

# Practical Sailor™



## Gear of the Year

Spotlight shines on 18 products.

PAGE 6



PAGE 6

- 6 Gear of the Year**  
The best of the best during our season of recovery.
- 7 Sticky Stuff**  
Underwater epoxy and chafe tape top our favorites.



PAGE 14

- 9 Wood Finishes**  
PS anoints the gloss kings after two years in the sun.
- 14 Non-skid Follow-up**  
We tally the results after five years of weathering.



PAGE 20

- 16 Non-skid Tips**  
Avoid common mistakes during your topside job.
- 24 Fixing Pipe Threads**  
Stuck fittings might need help from a thread file.

### ALSO IN THIS ISSUE

- 2 Rhumb Lines** — Of lifelines, riggers, and reinventing a better self.
- 3 Mailport** — Winter gloves, Sunmar toilets, and deck core repair.
- 5 Pipe thread fix** — Thread file whips pipe threads back into shape.





*Rigger Glenn Mooney swages a lifeline terminal in his workshop at The Yacht Rigger at Salt Creek Marina, in St. Petersburg, FL.*

## New Lifelines for a New Life

Rigger Glenn Mooney of Yacht Riggers in St. Petersburg, Florida has no choice but to be organized. A veteran rigger with more than three decades of experience, Mooney works out of two shipping containers joined end-to-end at Salt Creek Marina. The setup suits him just fine. The walls are neatly arranged with the hardware, tools, and accessories that his job requires, and two long workbenches line either side.

I visited Mooney's shop earlier this year on a mission to replace the vinyl coated lifelines on my Yankee 30 *Opal* with bare 1 x 19 lifelines. The moment I stepped inside, I had the strange feeling that I'd been there before—but it took a while to figure out why. If you are also looking at replacing your lifelines, here are few of our many reports on the topic that guided my own project.

Seven years ago, safety guru Ralph Naranjo reported on a test carried out at the US Naval Academy that found

that pushpits and pulpits were a weak link in the average lifeline system (see *PS* September 2012, "USNA Lifeline Test Reveals Weak Spots."). In other words, don't let your lifeline project stop at the wire.

Former editor Nick Nicholson's report on lifelines provides an excellent overview of what a reliable lifeline installation should look like

(see *PS* September 2002, "Offshore Log: Check Your Lifelines, Save Your Life").

The popularity of Dyneema and other high molecular weight polyethylene ropes (HMWPE) has transformed the way we think about rigging, especially lifelines. My blog piece last summer covers the pros and cons of switching to fiber and includes links to several relevant reports (see *Inside PS* "Check Chafe Before Switching to Fiber Lifelines").

One problem with most lifelines is that they are below an upright body's center of gravity. This is why keeping low when moving about is so essential. In 2016, Technical Editor Drew Frye discussed how he uses chest-high lifelines, which many offshore sailors install before each offshore voyage (see *PS* July 2016, "Raising the Bar on Lifelines").

Those who miss the humor and encyclopedic knowledge of the late great *Practical Sailor* editor Dale Nouse will

enjoy his short and sweet report on C.S. Johnson's lifeline netting. The report, like just about every one Dale produced, follows a circuitous route—in this case from the looms of ancient Mexico to the back porch of your local Tiki bar—to arrive at the topic at hand: colored lifeline nettings (see *PS* September 2005, "Lifeline Netting").

When Mooney finally handed me my new lifelines, which fit perfectly stem to stern, I realized why his workshop felt so familiar. Unlike me, Dale was a fastidious type, and his tidy basement workshop reflected this approach to life. Labeled ropes hung from the ceiling, the pegboard walls held neatly arranged tools for every job, and the folders in his file drawers (remember those?) were precisely categorized by topic.

The nice thing about a new boat is that—like moving to a new town—you get a chance to reinvent yourself. As I move forward with *Opal's* refit, I vow I'll do things differently—smarter, simpler, better. Being better organized is high on my list of goals.

With only 30 feet to work with, I have no other choice.

*Darrell Nicholson*

**Cover:** Reader Malcom Rowe's *Mardi Belle*, a *Southern Cross 28* designed by Thomas Gilmer, is well equipped for offshore cruising.

## Practical Sailor

November 2021 • Vol 47 No 11

### EDITOR

DARRELL NICHOLSON

### TECHNICAL EDITOR

DREW FRYE

### CONTRIBUTORS

BILL BISHOP, WILLIAM HERRMANN  
AMANDA SWAN NEAL,  
JOHN NEAL, FRANK LANIER,  
JONATHAN NEEVES

### EDITORS AT LARGE

DAN DICKSON, NICK NICHOLSON,  
RALPH NARANJO, DOUG LOGAN, DAN SPURR

### CREATIVE DIRECTOR

JUDI CROUSE

### COPY CHIEF

SARAH SMEDLEY

### PUBLISHER

TIMOTHY H. COLE

### EDITORIAL OFFICES

1600 Bayshore Dr.  
Nokomis, FL 34275

practicalsailor@belvoir.com

### CUSTOMER SERVICE, WEB, ARTICLE ARCHIVES

PO Box 5656  
Norwalk, CT 06856-5656

800/829-9087

customer\_service@belvoir.com

### SUBSCRIPTION DEPARTMENT

800/829-9087

www.practical-sailor.com/customer\_service/

Box 8535, Big Sandy, TX 75755-8535

For Canada: PO Box 328, Norwich, Ontario N0J 1P0

**B**  
Belvoir

*Practical Sailor* (ISSN #0161-8059) is published monthly by Belvoir Publications Inc., 535 Connecticut Ave, Norwalk, CT 06854-1713. Robert Englander, Chairman and CEO; Timothy H. Cole, Executive Vice President, Editorial Director; Philip L. Penny, Chief Operating Officer; Greg King, Executive Vice President, Marketing Director; Ron Goldberg, Chief Financial Officer; Tom Canfield, Vice President, Circulation. Periodicals. Postage paid at Norwalk, CT, and at additional mailing offices.

