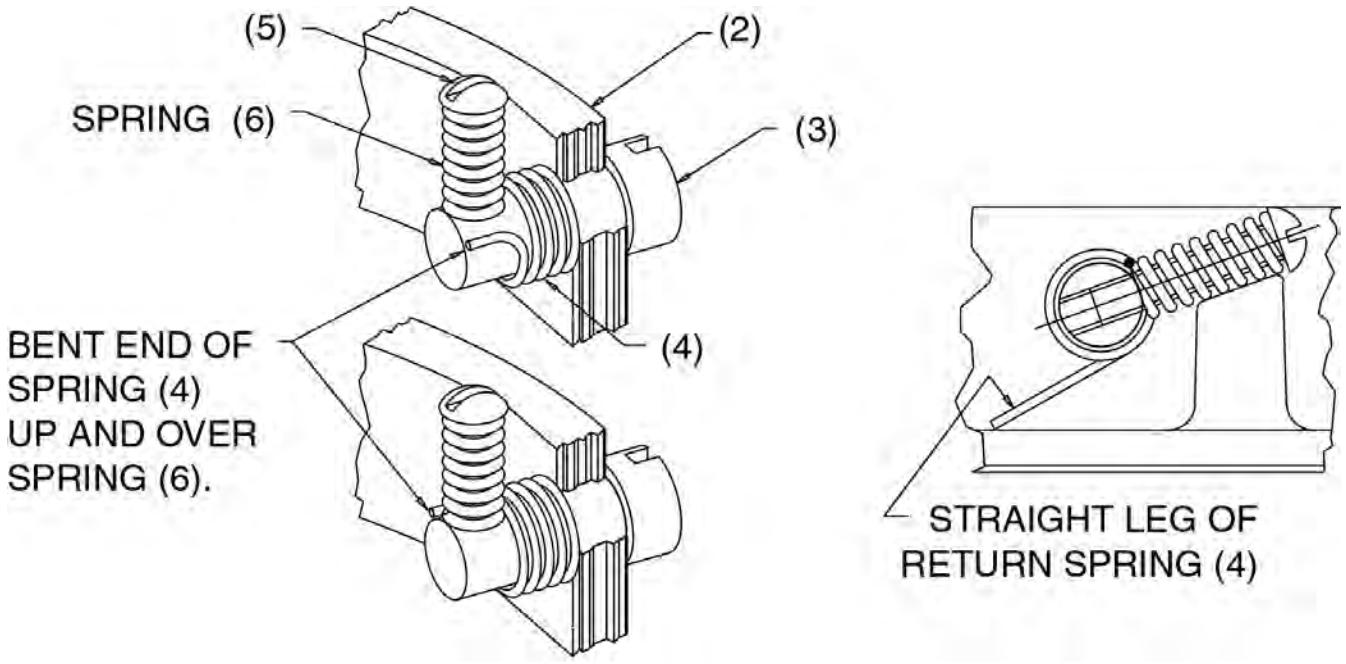


Figure 7

TROUBLESHOOTING CHART

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Brake does not release	1. Broken or damaged parts	1. Replace.
	2. Wrong voltage	2. Check for correct voltage. Voltage must correspond to that listed on brake nameplate. If the voltage is more than 10% below the nameplate voltage, the magnet may not pull in.
	3. Burned out coil	3. Replace magnet assembly (15A).
	4. Incorrect wiring connections or broken wires	4. Find the connection or wiring fault. Correct or repair as required.
Brake does not stop properly	1. Broken or damaged parts	1. Replace.
	2. Worn friction disc	2. Replace disc if worn to 1/8" thickness. If disc replacement is not required, adjust air gap. (Refer to "Wear Adjustment" section.)
	3. Hub positioned incorrectly	3. Relocate hub (1) and key, if required. (Refer to "Installation" section.)
	4. Bake is manually released	4. Determine if manual release is in normal position.
Brake chatters or hums	1. Dirty magnet faces	1. To remove dirt, insert a clean sheet of paper between faces and energize brake. Move paper around between faces to dislodge dirt, then remove paper.
	2. Magnet faces are not parallel in closed position	2. See "Pivot Stud Adjustment" section.
	3. Loose or broken shading coil	3. Replace magnet assembly (15A).
	4. Wrong voltage supply	4. Check for low voltage.
Manual release does not work	1. Broken or damaged parts	1. Replace.
	2. Improper setting	2. See "Manual Release Adjustment" section.

