

# INSTRUCTION BULLETIN

## MP STRAIGHT CENTRIFUGAL PUMPAKS

MODELS: 30, 60, 80, 110, 120, 130, 200

### READ THIS BULLETIN CAREFULLY BEFORE INSTALLING OR OPERATING THE PUMPAK

It is important that this instruction bulletin be read over carefully to fully familiarize yourself with the PUMPAK assembly arrangement. The instructions contained in this bulletin pertain to the installation and maintenance of the PUMPAK assembly only.

Check the PUMPAK over carefully to make certain that no parts are missing or broken in shipment. **CAUTION:** Do not disturb the assembly shim at the suction opening of the pump housing until **after** the PUMPAK has been completely assembled to the driver.

Packed separately with each unit are instruction bulletin, parts list, and literature describing this PUMPAK.

#### CONSTRUCTION:

The PUMPAK consists of a housing, adaptor, stainless steel shaft sleeve, shaft seal, seal spring keeper, impeller, drive clamp, gaskets, Woodruff key, impeller locknut, and stainless steel fasteners. Series 80 does not use the seal spring keeper.

The impeller is slipped onto the shaft sleeve and is driven by a Woodruff key and locked in place by a self-locking nut. The Series 80 has the impeller screwed onto the shaft sleeve and held in place by a self-locking nut. The shaft sleeve is machined to precisely fit the shaft on your driver. No provision is made for an internal drive key and none is required. The drive clamp assembly takes the place of internal drive keys, securely locks the shaft sleeve to the driver shaft, and serves additionally as a liquid slinger to protect your motor or engine.

The mechanical seal is the self-adjusting, greaseless type, being lubricated by the liquid in the pump. It requires no maintenance and provides long and trouble-free operation. Because the seal is lubricated by the liquid in the pump, **the pump should never be operated without liquid in the housing.**

In freezing weather, the pump should always be drained of liquid unless sufficient anti-freeze solution is in the system.

#### MOUNTING PUMPAK TO DRIVER:

##### ROTATION:

Check rotation of driver to be sure it coincides with the required rotation of the PUMPAK assembly. When viewed from the driver end PUMPAK rotation may be Right Hand (Clockwise), Left Hand (Counter-clockwise) or Reversible. If discharge port is to your right, pump is Right Hand Rotation. To the left, Left Hand Rotation. If pointing upward, and in center of housing, PUMPAK may be operated in either direction.

Loosen the drive clamp fasteners but do not remove. **NOTE:** If the driver shaft is a keyed shaft, remove the key before installing the MP PUMPAK. The drive clamp assembly on the MP PUMPAK is all that is required to drive the pump. Slide PUMPAK assembly onto the driver shaft, aligning capscrew or stud holes in adaptor with the tapped holes in the driver mounting face, until adaptor contacts the mounting face.

Install fasteners and tighten to secure PUMPAK assembly to driver. First center, then tighten drive clamp assembly to lock shaft sleeve onto driver shaft.

After all fasteners are tight, including drive clamp assembly, remove the strip stock shim from the suction eye of the pump housing. This shim was inserted to establish clearance between the face of the impeller and pump housing. Rotate driver slowly by hand to make certain the impeller does not rub or hit the housing or adaptor.

If impeller is rubbing, this means the shim was displaced during shipment or handling.

## ROTATION: (Cont.)

To adjust impeller clearance, do this:

1. Loosen the impeller drive sleeve clamp.
2. Move impeller either forward or back by using a screwdriver to push impeller back — or move impeller drive sleeve forward.

Depending on the seal spring tension, you can do this by hand without removing the pump housing. Turn the driver to determine that you have adjusted the clearance so the impeller does not rub. Then tighten the impeller drive sleeve clamp.

IF THE SEAL SPRING TENSION PREVENTS THIS METHOD OF ADJUSTMENT, DO THIS:

1. Remove pump housing.
2. Loosen drive clamp, but do not remove.
3. Remove gaskets from housing.
4. Replace housing, pushing against impeller face. Secure housing with two fasteners, 180° apart.
5. Securely tighten drive clamp.
6. Remove housing and install one gasket.
7. Replace housing, securing with two fasteners, 180° apart.
8. Rotate driver to determine if impeller rubs. If it does, add one more gasket. If not, replace all housing fasteners and tighten.

## INSTALLATION:

The MP straight centrifugal PUMPAKS should be installed with flooded suction or as near to the liquid source as possible.

