Tech Tips

Written by the "Old Salt (Bill Whitney)

This column is a forum for sharing the vast range of practical experience accumulated by our membership and not just my favorite boat maintenance topics. It is intended to be the place where you, the reader, can ask technical questions and either obtain direct answers in this column or direction to appropriate reference material. Normally at this point in the column I list the past topics and transition skillfully (or not) into the next planned item. This time we'll depart from the ordinary and discuss another practical task that has nothing to do with electricity. We'll get back to navigation instruments in the next installment. (After I finish rewiring my NMEA and SeaTalk networks and can relate real world problems with some first hand experience to back it up.)

I thought I'd share my latest "On-the-Job" training project with those of you who have not had the pleasure of pulling the ports out of the cabin sides. Call me a maintenance fanatic but during the doldrums of winter I got this crazy idea that I had to inspect the caulking and wood structure under the verdigris-covered opening ports that have been in place since we purchased the boat in 1988. There were no signs of rot or other deterioration, but .....what was lurking unseen behind all that solid looking bronze? Did I have a disaster in the making? Were the ravages of rampant fungi relentlessly consuming the biodegradable parts of my boat? (Insert theme music from "Pac Man") I had to know!

Problem #1, how do you get the darn things out? Wheel puller? Big hammer? Three of your strongest friends armed with crowbars? None of these alternatives seemed particularly conducive to removing the assemblies without causing considerable damage so the engineer in me went to work. I found that by using some old scrap red oak and two pieces of 3/8" threaded rod and an assortment of nuts and washers from the garage, I could construct something that looked a little like a primitive gear puller. One piece of 1½"x ¾" stock was cut to 8 3/8" which gave it about 1/16" clearance beyond the width of the outside face of the port and it was rounded to match the curvature of the port opening so it would fit inside the hole cut in the cabin side through which it is mounted. Two 3/8" holes are drilled ¾" from each end to accept the two 3/8" x 8" threaded rods. The 3/8" rods are permanently mounted to this exterior piece using two nuts and washers on each rod to firmly hold it in place.

Inside the boat there is a strong-back assembly that is made of two 1 ½" x 1 ½" x 8" blocks that mate to the inside of the cabin sides just beyond the edge of the port assembly's flange, and a 1 ½" x 1 ½" x 13" back piece. The 8" blocks are padded with scraps of carpeting to protect against any damage to interior paint/varnish, and are screwed to the 13" back piece just under each end. 3/8" holes are drilled in the back piece to match the piece at the outside face of the port. Figures 1 and 2 are photographs of the Port Puller assembly from two perspectives.

Figure 1 shows the puller from the front, as it would be seen from outside the cabin. Figure 2 shows the puller from the top (or bottom). Of course the materials can vary so it could end up looking very different from this one, but I think you get the idea. By the way, if your ports measure 8 ¼" across the outside of the opening this one is for rent, cheap. I won't need it for another fifteen years.

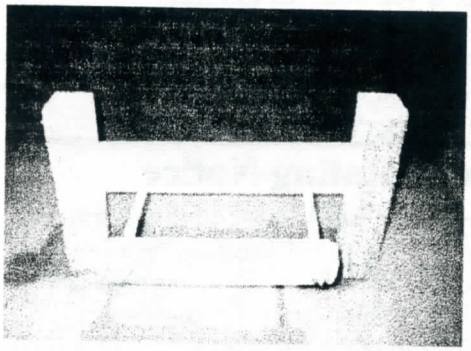

Figure 1

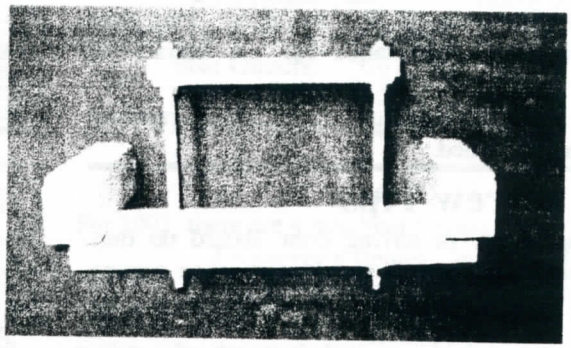

Figure 2

Getting the ports out of the cabin sides was actually fairly easy. After taking out all the bolts, (¼ x 20 x 1 1/2") use a sharp knife to cut the paint and varnish away from the outside of the interior and exterior flanges. This helps break any seal it may have established on the assembly and should prevent any chipping or peeling of the finish as the assembly is pulled away from the cabin side. Next, install the puller making sure that the puller is square in the port opening and the padded blocks are aligned just outside the edges of the flange on the interior side of the port.

Gradually tighten the nuts on the threaded rods keeping the compression as equally distributed between the two rods as possible. The amount of torque that you have to apply to each nut will be a function of how pliable the old caulking is. I was lucky. After some tense moments of listening to the inevitable snap-crackle-pop noises that any assembly that has been undisturbed for 15 or so years will make, the port pulled smoothly out of its hole.

Once I got the ports out, and the bulk of the caulking removed, a close inspection showed that the builder did an excellent job sealing the end grain of the wood. Much to my relief there was no rot to be found. All 8 cutouts were well sealed with either fiberglass or epoxy resin. (Its' hard to tell which.) After I cleaned all the old caulking residue out I re-coated the cutouts and bolt holes with a fresh coat of epoxy to make sure they stay sealed.

Cleaning the bronze was relatively easy too. But before you start make sure you have all the proper safety gear; latex disposable gloves, safety glasses, an old apron, and plenty of clean fresh water for rinsing things off. Make sure you read the safety precautions on the bottle. The recipe for the cleaning solution is ½ cup of muriatic acid (diluted hydrochloric acid) mixed with 2 to 3 gallons of water in a plastic tub. Added to this, after the acid and water are well mixed, is a ½ cup of all-purpose degreaser made by the Fuller Brush Company called "Fulsol". If you use another degreaser read the contents of the bottle carefully to make sure it does not contain any chlorine type bleach.

Start by taking the port assembly completely apart so you can get to all the normally inaccessible areas. Scrape any paint and heavy accumulation of caulking off the bronze and place one piece at a time into the tub. Try not to leave the bronze in the cleaner for more than 30 minutes at a time. Use a stainless steel pot scrubber to clean off the surfaces of the bronze, and flush it with plenty of fresh water to stop the etching action of the acid when you have it cleaned to your satisfaction. Dry the piece with an old towel to remove any residue.

This is where I stop. If you want you can polish everything, but why complicate your life. Brown bronze is beautiful. I don't remember where I got this tip from, but after the bronze goes back to its' oxidized state you can coat it with "Deks" no.2 to prevent verdigris from turning everything green again.