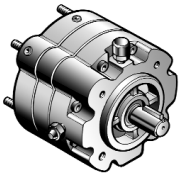
MB-056 Posistop Coupler Brake
INSTALLATION MANUAL

ISO 9001 CERTIFIED

UNIT DESCRIPTION



The ***Posistop MB-056 Coupler Brake*** is a compact motor brake that transmits torque by shearing fluid between multiple friction surfaces. The fluid cools and constantly lubricates the friction surfaces for improved performance and longer service life. It also reduces engagement shock that results when dry friction brakes are used.

This brake is designed for indexing applications utilizing a standard NEMA C-Face register on both ends which allows the brake to be mounted between a C-Face Drive Motor and a C-Face Speed Reducer.

A complete package can be furnished including the Drive Motor, Coupler Brake and Speed Reducer. Contact Force Control for selecting the proper size components for long life cycling applications.

The multiple brake disc stack delivers high torque in a low inertia package. The ***MB-056 Coupler Brake*** is rated from 6 to 18 Lb. Ft. of torque.

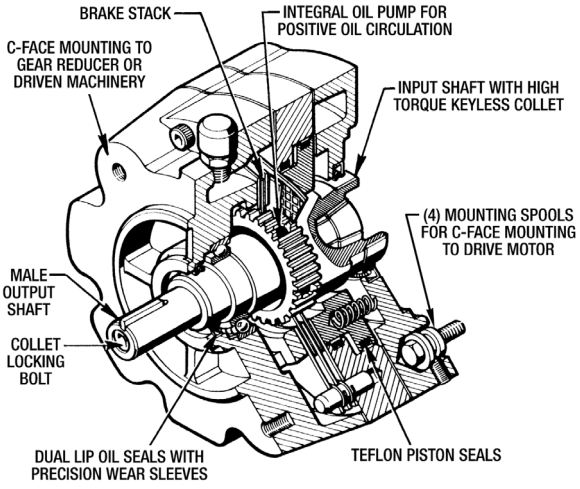


Figure 1 - Unit Description

INSTALLATION

WARNING

The following precautions must be taken if the installation is to be a retrofit for an existing application. Before attempting installation, open the motor disconnects, shut off the control electrical supply and shut off the air supply. Lock them out to avoid the possibility of any personal injury.

A. RECEIVING THE BRAKE UNIT

Check the Brake for shortages and damages immediately after arrival. Prompt reporting to the Carrier's Agent, with notations made on the Freight Bill, will expedite any adjustment made by the carrier.

The ***Posistop MB-056 Coupler Brake*** is shipped pre-assembled except for the (4) Mounting Spools (#109) and (4) Hex Hd. Mounting Screws (#150). The Key (#180) is also shipped loose. There is a red plastic plug in the hole for the Breather (#44). Remove this red plastic plug and install the Breather (#44). *(See Figure 3)* **Failure to install Breather can damage the brake and void the warranty.**

The brake is also shipped with a ***Shipping Sleeve*** in the Collet (#110). This ***Shipping Sleeve*** is just a piece of PVC tubing or conduit cut to length and inserted into the Collet (#110) so the Hub (#2) will not drop and damage the Oil Seals (#31) and (#35) in shipping. ***Remove this Shipping Sleeve before Installation.***

The Brake is also shipped dry so the fluid will have to be added after it is installed as per instructions given in **Lubrication Section.**

If the Brake is not to be installed or operated soon after arrival, then store it in a clean dry place that has a slow and moderate change in ambient temperature.

B. VERIFYING MOTOR SPECIFICATIONS

The Motor Manufacturers Specifications must be verified first to ensure the **Coupler Brake Oil Seal Reliability**. The ***Motor Shaft Runout, Mounting Face Runout and Motor Shaft to Pilot Diameter Eccentricity*** need to be verified with a Dial Indicator as shown in *Figure 2.*

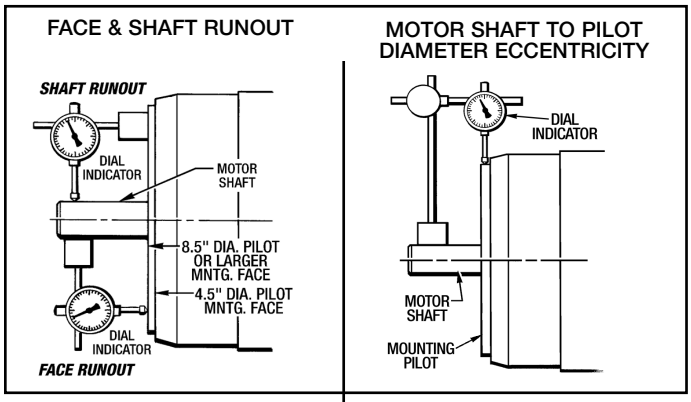


Figure 2 - Verifying Motor Specifications

MAXIMUM ALLOWABLE T.I.R. *(Inches)*

(As Per NEMA MG 1 Standard)

