

## Advice for a Faster Bottom

By Randy Borges (Published in Sailing World Magazine)

Everyone who hauls their boat for winter storage knows that several months down the road the decision of what to do with the bottom will arise. Depending on what primary use your boat serves, cruising, racing, or both, there are numerous choices. I will begin to demystify the various bottom-finish systems by simply stating that a well-prepared bottom will last longer and work better. Now, how much time and money are you willing to invest? It is easy to say “out of sight, out of mind,” but the bottom of your boat is as important as the tires on your car. The benefit of a smooth bottom is speed. The benefit of a well-prepared barrier coat system is blister protection.

Boats come in all sizes -- Lasers to mega-yachts. The scope of bottom systems is relatively limited. If you own a planing-hulled dinghy or sport boat, it probably has a gelcoat-shiny hull, although some sport boats are finished in epoxy and/or bottom paint. The downside to this is the excess weight of the paint. For those who keep their boat in the water, the two choices are anti-fouling paint or an underwater epoxy coating. Many owners, with very little preparation, simply roll or spray another coat for the new season. This works but usually is not conducive to speed and durability. Power washing, which many yards do routinely upon haul-out, will remove growth and loose paint. If you make the proper arrangements before hand, the yard can usually take the extra time needed to remove old loose paint with the power wash. It takes more time and is thus more costly than a simple cleaning but may help when prep time arrives in the spring.

What is best for your boat? Anti-fouling comes in two different types: Ablative, which will slough off throughout the season, and hard, non-ablative. The choice amongst most serious racers is the hard finish which can be wet-sanded and polished to a shiny finish. It is not recommended to wet-sand ablative paints because much of the finish is removed during the wet-sanding process, rendering the surface less effective against growth. Although ablative paints usually require less cleaning because, while the boat is underway, paint actually sloughs off taking the slime and growth with it.

Keep in mind that all anti-fouling bottoms still need cleaning throughout the season. It is precisely this reason that many racers prefer a hard-finish underwater epoxy bottom. An epoxy bottom provides an excellent water barrier and in most systems is recommended underneath the anti-fouling bottom paint. Epoxy, however, is not anti-fouling. Most racers know that if they want to stay competitive the bottom must be routinely cleaned, regardless of the bottom finish. The advantages to an epoxy bottom are durability and color. An epoxy-coated bottom does not need to be re-coated every season because it does not wear off., and epoxy comes in white, a favorite color of many racers. In addition to aesthetic reasons, growth is more readily visible on a white bottom. The attachment of seaweed around the keel and rudder can be easily seen through hull windows or by looking over the side while the boat is heeling.

Preparation. Ideally, you start with a bare hull, either gelcoat- or epoxy-coated from the mold. Manufacturers typically recommend mechanically scuffing the surface before any bottom application. I would recommend 60- to 80-grit sandpaper to achieve a solid bond between the raw bottom and primer. If the bottom of your boat already has paint on it, first you must assess the surface condition. Is the paint flaking? How many coats are already on it? Is it smooth? Can you see blisters? Is there epoxy under the bottom paint?

Sanding the existing bottom paint can be difficult. If it is a soft ablative paint, traditional sanding with dry paper will rapidly clog. If the surface requires total removal of anti-fouling paint, chemically stripping the bottom is probably your best bet. This may require several applications of stripper, and will require sanding afterwards. Electric or dual action (DA) sanders, with a five- or six-inch round pad, work best. After scuffing the bottom, apply the epoxy primer to the manufacturer's specifications. They will specify a mill thickness that generally equates to three to five thickly applied coats. Keep in mind that after sanding you will have fewer coats than when you started, so the rule is to go with more rather than less. The first primer should then be sanded

depending on the type of finish application to be applied. The choice of anti-fouling or epoxy finish coat will determine to what grit the barrier coat must be sanded. If applying anti-fouling bottom paint, sanding with 120 grit, followed by 220 grit, is recommended. In re-applying an epoxy finish, 80 to 100 grit will be fine. The epoxy barrier coat is very hard and, depending on the application process (rolled or sprayed), a courser grit sandpaper may be required to remove all of the orange peel from the primer. The serious racer would block- or board-sand at this point to fair the bottom.

When sanding, one of the tricks of the trade is to wipe blue dye on the bottom before sanding. This gives you an indication of how much to sand by making visible the low spots and pinholes. Another option is to spray a light coat of spray paint (Krylon, Rustoleum, etc.) on the surface. Any residue left after sanding can be wiped off with acetone. Now that the high spots and pinholes have been identified, they should be filled with epoxy filler, re-sanded and re-primed, as needed. You now have a nice epoxy surface ready for the application of the finish paint (i.e., epoxy or anti-fouling paint).

The best way to apply the finish coat is to spray it. Rolling the bottom paint or epoxy is also fine but will require more work when wet-sanding. Apply the finish coats to the manufacturer's specifications, again three to five coats. If spray-applied, start with 320 grit sandpaper, and finish with 400 grit. If rolled, start with 220 and work your way to 400. For a shiny finish we always wet-sand with a rubber sanding block, using a fore and aft motion, keeping the block parallel to the centerline and waterline. Try to simulate the direction the water will be flowing on the bottom and keel.

If the bottom paint is in good shape and you are looking to simply maintain it, sanding may not be necessary. A good cleaning, using fresh water and Ivory soap in a bucket will probably do the trick. Simply go over the surface with a Scotchbrite pad and soap to thoroughly clean the area, rinse, dry, and you are ready to re-apply the finish coat. If you are concerned about build-up of old paint, wet-sand using a block with 120 or 220 grit sandpaper. This will remove some of the old paint. If you do not have the time or inclination to pamper your boat's bottom as described above, and you simply plan to roll on another coat of paint, at least take the time to clean and scrape off the loose paint. Otherwise you are just wasting your time.

Maintaining your bottom from this point will require only routine cleaning, whether bottom paint, epoxy, or gelcoat finish. Keep in mind that if you clean with anything more abrasive than what the bottom has been prepared to, you will negate all of the hard work that has been done. A good wet-sanded finish, whether epoxy or anti-fouling, is usually 400 to 600 grit. Gelcoated surfaces are usually 1000-1200 grit, so sanding with anything more than a sponge with dish soap will scratch. I recommend white Scotchbrite pads for in the water cleaning. Remember to clean in a fore and aft direction! Re-wetsanding also will clean well, but each time you wet-sand you remove more paint. Remember, whether racing or cruising, a well-maintained bottom will get you where you are going faster.

*Randy Borges is the owner and president of Bristol, Rhode Island-based Waterline Systems, Inc., and USWatercraft, LLC. Waterline Systems has prepared and optimized sailboats for 12 years, and their customers' successes include championships in the Rhodes 19, Sonar, Shields, 210, J-22, 24, 27, 35, and 105 classes, as well as, the Mumm 30, One Design 35, Farr 40, One Design 48 and Corel 45 classes. USWatercraft is the U.S. builder of the J-24. Randy is the current J/24 National Champion.*