VERTICAL MOUNTING

Installation and adjustment of the vertically mounted brake is the same as on the standard model.

Friction Disc Replacement

When replacing friction discs, follow procedure outlined on page 5 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 Table 1 and Figure 9). Since the installation order of the disc springs is dependent on brake mounting position (VO= vertical over or above motor; VU= vertical under or below motor), it is important to consult the correct diagram for spring location.

Figure 9

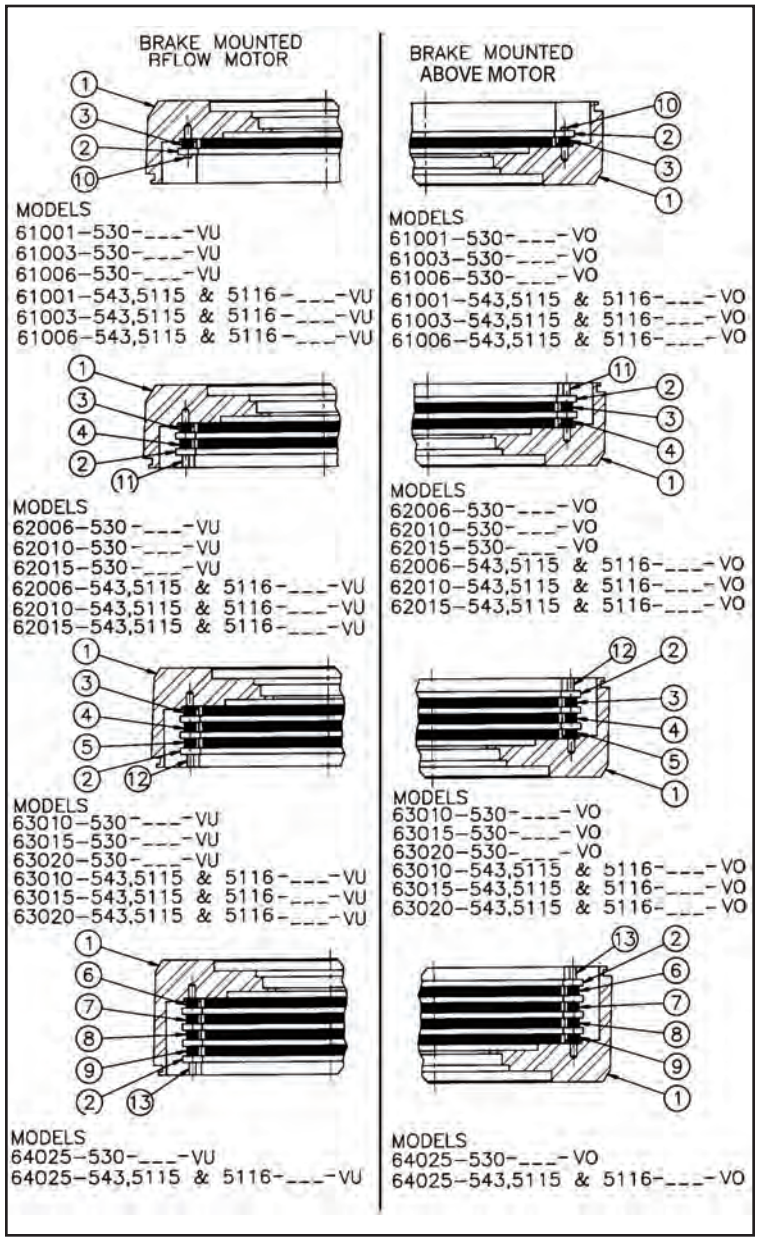


Table 1 Parts for Vertical Mounting

Item No.	Description	Part No.	Qty. of Parts (No. of rotating discs)			
			1	2	3	4
FOR MODELS 60000-530 & 60000-543						
1	Bracket, 1 & 2 disc models, VO	L060266-011	1	1		
1	Bracket, 3 disc model, VO	L060266-012			1	
1	Bracket, 4 disc model, VO	L060266-013				1
1	Bracket, 1 & 2 disc models, VU	L060266-021	1	1		
1	Bracket, 3 disc model, VU	L060266-022			1	
1	Bracket, 4 disc model, VU	L060266-023				1
-	Cover with drain, VU (not shown)	K060465-011	1	1	1	1
FOR MODELS 60000-5116 & 60000-5115						
1	Bracket, 1 & 2 disc models, VO	L060266-041	1	1		
1	Bracket, 3 disc model, VO	L060266-042			1	
1	Bracket, 4 disc model, VO	L060266-043				1
1	Bracket, 1 & 2 disc models, VU	L060266-051	1	1		
1	Bracket, 3 disc model, VU	L060266-052			1	
1	Bracket, 4 disc model, VU	L060266-053				1
-	Cover with drain, VU (not shown)	K060465-031	1	1	1	1
FOR ALL MODELS						
2	Stationary disc, vertical mounting	H060203-004	1	2	3	4
3	Compression spring (silver)	G060350-001	2	2	2	
4	Compression spring (black)	G060350-002		2	2	
5	Compression spring (bronze)	G060350-003			2	
6	Flotation spring (silver)	G060736-001				2
7	Flotation spring (black)	G060736-002				2
8	Flotation spring (bronze)	G060736-003				2
9	Flotation spring (red)	G060736-004				2
10	Roll pin, 1/8" dia. x 5/8" lg.	W005003-071	2			
11	Roll pin, 1/8" dia. x 1" lg.	W005003-077		2		
12	Roll pin, 1/8" dia. x 1-3/8" lg.	W005003-080			2	
13	Roll pin, 1/8" dia. x 1-3/4" lg.	W005003-083				2

