

End of Summer Varnishing

By Jack and Alex Wilken

Late summer is a great time to be out on the water, but there are also some non-sailing things that are done best in dry weather. One of those is varnishing. Interior varnish can be applied at any time of the year as you can create the environment; exterior is weather dependent, and we do live in the Pacific Northwest. The reason we varnish is not just because it looks beautiful. It also protects the wood while at the same time allowing you to see the condition of what lies below. If you have spent much time around wooden boats, you will have had the experience of pushing into a painted surface only to find something underneath that is soft and mushy. There are other ways than varnish to protect wood and still see it. There are various oils and some hybrids of oil and varnish. We are going to focus on varnish.

The word 'varnish' itself represents a fairly wide range of different compounds. Without spending too much time, let us say that varnish has a long history. Its use is said to date back

at least to the ancient Egyptians.

You'll want to start by checking the weather. When applying varnish, we look for something between 50° to 80°F, with 55° to 65°F being preferred. The relative humidity should be hovering around 50%. Having said all this, different products, especially modern ones, may have very specific requirements, so read the manufacturer's instructions. The important thing is that the varnish has time to flow out and self-level, but we'll get to more on that when we talk about thinning. If the wind is blowing, it is probably better to go sailing as dust will not give you a flawless finish. Varnishing in direct sunlight is another no-no, so if you do not have one of our historically overcast days, you will want to create some shade. The direct sun can make it difficult to maintain a wet edge that you can brush into, and it may cause the varnish to dry unevenly. On top of all that, you want to start your coat so that it will be dry before the rain or dew settle on it.

The choice of which varnish to use

often comes from habit or emotional attachment. If you are adventurous, there are newer products on the market. Several years back we were introduced to one that, at the time, was getting rave reviews and was said to last for 5 years. After some reluctance we used it on one of our boats and then on some other jobs we had. At some point we noticed that there was a change in how it sanded between coats. Namely, the first boats we did were really tough to sand and then the latter ones were easy. As we soon found out, the change coincided with the company producing the second batch of the product. To our dismay the new batch did not act the same, and, instead of lasting 5 years, it began breaking down in 6 months. That company is now history, but it does make a good case for using products or companies with long track records. Not all new products start out in the US. Some will have proven themselves by the time they are released here.

We are going to break varnish down into three categories: traditional, polyurethane, and modern or high tech. They all will provide some UV protection though how much will vary, and some get reformulated (we hope for the better) now and again to improve this characteristic. You can read the company's hype or, if you have one, use a good source who keeps up to date. At the risk of this sounding like a commercial plug, we have gotten a lot of good advice from the maintenance department at Fisheries Supply. That's just to say that good help is out there.

In general, traditional varnish is more flexible - remember that wood was a living organism that will continue to move - but softer than polyurethane. The latter, in most cases, is more UV resistant. It should be noted that polyurethane comes in oil or water-based. The advantage of the water-based product is that it dries quickly and gives off very little VOCs (volatile organic compounds). The down side is in performance, and that it will not give you the deep gloss of a traditional varnish. These are generalities. You have to look at each product carefully. There are also those who use one product to build up coats and then finish with something else for looks or UV protection. The possibilities are endless. The best thing



Figure 1: Preparing to remove the old varnish, we taped, "A", the tarp in place and then laid it over the lifelines, "B", to create a trough, "C", that will keep everything out of the water. We are doing this one section at a time.

is to find one you like and stick with it, remembering that traditional varnishes may need to be re-coated every six months. Polyurethanes might not be too far behind, expect to re-coat at least every year if they are not covered. What is important is not to allow them to breach or crack.

As far as high tech, we are trying another one right now that is supposed to last 5 years. Wish us luck!