Copyright © 2019, Belvoir Publications, Inc. All rights reserved. Reproduction in whole or in part is strictly prohibited. Printed in USA. Revenue Canada GST Account #128044658. Canada Publishing Agreement Number #40016479.

Subscriptions: \$84 annually. Single copies, \$7.50 (U.S.). Bulk rate subscriptions for organizations and educational institutions are available upon request.

Postmaster: send address corrections to PO Box 8535, Big Sandy, TX 75755-8535. *Practical Sailor*, P.O. Box 39, Norwich ON, N0J 1P0 Canada. WDS return address in Canada: Station A, P.O. Box 54, Windsor, Ontario N9A 6J5.

### REPRINTS FOR PUBLICATION AND WEB POSTING AVAILABLE

Contact Jennifer Jimolka, Belvoir Media, 203/857-3144

**PRACTICAL SAILOR ACCEPTS NO COMMERCIAL ADVERTISING**



Photos courtesy of Todd Neville (right); Malcom Rowe (below)

### WINTER SAILING GLOVES

With regards to your detailed report on cold weather sailing gloves (see PS November 2008, “Cold-weather Gloves Face Freezing Rain, Hail and Snow During Practical Sailor Test”), check out the new Showa 281 & 282 Temres, especially the new model that is black with a cuff. These are very waterproof and breathable!

The are good for cold and wet, and have enough dexterity to hold a line or run a winch. The only issue is that the sizing is wonky, because they are for the Japanese market. However, they are only about \$25, so I just bought a few sizes. There is a distributor in Seattle that sells them online.

I just wear any normal glove liner under them, and it works well. On a long wet sail I swap out the glove liners periodically which inevitably get wet somehow, usually operator error (took my gloves off for a minute to clean my glasses as a wave hit us). There are some good YouTube videos illustrating how they transpire water vapor from



Malcolm Rowe’s Southern Cross 28 has cruised extensively around Newfoundland and Labrador. The boat’s new homeport is Bath, Canada on Lake Ontario. Mardi Belle is also on the cover this month.



Todd Neville’s Cerulean gleams near its summer home in Mamaroneck on Long Island Sound (above). The boat has a massive, 8,000-pound solid steel swing keel (shown at right with the previous owner at the factory during assembly). The configuration allows it to squeeze into 2 feet, 3 inches of water with the centerboard up. With the centerboard down, it draws nine feet.

inside to outside of the glove, actually drying your hands out over time.

Todd Neville  
Southerly 38, *Cerulean*  
New York, NY

### KAYAKS AND PFDs

Regarding your recent report on PFDs in surf and other extreme situations (see PS August 2020, “PFDs for Extreme Events”), when kayaking you should always wear a PFD. In the event of a capsize, the first line of defence is an eskimo roll. If that doesn’t work, you have to bail out of the kayak (upside down). Trying to put on a PFD when you come to the surface will almost certainly fail. As well, the PFD should be one designed for paddling, such that it allows ready movement of the arms. It should be one with inherent buoyancy, not an inflatable. When I sail with others, I wear an inflatable PFD. When I sail solo, I wear my kayaking PFD,



which has in one pocket a handheld VHF and in the other a PLB.

Malcom Rowe  
Southern Cross 28, *Mardi Belle*  
Ontario, CA

PFD design has improved significantly since our last detailed report on inherently buoyant PFDs (see PS July 2013, “Life Jackets for Active Racing Sailors”) and companies like Mustang are introducing hybrid vests like the Khimera that have both inherent buoyancy and air bladders. Though bulky and expensive, these vests give victims a better chance at self-rescue if swimming is required, but still have bladders that can be inflated to keep you afloat in survival conditions in open water. Another good read on this topic is safety-at-sea expert Ralph Naranjo’s report on the proper use of inflatable PFDs (see PS July 2019, “Rethinking the Use of Inflatable PFDs”). The report delves into the approach sailors should take

# Winter Projects on Tap

Spring may still seem like a long way off, but the spring will be upon us before we know it. Don't wait until the last minute to take care of maintenance chores or upgrades you've been putting off.

## SAIL CLEANING

For tips and product recommendations regarding sail cleaning, check out the "Dealing with Dirty Sails" *Inside PS* blog post and the February, 2020 *PS* Advisor in our online archive.

You'll also find articles on canvas care (February 2014 issue) in the online archive, and head-to-head product tests of mildew treatments and stain removers (November 2013 issue). If you're the DIY type, the blog post "Homemade Mildew Preventers that Really Work" offers a recipe for an effective, homemade mildew preventer.



## SYSTEM UPGRADES

If you're adding or upgrading a wind-sensing system, our three-part series on wind instruments and a review of the Maretron ultrasonic wind sensors are must-reads. The series launched in the March 2014 issue, and Part 2 looked at data displays and user interface (May 2014 issue). Part 3 (August 2014) focused on the best system combinations, while *PS* March 2015 focused on ultrasonic products.



