

**FREE DIGITAL MAGAZINE**

# Motorboat Owner

AUGUST 2014

*Affordable practical boating*



**BOAT TEST**

*Finnmaster Pilot 8.0*



**PRACTICAL**

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Normandy ● Hardy 25 ● Fitting a water filter

# Fitting a water filter system

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## YOU WILL NEED

### TOOLS

- Screwdriver
- Electric Drill
- 20mm Hole saw
- Spanner for hose tails
- Sharp knife

### CONSUMABLES

- Masking tape
- Hose connections specific to your system

## DIFFICULTY RATING



**D**o you carry large containers of mineral water when cruising because the water from your tank is tainted? Even worse, are you afraid to drink the water that comes from your tanks because of what it might contain?

Well we did, and we were. Large five litre containers of shop bought water were stowed in the galley aboard our Princess 430 motor cruiser AquaVit. These provided us with a safe and secure drinking water supply whilst cruising, and ashore in the marina, but they were cumbersome, inconvenient to store, heavy

to carry back from the shops, and an ongoing expense.

Despite treating our water tank with AquaPur liquid, we generally only used

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the 560 litres in our tanks for washing up, showering and general cleaning tasks. The AquaPur did a fine job but, depending on the dose used, left the treated water with a slight chemical smell and sometimes a little eye soreness when showering. Very occasionally we risked drinking tap water after filtering through a Britta jug using a carbon filter, but then we upgraded the onboard toilets to fresh water flush and, despite all the assurances that there was no back flush into the fresh water supply we were not prepared to take any chances. One dose of E Coli was not worth the risk. From this point onwards, all of the



We used to carry five litre containers of water

water we drunk, boiled or not, came from containers of mineral water.

It was then that we decided to investigate the effectiveness and cost of fitting an onboard drinking water filter.

## Choosing a water filter

A convincing display at the boat show in Southampton, followed by some research, persuaded us to buy, and have fitted, a Seagull IV X-2KF drinking water purification system provided by General Ecology Europe Ltd. This organisation provides water filter systems for major airlines, who take on and use water from all over the world of varying quality. They also supply some major boat brands such as Fleming and Sunseeker.

Our considerations were:

- the method and effectiveness of purification
- the taste of the end product
- the flow rate through the filter
- the ability of the filter to withstand periods of no use
- how often the filter has to be changed

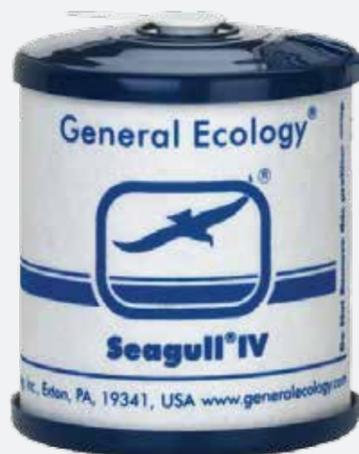


- the cost of the unit and the filters
- the ease and cost of fitting

The unit we selected is an ultrafine microstraining purification device that traps and holds contaminants and tiny particles down to 0.4 microns. This removes pathogens, harmful bacteria and viruses that lead to

illness, such as E Coli, Campylobacter, Salmonella and Listeria. The filter also uses broad spectrum molecular capture to remove organic molecules and chemicals such as pesticides, herbicides, solvents, chlorine and other trace elements. This takes away bad tastes, smells and discolouration. There is no filtering through carbon, and there are no chemicals involved in the purification process. The filtering process will also remove algae, fungi, amoebic cysts, microscopic worms and other undesirable life. The test data is impressive, but the proof is in the sniffing and tasting.

The unit we selected has an exceptionally good flow rate and is delivered via an attractive, stainless steel, dedicated tap in the galley. Smaller, less expensive, but equally effective units are available in return for lower flow rates. Most kits are fitted with the dedicated tap, leaving all other taps dispensing raw tank water. You can choose to buy the kit without the tap, and dedicate an existing tap on the boat as drinking water, or you could fit a filter anywhere



*Filter cartridges have a life span from around 3,800 litres*



*Our Princess 430 water tank holds 487 litres*

else in the system to provide filtered water wherever you want it. You could even fit it just after the pump and have the whole boat filtered.

