

Rear Mounted

Double "C" Coupler

# Motor Brakes

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# GENERAL

## WARNING

**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 INERTA DYNAMICS / DYNACORP.**

Dynacorp 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 springs between the rotating disc and hub help reduce torsional vibration and pulsation noise. Rear mounted motor brakes are available in standard aluminum or optional cast iron housed constructions and the double Nema 'C' Face coupler in aluminum only.

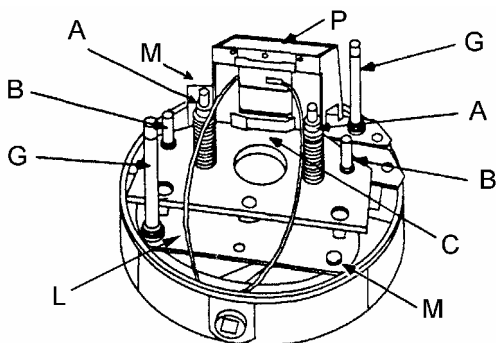
## OPERATION

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 stationary 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.

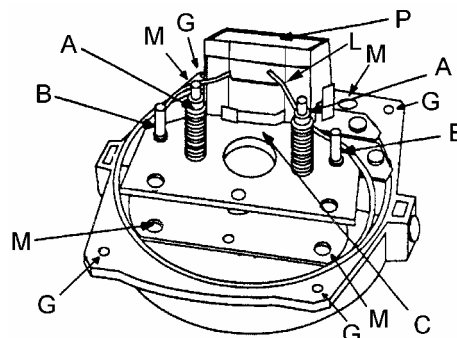
When the motor is 'off,' to move the driven load without energizing the motor, rotating the manual release lever 90 degrees clockwise removes the retarding torque from the motor shaft letting the load be hand-moved. The lever returns to the normal "set" position when the brake is re-energized.

## BRAKE HEADS

**REAR MOUNTED**



**DOUBLE 'C' FACE COUPLER**



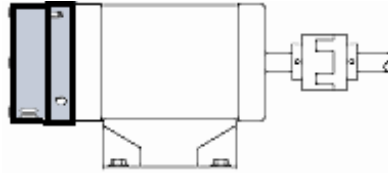
A = Torque Adjust Nuts and springs	L = Lead Wires
B = Wear Adjustment Screws	M = Mounting Holes (2 rear mounted, 4 coupler)
C = Armature Plate	P = Solenoid (Coil)
G = Cover Mounting (2) Studs Rear Mounted, (4) Bolts/Nuts Coupler	

### WARNING

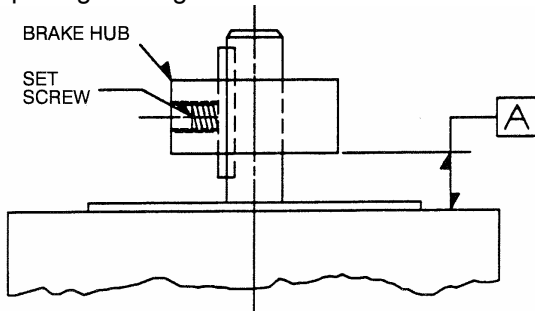
ANY MECHANISM OR LOAD HELD IN POSITION BY THE BRAKE SHOULD BE CHECKED TO AVOID POSSIBLE DAMAGE OR INJURY TO PERSONNEL BEFORE BRAKE IS RELEASED MANUALLY.

## INSTALLATION

### REAR MOUNTED



Remove cover from brake, locate brake hub. Attach hub to shaft using key and set screw provided. Position hub from mounting face of motor as shown in chart. Tighten set screws to 55-100 in. lbs. of torque. Slip brake head body onto mounting face and fasten with (2) 3/8 inch socket head cap screws. 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.

