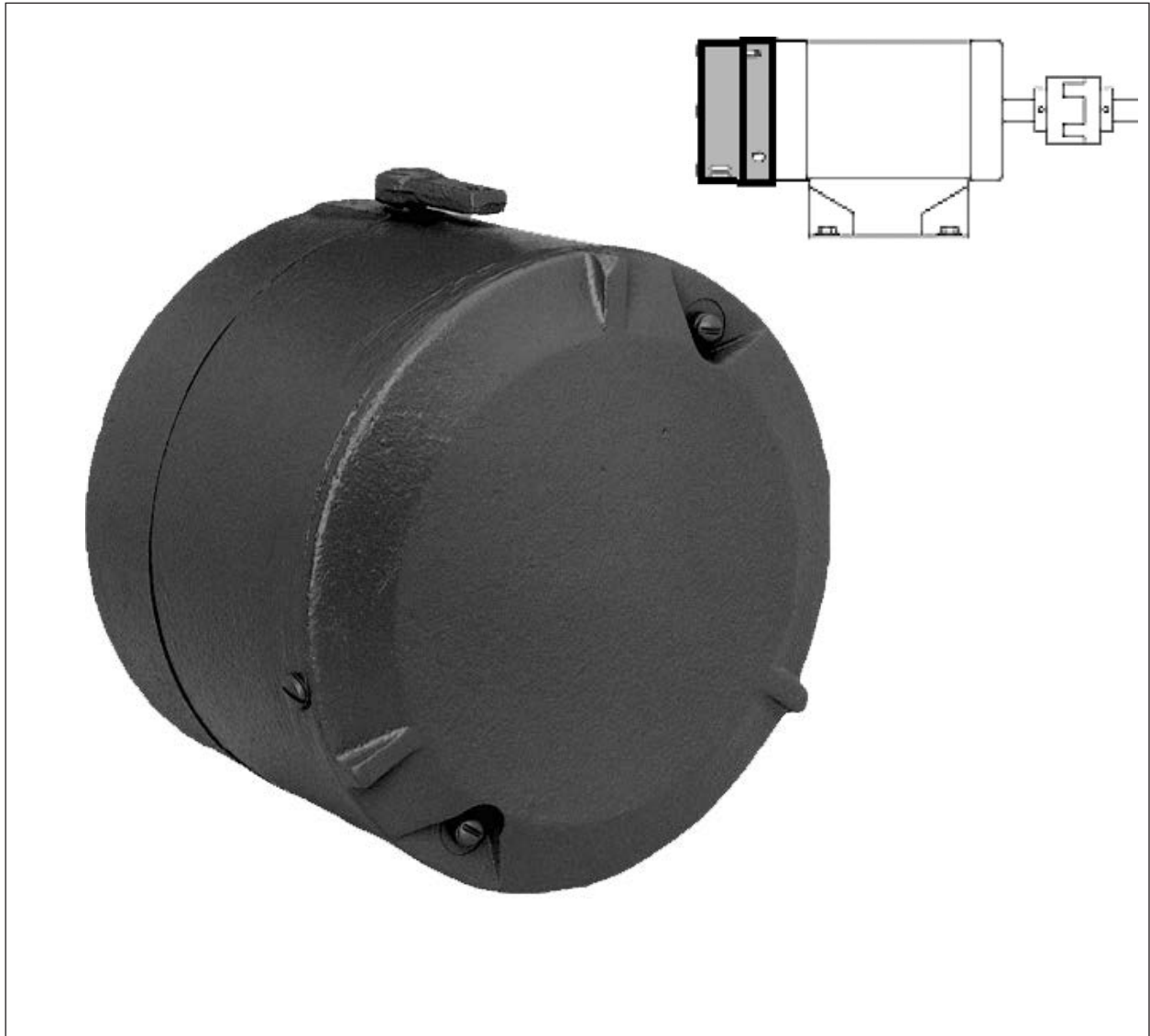


Warner Electric NEMA 4 UNIBRAKE® Motor Brakes

P-1701-WE

Installation & Operating Instructions



 **Warner**[®]
Electric

An Altra Industrial Motion Company

Contents

General Information	2
Brake Head	2
Installation	3
Wiring	3
Wear Adjustments	4
Torque Adjustments	4
Disc Replacement	4
Coil Replacement	5
Service Parts	5
Warranty	Back Page

General Information

⚠ WARNING Unibrake Motor Brakes are not a fail safe device. Where holding load represents a risk of property damage, and/or personal injury, an independent fail safe device must be supplied independent of this brake. These safety devices are neither provided nor are they the responsibility of Warner Electric.

Warner Electric Unibrake motor brakes are spring set, electro-magnetic release, direct acting, disc brakes for the controlled stopping and holding of a load. They have single phase electro-magnetic coils in standard voltages and frequencies and are factory set for rated retarding torque.

