

## Centrifugal Pumps: Seal Replacement Instructions

The following instructions are general. Although the illustrations may not depict the specific centrifugal pump model you are concerned with, the seal components are similar for all centrifugal pumps.

### 1. Remove Pump Cover.

This exposes the centrifugal impeller.

### 2. Remove Pump Impeller

(SEE FIGURE 1) The impeller is threaded onto the shaft. Unscrew impeller from shaft by shocking with screwdriver and hammer. **Note** that all impellers unscrew in the same direction as the pump rotates. Thus, the impeller unscrews counter clockwise when facing the open end of the pump. However, Model 800B has left hand threads and unscrews clockwise.

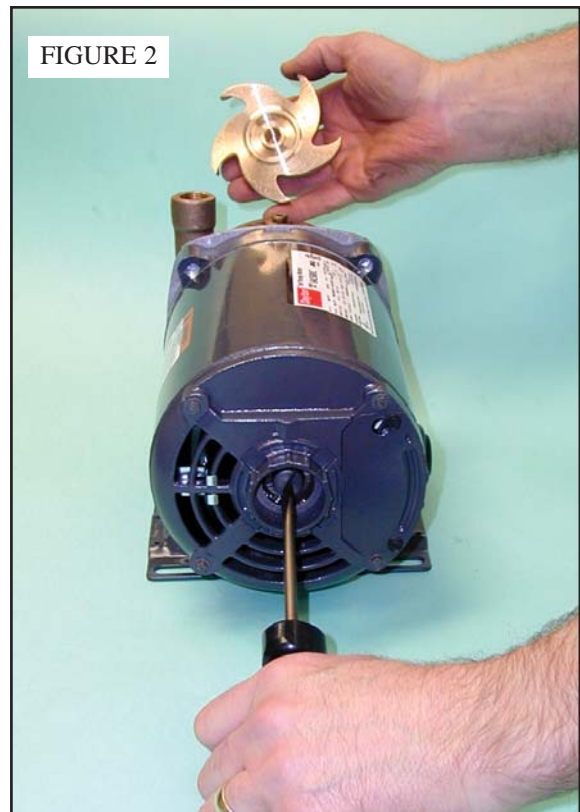
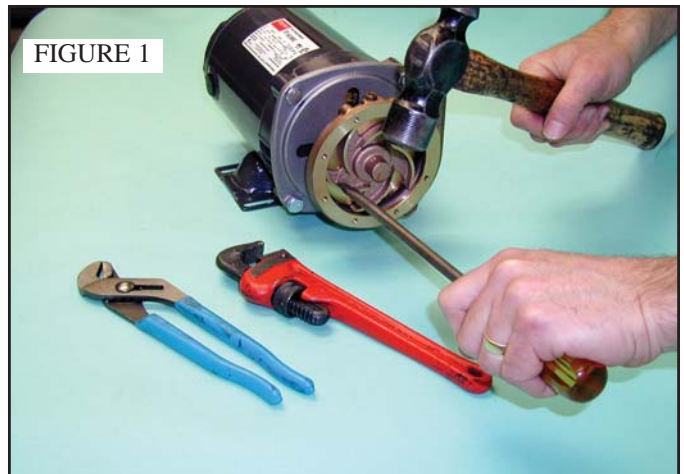
Usually the shock force alone is sufficient to unscrew the impeller. In extreme cases it may be necessary to restrain the shaft. For pedestal centrifugal pumps, the exposed drive end of the shaft can be clamped in a vise and restrained accordingly. For pumps close coupled mounted to electric motors, restrain the shaft via the screwdriver slot in opposite end of motor shaft. (SEE FIGURE 2) The impeller hub extension may also be gripped with a pipe wrench, channel lock, or vise grip to loosen and remove it.

If motor does not have a screwdriver slot in opposite end of shaft, restrain motor shaft by inserting screwdriver through air openings in motor body to bear against fan or cooling air projections of motor armature. Exercise care not to damage motor fan or armature.

### 3. Remove Pump Body (or pump casting containing the seal)

On some models, the pump body is clamped to motor adapter by a single bolt. Loosen nut and slide pump body off.

On other models, the seal is contained in the pedestal bracket or adapter to the motor.