The final look of the job will depend most on the preparation. If you are starting with old, breached varnish, then it will need to be all stripped off. This means sanding and dry scraping, or the use of a chemical remover and then scraping or removal by some abrasive, a Scotch-Brite pad or bronze wool are very common ones. A heat gun can also be used with a putty knife to remove everything. No matter which method you use, it is necessary to contain all the old varnish as nothing can go into the water (Figure 1, page 42).

not to use silicone sealant as it does not hold coatings. Read the manufacturer's recommendations to make sure that what you are using is paintable. The wood has to be thoroughly sanded. We often start with 40 grit and work our way up to 120 grit in 40 grit steps. The finish sanding is done with 120 grit along the grain for most products. Check the manufacturer's guidelines. Now, wipe down everything with a low lint rag that has the thinner or reducer for the product you are

using. If you use a tack cloth, go over the surface very lightly so that you do not deposit any chemicals on the wood. With a new product we are trying, the manufacturer has you wipe down with acetone when preparing to prime teak. Read the label!

You will want to mask or tape off the edge of your work to protect the paint, gelcoat, or bare wood that is adjacent to it. There are many grades of masking tape plus we often use vinyl tape or electrical tape, and each has its own personality

(Figure 2). Some are waterproof, and they have different expected lifespans. The 3/4" vinyl tape is not wide enough to protect the surroundings, but it seals well and will go around curves. Then, you can use something wider to complete the job. It will be easier when it is time to remove the masking tape if you start at one end of your job and lay any tape joints on in order so when you start to pull, you always lift the next one. The first one should have the tape doubled back on itself so your gloved hands can grab it easily (Figure 3). Not more than three coats should be

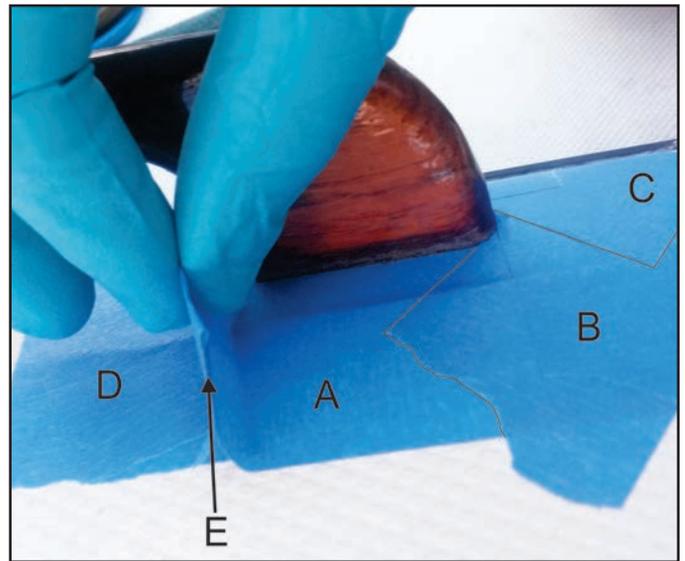


Figure 3: "A" is the first piece of tape put down that is lifted and then resealed to allow the last piece, labeled "D", to be under it. "B" is second and then "C". Each is on top of the preceding one so that when you pull up the tape the next one is lifted by the one before it. "E" shows the tape doubled back on itself so you can easily pull it with gloved fingers.

applied without pulling the tape, and the third coat should still be wet when you pull it. When you are planning the job, you will want to varnish first if there is any painting to be done. It is much easier to paint over varnish than the other way around. Use "delicate surface tape" on new varnish.

There are various possibilities in brushes. Badger hair or now the often-used China Bristle and Ox Ear Hair Blend brushes are a joy to use, but their cost means they are not one-use

COLOR/Name	REMOVE By	Outdoor Use UV Protection
NEUTRAL Tartan 200	4 hours	NO
GREEN 256	5 days	YES
BLUE 2090	14 days	YES
BLUE 2080 DELICATE SURFACE	60 days	YES

Figure 2: Masking tape comes in many grades. This chart shows how long you can leave the tape in place and have it still come off cleanly. Leaving the tape on longer risks that it will leave adhesive or come apart on the surface.

Have a plastic or cloth catchment system set up before you start. Care and patience in the removal process will mean less gouging and scratching that will need to be sanded out latter.

