



DIRACT BRAKES 70 SERIES 4 POST BRAKE INSTRUCTIONS

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.



Figure 1

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.

DESCRIPTION

This brake is direct acting, electromagnetically 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 electromechanical equipment, however, periodic inspection and adjustment will assure optimum performance. As the friction disc wears, the magnet gap will increase. The magnet gap should be checked periodically and adjusted when necessary.

SPECIFICATIONS

MOTOR FRAMES 182TC, 184TC, 213TC, 215TC, 254TC, 256TC.

HOUSINGS Cast Iron.

DUTY Rated for continuous duty.

VOLTAGES All standard NEMA voltages and frequencies available. Other voltages and frequencies are 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.)

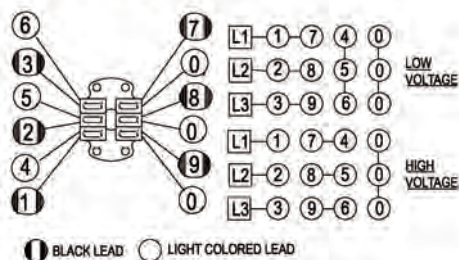
MAX SPEED 3600 RPM

INSTALLATION

Refer to Figures 3 & 5, Table 1

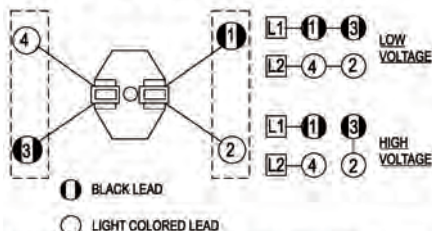
1. Remove hub (1) from brake and position on motor shaft with key according to dimension "N". Stamped part number on hub should face away from motor. Tighten hub set screws to 12 lb-ft torque.
2. Remove cover screws (24), cover (23), "O" ring (28) and gasket (32).
3. Place brake on motor, guiding discs on hub.
4. Bolt brake to motor "C" face with four socket head cap screws. See Figure 3 to determine bolt length.
5. Connect coil leads per appropriate wiring diagram in Figure 2 and replace cover.

THREE PHASE



Sequence of black and light colored leads is important. DO NOT INVERT COILS!

SINGLE PHASE



Sequence of black and light colored leads is important. DO NOT INVERT COILS!

Figure 2

MANUAL RELEASE OPERATION

Refer to Figure 5

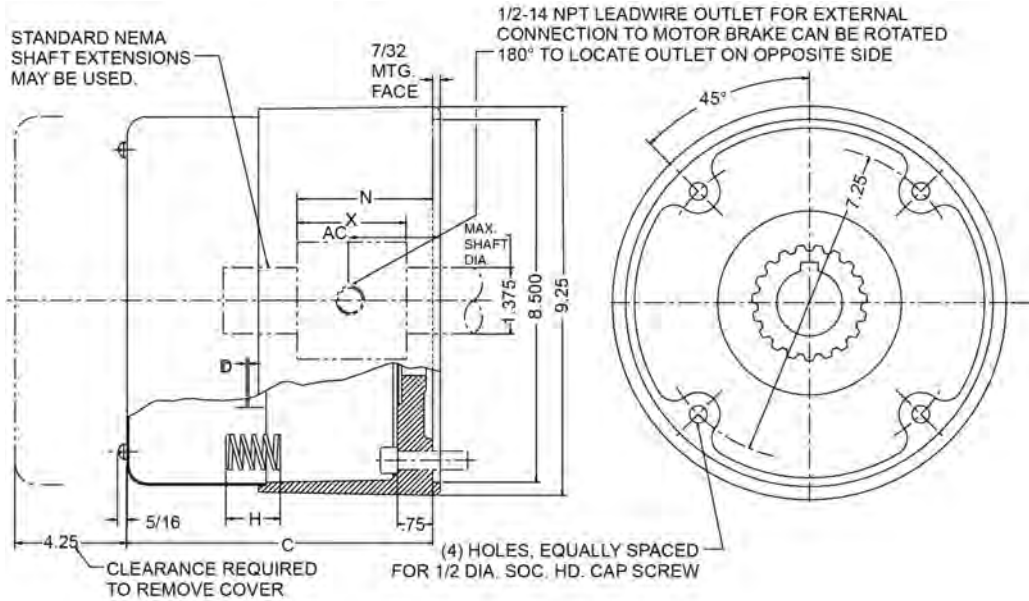
To manually release the brake, rotate two rods (10) clockwise until stop screw (14) hits pin. Brake will remain in released position until rods or lever are manually returned to original position, or until electrical power is restored which automatically resets the brake.