Pilot Dia. Dimension	Tolerance On Pilot Dia.		Maximum Allowable Shaft Runout	Maximum Allowable Face Runout	Maximum Allowable Eccentricity
	Plus	Minus			
Less than 12"	.000"	.003"	.002"	.004"	.004"
12" & Larger	.000"	.005"	.003"	.007"	.007"

CAUTION - T.I.R. in excess of this maximum will result in potential leak condition.

C. MOUNTING THE BRAKE

(See Figure 3)

1. Make sure the motor shaft, pilot diameter and mating surface of the C-Face flange is clean and free of any nicks, burrs or anything that would not allow the brake to seat properly. Clean-Up and De-Burr as necessary.

   IMPORTANT - Do not use any molybdenum disulfide "Molykote" or any other similar lubricant on the motor shaft. The Collet (#110) is keyless and depends on friction to transmit torque from the brake to the drive motor.

2. Install the (4) Mounting Spools (#109) and the (4) Screws (#150) to the motor face as shown in *Figure 3.* Use ***Blue Loctite #271*** on these screws. Only moderately tighten them up at this time. **Do not torque these (4) Screws (#150) at this time.**

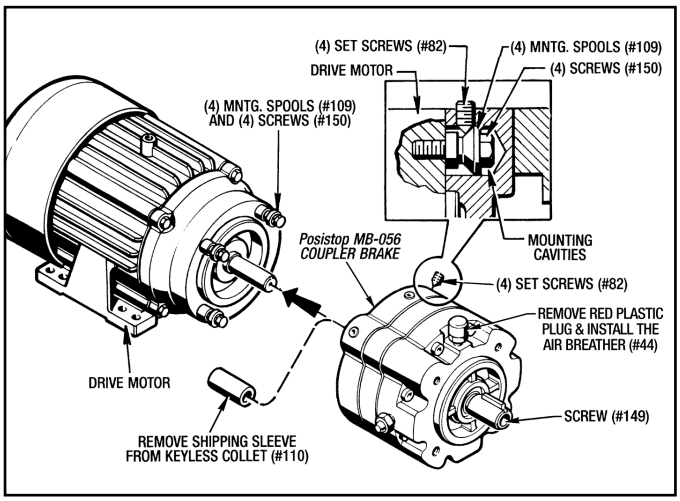


Figure 3 - Mounting The MB-056 Coupler Brake

3. Loosen the (4) Set Screws (#82) and slide the Brake on to the (4) Mounting Spools (#109). Tighten these (4) Set Screws down to correctly align the Mounting Spools.
4. Loosen the (4) Set Screws (#82) and ***carefully remove*** the Brake without disturbing the (4) Mounting Spools (#109).
5. **Torque the (4) Mounting Screws (#150) to 25 Lb. Ft**.
6. Remove the (4) Set Screws (#82) from the Brake and apply Blue Loctite #271 to them. Re-install them back into the Brake.
7. Re-install the Brake back onto the Motor Face. **Torque the (4) Set Screws (#82) to 25 Ft. Lbs.**
8. To lock the brake to the motor shaft, tighten the Hub Locking Screw (#152). **Torque to 25 Lb. Ft.**

   NOTE - The Hub (#2) will be pulled in as the Screw (#152) is tightened. Re-align the Hub (#2) by pulling it outward while tightening the Screw (#152). The shoulder on the Hub (#2) should be in approximate alignment with the End Housing (#9) as shown in *Figure 4.*