Pre-season housekeeping is also a good time to check your sanitation system. How are your joker valves holding up (see July 2013 online)? Is the holding tank stench unbearable (see March 2012 and December 2013 online)? Or is it time for a new throne? Check out our tests of electric-flush toilets (February 2011), vacuum-flush toilets (August 2011), and composting toilets (July 2021). If you prefer to have all in one place—

rather than searching for them individually online—you'll like the "Marine Sanitation Systems" two-part ebook series, which is available in the *PS* online bookstore. Part 1 looks at toilets, while Part 2 examines holding tanks, plumbing, and odor control.

## PS'S EXCLUSIVE EBOOKS

Our new three-volume water report will ensure that your crew will stay healthy and hydrated with clean, fresh-tasting water straight from your tanks. Volume One compares the most popular water filters on the marine market and describes some cost-saving do-it-yourself options. In Volume Two you'll learn secrets to ensuring that your water supply remains clean and good-tasting throughout your voyage. In Volume Three, you'll see the results of our head-to-head testing of the major brands of watermakers sold today. Available at [www.practical-sailor.com/products](http://www.practical-sailor.com/products).



toward auto-inflation, knowing that there have been a disturbing number of cases in which self-inflating PFDs did not auto-inflate during routine pool demonstrations.

## DECK REPAIR

Your report on repairing delaminated or water-logged decks is a good read (see *PS* July 2020, "Can Glue Injection Fix Rotten Core?"). I've done everything from below with vinyl-ester resin. Of course, you need an excellent full facemask with the right cartridges.

I've been "peg boarding" from the inside to dry out the core which did dry quite well with heat lamps (and a temperature gun to not get over 110 degrees). However, if the fiberglass flexed when pushing the drill to drill the hole, I just peeled that area and replaced the core. This winter I will work on the doghouse and this method of looking for some flex won't work since the interior doghouse glass is thicker. Not sure what I will do there.

On a related topic, I rolled my cockpit floor with Petit Protect last spring because it was repaired by the previous owners (poorly) with epoxy and I made further repairs with epoxy. After the Pettit Protect primer, I rolled thickened no-wax gray gelcoat over Petit Protect and finally rolled waxed gray gelcoat over that. Then I had to lightly sand it, because it was too sharp. To get the non-skid, I used a rug glue roller and then the Kiwi Grip roller over that with the thickened gelcoat. I had to make my own gray gelcoat because I couldn't buy it.

Daniel Stone  
1993 J/92, *Triple Play*  
Wickford, RI

Thanks for sharing your experience. Working from the inside can be challenging, but many people go that route to preserve the boat's molded gelcoat non-skid. The trick is working against gravity. Spring loaded shower rods can be used to hold core material and laminate in place while the vinyl-ester (or epoxy) cures. Fumes are an issue, so use a good respirator (see my *the Inside PS*

blog post “Respirator and Dust Mask Safety”). Creating your own stippled gelcoat surface in the cockpit using vinylester resin is also a tricky project, but it sounds like you managed well. As you pointed out, one of the challenges when working with custom colors is achieving a consistent finish, and matching your existing color (see my blog post “Quick and Easy Gelcoat Repairs”). The article briefly describes the services of Minicraft of Florida ([www.minicraft.com](http://www.minicraft.com)), “the #1 source for aftermarket gelcoat.” Located in Wildwood, Florida, Minicraft specializes in matching old gelcoats, and offers an “ask the professor” service for do-it-yourselfers.

**SUNMAR COMPOSTING TOILET?**

I have enjoyed the article by Drew Frye in this month’s issue (see *PS* July 2021, “DIY Desiccating Head Options”), but I have a question. I have been researching toilets for some time and I am thinking about the Sunmar GTG model. Sunmar is a world leader in this field and is a Canadian business thus places this unit at about half the price of the competition. I was about to order a C-head this past spring, but they were out of stock and they were going to notify me when they were ready to deliver. I was never notified of restocking and they never returned my calls. I would appreciate any feedback/ thoughts on the Sunmar GTG. I know that you have no way of know-



*Daniel Stone is working from belowdecks to fix the damaged core on his J/92.*

ing much without any personal use but welcome any ideas you may have.

Ian McFisher  
via [www.practical-sailor.com](http://www.practical-sailor.com)

We did not test it, but I have examined it at RV shows. Reviews say that it works, nothing breaks, and that like all urine diverting toilets, it feels seriously overpriced for what amounts to a bucket and funnel. They all really work, far better than a portable head, but it’s about simple principles (separating urine and using the right absorbent) rather than complex manufacturing. They are expensive simply because the volume is so low. This is why I went the DIY route using kit parts, and so far, I’m well pleased.

Sunmar does not make a churn model, which some or most cruisers prefer. For day sailing, or just a few days, the non-churn system is better because without the mixer, you just remove a bag. The down side is that you have to add a few scoops of absorbent with every use. On the other hand, churn systems cannot use a bag, so dumping and cleaning is more involved and a little more messy. But churn models have the potential to go longer between dumps.

**ONE BUCKET CLEANING KIT**

This article (see “One Bucket Cleaning Kit,” updated March 2, 2020) is one of the most useful articles to keep handy. I

think cleaning in general has a lot of misunderstanding yet I, at least, spend two or three hours a day cleaning and picking up after just myself. That might seem like a lot but take a second and think about it. Dishes, making the bed, washing clothes, floors, etc. It can add up quickly and I certainly don’t want to ruin something because I chose the wrong cleaner yet I’d like to get it clean quickly. Thanks for putting this together and I look forward future installments.