TORQUE ADJUSTMENT

Refer to Figures 3 & 5, Table 1

Brake is factory set for rated torque per spring length "H". To increase stopping time and lower torque, turn two locknuts (9) counterclockwise, increasing dimension "H". All spring lengths should be equal. Do not decrease spring length "H" as this may cause coil to burn out.

Standard Housing



Enclosed Housing

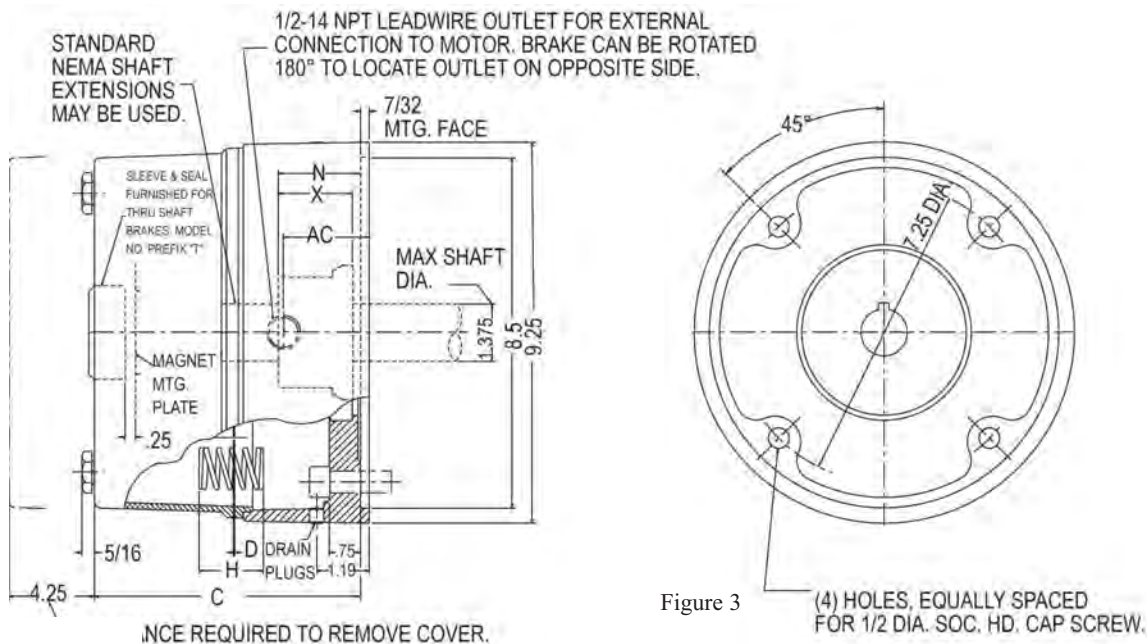


Table 1

Model Number			Torque Lb-ft	Weight Lbs.	Thermal Capacity HPS/MIN	Inertia WK ² Lb-ft ²	Dimensions in inches								
Standard	Severe Duty	Enclosed					C	D		H	N ± 1/32	AC	X		
			Max	Min		Standard		ENCL	S.D.						
71010-55	71010-58	71010-57	10	40	10	.036	5.75	.060	.035	1.31	1.50	1.48	1.00	1.31	1.00
71015-55	71015-58	71015-57	15	40	10	.036	5.75	.060	.035	1.31	1.50	1.48	1.00	1.31	1.00
72025-55	72025-58	72025-57	25	45	11	.059	6.37	.060	.035	1.31	2.00	2.11	1.50	1.31	1.50
72035-55	72035-58	72035-57	35	45	11	.059	6.37	.065	.040	1.22	2.00	2.11	1.50	1.81	1.50
73050-55	73050-58	73050-57	50	50	12	.083	7.00	.065	.040	1.25	2.50	2.73	2.00	2.31	2.00
74075-55	74075-58	74075-57	75	55	13	.107	7.62	.065	.040	1.22	3.00	3.34	2.50	2.81	2.50

MAINTENANCE AND SERVICE

WEAR ADJUSTMENT

Refer to Figures 3 & 5, Tables 1 or 2

Magnet gap “D” increases as the rotating friction discs wear. When gap approaches “D” max., adjust gap to the “original setting” listed under “D”, by turning nuts (21) and (22). The “original setting” is also the minimum allowed.