If it is necessary to install the pump above the level of the liquid, a priming line should be connected directly to the suction line. A check valve must be used in conjunction with a priming line or the priming liquid will merely pass through the suction line to the liquid source. The priming of the suction line evacuates the air in the suction line and pump. This series of pumps will not handle air and therefore all air must be displaced from the suction line and pump before the pump can operate. Be sure that pump housing is filled with liquid before starting the pump. **THE MECHANICAL SEAL IN THE PUMP MUST NOT BE OPERATED DRY.**

Pipe or hose of the same size (or larger) as inlet and outlet openings should be used on the installation. When using pipe, avoid sharp bends and use long radius elbows wherever possible. This will keep friction loss at a minimum and allow the pump to operate more effectively. Use pipe dope on all connections and be sure all fittings are air-tight, especially on the suction side of the pump. An air leak on the suction side of the pump will prevent proper operation. A section of non-collapsible hose between piping and pump may be used as a vibration dampener.

## TO DISASSEMBLE THE PUMP:

Drain the system of liquid, break suction and discharge pipe unions, and, if necessary, remove all piping from the suction and discharge openings. Remove the fasteners holding the pump adaptor to the driver, loosen the drive clamp assembly, and remove the PUMPAK.

To disassemble, remove the fasteners holding the pump housing to the adaptor. Remove the housing but use caution so as not to tear the housing gaskets.

Remove the drive clamp assembly. The impeller, drive sleeve, seal bellows, and spring assembly will now slide forward free of the pump adaptor.

The seal seat and seat cup will remain in the pump adaptor. If not damaged or worn, do not remove. If necessary, remove from the adaptor counter bore with a piece of wood or a screwdriver handle inserted through the adaptor from the drive end. A sharp tap or two is usually sufficient to knock out the seal seat. Use caution in removing the seal seat so as not to crack a ceramic seat or distort a metal seat.

#### **TO REMOVE IMPELLER:**

Remove seal bellows and spring assembly. On some models, spring keeper can also be removed now before removing impeller.

**NOTE:** The seal bellows will be bonded to the shaft sleeve and will require some patience and caution in removal in order not to damage the seal bellows and cage.

Remove the impeller locknut from the end of the shaft sleeve. Slide the impeller from the shaft sleeve and remove the impeller Woodruff key. Series 80: Unscrew the impeller from the shaft sleeve counter-clockwise from impeller end.

#### **INSPECTION:**

Check all parts for wear. For ease of reassembly shaft sleeve should have all nicks and burrs removed. Clean with light crocus cloth. Replace damaged parts with new parts.

Inspect the seal seat and washer, seat cup, and seal bellows for grooves, cuts, scuff marks, or other deterioration. If any of the parts are damaged, a complete new assembly should be installed.

#### **REASSEMBLY:**

Clean all castings with mild cleaning solvent such as kerosene. All dirt and foreign matter should be removed. If seal is to be reused, use soft clean cloth to wipe seal faces.

Lubricate seal seat cup with liquid soap or clean grease and press seal seat into adaptor counter bore, seating it firmly and squarely. Use caution so as not to mar the lapped face of the seal seat.

Assemble shaft sleeve, seal spring keeper, impeller Woodruff key, impeller, and impeller locknut. Before installing seal bellows and spring assembly, lubricate the shaft sleeve and rubber bellows with liquid soap or clean grease and press bellows and spring assembly onto the shaft sleeve. The spring should engage the spring keeper at the impeller end of the shaft sleeve. Be sure seal washer is properly positioned before and during the assembly operation.

To be properly positioned the washer must be firmly against the rubber bellows member and the driving lugs of the washer properly engaged. The raised shoulder on the seal washer should be facing away from the impeller to contact the lapped surface of the seal seat in the adaptor.