Construction

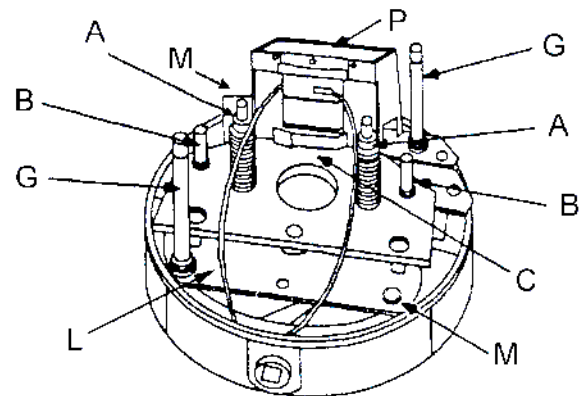
Motor brakes utilize one or more non-asbestos friction discs mounted on a metal hub which is fastened to a rotating shaft. The brake uses a two ball pivot design for its armature plate. It also has a self resetting manual release lever. Anti-rattle clip between the rotating disc and hub help reduce torsional vibration and pulsation noise. Unibrakes housing is cast iron NEMA 4.

Operation

When properly connected, starting the motor energizes the brake magnet coil, attracting the armature to the coil, compressing the torque springs, releasing pressure on the pressure plates, permitting the brake discs to rotate freely. When the motor and the brake magnet coil de-energize, this decompresses the torque springs, forcing the rotating disc(s) and stationary pressure plates together, stopping and holding the motor shaft and load.

When the motor is 'off,' to move the driven load without energizing the motor, rotating the manual release lever 90 degrees clockwise removes the retarding torque from the motor shaft letting the load be hand-moved. The lever returns to the normal "set" position when the brake is re-energized.

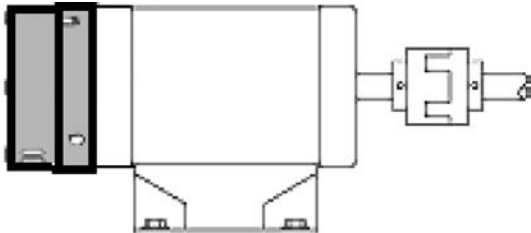
Brake Head



- A = Torque Adjust Nuts and Springs
- B = Wear Adjustment Screws
- C = Armature Plate
- G = Cover Mounting Studs
- L = Lead Wires
- M = Mounting Holes (2)
- P = Solenoid (coil)

⚠ WARNING Any mechanism or load held in position by the brake should be checked to avoid possible damage or injury to personnel before brake is released manually.

Installation



This brake is assembled and tested prior to shipment. It must be disassembled to mount to your motor and maintain seals to your motor. Do not make any adjustments to the (2) Wear Adjustment Screws “B” or (2) Torque Adjust Nuts “A” during installation to your motor.

Brake disassembly

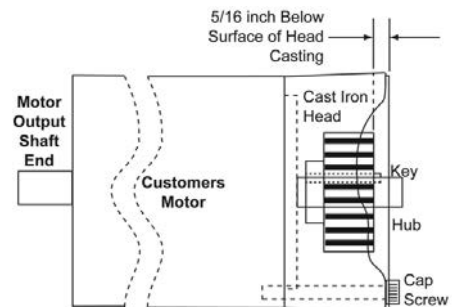
- Place brake on bench or work surface; remove cover from brake.
- Remove the two cover hex mounting studs and brake mechanism with coil. Do not make any adjustments to the brake mechanism.
- Remove pressure plate(s) and friction disc(s) keeping them in the original order.
- Remove brake hub. **Be careful not to damage housing seal.**

Brake assembly to your motor

- Position brake head casting onto motor mounting face and secure by hand tightening (2) 3/8 inch socket head cap screws.
- Attach hub to shaft using key and set screws provided with Unibrake. Position hub 5/16 inch below head surface. **Do not damage housing seal when sliding hub through seal.** Tighten (2) set screws to motor shaft with 55-100 in. lbs. of torque. Set screws can be accessed through conduit opening.

- Replace pressure plate(s) and friction disc(s) into housing keeping them in their original order.
- Remove hand tightened caps screws from head casting. Replace brake mechanism with coil into housing and tighten with (2) cap screws, lock washers and (2) cover hex studs.
- Rotate release lever one or two times to verify release and assembly of brake is correct.
- Cover will be assembled after brake is wired. Leads should be twisted and inserted into the insulation sleeve and routed to conduit port or openings through back of motor after wiring.

Wiring



⚠ WARNING Disconnect power before touching any internal part.