REPLACEMENT PARTS ILLUSTRATION

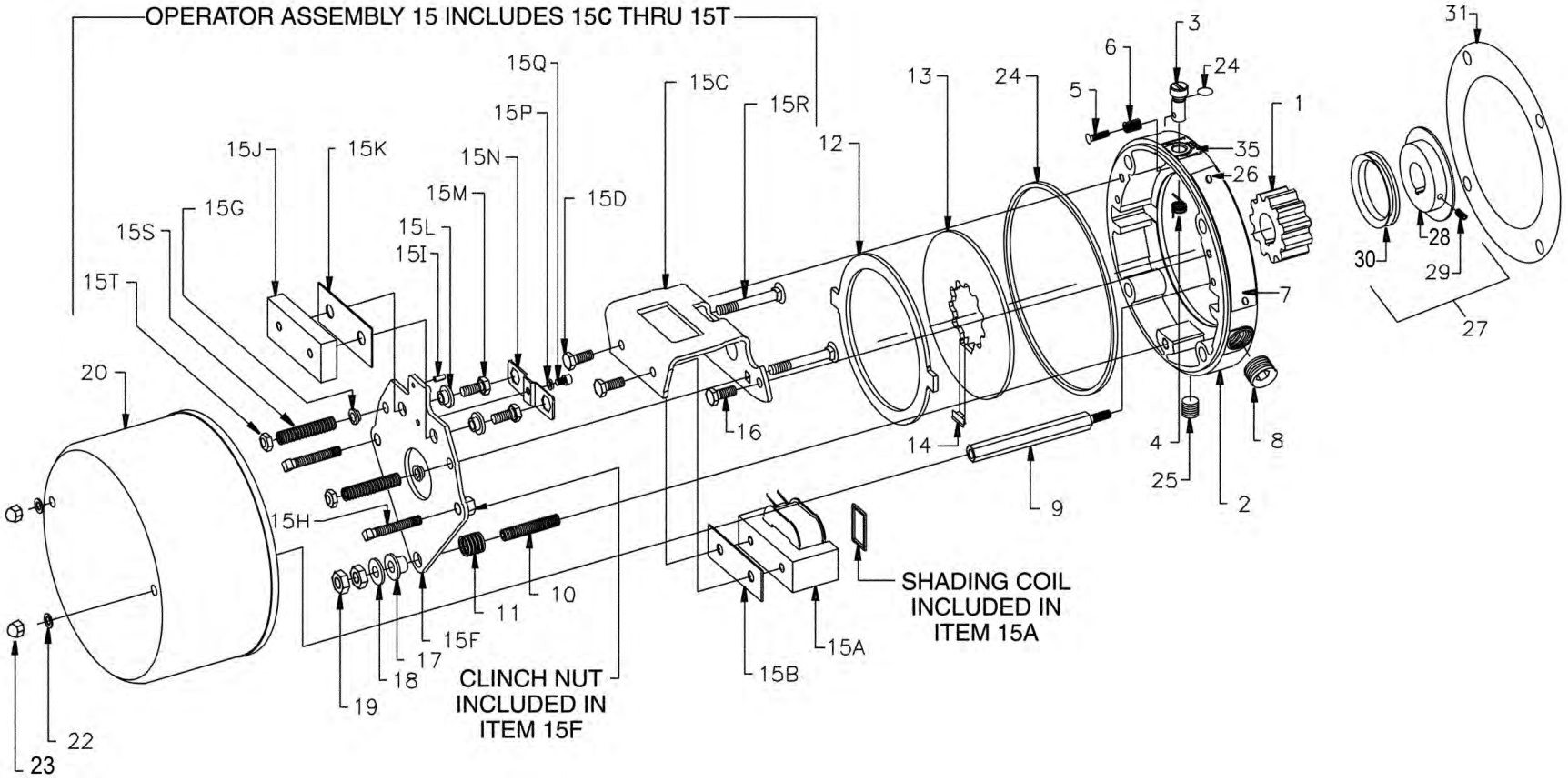


Figure 10

REPLACEMENT PARTS LIST

Item No.	Description	NEMA 4 60000-543 60000-530	NEMA 4X 60000-5115 60000-5116	Qty.
1	Hub	K060107-*		1
2	Bracket 1 & 2 disc	L060266-001	L060266-031	1
	3 disc	L060266-002	L060266-032	1
	4 disc	L060266-003	L060266-033	1
3	Release Knob	G060848-001		1
4	Release return spring	G060881-001		1
5	Release adjustment screw	W001002-056C		1
6	Release adjustment spring	G060795-001		1
7	Nameplate	K060507-001	K060467-001	1
8	Pipe plug 1/2" NPT	W010002-004	W010002-004A	1
9	Cover stud	G060337-001		2
10	Pivot stud	W002005-303A		1
11	Compression spring, all models	G060852-001		1
12	Stationary disc	H060147-001		**
13	Rotating friction disc	H0060157-003		**
14	Stabilizer clip for rotating friction disc	H060466-001		**
15	Operator assembly	K060476-*P		1
15A	Magnet assembly, Plated	*Specify brake model/serial no.		1
15B	Magnet shock mount			1
15C	Magnet mounting bracket	H060544-001		1
15D	Hex head capscrew 1/4-20 UNC x 1/2 lg	W001008-001E		2
15E	Armature assembly (not shown) (Includes items 15F through 15Q)	H060541-*		1
15F	Armature plate	H060545-003		1
15G	Nyliner bushing	W013005-001		2
15H	Wear adjustment screw sq hd. 1/4-20 UNC x 1-1/2 lg	W002003-001		2
15I	Roll pin 5/32' ida. x 3/8" lg	W005003-098		1
15J	Armature lamination assembly	G060788-002		1
15K	Armature shock mount	G060808-003		1
15L	Armature spacer	G060798-002		2
15M	Hex hd. capscrew 1/4-20 UNC x 5/8 lb. Grade 5	W001007-002E		2
15N	Locking plate	G060812-001		1
15P	Split spring lockwasher #8	W004006-003		1
15Q	Soc. hd. capscrew #8-32 UNC x 1/4 lg	W001013-201		1