Dana Hawthorne  
Between boats  
Mission Bay, CA

Several readers have praised *Practical Sailor’s* Technical Editor Drew Frye’s report that simplifies routine cleaning by reducing dozens of spray bottles down to just a few filled with solutions that we can make ourselves using inexpensive, readily available cleaning agents. The only people who might be a little perturbed by his report are the companies who repackage these surfactants, detergents, and acids in a spray bottle with a fancy label, which they sell for a premium.

*Practical Sailor* welcomes reader comments and questions. Send email & reader photography (digital .jpg 1MB or greater) to [practicalsailor@belvoir.com](mailto:practicalsailor@belvoir.com); include your name, homeport, boat type, and boat name. Send any broken gear samples to Practical Sailor, 1600 Bayshore Rd., Nokomis, FL 34275



*Dana Hawthorne is looking to launch into cruising having caught the sailing bug aboard a Nacra 5.2 which he sailed frequently in Mission Bay, CA.*

Photo courtesy of Nathan Van Meter



In addition to the coupon testing, several of the top finishers in our varnish test were put into service in the field. In our experience, tillers, which see a lot of hard use, are best protected by a hard, tough true varnish that is easy to touch up.

## 2021 Yields Some Great Gear

PS again turns focus on small boats, seamanship, and DIY projects.

What a difference a year makes! Last year, *Practical Sailor* testers were holed up in their home workshops, garages, basements, and home offices, meeting remotely on Zoom, and trying to do their part to stamp out a global pandemic. This year, they're holed up in their home workshops, garages, basements and home offices, meeting remotely on ZOOM, scratching their heads and wondering what madness has overcome the dirt dwellers this time.

Obviously, with *Practical Sailor's* emphasis on the scientific method when evaluating products, our staff is chagrined that the terrestrial folk have allowed the pandemic resurgence again this summer, but we didn't let that get in the way of our testing program.

Unfortunately, some things were out of our control. Like many, we had our project delayed by not enough widgets arriving in factories, and not enough

workers arriving in widget factories, and sudden surge in demands for the products the widgets comprise.

Some of our bigger tests were delayed by supply chain issues, which have impacted nearly every marine business. The supply problem has been especially acute for boat-builders, who are experiencing an unexpected growth in sales. Most believe that the boat-buying boom is being driven by the dream of a disease-free island escape, or the *carpe diem* mentality that takes hold when life's brevity smacks us in the face. Our view is that between the growing concern about pressures

on the planet, and the previously accepted pressures on the soul, sailing is approaching a new golden age.

Whatever the case, it's a good time to be selling boats and gear, and not a great time for the bargain hunter. We do expect the used sailboat market to let off a bit of steam in the year ahead, as dreamers suddenly confront the realities of dealing with a fixer-upper. Then again, we know very few people who'd rather be minding an office cubicle than fiddling with their boat, so this mini-boom could carry on for a while.



Fell Marine MOB+

### BROAD MARKET NEWS

As for innovation and changes in the market, two things are worth mentioning. Satellite communication is



# Sticky Stuff that Can Save the Day

*PS picks waterproof epoxies and tapes to protect against rope chafe.*

One of the most interesting tests we conducted this year was a test of underwater patching compounds. This is the stuff you hope never to use. We applied various compounds to a leaky bucket, and then used them on various other repair projects involving immersed components, including the bonding fiberglass panels under water.

A similar project involved more preventative action. The aim was to identify tapes that could be used to prevent gel-coat or spar damage at points of chafe. These can be applied where genoa leads rub against a coaming on the way to the tailing winch, or at the front edge of the mast where sheets make contact at each tack.

## SIMPSON FX-764

We've used this in industry to repair concrete wastewater tanks in the winter, and the National Park Service uses it to install in-stream monitors in icy trout streams. Although slow curing, it has the advantage of working down to 40 F and slightly below, which should be enough for arctic explorers. Bottom Line: The Best Choice for cold water sailors.

## JB WELD WATERWELD

WaterWeld is sticky, completely non-sagging, and stiff enough to hold back water. This is what you'll reach for when water is coming in. This was our Best Choice for stopping leaks and mounting bilge pump floats.

## PSP ANTI-CHAPE TAPE

Looking for ways to protect our mast paint and gel coat from line friction we explored a variety of heavy-duty stick on protective tapes. Testers found the PSP anti-chafe tape



Testers narrowed the field of waterproof epoxies (top) and anti-chafe tape to a few reader-recommended products.

to be very slippery, very chafe resistant, and easy to apply. We recommend it for applications where ropes or webbing must slide smoothly. It is available in thicknesses of both 130 microns (5 mils) and 250 microns (10 mils). It worked well where control lines run across cockpit combings and on the front of the mast, and it was a real winner on the underside of the boom, where it helped the clew strap outhaul more easily. The 5 mil is more flexible, but unless the curve radius is less than about 1/2-inch, the 10 mil works just fine. It is our Best Choice in anti-chafe tape.

gradually becoming a mainstream accessory among offshore cruisers. Antennas are getting smaller, pocket communicators are becoming smarter and more sophisticated and air time is getting cheaper. We touched on this in a couple of reports last year on weather routing and safety at sea, and you can expect much more in the year ahead, as a slew of pocket-sized communicators are popping up on store shelves.