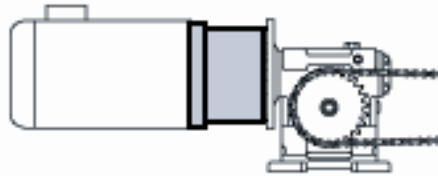


#### Dimension "A"

Aluminum Brake Housing (Standard) A = 5/16 inch

Cast Iron Brake Housing (Optional) A = 1/2 inch

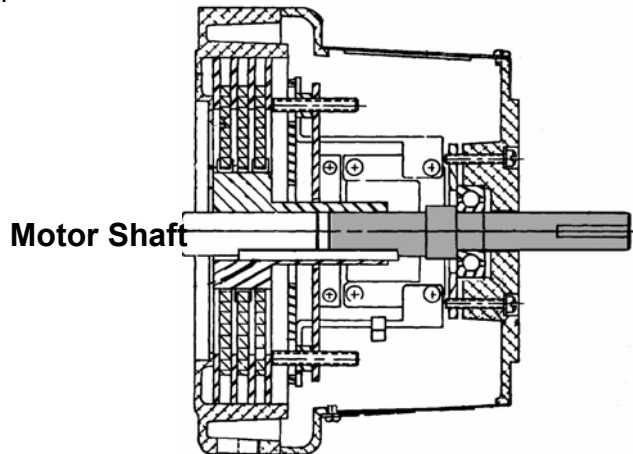
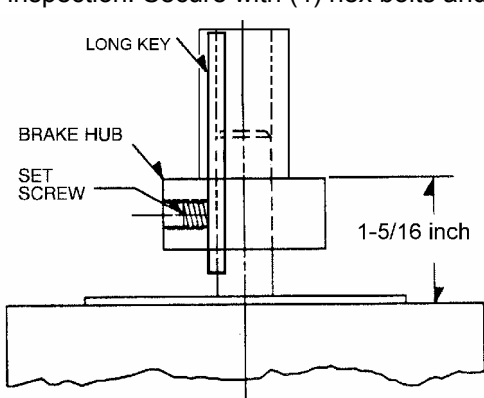
### COUPLER



### WARNING

COUPLER STYLE OUTPUT SHAFT MUST BE DIRECT COUPLED TO LOAD NOT FOR BELTED OR ANY TYPE OVERHUNG LOAD APPLICATIONS.

Remove (4) hex screws and lift off cover/shaft assembly. Remove brake hub and attach it to the motor shaft using the long key and set screws. Locate hub 1-5/16 of an inch away from mounting face of motor as shown below. Tighten setscrews to 55-100 in. lbs. of torque. Slip brake head assembly over brake hub and onto the motor mounting face. Fasten with (4) 3/8-16 socket head cap screws. Leads should be twisted and routed across top front of coil away from rotating brake hub and then routed through lead clip on side of coil. Replace brake cover/shaft assembly after wiring by inserting keyed shaft into the brake hub extension and guiding cover over the brake head assembly, the center window should be located over brake release lever to allow for gap inspection. Secure with (4) hex bolts and nuts.



# WIRING

**WARNING**  
**DISCONNECT POWER BEFORE TOUCHING ANY INTERNAL PART.**

Motor brake magnet coils (AC) are single phase and usually dual voltage. 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.

Motor	Voltage	Brake Leads (B) to Motor Leads (T) or Separate Power Supply	
3 Phase AC 3/60/230/460	Low Voltage 230 VAC	B1 and B3 to T1 and T7      B2 and B4 to T2 and T8	
	High Voltage 460 VAC	B1 to T1	B2 to B3      B4 to T2
1 Phase AC 1/60/115/230	Low Voltage 115 VAC	B1 and B3 to T1 and T3      B2 and B4 to T2 and T4	
	High Voltage 230 VAC	B1 to T1	B2 to B3      B4 to T4
Separately AC	Low Voltage 115VAC	B1 and B3 to Line 1 (L1)      B2 and B4 to Line 2 (L2)	
	High Voltage 230VAC	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

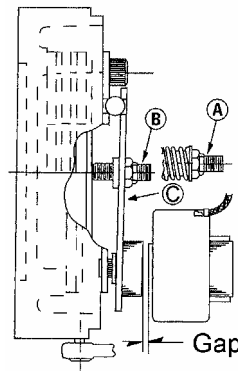
**WARNING**

- 1) **DISCONNECT POWER TO 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 to effect continuing brake effectiveness. If an increase in stopping time is noted adjust brake as follows:

