Moyer Marine inc.

Service and Maintenance
MMI Flexible Impeller Pumps
(502 flange and 501 pedestal)

PARTS

NOTE: If you're using these instructions to install a new seal kit (Product No. - CSOB_00_573), and will be reusing your old shaft, be sure to install the new seals in the same locations you found them on your old shaft (some earlier MMI 501 pedestal pumps will not need the oil seal). Also, during reinstallation of flange pumps, start the engine for a few seconds before final tightening of the retaining bolts on the flange of the pump. This precaution will insure that the shaft of the pump is in the best alignment with the drive gear on the accessory drive.

PREVENTATIVE MAINTENANCE SCHEDULE:
Preventative maintenance requirements of the MMI Flexible Impeller Pump are limited to replacement of the impeller, water and oil shaft seals. Following are the recommended replacement intervals:

Impeller: In normal service (50 to 100 hours per year), impeller changes are recommended every 3 to 4 years, depending on the quality of the raw water in your operating area. When used in an enclosed freshwater cooling system, impeller change intervals can be increased to every 4 or 5 years.
Shaft and shaft seals: Due to the enhanced stability of the shaft, made possible by its ball bearing support, the life of the shaft and lip-seal have been greatly increased. For this reason, and the fact that shaft (lip type) seals do not normally fail catastrophically, we have not established a time change recommendation for either the shaft or the seal. However, if you are planning a long trip, and the pump has been in service for approximately 5 years, we recommend replacing the seal, and checking the shaft for any sign of grooving. If there is a noticeable groove in the shaft where the lip seal is in contact, replace the shaft as well as the seal.

DISASSEMBLY:
1) Unthread each thumb screw sequentially until the back plate is free from the pump housing.
NOTE: Use care to avoid unthreading any of the thumb screws completely out of the back plate. If any of the thumb screws are accidentally turned free from the plate during removal, simply rethread the thumb screw back into the plate.
2) Check to be sure the o-ring remains in the grove in the back plate. If necessary, apply a small amount of general purpose grease (provided in zip-lock bag) over the o-ring and groove, to help hold the o-ring in place (fig. 1).

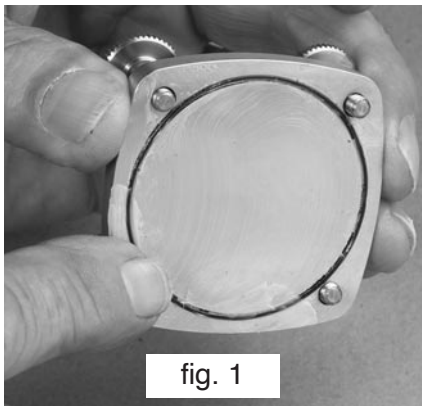
fig. 1

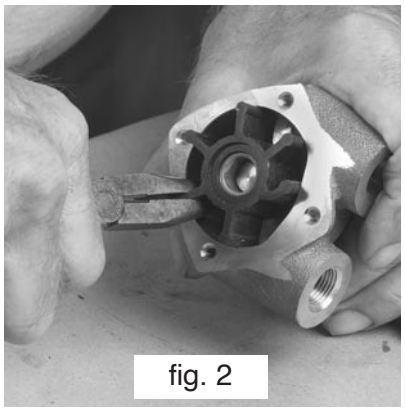
fig. 2

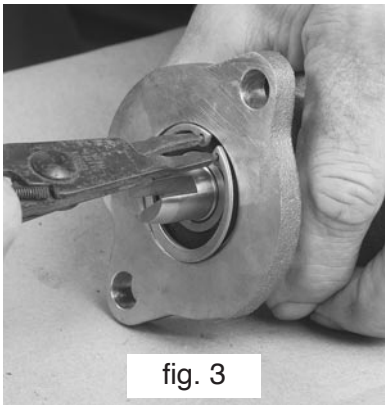
fig. 3

3) Remove the impeller by gripping the flexible blades at different locations around the impeller as you "walk" the impeller out of the chamber (fig. 2).
NOTE: If you only intend to replace the impeller, you can skip to the section: "Installing Impeller and Back Plate".
4) Remove the inside snap ring on the face of the flange end of the pump housing (fig 3).
5) Rest the flange end of the pump housing on two 2 X 4 wooden pieces to give the shaft room to leave the pump, and to protect the face of the mounting flange of the pump. An aluminum ring is included in MMI 501 pedestal pump kits to assist in positioning the front of the pump housing between the two 2 X 4s as in Figs 4, 5, and 6. Then, using a wooden dowel, drive the shaft through the impeller chamber until the shaft, bearings and the oil seal fall free from the housing (fig. 4).