9. Install the Key (#180) into the Hub (#2) keyway.
10. Fill with oil as specified in the **Lubrication Section.**

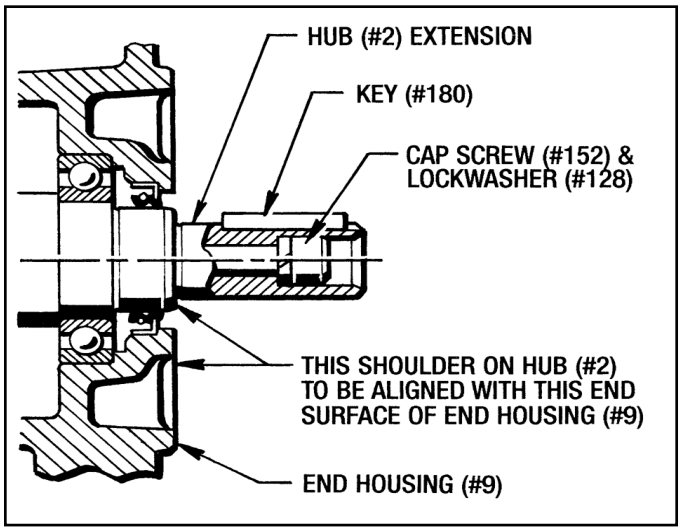


Figure 4 - Hub Alignment

D. MOUNTING MOTOR & BRAKE TO GEAR REDUCER

(See Figure 5)

It is recommended that you use a Coupling, rather than a hollow shaft to connect the Hub (#2) to the Gear Reducer.

1. Attach the Drive Motor and Brake Assembly to the Gear Box or Driven Machinery with the (4) 3/8"-16 Mounting Bolts (Customer Furnished). **Torque to 25 Lb. Ft.** Connect the coupling as per manufacturer's specifications.
2. If the Drive Motor is to be bolted down to the base , use motor shims under the feet to properly align the drive motor with the gear reducer as shown in *Figure 4.* **This is very important so the Coupler Brake will not be pulled down or pushed up.**

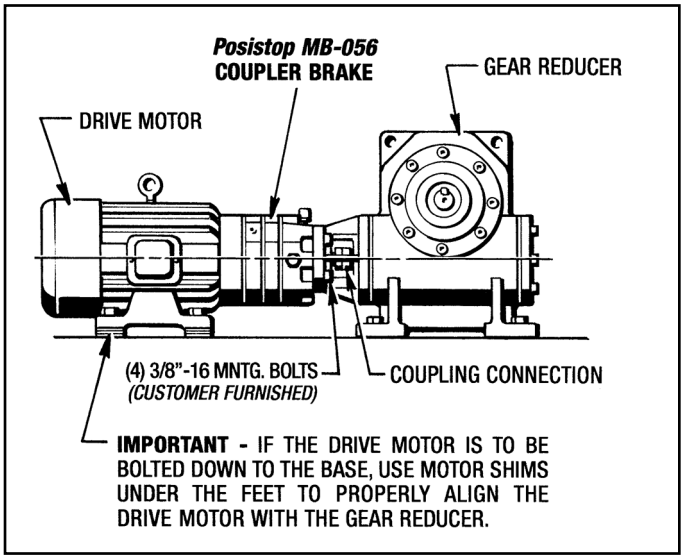


Figure 5 - Motor and Gear Reducer Alignment

E. PNEUMATIC CONTROL VALVE HOOK-UP

Figure 6 illustrates a typical pneumatic system for your ***Posistop MB-056 Coupler Brake.***

A pre-plumbed and mounted **Pneumatic Control Valve Mounting Kit** is available from ***Force Control***.

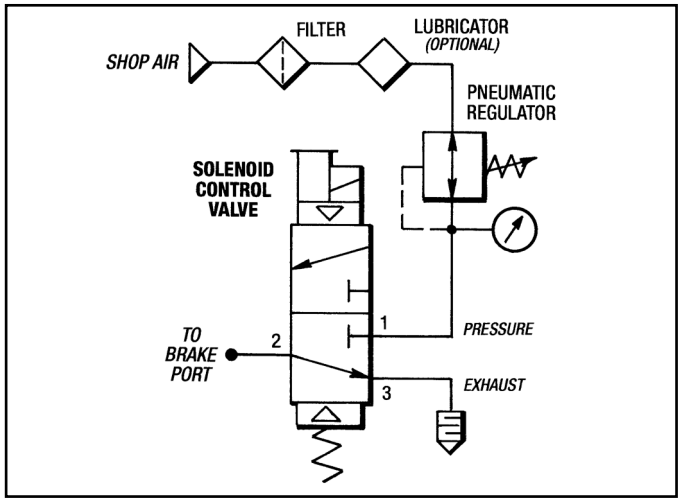


Figure 6 - Typical Pneumatic Schematic

Note the following when planning and installing the Pneumatic System.

1. Use direct acting or pilot operated solenoid air valves to give the correct response speed required. Locate the valve as close to the brake as possible.
2. Be sure to use valves of at least .4 Cv.
3. The air pressure regulator should be sized and set to provide the required torque. 30 PSI is the minimum air pressure to release and 60 PSI is the maximum air pressure to release.