Some systems continue to provide water, even when the filter is no longer effective. This means that you can never be sure that they are working at full capacity. The Seagull, however, reduces flow rate as the filter is nearing the end of its life so you have a visual indication that it is time to change, plus the knowledge that it will still be operating at full effectiveness, albeit at a reduced rate. The model of filter we chose has a service life of around 7,600 litres. Based on 1.5 litres per day per person that is over 1200 days of water for a family of four. Smaller models such as the X-1F have a service life of around 3,800 litres and, for larger installations there is the X6 that treats up to 23,000 litres. When the time comes, a replacement cartridge for our model costs £130, for the X-1F it is £74 and for the X6 is £377. Whichever model you chose the cartridge price works out at less than two pence per litre, a small price to pay for clean,

contaminate free, fresh tasting water.

The units are also very simple to fit, they have no power requirement and just need to be mounted somewhere it can be connected to, or in line with, the water supply. The kit contains the filter, which for our model is around 14cm tall

and 17cm in diameter, a mounting bracket, the dedicated tap, a pair of hoses for inlet and outlet and suitable fixings. You may need to add to this some fittings to connect the filter to the existing supply hoses depending upon the installation type on your boat.

## HOW TO IN 12 STEPS



The kit. Ours had the dedicated tap but General Ecology supply both the X-1 and X-2 filters without, if required



You need to find a suitable location with space enough for the canister and access to the water supply pipe



We fitted ours right in the corner of the cupboard under the sink. Ensure you will have enough space for filter changes



Cut into the water supply. If you are using a special tap, tee off and connect the hose that comes with the kit to the tee and the filter



If you are using an existing tap, the cold water supply for that tap is diverted through the filter, so no tee piece is required



The outlet hose from the filter is either connected to the new dedicated tap, or to the hose tail of the existing tap



If you are fitting a dedicated tap, tape up the work surface to protect it and mark where the tap is going



Then carefully drill the 20mm hole in the work surface. The tape should help protect the surrounding area



Open the filter canister and install the new filter element, tighten the clamp back up and refit the canister into the bracket



Each kit comes with a service label. Fill in the date of installation, stick it to the canister, and update it when you do filter changes



Once complete, run the tap for a few minutes to purge air and flush the filter element through. Check all connections for leaks



The finished job. No more carrying water bottles back from the supermarket, and no risk of drinking contaminated water

## Motorboat Owner *tested*

During our recent Cruise in Company to Normandy, we fitted the smaller X-1F system to the control boat, a Sealine SC35 *April Fool*. The owner complained that the tank water had a strange taste and smell, although I must be quite insensitive as I hadn't really noticed. Like the one above, it took around two hours to fit. We didn't go for the dedicated tap, instead fitting the unit to the galley cold water supply.

Once fitted there was a noticeable drop in water pressure. Although not enough to be a problem, it is something to be aware of if you decide to forego the separate tap option. The flow rate of the X-1F is 3.8 litres per minute. For faster water delivery, the X-2 models have a flow rate of 7.6 litres per minute.

Next up came the taste test. With one glass of water taken from the cockpit tap and one from the now filtered galley tap I was expecting to be underwhelmed. How wrong I was. The odour that I had not smelt before, was so prominent on the



*The water showed improvements in odour, taste and some measurable parameters*

unfiltered glass, as opposed to the filtered, I really couldn't understand how I hadn't previously noticed it. Then there was the taste. The unfiltered water had a distinct tank taste, with plasticity overtones, while the filtered water tasted exactly like bottled water. I was very impressed.

Just to be a little scientific about it, I took two samples and tested them for various parameters. The results speak for themselves. Nitrates, chlorine and dissolved solids were all lower on the filtered water.

*“This has been a major improvement to our boat. We can take water on board from marinas in the UK and abroad without having to be too concerned about water quality.”*

### TIME TAKEN

Around two hours, slightly more if there is internal dismantling to undertake to gain access to the boat's pipework.

### COST £

The X-2KF with separate tap as fitted to David's boat currently retails for £613. The smaller non tap X-1B as fitted to *April Fool* is currently £316. Filter elements are £130 and £74 respectively. There are also some smaller units, with lower flow rates, called Nature Flow. These are available from £230.



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