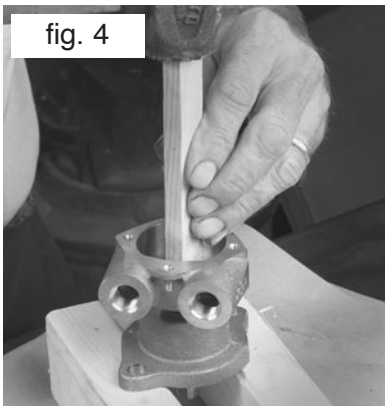
fig. 4

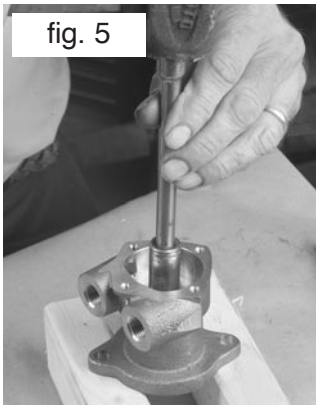
fig. 5

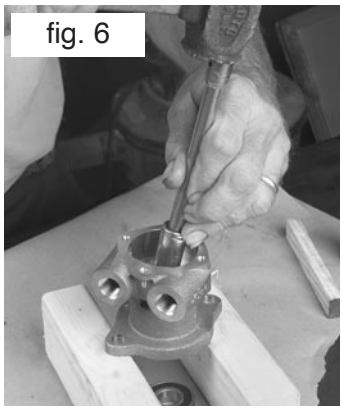
fig. 6

6) If the inside bearing remained in the housing, apply a thin layer of general purpose grease around the inside of the housing ahead of the remaining bearing. Then use a 9/16" deep socket and a medium 3/8" extension to drive straight through the lip seal until reaching the remaining bearing and continue driving the bearing out of the housing (fig. 5).

REASSEMBLY:

1) Clean the housing as necessary to remove any crud or corrosion.

2) Insert a new lip seal into the pump housing (the smaller of the two seals), positioning it over the seal recess, so that the side with the spring visible faces the impeller chamber (fig. 7).

3) Using a 13/16" spark plug socket,carefully drive the lip seal into the recess in the housing until the lip end of the seal rests against the ridge around the end of the hole, as viewed through the impeller chamber (fig 8)

4) Re-apply a thin layer of general purpose grease around the inside of the housing to facilitate bearing re-installation (fig. 9).

5) Tap the impeller end of the shaft through one of the bearings, and then drive the second bearing over the flange end of the shaft using the short 1.5” pipe provided in kit . Bearings will seat against the stop ring near the center of the shaft. Bearings and shaft must be kept in alignment to prevent binding during this step. Drilling a 3/4” hole through one of the 2x4s will greatly facilitate installation of the bearings on the shaft (figures 10 and 11).

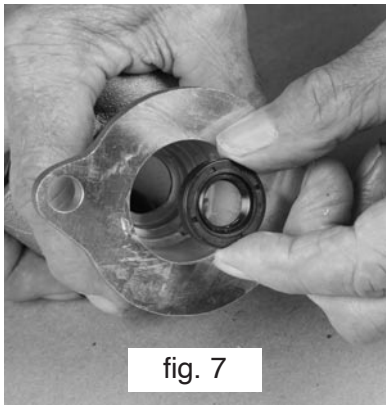
fig. 7

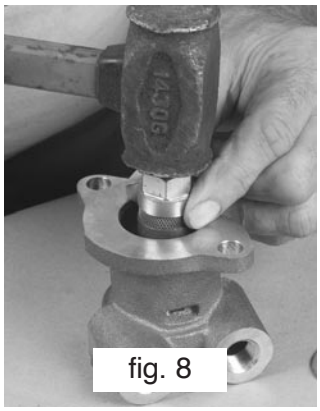
fig. 8


fig. 9

NOTE: If you’re installing a complete repair kit, and/or replacing your old shaft, please pay close attention to reassembly step 6 and photo #12 and move the oil seal to the impeller side of the bearings. In this location, the seal will protect the bearings from water damage in case of a leaky water seal.

6) Coat the lip of the largest seal with general purpose grease and slip it over the impeller end of the shaft making sure the lip of the seal with the thin garter spring is facing away from the impeller section. Then insert the shaft assembly into the housing (figure 12).

7) Continue driving using the short section of pipe provide in kit, until the flange end bearing clears the snap ring groove (approx. 1/8” below flange surface) (figure 13).

8) Install snap ring (figure 14).

