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**F O R M**  
**4046-002**  
**Revised**  
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**"PB" Series Clutches**  
 Installation and Maintenance  
 Instructions for  
 Models PB-3A - PB-16A

	<p><b>⚠ WARNING</b></p> <p>High voltage and rotating parts may cause serious or fatal injury.</p> <p>Turn off power to install or service.</p> <p>Operate with guards in place.</p> <p>Read and follow all instructions.</p>	
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**A. Preinstallation**

1. Check shaft to bore fit.\*

Nominal Diameter	Clutch Bore	Shaft
1" Dia. & Smaller	+0.000 +0.001"	-0.0005 -0.001"
Over 1" Dia. to 2"	+0.000 +0.001"	-0.0005 -0.0015"

- \* If an interference fit is required, do not exceed .001" tight.
2. A key having a hardness of 30-40 Rockwell "C" is recommended. The key should be installed with a push fit. Do not use a driving or force fit. For indexing applications, use tight side fit not exceeding .001" to prevent loosening in service. Key must have chamfered corners to fit keyway.
  3. Since outer race bushing journal runs on same shaft to which inner race is mounted, make sure shaft is clean and free of burrs. Shaft hardness should be 135 Brinell minimum and surface finish of journal portion of shaft should not exceed 32 RMS microinches.
  4. Check clutch for proper direction of rotation. Should change in direction be required, return clutch to your Emerson Power Transmission Distributor or Emerson Power Transmission Service Center.
  5. To ensure ultimate function of the clutch, it is necessary for the shaft to extend through the length of the bore.

**B. Installation**

1. Mount clutch and key on shaft.

**⚠ WARNING** Carefully install clutch to prevent damage to seal at hub end of outer race over lead corner (chamfer) of shaft or keyway to prevent seal lip from reversing (flipping) during installation.

- a. Grease lubricated clutches (stock)

1. When starting inner race of clutch onto shaft, be sure lead-in chamfer is free from sharp edges, burrs, or nicks to prevent damage to seal lip at outer race hub.
2. When starting outer race of clutch onto shaft, use shim stock to pilot the seal. The shim stock should be formed to fit around the diameter of the shaft and should be approximately .002 inches thick. Once seal is past keyway of shaft, remove shim stock.

- b. Oil lubricated clutches (available from factory)

1. Use shim stock to cover shaft keyway and serve as pilot for seal.
2. Carefully slide clutch over shim stock and onto shaft.
3. When seal is past keyway or seal is past shaft lead corner, remove shim stock.
4. To prevent oil leakage, use RTV-732 sealer, or equivalent at bore and keyway of inner race outboard end, and around the shaft at clutch bore.

5. Clutch must be lubricated before using.

2. If a tight fit of .001 inch ( maximum) is desired, simplify mounting by immersing clutch in clean, hot oil (not to exceed 200° F [93° C]) for a period of 10 to 15 minutes prior to installing.

3. Tighten inner race setscrews (2) as equally as possible.

**C. Lubrication and Maintenance**

1. Grease Lubrication

- a. PB Series Clutches are factory lubricated with Texaco Multifak® AFB2 grease and are ready for installation.



## 1. Grease Lubrication (Cont'd.)

- b. Recommended greases are: Texaco Multifak AFB2, Mobilith® SHC 100 and Shell Alvania® No. 2 or equivalent.

Use no other greases unless specific recommendation has been made by Emerson Power Transmission. **Do not use lubricants of the EP type (extreme pressure additives) or those containing slippery additives such as molybdenum disulfide or graphite.**

- c. Grease lubricated clutches should be operated within ambient temperature range of +20° F (-7° C) to +125° F (+52° C). Consult Emerson Power Transmission for lubricant recommendations in applications operating below +20° F (7° C) or above +125° F (+52° C).

## d. Grease Lubrication Schedule

Note: The following are general lubrication recommendations based on our experience and are intended as suggested or starting points only. For best results, specific applications should be monitored regularly and lubrication intervals and amounts adjusted accordingly.

<u>Application Conditions*</u>	<u>Add Grease</u>	<u>Add Grease Under Severe</u>
Overrunning	Every two months	Once per month
Backstopping	Every two months	Once per month
Indexing	Once per month	Every week

\* 24 hours per day or operation in severe abrasive dust conditions.

Periodic flushing of grease clutches is generally not necessary since old grease is purged out when new grease is pumped in.

## e. Grease Lubrication Procedure

1. Clean grease fitting(s) located on clutch outer race.
2. Pump recommended grease into clutch with grease gun until grease flows freely past clutch seals.

## 2. Oil Lubrication

- a. PB Series oil lubricated clutches are available if specified on order. These units must be relubricated before operating.
- b. Use multi-purpose automatic transmission fluid in ambient temperature range of -15° F (-26° C) to +125° F (+52° C). Below -15° F (-26° C) or above +125° F (+52° C) consult Emerson Power Transmission. This lubricant can be used in overrunning, backstopping and indexing applications.

**▲WARNING** Do not use lubricants of the EP Type (extreme pressure characteristics) or those containing slippery additives such as molybdenum disulfide and graphite.

## c. Oil Lubrication Maintenance (primary maintenance factor)

1. Check lubricant level once a month. Add oil to maintain proper fill level -  
Overrunning & Backstopping -1/2 Full  
Indexing - Fill Clutch Completely.
2. In indexing applications, fill with oil every 100 hours of operation or every two weeks, whichever comes first. If clutch indexes over 150 strokes/minute or overruns at high speed in severe duty cycles, oiling may be required at shorter intervals. Flush clutch periodically with mineral spirits (see flushing procedure).

## d. Flushing Procedure

Flushing will remove wear products and wax or gum formed by vaporization of the oil. Flush with mineral spirits such as Solvasol (Socony Mobil® Oil Co.) or kerosene. Do not use carbon tetrachloride.

## D. General Information

1. Do not use the clutch above its torque or speed ratings.
2. Do not attempt to take this clutch apart. Morse® PB Series cam clutches are precision mechanisms made by experienced workmen under careful supervision and high quality control standards.
3. Do not use this clutch as a coupling.
4. Application Engineering: 1-800-626-2093.

**▲WARNING** Disconnect all power before adjusting units.

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