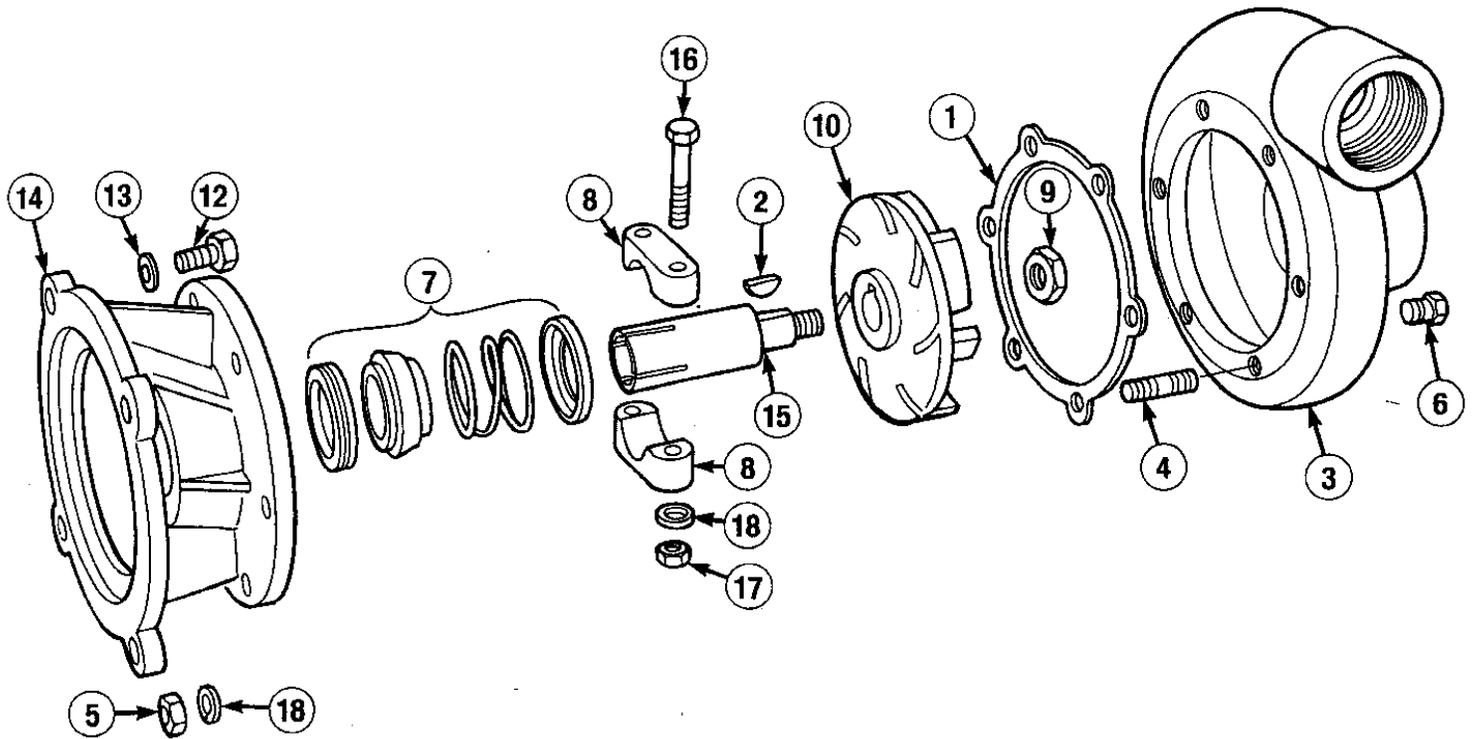
Slide impeller and seal assembly into the adaptor. Install drive clamp assembly on shaft sleeve but do not tighten.

Proceed with mounting instructions shown under **MOUNTING PUMPAK TO DRIVER.**

#### **DRIVER REPAIRS:**

1. Remove piping, install strip stock impeller shim.
2. Remove four capscrews which fasten adaptor to driver.
3. Loosen drive lamp assembly.
4. Remove PUMPAK.

After driver repairs, reinstall PUMPAK according to instructions shown under **MOUNTING PUMPAK TO DRIVER.**



Parts shown are typical, not necessarily actual views.

ITEM NO.	DESCRIPTION
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- 1 Gasket
- \*2 Woodruff Key
- 3 Housing
- 4 Stud
- 5 Hex Nut
- 6 Plug
- 7 Seal Assembly
- 8 Drive Clamp
- 9 Impeller Locknut

ITEM NO.	DESCRIPTION
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- \*\*10 Impeller
- \*11 Seal Spring Retainer
- 12 Capscrew
- 13 Lockwasher
- 14 Adaptor
- 15 Shaft Sleeve
- 16 Capscrew
- 17 Hex Nut
- 18 Lockwasher

\* Not used on Series 80

\*\* Impeller shown is Semi-open. Series 60 and 80 use enclosed impellers.



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