Unibrake magnet coils (AC) are single phase and dual voltage. These can be wired internal to the motor. Direct current brake coils must be separately operated; switch contacts to control the brake must be different from those used to control the motor. Normally, motor and brake contacts must be interlocked.

Determine the voltage of the brake and use the appropriate wiring instructions below.

Remove cover, turn both screws “B” equal amounts in a clockwise direction until air gap (Gap “G”) from above chart is obtained.

Determine the voltage of the brake and use the appropriate wiring instructions below.

Motor	Voltage	Brake Leads (B) to Motor Leads (T) or Separate Power Supply			
3 Phase AC	Low Voltage	B1 & B3 to T1 & T7	B2 & B4 to T2 & T8		
	High Voltage	B1 to T1	B2 to B3	B4 to T2	
1 Phase AC	Low Voltage	B1 & B3 to T1 & T3	B2 & B4 to T2 & T4		
	High Voltage	B1 to T1	B2 to B3	B4 to T4	
Separately AC	Low Voltage 115 VAC	B1 & B3 to Line 1 (L1)	B2 & B4 to Line 2 (L2)		
	High Voltage 230 VAC	B1 to Line 1 (L1)	B2 to B3	B4 to Line 2 (L2)	
Separately DC	24 or 90 VDC	B1 to DC +		B2 to DC -	
		Coils are not polarity sensitive connections can be reversed.			

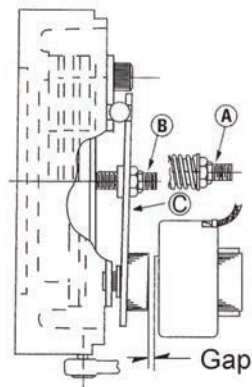
Wear Adjustments

⚠ WARNING 1) Disconnect power brake before touching any internal part. 2) Any loads that are held in position by this brake must be supported before performing any adjustments or maintenance.

Motor brake discs require periodic adjustment due to expected wear. On rapid cycling applications regular inspections should take place, i.e. after 20,000 to 50,000 cycles for the first inspection and then every 150,000 to 200,000 cycles. Adjustments should be made to the air gap between the armature and magnet for continued brake effectiveness. If an increase in stopping time is noted adjust brake as follows:

Gap Chart

No. of Discs	Gap "G"
1	.075 inch
2 or 3	.090 inch



Remove cover, turn both screws "B" equal amounts in a clockwise direction until air gap (Gap "G") from above chart is obtained.

Measurement of air gap should be made at approximate center of magnet with pressure applied to armature plate "C" to assure plate is seated on pivot balls. Failure to adjust for wear will result in eventual loss of braking torque.

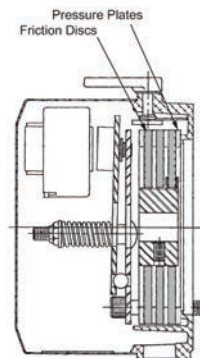
Note: Unequal adjustment of screws "B" will result in unequal pivot action on balls that will increase noise and shorten brake life.

Torque Adjustments

Most applications do not require torque adjustments. Motor brakes are factory set for rated torque which is maximum torque. To increase stopping time or reduce torque on 3, 6, and 10 ft. lb., turn 2 lock nuts "A" an equal amount counterclockwise to increase spring length. For the 6, 10, and 15 ft. lb. brakes, one full turn will reduce torque by about 12-1/2%. The 3 ft. lb. brake will be reduced in torque by about 8%. Torque should not be reduced by less than 1/2 of the rated torque.

If torque is adjusted measure air gap (see wear adjustment) and verify it is within dimensions from Gap Chart.

⚠ WARNING 1) Disconnect power brake before touching any internal part. 2) Any loads that are held in position by this brake must be supported before performing any adjustments or maintenance.

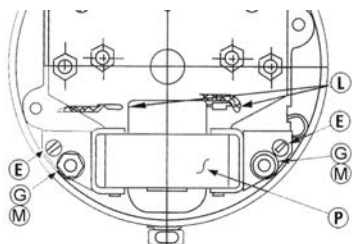


Friction Disc Replacement

Remove cover, (2) cover support studs “G”, and (2) 3/8-16 mounting cap screws at “M”.

Lift off brake mechanism assembly. Remove pressure plate(s) and brake disc(s). Replace with new pressure plate(s) and disc(s). Reassemble brake mechanism assembly. Multiple disc units, the domed pressure plate is positioned furthest away from the motor or brake head; the (B) wear adjustment screws are in contact with this plate.

Note: Cast Iron Head uses casting surface for last pressure plate. Set air gap as for wear adjustment.



Magnetic Coil Replacement

Remove cover, (1) cover stud “G”, (1) 3/8-16 mounting cap screw “M” and (2) slotted screws “E”.