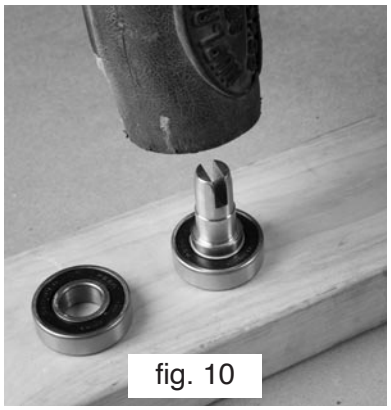
fig. 10


fig. 11


fig. 12


fig. 13

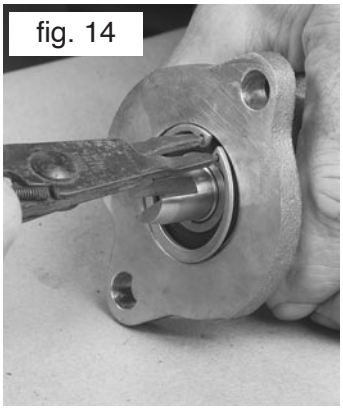
fig. 14

INSTALLING IMPELLER AND BACK PLATE:

1) Apply a thin layer of general purpose grease on the end of the shaft. Then align the flat side on the inside of the impeller hub with flat side of the shaft, and slide the impeller over the shaft until it is completely inside the impeller chamber (fig. 16).

2) Install the 4 captive thumb screws until they extend approximately 1/16" past the o-ring side of the plate (fig. 17).

3) Check the back plate to be sure the o-ring is in place within the groove, and apply a thin layer of general purpose grease (provided in zip-lock bag) over the o-ring to insure that it stays in place (fig. 18).

4) Position the back plate over the back of the pump so that the ends of the thumb screws enter the 4 holes in the housing, and then tighten the thumbscrews. Be careful to not move the plate around on the back of the pump housing more than necessary, so as to not disturb the o-ring (fig. 19).

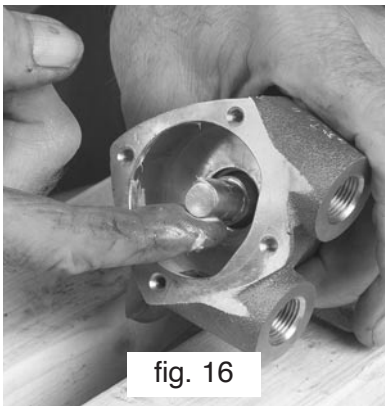
fig. 16

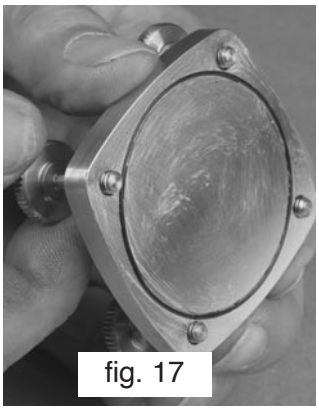
fig. 17

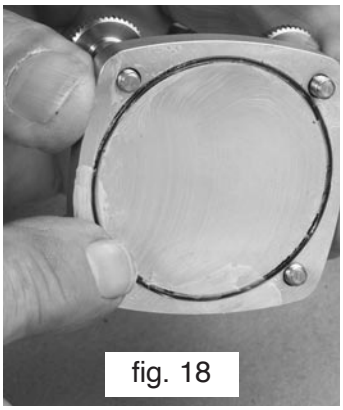
fig. 18

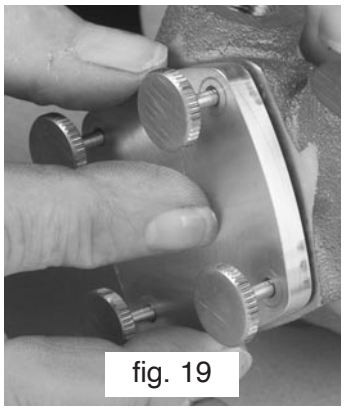
fig. 19

NOTE: The threads in the outside end of each of the thumb screw holes in the housing, have been drilled out to a depth of approximately 1/16" to accommodate the tips of the thumb screws. In this way, the ends of the thumb screws become "self-locating" when positioning the plate during installation. This feature makes it considerably easier to locate the back plate when replacing an impeller on the boat, where access is poor.

Tools necessary to disassemble and reassemble the MMI Flexible Impeller pump:

1) Medium sized, inside snap ring pliers.
2) Needle-nosed pliers.
3) 3/8" drive socket tools as follows:
   a. Medium length extension (4 to 6 inches).
   b. 3” length of 1.5” O.D. pipe (supplied in MMI kit).
   c. 13/16" spark plug socket.
   d. 9/16" deep socket.
4) Two short lengths of 2 X 4 stud material (with 3/4” hole drilled through one of them).
5) Wooden dowel, approximately 3/4" X 5" (supplied in MMI kit).
6) Medium sized ball-peen hammer, or small mallet.
7) Common screwdriver