Item No.	Description	NEMA 4 60000-543 60000-530	NEMA 4X 60000-5115 60000-5116	Qty.
15R	Carriage bolts 1/4-20 UNC	G060803-001		2
15S	Torque spring (blue) 1.5 lb.ft. per disc	G060791-001		2
	Torque spring (silver) 3 lb.ft. per disc	G060792-001		2
	Torque spring (red) 3.3 lb.ft. per disc	G060843-001		2
	Torque spring (gold) 5 lb.ft. per disc	G060793-001		2
	Torque spring (green) 6.7 lb.ft. per disc	G060794-001		2
	Torque spring (purple) 7.5 lb.ft. per disc	G061092-001		2
	Torque spring (black) 8.3 lb.ft. per disc	G061093-001		2
15T	Lock nut 1/2-20 UNC	W003013-001		2
16	Hex hd. capscrew 1/4-20 x 1/2 lg.	W001008-001E		2
17	Nylon bushing	G060820-001		1
18	Plain brass washer	W004003-024		1
19	Hex nut 5/16-18 UNC	W003002-002E		2
20	Cover	K060465-001	K060465-021	1
21	Instruction label (not shown)	K060495-001		1
22	Nylon washer	W004015-001		1
23	Acorn nut 1/4-20 UNC	W003005-001A	W003005-001B	1
24	O-ring for bracket	W006001-023		1
25	Pipe plug 1/8 NPT	W010002-001	W010002-001B	1
26	Nameplate drive screw #4 type U	W001012-048	W001012-048A	2
27	V-ring hub seal assembly (includes items 38-30)	H060555-***		**
28	V-ring hub assembly (includes item 29)	G060814-***		1
29	Setscrew #10-32 UNF x 1/4 lg.	W002001-061-***		1
30	V-ring (V-50A)	W011008-002***		1
31	Gasket mounting face	H060344-003	H060344-004	1
32	O-ring for release	W006001-025		1
33	Socket screw cap plug 3/8 hex		W008006-004	1
34	Socket screw cap plug 3/16 hex		W008006-001	2
35	Release label	G060859-001		1

*Part number is determined by one or more of the following: model number, voltage, or motor shaft diameter and keyway sizes.

**Number of rotating friction discs, stationary discs, and rotating friction disc stabilizer clips is shown in the brake model number. Example: -62006- has two rotating discs, two stationary discs, and two stabilizer clips (when used).

***For use with Models 60000-530 and 60000-5116 only. Items 27 and 28 require motor shaft diameter and keyway size.

SPECIFICATIONS

Torque: 1-1/2 through 25 lb. ft.
NEMA Motor Frame Sizes: 56C, 143TC and 145TC.
Enclosure: NEMA 4 or NEMA 4X, cast iron
Voltage: All NEMA single phase voltages and frequencies are standard. Others optional.
Duty: Rated for continuous duty.
Mounting: Direct to NEMA C face. Horizontal or vertical position with slight modifications.
Maximum Ambient Temperature: 40°C
Maximum Input Speed: 3600 rpm
Certification: CSA Enclosure 4.
Models 60000-5115 and 60000-5116 conform to the following specifications:
NEMA MG1-1.26.5
BISSC
3A Dairy
Wis. food & dairy regulations

ORDERING INFORMATION

Replacement parts can be purchased from your local distributor or from Dings Co. at the address and phone number shown below. Distributors are listed at www.dingsbrake.com.

For replacement parts, please furnish this data with your order:

- Brake model number
- Part number and description (refer to parts list)
- If ordering a hub, specify bore diameter and key dimensions
- If ordering electrical parts, specify voltage and frequency

For a replacement brake, please furnish this data with your order:

- Brake model number
- Voltage and frequency
- Hub bore and keyway dimensions
- Mounting - horizontal or vertical. If vertical, specify whether above or below motor. If brake includes foot mounting bracket or adapter, specify.

WARRANTY

Seller warrants products manufactured by it and supplied hereunder to be free from defects in materials and workmanship under normal use and proper maintenance for a period of twelve months from date of shipment. If within such period any such products shall be proved to Seller's reasonable satisfaction to be defective, such products shall be repaired or replaced at Seller's option. Seller's obligation and Buyer's exclusive remedy hereunder shall be limited to such repair and replacement and shall be conditioned upon Seller's receiving written notice of any alleged defect no later than 10 days after its discovery within the warranty period and, at Seller's option, the return of such products to Seller, f.o.b. its factory, when such return is feasible. Seller reserves the right to satisfy its warranty obligation in full by reimbursing Buyer for all payments it makes hereunder, and Buyer shall thereupon return the products to Seller. Seller shall have the right to remedy such defects. Seller makes no warranty with respect to wear or use items, such as belts, chains, sprockets, discs and coils, all of which are sold strictly AS IS.

The foregoing warranties are exclusive and in lieu of all other express and implied warranties (except of title) including but not limited to implied warranties of merchantability, fitness for a particular purpose, performance or otherwise, and in no event shall the Seller be liable for claims (based upon breach of express or implied warranty, negligence, product liability, or otherwise) for any other damages, whether direct, immediate, incidental, foreseeable, consequential, or special.

Dings Co.
DYNAMICS GROUP

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