

[Ed: For detailed information on selecting a surveyor and doing your own pre-survey checklist refer to DIY 2002-#2 issue.]

Upgrading the boat's outdated electronic equipment was our immediate interest. I settled on a Garmin chart plotter and big VGA color screen model 3010C and installed a depthsounder/fishfinder, satellite weather system and 36-mile (58 km) radar. I chose the integrated system because one screen shows everything, including the weather and radar, all on the same map with our position. The various network components were installed in the space under the bridge. The old and still functioning electronics are now our hard-wired backups. We also upgraded the stereo system on the boat. I installed a Clarion marine system, with separate switched amplifiers for the bridge and the cockpit speakers. That way we can have music on either or both and turn each on or off by a simple toggle switch at the helm.

The original rusted 8kW Onan generator developed a fuel leak at the pump so it was another major project. Knowing that the generator was probably not reliable and that parts and service would be expensive, it just didn't seem worth fixing. Removing the generator led to one



(top) Flying bridge with updated electronics. Chart plotter mounts on Navpod. (bottom) Network components mount underneath the bridge helm.

of the most time-consuming upgrades that I've recently completed and one that no one will ever see or appreciate unless they have been through it themselves — the boat's bonding system.

[Ed: For complete details on testing bonding systems also the what, why and where of anodes refer to DIY 2003-#2 issue.] The bonding system connects all below-water metal components together and to the sacrificial anodes. Most of the individual bonding conductor (wire) contacts to the ship's bonding system (to the two copper strips that run the length of the hull) were under the generator. After removing the generator and cleaning out the 18-years' worth of bilge sludge that lived underneath, it became clear that all the original bonding wires were probably not capable of doing their job and were making poor contact, if not broken loose completely at their terminal connections. Worse yet, only the rudders and shafts had been provided with zinc anodes but these were all wasted and not directly connected to the bonding system anyway. I knew that an investment in this system was key to protecting vital boat metal components, such as rudders, shafts, props, thru-hull fittings and valves, etc., from corrosion. Thus began the long process of completely reworking the ship's bonding system. I also installed new zincs on the shafts, rudders, swim platform struts, trim tabs, a big plate on the transom and connected them all to the bonding system. We settled on an 8kW Kohler generator. This was easily installed once the new bonding system was in place.

The engines were dirty and rusting so we gave them a badly needed cleaning



Plenty of helpers expedite the refit: over-size bonding plate is mounted on transom while hull receives new antifouling paint.



(top) Removing the old, rusty gen-set exposed an inadequate bonding system and resulted in a labor-intensive upgrade. (bottom) New 8kW Kohler fits the hold.

and repainted them. My wife Rachel deserves all the credit for this job. She did 95% percent of this hard and dirty work by hand, cleaning and degreasing with acetone and rags. All loose rust was wire brushed and scraped away and surfaces treated with Ospho (phosphoric acid). Finally, several coats of Caterpillar white paint decorated the effort.

While underway during some cruising time between projects, the high-temperature alarm on the port engine transmission sounded. We have the freshwater-cooled transmission oil coolers, which I'm told are rare. Anyway, this alarm led to the discovery that there was a small coolant leak on that engine, which eventually restricted the cooling-water flow to the transmission oil cooler. When I opened the cooling system on the port engine, rusty, cruddy water poured out indicating an existing, probably neglected problem. After fixing the coolant leak, found using a pressure tester, I moved on to flush the inside of the freshwater-cooling system on that engine. First I added flush solution, ran the engine for several hours, and then fully flushed the engine with water three times to remove all traces of the flush solution. There are a total of 10 plugs to remove to fully drain these engines and most require that you turn yourself into a human pretzel to service them. I'm