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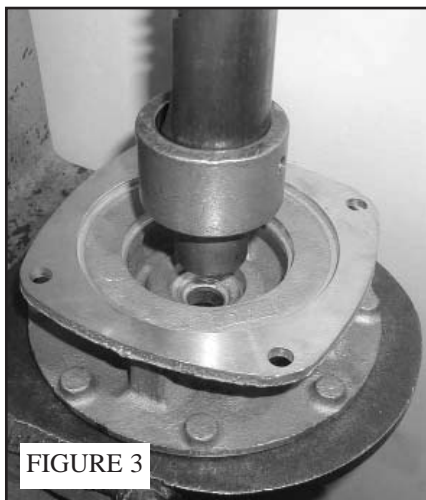


FIGURE 3

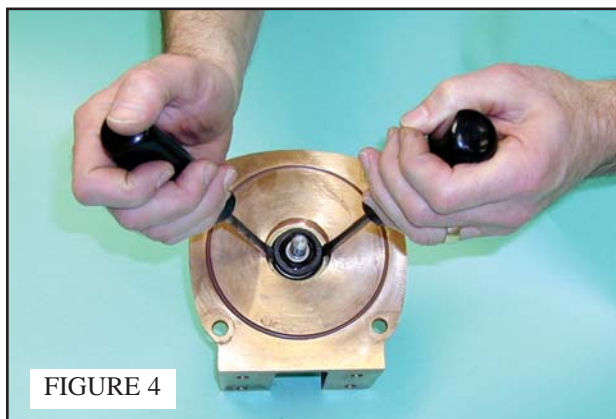


FIGURE 4



FIGURE 5

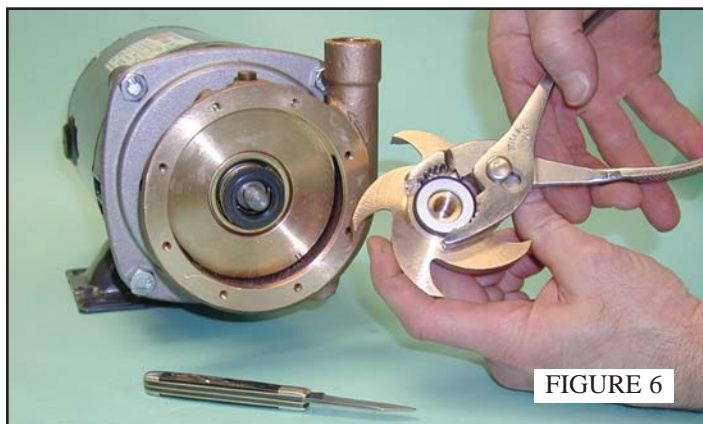


FIGURE 6

#### 4. Press Seal from Pump Body or from the Pump Casting Containing the Seal

(SEE FIGURE 3) The seal is a press fit in the pump body or adapter. To press out, place body flange down on flat surface exposing motor or bracket end of seal. Press seal through into impeller chamber - DO NOT attempt to press in other direction as seal has a seating flange. Clean the bore in the pump body from which seal was removed. Remove all hardened residue. Do not gouge or damage seal bore. (SEE FIGURE 4) On some pedestal pump models (70P & 800B), it is not possible to press out the seal without first pressing out the shaft and bearing assembly. In such cases, it is possible to collapse and pry out the seal while leaving the shaft and bearing assembly in position.

#### 5. Press New Seal into Pump Body

(SEE FIGURE 5) Coat bore with Permatex #2®, Teflon® paste, Locktite 620®, or equivalent sealer to press-in. Use bushing type pusher to press and press only on metal flange of seal DO NOT press on spring loaded carbon face. DO NOT damage or scratch lapped carbon face. A scratched surface will cause seal to leak.

#### 6. Remove Seal Wear Face from Impeller

(SEE FIGURE 6) If lapped wear face projects above impeller, use pliers to pry out. If wear face does not project, use knife or sharp instrument to pry out.

#### 7. Install New Seal Wear Face

Coat wear face (and seal seat) with liquid soap and push into impeller chamber with finger pressure. DO NOT damage or scratch wear face surface.

#### 8. Reinstall Pump Parts

Reinstall pump parts to motor adapter or to motor and pedestal bracket or adapter in reverse order as follows:

1. Slide pump body on motor adapter or bolt pedestal bracket or adapter to motor.
2. Thread impeller onto shaft. Be sure to replace any spacer shims used originally for impeller positioning.
3. Clamp pump body to motor adapter by single draw down bolt. A rotating clearance should remain between body or cover and impeller.
4. Reinstall gasket, or o-ring and pump cover.

#### 9. Check for Impeller Interference

Check that the impeller does not interfere with pump body or cover by rotating impeller by hand or joggng the motor. Metallic noise is a sign of interference. To eliminate interference noise, reposition the impeller to better center it in the body chamber and provide rotating clearance. Do this by adding or removing spacer shims onto motor shaft.

#### 10. Impeller Shimming

Since jet pump motor shaft projections can vary, pump heads are provided with impeller shim kits. In general, an air gap of 0.010" to 0.015" is recommended between the rear shroud of the impeller and the motor adapter face. Once the pump casing is mounted, check to be sure that the impeller is not rubbing against the casing. Adjust shimming as needed.