The other big news that will impact PS readers, is in the coatings arena. Akzo Nobel, the Dutch based multinational parent company of Interlux, International, and US Paints (Awlgrip), went on a bit of buying spree in 2020-21. Most recently, it acquired New Nautical Coatings, makers of Sea Hawk paints. Established in 1978, Clearwater, Florida-based Seahawk has grown to become a domi-

nant player in the U.S. and Caribbean market. Its products have fared well in past *Practical Sailor* antifouling tests and the company's hold on the market was strong enough that it was able to bounce back from more than \$1 million dollar fines and jail time for its executives resulting from a serious run-in with the EPA.

*Continued on page 9*



*Tech editor Drew Frye's deep dive into desiccating toilets blew the lid off the increasingly popular trend toward flushless systems. His report on desiccating materials for the head (left) and urine digesters (below) appeared in the July 2021 issue of Practical Sailor.*

Photos by Drew Frye



## Sure Cures for Composting Head Odor

Our recent in depth report on desiccating heads—also known by the misnomer composting heads—focused on two products designed to eliminate odor. The key to maintaining an odor free desiccating head, as anyone who owns one of these heads knows, is using a urine diverter (basically a funnel and a reservoir) to catch the urine and separate it from the solid waste. While solid waste is most often associated with odor, any health care worker can tell you that the ammonia odor of urine can be overwhelming if left untreated.

### NILODOR URINE DIGESTOR

Unlike a holding tank, where the purpose of treatments is to support a healthy biome, the best urine treatments aim to stop bioactivity dead. Urine treatments modify the urine chemistry so that fermentation cannot take hold, and any ammonia that is generated will be retained in solution.

Like holding tank or portable toilet treatments, the greater portion of the treatment is added to the urine reservoir before use. However, just as we recommend spraying a diluted odor treatment in the bowl of holding tank-type heads (see *PS* June 2017, "A Simple Solution to Toilet Bowl Stink"), the urine diverter can also benefit from a light spray of urine treatment after each use to prevent the build-up of scale and stains and to prevent odor from the funnel surface itself.

Very few of the products that claimed to reduce urine odor actually worked, save one—Nilodor, which is also used in hospitals and long-term care facilities. Nilodor includes a mild fragrance that gives it a barely noticeable citrus odor.

Testers detected no odor for the first two days after treatment, only the mild fragrance of the product. For 7 days after treatment, the odor remained mild, less conspicuous than samples treated with vinegar and citric acid, and orders of magnitude better than raw or sugar-treated urine. When diluted as directed (1/4 cup per gallon of holding tank, or 1 tablespoon per pint to use as a spray), it doesn't require an excessive amount of storage space. Add a little Febreze or other odor neutralizer if you like.

### WOOD ASH (OR ASPEN SHAVINGS)

The solid media in a desiccating toilet serves several purposes. It provides visual cover over solid waste, and draws moisture away from the solids. Good wicking and coating are more important than absorption, since sustained drying is the goal. It helps filter the air moving through the system, which is why fuzzy fibers and organic materials help. If you compost with your treated solid waste, bulk and biodegradability are additional features to look for.

We tried several of the favorites for a week each and came up with a winner—wood ash. Wood ash has a high pH. This provides both a surface bio-stat and enhances dehydration, resulting in the best odor control of any product tested. It is also potentially the messiest, but if you have wood burning stove or fireplace that generates wood ash, using this in your desiccating toilet is a no-brainer. Wood ash is high in phosphorous and increases the pH, improving its utility as a compost. Aspen wood shavings came in a close second.





# Awlgrip, Epifanes, and Pettit Shine in Wood Finish Update

Our long-term test of wood finishes featured several new and interesting products, but when categorized by type of finish the results didn't diverge sharply from what we've found in the past. Two part polyurethanes still rule the roost in terms of durability, but single parts make touch ups and refinishing much easier. As for synthetic single-part tinted finishes, they provided longevity, easy application, quick recoating and, because they lack the shiny gloss of the other coatings, will find favor among sailors who like to preserve the natural look of wood. One of the top rated products in our test used a combination of tint and two-part urethane to deliver a finish that appeared nearly as good as it did when first applied.

## AWLWOOD

Awlwood's fast-curing, two-step system involves a coat of primer (clear, yellow, or red) plus multiple coats of a topcoat (satin or gloss). You can add a special reducer to control flow. The initial tinted layers enhance the wood's natural coloring and penetrate the wood to ensure a uniform substrate. The gloss provides UV protection.

After 24 months in the Florida sun, all three of the Awlwood samples maintained outstanding color retention—the difference between the exposed and unexposed areas was nearly indistinguishable.

For ease of application, color preservation, gloss, and durability, Awlwood is hard to beat. All three samples were clearly among the best in our comparison.

## EPIFANES WOODFINISH GLOSS

For those who prefer traditional varnish, Epifanes Woodfinish Gloss scored high. With a tung-oil and phenolic-modified-resin base, the varnish has a slightly amber hue, but cures with a clear finish. It's quick to apply (fewer coats are required and there's no sanding between coats within 72 hours). Woodfinish gloss was the best among the Epifanes' finishes, narrowly edging out Epifanes other top shelf finish, Clear Gloss.

## PETTIT FLAGSHIP AND CAPTAIN'S VARNISH

Two Pettit Z-spar products rose to the top in this test, Flagship #2015 and Captain's Varnish #1015. Both are one-part varnishes from the company's Z-Spar product line, and both were Recommended products at the 18-month mark in our last test.



To compare the effects of UV exposure, testers compared the covered top portion of each test coupon with the exposed bottom section after two years in the sun.