Once all the old coating is removed, it is time to sand or repair the underlying structure. Moisture getting under the varnish can cause failure of the greatest varnish job. This means that any place where the wood is in contact with another material, like a toe rail where it meets the deck, it must be sealed and varnish needs to come down and cover the sealant. This is a reason

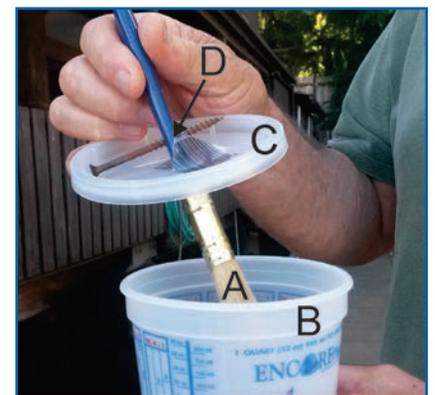


Figure 4: Instead of cleaning a brush, "A", completely between coats, it can be suspended in a container, "B", with thinner, and, then, by squeezing the excess thinner out, it is ready to go. The lid, "C", has an opening cut in it, and the brush handle is drilled at "D". In this case a long screw holds it in place. A taller, slenderer container will use less thinner.

brushes. Cleaning the brushes involves the use of chemicals which later need to be dealt with. You can hang them in a cup and keep them ready for the next coat (Figure 4, page 43). For brushes that are single use, you can try foam, especially for rolling and tipping. That is when one uses a roller to spread the varnish on and then smooths or flattens it out by pulling the tipping brush lightly, in this case a foam brush, across the varnish. Do not shake the can or stir it except to add thinner as that can cause bubbles. Badger brushes really matter only on the final two coats.

The first coat should be penetrating

epoxy, wood sealer, or a 50% thinned coat of the varnish you are using. The best is the penetrating epoxy, but if you need to remove it latter, you will have more work to do. Some systems have a wood sealer that is part of it. The last choice is the old standby, and, while it is not as good as the other two, it is an acceptable alternative. If you overcoat some varnishes within a certain window of time, there is a chemical bond and therefore no need to sand. Sanding will, however, give you a clear idea of where you have applied the new coat and help avoid "holidays," or spots you missed. Holidays can be

seen most easily by looking across the surface being worked on, not directly at it. Sanding can be accomplished by using a medium to fine grade Scotch-Brite pad which will rough up the surface without taking off a lot of material. The idea is to build up thickness, so putting on a coat and then sanding most of it off does not make any sense.

Dip the brush into the dedicated varnish pot, not the can. This pot should be filled by the use of a varnish strainer, a paper cone with fine mesh. When you are done, unused varnish should be disposed of, not returned to the original can. So, try to pour what you will use. Dip less than half the bristles into the varnish and give them a few seconds to soak up the material. Foam brushes will not soak up much varnish, but, as we said, they are good for tipping. The trick is spreading the varnish out evenly with no drips, sags, runs, or holidays. You may want to load the varnish onto the surface with a roller or larger brush. Try going across the grain and then tip going with the grain. Do not work with so much area that you cannot maintain a wet edge to brush into. It may require thinning for this to happen. If the brush starts to stick, you probably need thinner. Read the label.

The finish coat is the one you are going to see, so sand the previous coat with fine wet/dry sandpaper. Use a little water in the process. This may mean allowing the second to last coat to dry longer to be able to sand it. In total 7 or 8 coats on bare wood will give you a good base to go forward with periodic maintenance. If you do not like the last coat, just put another as it is tough to have too many coats.

The sun is the great destroyer when it comes to varnish, so as you travel south from here, the interval for re-coating gets shorter. If you shield varnish from the sun, it will last for years. If covers are going to be successful, they will need to be UV proof.

Enjoy a beautiful boat, but mostly, enjoy sailing!

Jack and Alex Wilken are experienced boat builders and have cruised extensively. They hold USCG Captain's Licenses and are the owners of Seattle Boat Works LLC in Seattle.

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