

# Water System Prep

*Paul Esterle has been building or repairing watercraft, of all descriptions, for longer than he cares to admit, from hovercraft to power and sail boats. Paul specializes in boat improvement and repair projects utilizing wood, epoxy, and fiberglass. If you have any questions about your boat project, contact Paul at pesterle@comcast.net.*

*by Paul W. Esterle*

It's not too soon to be thinking about getting your boat ready for the new season. Water systems are one of the most neglected aboard a boat and could use some explaining and some thought. I bet that if you ask ten boaters how their water is, at least five of them will say they don't use it and carry bottled water. Well, follow the steps listed below and you won't have to complain about the fresh water on your boat.

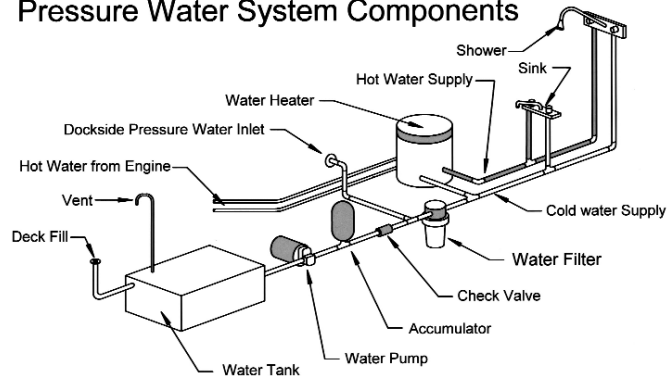
## First Flush

Assuming you winterized your boat last fall, the first step is to flush out all the antifreeze you put in at that time. Start with the faucet or outlet farthest from the pump and let the water run until it's clear. Work back towards the pump, draining faucets as you go.

**CAUTION:** Do not turn on the water heater! It will take you a long, long time to get the taste of overheated antifreeze out of your boat.

This process also assumes you used the proper RV/Marine non-toxic antifreeze last year. If you didn't, you have a problem; the au-

## Pressure Water System Components



tomotive type of antifreeze is toxic and should not be dumped out onto the ground. In addition, you will need to flush the water system aboard your boat far longer to get it clean. I also recommend having your water tested by a local water-quality lab for safety's sake.

## System Check

While flushing, start checking all the water system components for cracked, split or

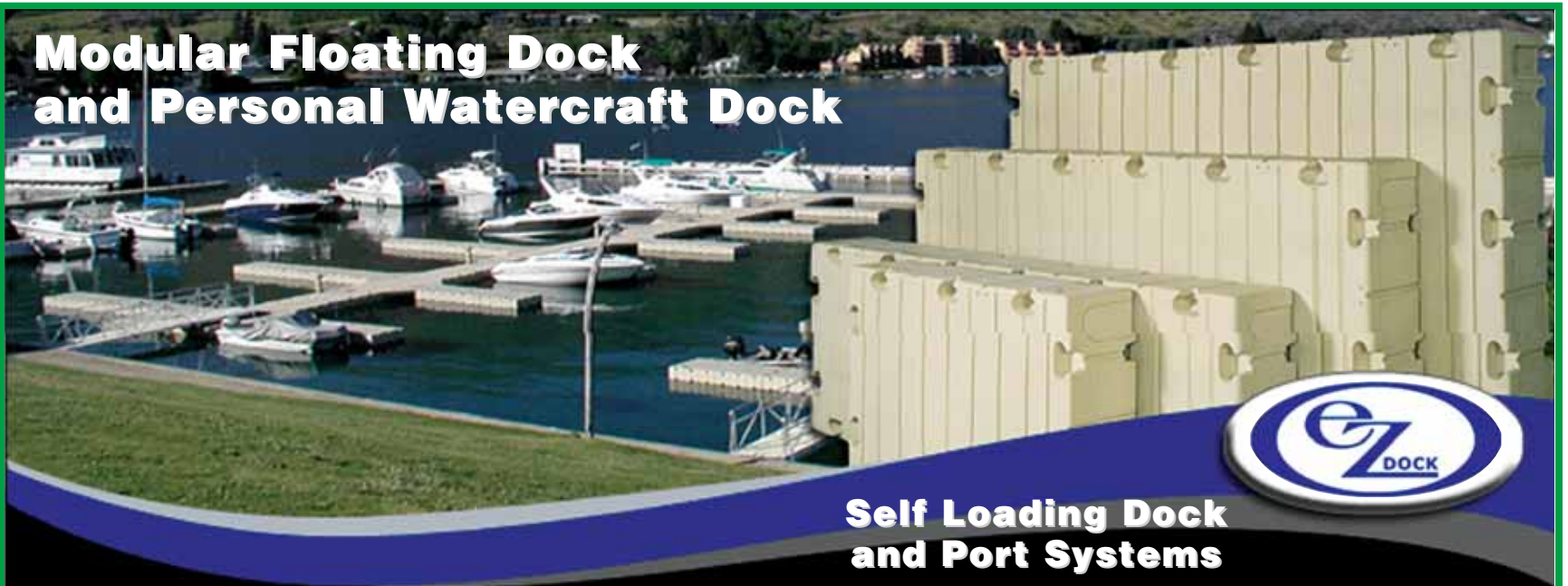
frayed hoses and loose or corroded hose clamps as well as any other sources of leaks. While you're at it, look at the state of your water hoses. Most freshwater systems use some sort of clear, reinforced PVC hose. If this hose is deeply discolored or even black, consider replacing it. The hoses, rather than the tanks, are often the source of water system contamination.