Both the amber-colored Captain's and the warm-hued Flagship are well-regarded as traditional spar varnishes, combining phenolic and alkyd resins with tung and linseed oils. Application is relatively easy. After two years, both rated Very Good for gloss. Both retained color extremely well. The 1015 Captain's Varnish was also one of the most economical coatings in the test.

*Continued from page 7*

According to Matt Anzardo, a segment manager for Akzo Nobel, the Sea Hawk and Bluewater brand paints will

operate as semi-autonomous units. Expect perhaps for some label tweaks, we suspect consumers will probably not even notice the change—at least until the prices tick upward. With just two

companies dominating the antifouling market in the U.S., we're not hopeful that this narrow competition will be enough to keep the price down in the leisure market.



Photos by Drew Frye

From left: The Palmetto 117 Flax Extractor Kit, the Excel Aluminum anchor, and the Gill waterproof sock (left) were among the many projects that earned Practical Sailor Gear of the Year accolades in 2021.

**GEAR OF THE YEAR**

Once more, the bulk of the past year's testing focused on maintenance products, safety essentials, and do-it-yourself substitutes for higher priced marine gear. This approach to experimental testing served us well during the pandemic, and reader response has shown that sailors truly appreciate our efforts to buck the trend toward high-priced, budget-busting nonessential accessories

or "marine grade" gear whose only distinction from cheaper products is the "marine" label.

Truth is, after nearly 50 years in the marine product testing business, we've already tested and reported on most of the products sailors need for their boats, and those reports can be found in our archives. The recent revolutions in anchor design and rope technology have been well covered during the past year. The next big thing on the horizon is, as mentioned, satellite communications and other electronics. We're also in the midst of several reports on electric propulsion and energy storage.

ferent approaches to the automated response when a passenger or driver falls out of their outboard driven dinghy. Some were activated by immersion, some were activated when the fob was no longer within a certain distance of a base unit on the boat. Preventing false alarm was one of the main challenges.

Fell Marine solved the false alarm puzzle with a signal protocol they call Wimea. Like all of the systems we tested, it raises an alarm and cuts off the

motor if the sensor moves more than 50-150 feet from the boat. The alert is also triggered when the sensor submerges.

Up to four additional fobs can be paired with the hub, creating alarms for passengers and engine stop for the primary operator. The idea,

of course, is to give the operator better control of the situation. If the operator is still at the helm—and thus able to assist in the rescue—the boat won't automatically stop, as many systems, do to avoid the "circle of death" of a driverless boat. If operators change, they can exchange fobs. If the operator position is more fluid, changing frequently, this could be a problem.



Sea-Dog Watertight Connector

**MOB+**

Our report on automated man overboard alerts and response devices coincided with a terrible tragedy in our home waters involving a student sailor who fell overboard and was injured by an outboard propeller – just the sort of accident the Fells Marine MOB+ and others like it were designed to prevent.

We tested several different wearable devices or fobs that took dif-

Submerged in our improvised test tank, the Sea-Dog Watertight Connector (inset) proved to be a secure and affordable connector for deck accessories.



Waterproof bags from Gill, Mantus, and Watershed went head-to-head in the October 2020 issue of Practical Sailor.

The Fells marine device was our Best Choice for a small outboard-driven fishing boat or a dinghy equipped with an older engine that lacks an automatic cutoff. In our view, the basic mechanical cutoff device—a wrist lanyard connected to a clip that retains the “Stop” button. This, in our view, is still the most effective choice for dinghies.

### SEA-DOG WATERTIGHT CONNECTORS

Over the years, Sea-Dog line has become a prominent supplier of deck hardware and boat bits. You’ll see their displays in just about every marine chandlery. The quality can vary greatly among its line of products, and in previous tests they’ve landed in the middle of the pack, so we were a little surprised when its modestly priced watertight connector rose (or sank, in this case) to the top of the field.

The large size makes it the easiest to install, with big screws and all external access. The downside is that there is no wire strain relief on the socket side and poor protection against cable rotation with smaller cables. A tighter grommet or sealant inside the boot would solve this. Use grease or Teflon pipe dope on the bonnet threads, since there is no gasket. If you need to remove the bonnet later, do it while the connectors are together; otherwise, there is nothing to hold onto during the twist.

Inexpensive is not always cheap. In this case, the very affordable Sea-Dog watertight connector is an excellent choice for watertight plugs on deck.

### MARINE GOLDSHIELD GS75

Drysuits are another innovation that have transformed offshore sailing. Previously reserved for “wet” sports like coldwater kayaking and dinghy racing, they are making their way onto bigger boats in lieu of heavy and often leaky foul weather gear. The trouble is, they tend to collect body odor and can really stink. Thus, our search for a potent, yet safe anti-microbial treatment.

Although we are still big fans of our DIY formula A and Formula B, but the treatment doesn’t hold up well against water (see the *Inside PS* blog post “DIY Mildew Preventers that Really Work”). So, our search for controlling driesuit odor led us back to an anti-microbial GoldShield. In its search for durable antimicrobial treatments Dow Chemical began researching organosilane chemistry more than 50 years ago, and some chemists at Emory University picked up the trail about 10 years ago and patented the formula as GoldShield. A second cousin to benzalkonium chloride (BAC) and more closely related to the Microban Aegis Microbe-Shield system, GoldShield resists wash off, so you don’t need to retreat every time you wash. It’s not cheap, so save the leftovers for next treatment. Better yet, dilute it a

little more when you mix it into a spray bottle.