Too small a gap will not provide the proper running clearance, and will cause excessive wear and overheating of the rotating friction disc. The magnet gap can vary from “original setting” $\pm .005$ between corners. After setting gap, readjust torque spring length per dimension “H”.

CAUTION: MAGNET GAP MUST NOT EXCEED “D” MAXIMUM

FRICITION DISC REPLACEMENT

Refer to Figures 3 & 5, Tables 1 or 2

When rotating friction disc (4) wears down to a thickness of 7/32”, replace disc.

1. Remove cover screws (24), cover (23), “O” ring (28) and gasket (32).
2. Unhook loop of torsion springs (11) from pins at rear of magnet plate (16). Remove release stop screws (14), washers (12) and shims (13).
3. Remove adjusting lock nuts (22), magnet assembly (16), adjusting nuts (21), torque nuts (9), washers (8), torque spring (7) and pressure plate (6).
4. Remove friction disc (4) and stationary disc (5). Replace worn friction discs.
5. Reassemble all parts in reverse order. Set spring length “H” and magnet gap “D”.

MANUAL RELEASE ASSEMBLY

Refer to Figures 3 & 5

When assembling manual release mechanism (Figure 5), add only enough shim washers (13) to obtain proper release action. Too many shim washers will prevent automatic reset when electrical power is applied. Too few washers will prevent the motor shaft from turning freely. Replace stop screws (14). Wind each torsion spring (11) approximately 1/4 turn and hook spring loop over pin.

MAGNET COIL REPLACEMENT

Refer to Figures 4 & 5

Remove magnet assembly as outlined under FRICTION DISC REPLACEMENT.

Coils (18) are held in place with epoxy cement. Force coil off magnet mounting plate and remove excess epoxy from all surfaces. Replacement coils should be held in place with new epoxy cement. The epoxy cement should be heat resistant and shock resistant. Place an insulating washer (19 or 19A) below the coils. Order insulating washers when ordering coils. An insulating washer can be cut to suit when replacing only one coil on a multiple coil assembly.

When installing coils, it is very important to follow EXACTLY the sequence of black and light colored leads as shown in wiring diagram (Figure 2). The brake will not operate properly unless coils are all in the correct position.

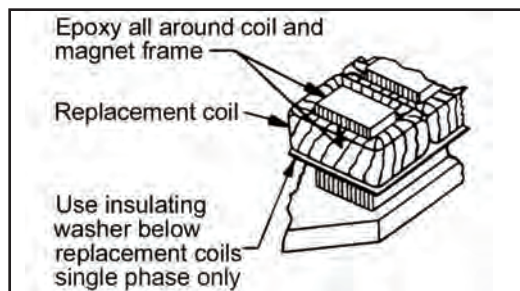


Figure 4. Fastening of Replacement Magnet Coils

TROUBLESHOOTING

A. IF BRAKE DOES NOT RELEASE:

1. Check brake visually for broken or damaged parts.
2. Check for broken leadwire or bad electrical connection.
3. Check for correct voltage. Line voltage must correspond to the voltage for which the brake coils are connected. If the line voltage is more than 10% below the voltage for which the brake coils are connected, the magnet will not pull in, causing the coils to burn out within minutes. If the line voltage is more than 10% above the voltage for which the brake coils are connected, the coils will overheat and burn out.
4. Check for burned-out coils (coils may be charred or burned).
5. Check for excessive magnet gap. (See WEAR ADJUSTMENT).
6. Check for failure of power supply to brake.

B. IF BRAKE DOES NOT STOP:

1. Check brake visually for broken or damaged parts.
2. Make certain hub has not shifted position on the motor shaft and that all rotating discs are fully engaged on the hub.
3. Check that the manual release is in the normal position.
4. Check disc wear. (See WEAR ADJUSTMENT).