   NOTE - Do not exceed the ***Max. PSI to Release*** air pressure. This will give additional life to the brake unit
   .
4. Hook-up appropriate electrical service to the Solenoid Control Valve as per manufacturers specifications.

F. VERTICAL Vs. HORIZONTAL INSTALLATION

The Installation for a Vertical Mounted Brake is the same as a Horizontal Brake described in the previous sections

The following *Figure 7* shows the Mounting Angles that determines a Vertical Up, Horizontal or Vertical Down Installation.

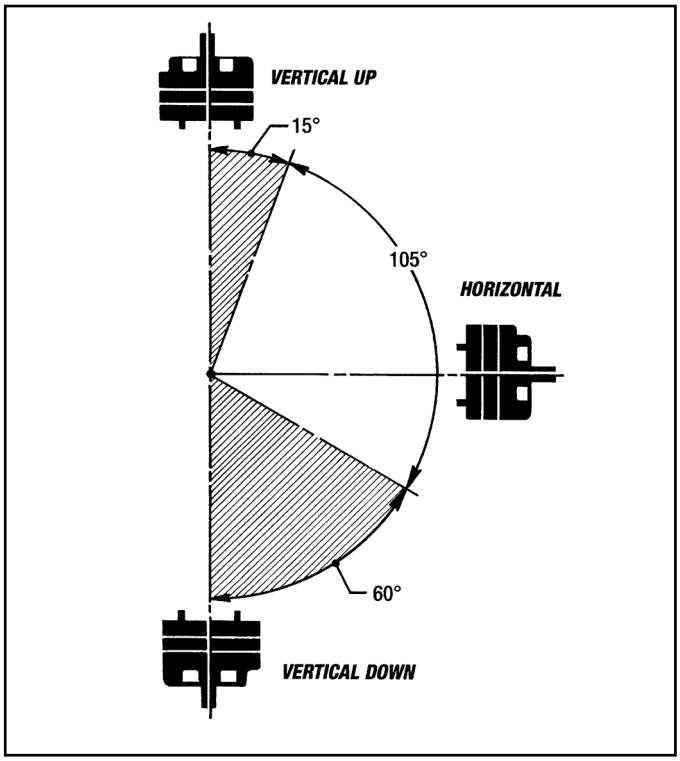


Figure 7 - Vertical Vs. Horizontal Mounting

LUBRICATION

A. CHECKING THE OIL LEVEL

Check the oil level when the brake is initially installed and weekly thereafter or until experience dictates otherwise. Always check the oil with the brake stationary. (Not Running). The oil level is as shown in the following Figures:

1. Horizontal Brake ..... *Figure 8a*
2. Vertical Up Brake ..... *Figure 8b*
3. Vertical Down Brake ..... *Figure 8c*

B. CHANGING THE OIL

IMPORTANT - Always open the disconnects to the drive motor and lock them out before changing the oil.

Change the oil in your brake every 6 months or when the color of the oil starts to darken.

CAUTION - Do not overfill the brake. Excess oil will cause the brake to overheat.

NOTE: The oil should be changed more frequently when used in harsh environments or high cyclic applications.

• Horizontal Brake

(See Figure 8a)

1. Remove the (2) Sq. Hd. Pipe Plugs (#50) and drain all the oil from the brake. Save or discard as condition warrants. Replace the drain plugs.
2. Remove the Air Breather (#44) from the top of the End Housing (#9) and fill the brake with fresh oil to the center of the Sight Gauge (#46) as shown in *Figure 8a*. ***Fluid capacity is approx. 1 Pint.***

   NOTE - The Sight Gauge (#46) and Air Breather (#44) should always be removed and cleaned when the oil is changed.

- **Vertical Up Brake**

(See Figure 8b)

1. Remove the Sq. Hd. Pipe Plug (#50) from the Housing (#8) to drain the oil. Save or discard as condition warrants. Replace the drain plug.
2. Remove the Air Breather (#44) from the Elbow (#61) and fill the brake with fresh oil. Fill until the oil is at the center of the Sight Gauge (#46) as shown in *Figure 8b*. ***Oil capacity is approx. 1 Pint.*** Replace the cleaned Air Breather (#44) after filling.

   NOTE - The Air Breather (#44) and Sight Gauge (#46) should also be removed and cleaned when the oil is changed.