This is our Best Choice among off-the-shelf products for lasting odor control in dry suits. If you’d rather not pony up the \$30 bucks or so for a bottle, try one of our DIY formulas.



Goldshield GS75

### PALMETTO FLAX EXTRACTOR

Anyone who’s had to twist into a pretzel to change the packing on their propeller shaft longs for a tool that actually works. We found out the hard way why you should avoid the cheapie corkscrew packing extractors you get from the big box stores. The corkscrew is intended to grab the flax and pull the packing out. The cheap extractors are crimped onto the flexible handle, and most of the time a recalcitrant bit of packing will require a good hard yank that will separate the corkscrew from the handle. That’s exactly what happened to us.

Enter the Palmetto 117 Packing Extractor Set, made in the USA by Palmetto Inc., based in Denton, MD. Also known as “Set B” on Grainger supply’s website ([www.grainger.com](http://www.grainger.com)), the combination of picks and screws is one of many professional grade tools and tool sets sold by Palmetto and available at multiple online retailers.

The device’s corkscrew is threaded



*We used the Iridium GO (right) to download forecasts during our testing of weather routing software. In the coming year PS will be taking another look at the wide range of pocket communicators (above) that are popping up at marine retailers.*



into the handle so it won't pull out, and the set also came with a set of screw-on wood screws to embed in hardened packing that refuse to budge. In addition, the Palmetto Packing Extractor Set comes with three sizes of long-handled picks, and a small open-end wrench that allows you to rotate your tool of choice into the old packing. Our Palmetto 117 Packing Extractor Set was richly priced at \$162.39, but we've yet to find a high-quality tool at the bottom of a discount bin.

This is our best choice among packing removal tool kits. If you do pick one of these up, you may soon find yourself with a lot more friends during haulouts.

### ALLOY EXCEL ANCHOR

We've tested a slew of anchors over the decades and after years of design stagnation, things really picked up a couple decades ago with a new generation of deep setting anchors that relied less on sheer brawn and more on the angle of penetration and other design features to set and hold. This has opened the door for lighter-weight anchors that still deliver good holding and help shave a few pounds in the bow (music to the racer's ears). Now that this approach has been perfected, anchor makers are subtly tweaking the design to improve holding.

The Australian made Excel aluminum alloy anchor is not new, but after taking the time to dive into its design features and test it in a variety of bottoms last year, our testers felt it deserved a spot in the Gear of the Year awards.

and through multiple resets. We've found that with the exception of soupy mud where you should never expect good holding, the Excel delivers high holding capacity and fast setting and resetting without clogging.

PS tester Jonathan Neeves has been using an Alloy #4 Excel as the primary anchor on his 42-foot Light Wave catamaran for many years, and he's tested enough anchors to know what he likes. Our experience with the much smaller Excel #1 has been just as positive, outperforming much heavier anchors.

Rather than declare the Excel anchor as our all-around best choice, bar none (a move which would almost surely provoke an uncivil war online among proponents for various competing anchors) we do believe the alloy Excel has duly earned a Best Choice rating for a second anchor, or an ultra-light primary. For long-term cruising, the steel version is right up there with the best of the best.

### GILL BOOT SOCK

Our resident chionophile and tech editor Drew Frye was back at it again this year, exploring the best clothing for cold wet sailing. After his rundown of wool socks (see PS May 2020, "Wool Sock Update,"), we started getting letters about waterproof socks, a topic we'd touched upon previously but not explored in depth. We found several good contenders, but the socks that kept us the driest and warmest throughout some fairly rigorous testing was the Gill Boot Sock.

The boot height is a full knee sock, which seems like overkill, but the ex-

tra elastic band at the top insures they stay up, nothing can sneak over them, and they do keep your calves warm—a nice bonus. Thick and luxuriously well-padded, these should make deck shoes comfortable deep into the fall.

We'd rate them as effective insulators down to about 40F with deck shoes, and slightly below freezing if conditions are dry. You can always add a pair of fleece or merino wool socks inside them if it gets really cold. Inside waterproof shoes or boots they add an extra level of security. These are our Best Choice in waterproof socks if you want to stay warm in all conditions.

We'd rate them as effective insulators down to about 40F with deck shoes, and slightly below freezing if conditions are dry. You can always add a pair of fleece or merino wool socks inside them if it gets really cold. Inside waterproof shoes or boots they add an extra level of security. These are our Best Choice in waterproof socks if you want to stay warm in all conditions.

### WATERSHED

Watertight dry bags are practically essential to the cruising sailor. Sailors on small boats often press their cockpit lockers and other not-so-dry locations into service for storage of equipment like tools and clothing that can be ruined if they get wet. And then there's the dinghy ride back to the boat with clean laundry. (Why does a squall always brew on laundry day?).

There are dozens of waterproof bags on the market and our test, which explored the pros and cons of different designs—duffels, backpacks, roll-tops, etc.—just scratched the surface. But the success of all of them hinge on the all-important closure, and in this regard, one brand stood apart.