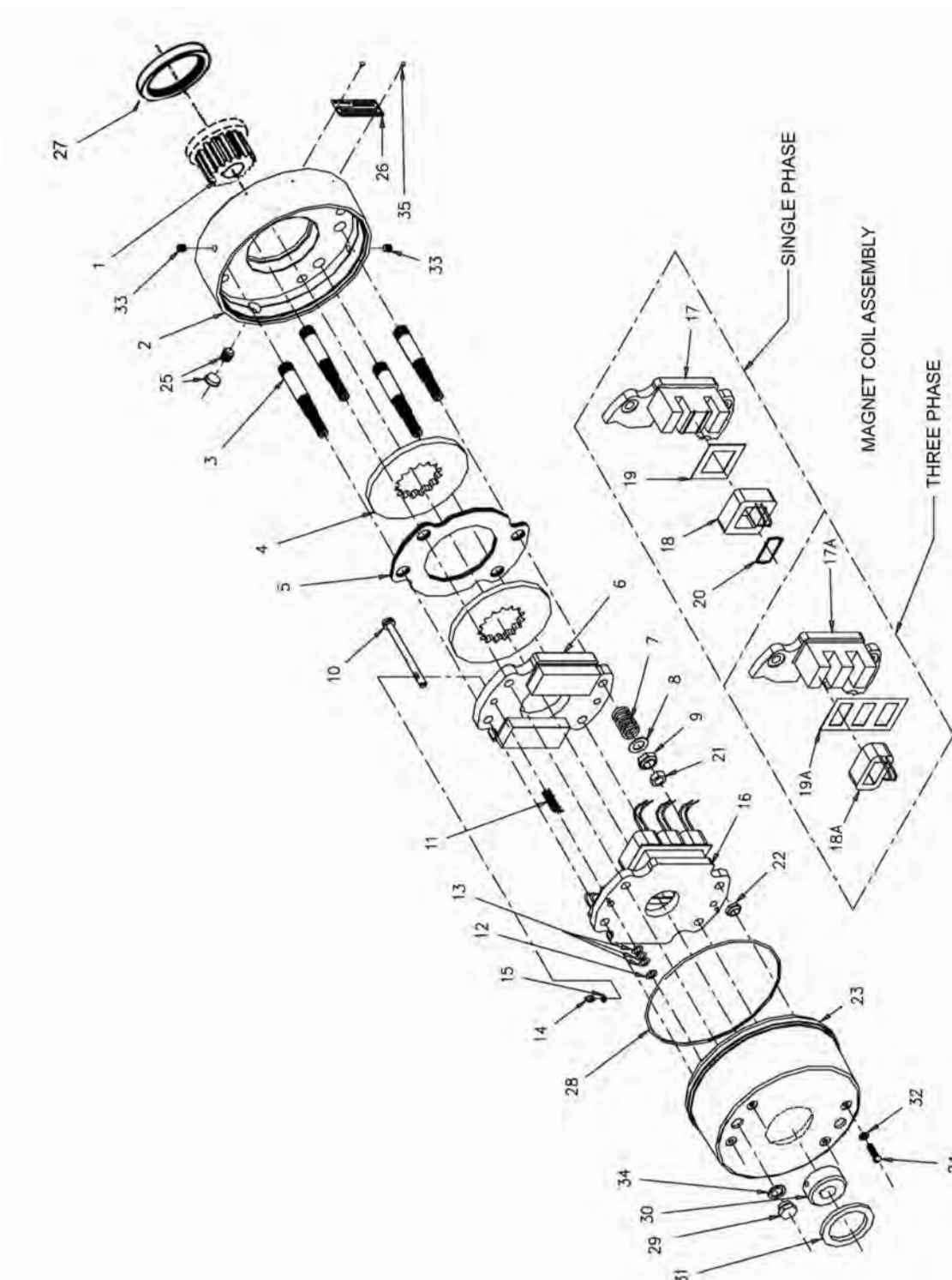
C. IF BRAKE CHATTERS OR HUMS:

1. See that magnet faces are clean. To remove dirt, insert a clean sheet of paper between magnet faces and energize brake. Move paper around between faces to dislodge dirt, then remove paper.
2. Check for low voltage. Magnet will not pull in, and coils will burn out if line voltage is beyond 10% below the voltage the brake coils are connected for.
3. See that magnet faces are parallel within tolerance. Readjust magnet gap to “D” original setting. (See WEAR ADJUSTMENT).
4. Check if shading coil (20) is cracked, broken or out of position (single phase only).

D. IF MANUAL RELEASE DOES NOT WORK:

1. Check for broken or damaged parts.
2. Check return spring (11). Brake will not reset automatically if this spring is broken.
3. Check quantity of shim washers (13) under release stop screws (See MANUAL RELEASE ASSEMBLY).

