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## **Bottom Repair & Getting the Rust Out**

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### **BOTTOM REPAIR**

Get the rust out - what to do about that rusty iron ballast keel

6 years ago I was up against a big restoration project that required the iron ballast keel to be shot blasted and then faired. Unmpmh was my first response, as the last time I tried to keep the corrosion under control my strategy failed in less than one season.

#### **What doesn't work:**

Super expensive yellow zinc chromate epoxy primer applied according to the directions.

I poisoned myself for 2 days with the solvent stink and bright yellow. The coating was so brittle it cracks when the ballast changes size from winter to summer (the Coefficient of Thermal Expansion of the iron is greater than what this coating system can tolerate). So, a cool \$300 lighter I went for what I should have done in the first place, I reached for my MAS epoxy.

#### **What seems to work:**

After re-chipping the keel, I wire wheeled it. Get it looking OK, it does not have to be perfect by any stretch of the imagination. Then mix a pot of MAS Low Viscosity Epoxy Resin and Slow hardener. Throw in a little Cab-o-sil and then cut this whole mix with 10% denatured or solvent alcohol (not nearly as bad smelling as that yellow primer paint). Using a crappy stiff steel brush, and wearing safety goggles. Apply the above coating with a roller and then scrub the bageezus out of it, into the rusty surface, with the wire brush. I kept doing this until the whole thing (or the areas in question) is thickly coated.

After letting this scrubbed-in epoxy coating cure for a couple of days, a light scotch brighting and 4 more coats of MAS/Medium applied, wet on set, finishes the coating job. I use a cotton ball to tell when the epoxy is set. If the coating can pull the hair off a cotton ball it's ready for the next coat, done.

A few days again of curing, light scotch brighting and the job was ready for fairing compound. My favorite mix for keel fairing - depending on how much has to be built - is One part MAS/Medium mix, One part Cab-o-sil and micro-balloons to my required thickness (follow the formula from MAS Epoxies on fairing). If I need a stiff mix for building add more filler, looser mixes for skimming use lesser amounts of the filler. Which reminds me Cab-o-sil is not a filler, but a thickener, see for yourself. Add cab-o-sil to a mix and the volume only increases very slightly. Now try adding a filler like wood flout, mico-balloons, milled fiber, etc. The fillers add bulk like adding saw dust to hot dogs (you get more hot dogs, right). Fillers also change the mechanical properties of the filled epoxy system. In the case of the micro-balloons and easily sanded putty fits the keel fairing bill.

The overall cost was less than 1/3 of the paint system and the results have been holding up so far. Rust never sleeps, so when (notice I did not say if) the rust peeps through again. Take to it and do a spot repair with MAS epoxy, following the same tactics.

**Remember - always use organic respirators and gloves when handling epoxies and fillers.**