

ADDING AN AUTOMATIC BILGE PUMP

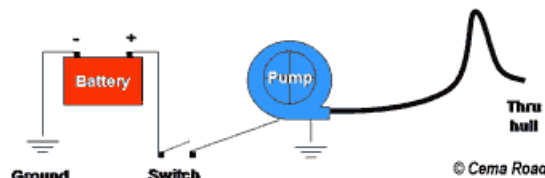
Rick Lucas: *Ping*

Ping came with one automatic bilge pump that claimed to be 500GPH, but looked too small and too old to make me comfortable. Also, the mounting position was rather far aft, away from the lowest part of the bilge which left four or more inches of water down there. The water had to rise to about six inches before the external float switch would trip the pump. I wanted something better.

Upon reading comments about adding additional pumps on the SailNet Pearson email list, I set about installing a second, beefier pump. The wiring and switch were no problem. What I wasn't sure about was where to mount the pump and how to get the water out of the boat.

First, the stuff I had nailed. I found a beefy looking 500GPH Shurflo pump on sale locally for about US\$50 so I grabbed it. I liked this pump as it had a built-in float switch. I also picked up a three-position Rule bilge pump switch with light that was virtually identical to the one installed on the existing pump. I knew from measuring that there was enough room to mount the new switch directly above the existing one. The wiring instructions that came with the pump and the switch were simple enough for even me.

They also related to each other so I could easily configure the pump to function on both the manual and automatic positions on the switch. With this information, I ended up with a configuration that looks like this diagram.



With the wiring plans ready, the first challenge was to find a place to mount the pump. There were no mounting points for a bilge pump configured in the deepest part of the bilge, so I had to configure a mount that would reach from the cabin sole down to the depths of the bilge. The best place I found was on the edge of the aft dinette seat. The vertical side was almost directly over the bilge and I figured I could screw a piece of wood to the seat bottom that would extend down to the bilge. On that I could affix the bilge pump side mounting.

As my dad would say, "water and wood, uh uh, no good." I

knew I had to protect the marine plywood from being constantly drowned by the contents of a mucky bilge so I applied two coats of West Systems epoxy to what would be the lower section of the board to keep the water out. Since the run from the top mounting point for the board was not straight down into the bilge, I drilled the holes in the plywood on an angle. At that angle, the wood rested on the bend where the hull meets the encapsulated keel. I placed a piece of closed-cell foam at that point to protect the two from rubbing, but I'm not sure it was necessary.

With the pump and mounting board firmly in place, it was time to run the outflow hose to a hole in the boat. In a perfect world, I would have run the hose aft to a thru-hull in the transom, but the bulkhead in the engine compartment made that impractical without some cutting. I didn't want to do that. There were two existing thru-hulls exiting the boat on the starboard side above the waterline behind the swing-out

sink in the head. One was for the primary bilge pump and the second was for the head sump. Although not a perfect solution, I decided to piggyback into the sump line below its anti-siphon loop. A simple Y fitting tapped the new line into the existing one to get the bilge water off the boat.

Next, I turned to the wiring. As said before, the instructions for the



pump and the switch were simple and easy to follow. I mounted the new switch on the flat panel between the door under the galley sink and the engine cover. I cut the hole by drilling four holes at each corner of the mounting space, then cut the panel using one of those saws that use a modified drill bit to cut laterally. I don't know what they're called, but it worked. With the panel removed, I ran the wires from the pump up through the hole and secured them to the switch. I then attached the positive side of the switch directly to one of the house batteries (Ping has two run in parallel).

With wires connected, I slid the switch in place. It fits like it belongs there. I tested the automatic switch setting by pouring water into the bilge until the integral pump switch kicked on. The new pump started before the old float came off the bilge. The new pump the water down to about two inches of depth. I can get it down to a little over an inch by holding the switch in the manual position for about a minute.

Things I'd do differently: I'd use either an aluminum strip or a polystyrene board instead of wood for the mounting platform. Neither of those would suffer from being constantly drowned, and the aluminum could be bent around the curve required to get to the bottom of the bilge.

Cost: US\$75.00 (pump & switch)

Time: About 3 hours