Figure 5 Exploded View



ORDERING INFORMATION

The following data should be furnished with your order for:

REPLACEMENT PARTS

Brake Model Number
 Part Number from Tables
 Part Description from Tables (On hub order furnish bore diameter & keyway dimensions. On electrical parts specify voltage, phase & frequency.)

REPLACEMENT BRAKE

Model Number
 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.)

Table 2 Parts List

Item	Pcs. Req'd	Description	70000-55 PART NO.	70000-57 PART NO.	70000-58 PART NO.
1	1	Hub	Specify Model No., Shaft Dia. and Key Size		
2	1	Bracket – 1 Disc	L070260-001	L070317-001	
2	1	Bracket – 2 Disc	L070260-002	L070317-002	
2	1	Bracket – 3 Disc	L070260-003	L070317-003	
2	1	Bracket – 4 Disc	L070260-004	L070317-004	
3	4	Stud – 1 Disc	G070213-001		
3	4	Stud – 2 Disc	G070213-002		
3	4	Stud – 3 Disc	G070213-003		
3	4	Stud – 4 Disc	G070213-004		
3a	4	Stud – 1 Disc High Tensile	G070219-001		
3a	4	Stud – 2 Disc High Tensile	G070219-002		
3a	4	Stud – 3 Disc High Tensile	G070219-003		
3a	4	Stud – 4 Disc High Tensile	G070219-004		
4	*	Rotating Friction Disc	H070103-007		
4a	*	Heavy Duty Rotating Friction Disc (Alt.)	H070339-001		
5	*	Stationary Disc	K070474-002		
6	**	Pressure Plate	K070307-001		
7	4	Torque Spring	(Silver) G070068-001 (10 lb-ft) (Green) G070525-001 (25 lb-ft) (Black) G080192-001 (All Others)		
8	4	Torque Spring Washer	W004004-001		
9	4	Torque Adjust Nut	W003001-022		
10	2	Manual Release Rod	G070001-002		
11	2	Manual Release Spring	G060010-001		
12	2	Manual Release Washer	W004004-003		
13	As Req'd	Manual Release Shim	W004004-004		
14	2	Manual Release Stop Screw	G060029-001		
15	2	Manual Release Lockwasher	W004007-007		
16	1	Magnet Assembly, Single Phase– with Coils	Specify Model No. and Coil Voltage		
16	1	Magnet Assembly, Three Phase– with Coils	Specify Model No. and Coil Voltage		
17	1	Magnet Plate w/o Coils, single phase	K070352-001		
17a	1	Magnet Plate w/o Coils, 3 phase	K070306-001		
18	2	Magnet Coil, Single Phase	Specify Model No. and Coil Voltage		
18a	6	Magnet Coil, 3 Phase	Specify Model No. and Coil Voltage		
19	2	Insulating Washer, single phase	G070029-001		
19a	2	Insulating Washer, 3 phase	G070037-001		
20	2	Shading Coil, single phase only	G070032-001		
21	4	Gap Adjusting Nut	W003003-023		
22	4	Gap Adjusting Nut	W003001-020		
23	1	Cover, Standard	K070353-001		
23	1	Cover, with thru shaft	K070405-001	K070404-001	
24	4	Cover Screw	W001004-012	W001002-103	
25	1	Conduit Hole Plug	W008003-001	W010002-004	
26	1	Nameplate (Specify Data)	Specify Data		
27	1	Hub Seal	-----		W011001-007
28	1	O-Ring Seal	W006001-010		
29	2	Release Cap	G060170-002		
30	1***	Thru-Shaft Sleeve (Specify Bore and Keyway)	-----	H070080-001	
31	1***	Thru-Shaft Seal	-----	W011001-006	
32	4	Cover Screw Gasket	-----	W011002-005	
33	2	Drain Hole plug	W010002-001		
34	2	Release Cap Gasket	G070381-001		
35	2	Drive Screw	W001012-048		

* Number of Rotating Discs is shown as second digit of Model No: Example 72025-58

** Number of Stationary Discs is one less than number of Rotating Discs.

*** For models with prefix "T" (thru shaft) only.



4740 WEST ELECTRIC AVENUE • MILWAUKEE, WI 53219
PHONE 414/672-7830 • FAX 414/672-5354
www.dingsbrakes.com