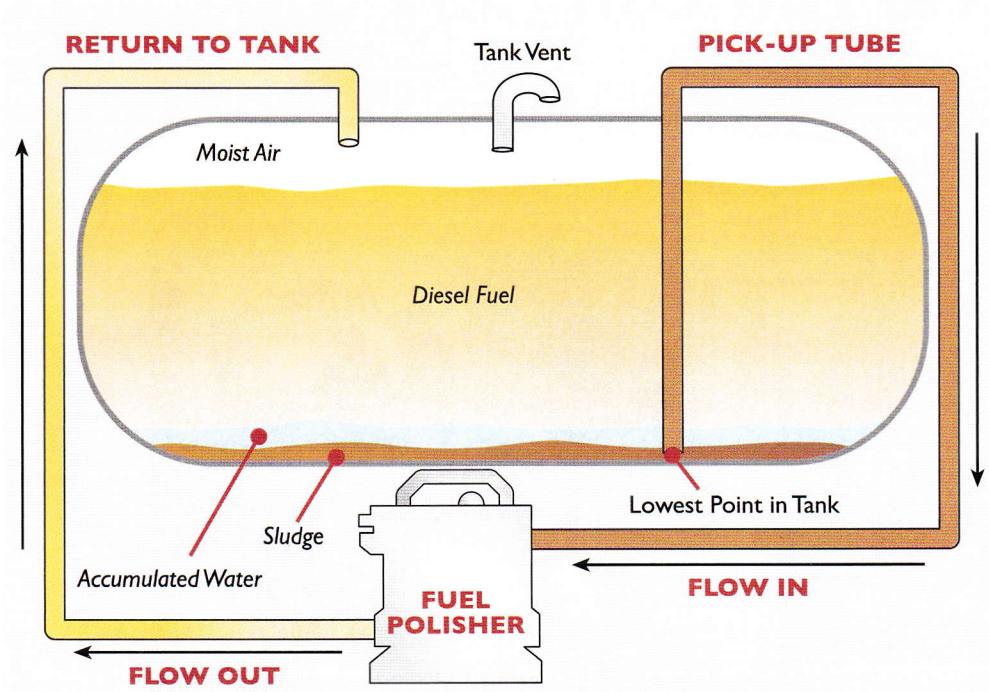
For a full list of the parts used in this project, go to sailmagazine.com/diy/systems/fuel-polishing/



A basic fuel polishing system, as shown here, can be rigged up from an electric fuel pump and a water separating filter

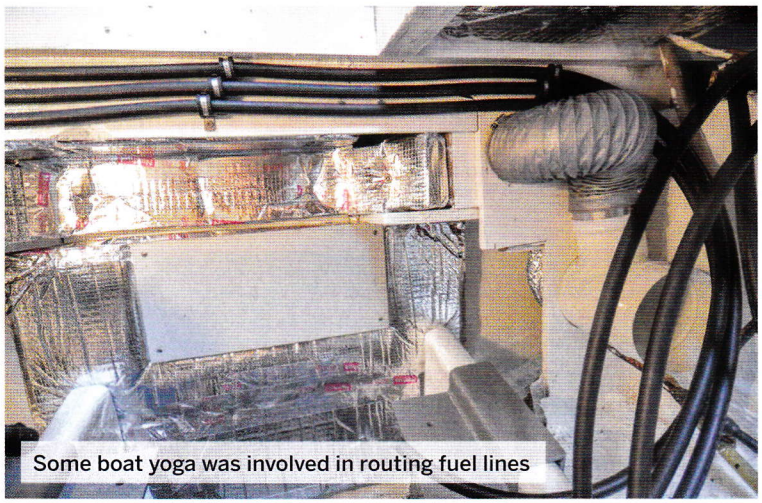
(not an easy task in a big swell, next to a hot engine). That said, it was my hope that my DIY polishing system would reduce, if not eliminate, the need for this kind of an emergency filter change in the future.

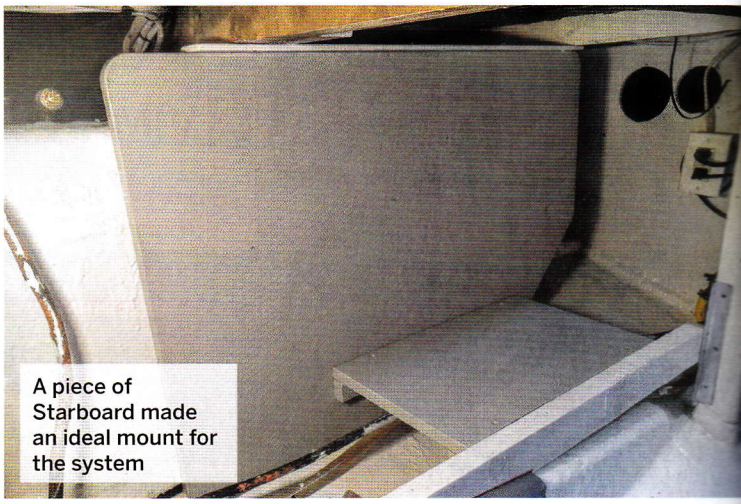
Essentially, the system consists of two filter housings, two manifolds, and various bits of hose, ball valves, low-pressure check valves and threaded pipe connections. All parts were purchased from McMaster Carr, Ebay or Amazon. I used a USCG approved A1 fuel hose from Trident along with proper non-perforated 316 stainless hose clamps. Every connection was also double clamped, and all threaded connections were sealed with liquid Teflon plumbing sealant that is rated for diesel fuel. Finally, I used stainless nipples between any aluminum and brass connections to minimize galvanic corrosion. Everything was secured to a large piece of Starboard that required some creativity to mount in the engine compartment.

The most important component of this system is the polishing filter—this is where the magic happens—and I used an industrial-style depth filter from Shelco. The specific model I have is an FLD-78, in stainless steel, purchased on Ebay for about $100. These are the same types of filters that can be used under your sink at home with tap water, which means they are meant for a high volume of flow and can trap enormous amounts of particulate matter compared to a surface filter like those found in many standard water separators. Their thick fiber elements look like a roll of toilet paper and are inexpensive compared to their surface-filtering counterparts. (Depending on the size of the housing you can find filter elements for less than $6 each, far less if you buy them by the case.) Just be sure to buy the type that is compatible with diesel fuel. I chose a 10 micron filter, which is sufficient for most conventional diesel engines. If you have a modern engine with common-rail fuel injection, you're going to want to filter to 4 microns or smaller.

As with most projects, most of my time was spent researching and planning. Full assembly probably took about 20 hours, but that was after a number of late nights on the computer doing research and putting my shopping list together. The system is not perfect. It cannot cleanse a huge load of bad fuel, nor can it clear thick sludge from the bottom of a badly contaminated tank. However, it is a great tool for preventing good fuel from going bad. S

Phil Gutowski sails a Tayana Vancouver 42 and lives aboard in Boston, Massachusetts


Some boat yoga was involved in routing fuel lines


A piece of Starboard made an ideal mount for the system