Manual Bilge Pump Rebuild

September 2012

I recently finished rebuilding the manual bilge pump (MBP) on my 1979 Pearson 323 ***My Cyn*** and thought I would share what I learned during the process. This may save you time, money and aggravation when working on your boat.

My Cyn came equipped with a Henderson Mark V pump as original equipment. Parts are now available from Whale Water Systems. Most of the parts kits mentioned in this write up came with an instruction sheet and an exploded diagram showing the various parts. Some instruction sheets listed part numbers for the kits. Caution should be used, as the part numbers shown on the instruction sheets may be obsolete. The kit numbers I have used in this write up correspond to those found on the Whale Water Systems website at the time of writing. The Whale Water System web address is: www.whalepumps.com

I knew the MBP did not function when I bought the boat. I confirmed that the diaphragm had failed by unscrewing the top (front) cover and finding the tear.

I bought parts kit AK8050 which contains the following items:

- Diaphragm
- Inlet valve and inlet valve plate
- Outlet valve and screws
- Top cover seal (rubber O-ring)
- Instruction sheet with an exploded diagram

I began to disassemble the MBP from inside the port-side cockpit locker. It was obviously a tight squeeze, and not very comfortable to work in this position. Removing the suction and discharge lines from the connections on the MBP body was straight forward. The corrosion on the hose clamps meant that new clamps needed to be added to the list of replacement parts.

Removing the body from the rear cover was more difficult. (8) screws hold it on, and although the nuts sit inside recesses to prevent them from turning, the nuts are not retained. I lost a couple of them to the bilge during this step.

When I brought the pump body up into the daylight, I saw cracks and missing material around the pump discharge connection. There were also cracks where the screw heads holding the outlet valve in place contacted the pump body. After some thought and consideration, I decided to replace the pump body.

I bought Whale parts kit number is AS0522, which contains the following items:

- Pump body
- (8) screws and nuts
- Inlet valve and inlet valve plate (already installed in the pump body)
- Outlet valve and screws (already installed in the pump body)
- Top cover seal (rubber O-ring)
- Instruction sheet with an exploded diagram

As you can see, I now have some spare parts.

More problems were found when I brought the (2) aluminum diaphragm plates and the plastic rocker arm nut up into the sunlight. Heavy corrosion on the diaphragm plates with material loss on both, and well as cracks on the nut.

I bought Whale parts kit number AS8552 which is for a double acting pump with dual diaphragms. It contained the following items:

- (4) aluminum diaphragm plates
- (2) plastic Nuts

In hind sight, I may have been better off purchasing Whale parts kit number AS0561, which contains (2) plastic diaphragm plates and one nut.

During the process, I noticed that the flexible rubber seal in the cockpit that seals between the rocker arm and the vertical cockpit wall was also torn. Removing the (6) countersunk screws that hold the white plastic face plate and flexible seal in place was a snap. The uppermost (2) fasteners in this pattern help hold the MBP rear cover to the vertical cockpit wall. Removing (2) more countersunk screws below the deck seal allows the rear cover to be completely removed from the boat. The photo below shows the (4) fasteners that actually hold the MBP to the cockpit wall **not in place yet**.

I bought Whale Deck Plate kit number DP9905. It contains the following items:

- Flexible rubber seal
- Plastic mounting ring

Parts kit DP9905 was the hardest to find. It does not show up on any of the instruction sheets contained in the previous parts kits purchased. I actually ordered the incorrect part number at first. I'll spare you the details and the resulting drama. I eventually found the parts kit in a catalog at the local chandlery.

Everything goes back in reverse order. I installed the flexible rubber seal over the rocker am first, using a lubricant (spit) to make the process easier. I then pushed the flexible seal thru the large opening in the cockpit wall from inside the cockpit locker. The order of installing the (8) fasteners can make your job much easier. I would recommend installing the (4) fasteners shown in the picture below first.

What I would do different:

- Immediately remove the entire MBP from the port-side locker to disassemble, clean, inspect, and repair. It is straight forward to remove, much easier to work on while on your kitchen table, and saves a lot of time in the long run.
- Disassemble the MBP and inspect all the components prior to ordering any parts kits.
- Add up the costs of the required parts kits and compare to the cost of an entire new pump. Installing a whole new pump will take less time and may be less money.
- If you do decided to replace with a new MBP, confirm the mounting screw pattern is the same as the original.