- **Vertical Down Brake**

(See Figure 8c)

1. Remove the Sq. Hd. Pipe Plug (#50) from the End Housing (#9) to drain the oil. Save or discard as condition warrants. Replace the plug after draining the oil.
2. Remove the Sq. Hd. Pipe Plug (#74) from the Elbow (#66) to fill the brake with fresh oil to the top of the Elbow (#66) as shown in Figure 8c. ***Oil capacity is approx. 1 Pint.*** Replace the Plug (#74).

C. TYPE OF OIL

Use only **Mobil Automatic Transmission Fluid ATF-210 Type "F" or Mobil Multi-purpose Automatic Transmission Fluid.**

Other fluids may be used for special applications.

Always use the type of fluid specified on the name plate. If the name plate is missing or if there is any doubt about the correct fluid to use contact Force Control Industries, Inc.

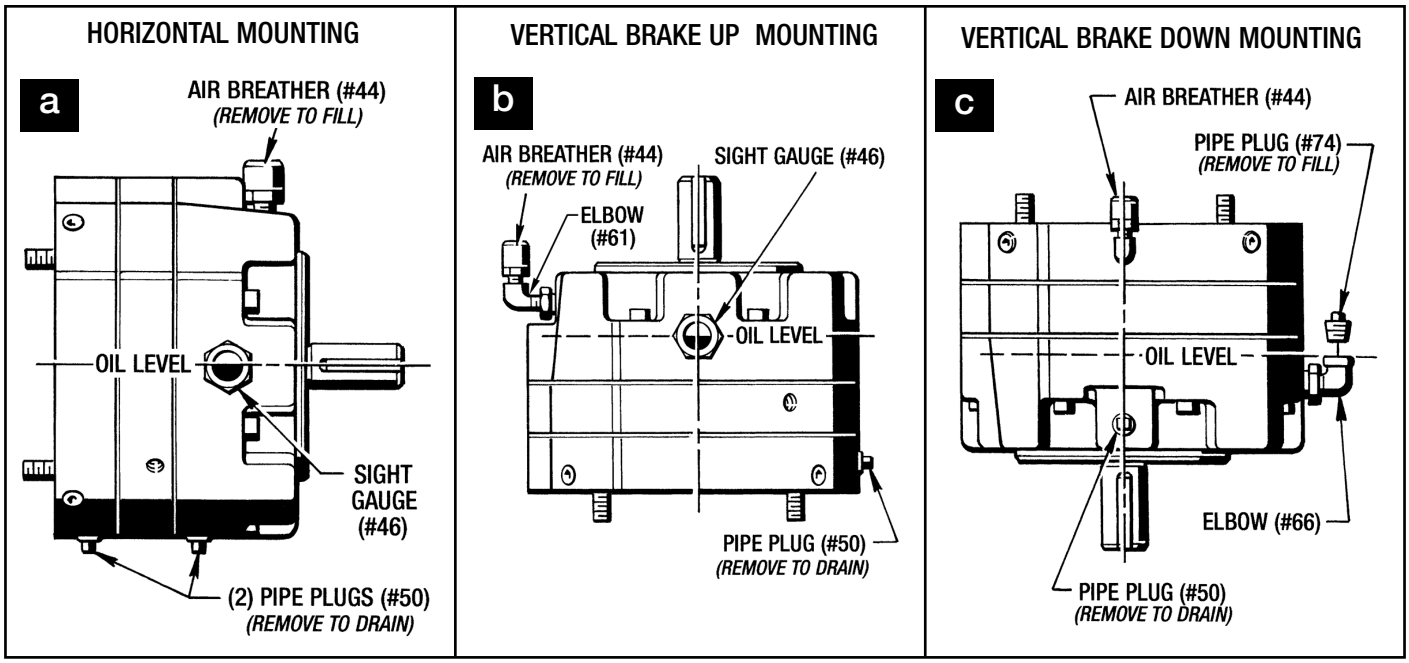


Figure 8 - Lubrication

FACTORY REBUILD SERVICE & COMPLETE SERVICE MANUALS

A. FACTORY REBUILD SERVICE

A Factory Rebuild Service is offered by Force Control Industries, Inc. Contact our service and sales department at Force Control for additional information

B. COMPLETE SERVICE MANUALS

A complete service manual can be downloaded and printed off of our web site.

Go to: **www.forcecontrol.com**

All of our Catalogs and Service Manuals on the web site are in PDF format and will require Adobe Acrobat Reader 5.0 or later to open them. This Adobe Acrobat Reader can be downloaded from our web site if you do not have it installed on your computer.

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