## Gap Chart

Number of Discs	Gap "G"
1	.075 inch
2 or 3	.090 inch



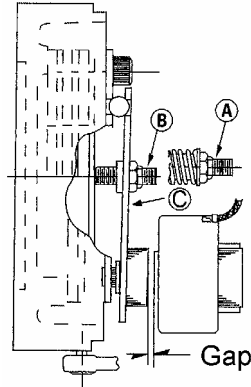
## WEAR ADJUSTMENT - REAR MOUNTED

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.*

## WEAR ADJUSTMENT - COUPLER

Remove the 3 window covers 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



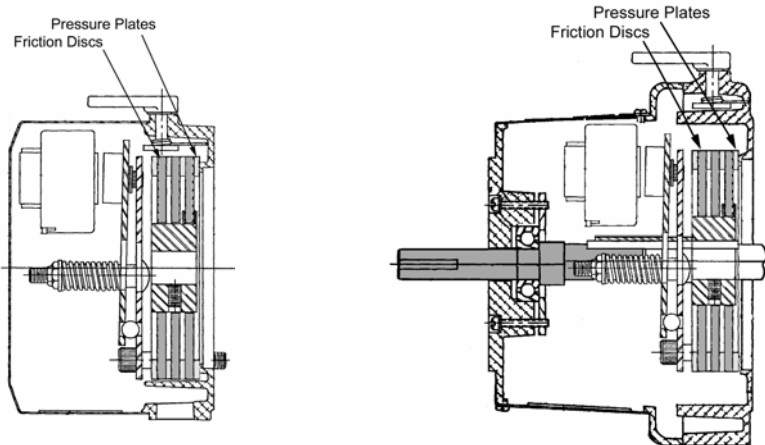
Most applications do not require torque adjustments motor brakes are factory set for rated torque which is maximum torque. To increase stopping time or reduce torque on 3, 6, and 10 ft. lb., turn 2 lock nuts "A" an equal amount counterclockwise to increase spring length. For the 6, 10, and 15 ft. lb. 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. Torque on the 1-1/2 ft. lb. brake cannot be reduced.

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

### WARNING

- 1) DISCONNECT POWER TO BRAKE BEFORE TOUCHING ANY INTERNAL PART.
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## FRICTION DISC REPLACEMENT



### REAR MOUNTED

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

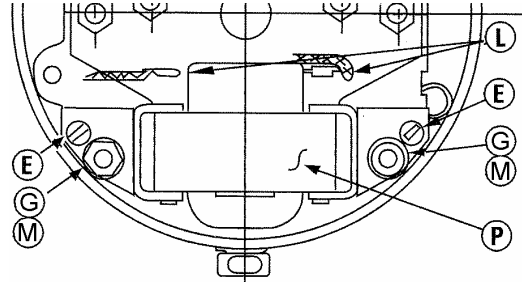
Lift off brake mechanism assembly. Remove pressure plate(s) and brake disc(s). Replace with new pressure plate(s) and disc(s). Reassemble brake mechanism assembly. Set air gap as for wear adjustment.

# FRICITION DISC REPLACEMENT

## COUPLER

Remove (4) hex head screws that hold the cover/shaft assembly to the brake head. Remove the (4) 3/8-16 mounting cap screws at "M." Remove (2) 1/4-20 round head screws and 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. Set air gap as for wear adjustment.

# MAGNETIC COIL REPLACEMENT



## REAR MOUNTED

Remove cover, (1) cover support 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.

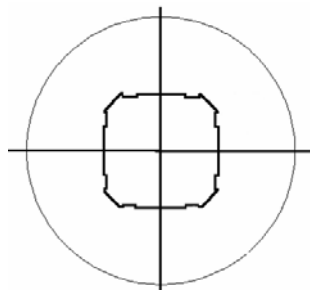
## COUPLER

Remove (4) hex head screws that hold the cover/shaft assembly to the brake head. Remove (2) 3/8-16 mounting cap screws at "M." and (2) slotted screws "E". Lift off complete coil assembly "P" and replace with new coil assembly of the proper electrical rating. Position leads so as to avoid contact with rotating parts. Set air gap as for wear adjustment. Replace cover/shaft assembly as per installation instructions.

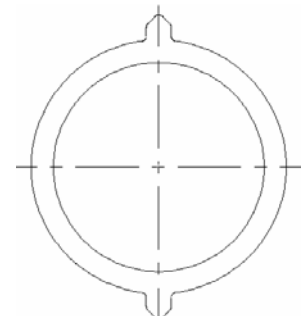
# SERVICE PARTS

## Disc Kits

Number of Discs	Kit Number*
1	327201
2	327202
3	327202-1
* Includes friction disc and pressure plates	



Friction Disc 5 inch diameter



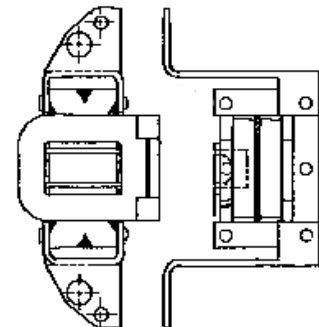
Pressure Plate

## Coils (Solenoids)

Motor brake magnet coils (AC) are single phase.

Coil Voltage	Coil Part Number	DC Resistance *
115/230 VAC	327203	Leads B1 to B2 or B3 to B4 = 8.7 Ohms
230/460 VAC	327204	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 5 % at 25 degrees Celsius.



Coil (Solenoid)