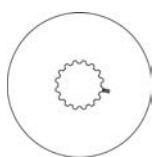
Lift off complete coil assembly “P” and replace with new coil assembly of proper electrical rating. Position leads so as to avoid contact with rotating parts. Set air gap as for Wear Adjustment.

Disc/Pressure Plate Kits

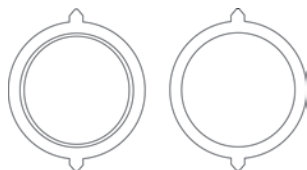
Number Discs	Kit Number	Kit Contents
Cast Iron Heads		
1	327212-4	1FD and 1DPP
2	327212-5	2FD, 1DPP and 1FPP
3	327212-6	3FD, 1DPP and 2FPP

FD = Friction Disc, DPP = Domed Plate FPP = Flat Plate

Friction Disc Only		
1	327213	Disc with Anti-Rattle Clip



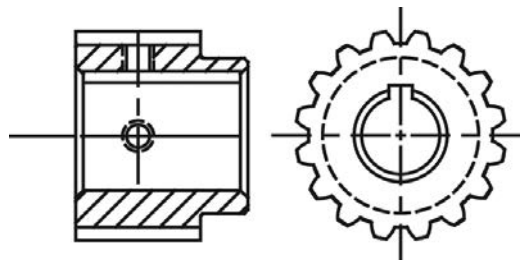
Friction Disc (FD)
5 inch diameter



Pressure Plates
Domed (DPP) / Flat (FPP)

Hubs

Bore	CI Head Hub Number
5/8	58D29
3/4	58D30
7/8	58D31



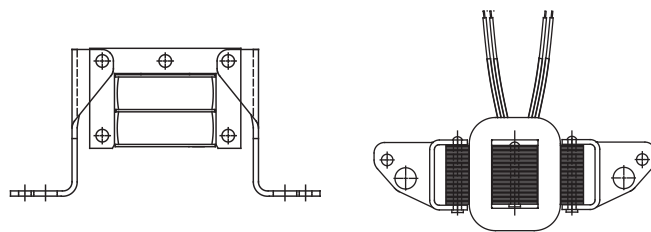
Cast Iron Head Hub

Coil Assembly (Solenoids)

Unibrake magnet coils (AC) are single phase.

Coil Voltage	Coil Part No.	DC Resistance*
60/115/230 VAC	79137-18-K	Leads B1 to B2 or B3 to B4 = 8.7 Ohms
50/115/230 VAC	79137-18-N	Leads B1 to B2 or B3 to B4 = 11.5 Ohms
50/220/440 VAC	79137-18-P	Leads B1 to B2 or B3 to B4 = 43.5 Ohms
60/230/460 VAC	79137-18-J	Leads B1 to B2 or B3 to B4 = 34.5 Ohms
60/200/400 VAC	79137-18-L	Leads B1 to B2 or B3 to B4 = 24.3 Ohms
60/287/575 VAC	79137-18-G	Leads B1 to B2 or B3 to B4 = 54.5 Ohms
50/208/416 VAC	79137-18-M	Leads B1 to B2 or B3 to B4 = 35.6 Ohms
24 VDC	327208	Leads B1 to B2 = 26.4 Ohms
90 VDC	327209	Leads B1 to B2 = 390 Ohms

*Resistance values plus or minus 10% at 25°C.



Coil Assembly

Warranty

Warner Electric LLC warrants that it will repair or replace (whichever it deems advisable) any product manufactured and sold by it which proves to be defective in material or workmanship within a period of one (1) year from the date of original purchase for consumer, commercial or industrial use.

This warranty extends only to the original purchaser and is not transferable or assignable without Warner Electric LLC's prior consent.

Warranty service can be obtained in the U.S.A. by returning any defective product, transportation charges prepaid, to the appropriate Warner Electric LLC factory. Additional warranty information may be obtained by writing the Customer Satisfaction Department, Warner Electric LLC, 449 Gardner Street, South Beloit, Illinois 61080, or by calling 815-389-3771.

A purchase receipt or other proof of original purchase will be required before warranty service is rendered. If found defective under the terms of this warranty, repair or replacement will be made, without charge, together with a refund for transportation costs. If found not to be defective, you will be notified and, with your consent, the item will be repaired or replaced and returned to you at your expense.

This warranty covers normal use and does not cover damage or defect which results from alteration, accident, neglect, or improper installation, operation, or maintenance.

Some states do not allow limitation on how long an implied warranty lasts, so the above limitation may not apply to you.

Warner Electric LLC's obligation under this warranty is limited to the repair or replacement of the defective product and in no event shall Warner Electric LLC be liable for consequential, indirect, or incidental damages of any kind incurred by reason of the manufacture, sale or use of any defective product. Warner Electric LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.

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