Include the pumps in your checks also. Leaks around the pumps can signal cracked or split diaphragms in the pumping mechanism. Also, check that the pump starts up and shuts off at the correct time. Most fresh water pumps shut off around 45 psi. A pump that doesn't shut off can signal a leak in the system or a bad pump switch. A pump that cycles on and off could signal a waterlogged accumulator tank.

Be sure to check the tank fill points, too. On my boat, the water fill is just down the deck from the waste pump-out fitting. Make sure the O-ring inside the cap is in good shape and seals well. If in doubt, replace it.

*continued on page 30*

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continued from page 28

## Sanitizing

When the system checks out OK, it is time to "shock" or sanitize the system. Fill up the water tanks and add 8-ounces of household bleach to every ten gallons of water. Fill the tank to the brim so that the bleach/water mix reaches all parts of the tank. Then turn on the pump and pressurize the system. Start at the faucet farthest away from the pump and run the water until you can smell the bleach. Work back towards the pump until all outlets show bleach in the water.

Leave the pump on and the system pressurized. This will keep water in the lines and hoses and sterilize them, too. The bleach should stay in the system at least eight hours but not longer than 24 hours. This process is safe for aluminum water tanks as long as the bleach doesn't stay in the tank longer than 24 hours and the tank isn't sanitized more than twice a year.

## Final Flush

After the bleach has been in the water system for the required time, it can be flushed out. Empty the tanks as completely as possible and then fill with fresh water and start draining. Open all faucets, one at a time, starting with the one farthest from the pump and drain until the water no longer smells like bleach.

Now, your water system is sanitized and ready for use during the season. Your work isn't over yet, though.

## Filtering and Sterilizing

A problem with marine freshwater systems is that you don't know the source of the water or what the quality is. One solution is to use a sub-micron water filter in the system. The filter should meet the EPA microbiological purification standards. These filters will keep out bacteria, cysts, virus and other contaminants. A pre-filter could be installed first to keep the larger particles out of the final filter.

Fresh water aboard your boat can be sterilized also by running the water through an ultraviolet sterilizer. The UV rays pass through the water and effectively sterilize it. Again, a pre-filter may be recommended. These filters should meet FDA and EPS recommendations.

Of course, if you have a watermaker aboard, you're home free; this water can be dumped right into your water tanks with no additional processing or filtering required.

## Ongoing Maintenance

The sanitizing process works on your water system at a given point in time. After that process, each new batch of water puts your system at risk for contamination. Make sure the fill hose is FDA rated for potable water. Better yet, bring your own hose.

Let the water run to clear out any contamination from inside the hose. Inspect the quality of the water. You won't be able to detect most of the contaminants, but if the water is cloudy or

dirty, it may not be good.

You can have your water tested by a local water-testing lab. Your local health department can provide the names and addresses of those labs. You can also get water-testing kits that allow you to test the water yourself. They aren't quite as accurate as a certified lab, but they will give you an idea if problems are brewing.


If you are away from home and feel your water has been contaminated, you can use household bleach to sanitize the water. Add 1/2-teaspoon for every five gallons of water for clear water. If the water is cloudy, add 1 teaspoon for every 5 gallons.

Water purification tablets are also available at marine or camping stores. Some of these use chlorine as the active ingredient while others use iodine. There are also hosts of products designed to improve the taste of the water. These usually just hide the problem and don't really sanitize the water.

## Finally

Once your water system is checked out and operating well, keep it that way by using the water from the tanks on a regular basis. This keeps the water from getting stale and protects the water quality.


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