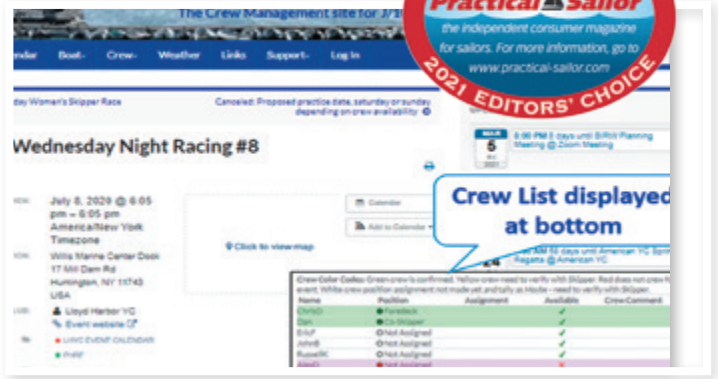
The distinguishing feature of Watershed's well-made bags is their super-zip lock closure, which is completely waterproof. Although some of the Watershed bags combine this with a roll-top, the rolls are not required for watertight integrity. The open and close motion takes getting used to at first, but becomes second nature with practice. Downsides? These bags are a bulkier and little more expensive than competitors. We've never had much faith in any zipper-like closure, but we've used these for a couple of years without a hitch.

This is no surprise since Watershed focuses almost exclusively on waterproof containers. Their product line includes every imaginable special purpose bag you can imagine, from backpacks and duffels, to deck bags and gun bags.

We tested the Chattanooga (22 liters).



## 2021 EDITORS' CHOICE



PS tester and delivery skipper Bill Herrmann (left) evaluated the Luck Grib weather routing program. The Crew Manager app (right) proved to be a great aid for racing sailors who are looking for a simple way to manage their crew and plan for race days.

It combines a roll-up closure with a Watershed closure, providing watertight insurance. It has fewer handles and fittings for lashing down than other duffels we tested, but is made from heavier fabric.

Watershed bags is our Best Choice when looking for a bag that provides perfect water tight integrity and extreme long life.

### LUCK GRIB

We sent our intrepid delivery skipper Bill Herrmann around the tip of Florida to test weather routing programs that work with gridded binary weather files. These are the raw data from computer generated weather models that can be downloaded from a server via satellite (or via short wave, with the appropriate software). After rounding the tip of the Sunshine State, he came back with a winner as well as some insight into emerging technology that is taking the guessing out of passage planning.

Luck Grib takes data from your boat's performance specifications—sailing polars and the motoring polar—as well as the Ocean Current GRIB and the Global Forecast System (GFS) GRIB, and then develops the a routing plan

based on assumptions of when you'll be motoring or sailing.

Luck Grib's ability to support multiple GRIBs and recalculate without re-connecting to the server via satellite is a great advantage. This feature allows us to recalculate using existing GRIBs based on the vessel's current location, maximizing our velocity made good.

The cost for Luck Grib is \$25 for the base application, \$50 for offshore module that allows for the satellite downloads and \$50 for routing. If you do not plan on using the satellite feature, the cost is just \$75 for the product. If heading offshore \$125 is downright cheap

For recreational sailors, the new Luck Grib routing app is an incredible value. Experienced sailors can confirm their routing, and even seasoned sailors can see how what they thought was the best route might not be so smart after all.

### CREW MANAGER

The racing sailors among us can attest to how challenging it can be to juggle crew schedules, so its no surprise that a number of scheduling apps are available to simplify this task. After testing the most commonly used options for this task – including some free shareware

products—Crew Manager (*crew-mgr.com*) proved to be the most convenient and easy to manage. Crew Manager had several advantages:

- The crew availability for a specific race date is better managed, with more capability to avoid too few or too many crew.
- When choosing among the crew who said 'yes' for an event, the software will total the individual crew weights.
- Are you short crew for an upcoming race? Skippers can create groups of people to reach quickly—for example, by designating a group as 'foredeck qualified crew', and then blasting a text message "Could anyone on this thread work the foredeck this Saturday, details here [link]."
- Even setting up a Zoom meeting becomes easier.

After a little while of use, you will find that reverting to old styles of communication to be inefficient and prone to errors. Crew Manager precludes people from losing information you email, and if you fall back to cutting and pasting between applications, you make mistakes, such as leaving out people. And that's exactly what you don't want to do when you're hoping to build a good crew. 🚢

## CONTACTS

**FELL MARINE,**  
www.fellmarine.com

**SEA-DOG,** www.sea-dog.com

**PALMETTO TOOLS,**  
palmettopackings.com

**GOLDSHIELD,** www.goldshield1.com

**EXCEL ANCHORS,**  
www.groundtacklemarine.com

**GILL MARINE,** www.gillmarine.com

**WATERSHED,** www.drybags.com

**LUCK GRIP,**  
www.luckgrib.com

**CREW MANAGER,** www.crew-mgr.com



## Non-Skid Ten Years After

*PS tester and surveyor Capt. Frank Lanier applies Durabak to the deck of his Union 36. The paint was still doing its job when Lanier finally sold the boat five years later. Our own panels kept in Florida, showed more weathering over the same period.*

---

*Most of our non-skid panels show their age, but most keep their grip.*

**B**oat decks take a beating from sun and salt that eventually take their toll on factory-molded nonskid. Once nonskid loses its grip, resurrecting it becomes a safety issue.

Sailors looking to put some stick back into a slippery deck have a few options: apply a deck paint with a nonskid additive or glue sections of textured mat (or synthetic teak) to the deck. There are several variations of the paint method. Some deck paints come pre-mixed with a nonskid compound in powder or bead form (polypropylene, silicon oxide, pumice, or polymers), or you can buy the additive separately and mix it with a paint before applying, or you can broadcast the media on top of the wet paint with a sifter-shaker.

You can also combine methods, mixing the nonskid additive with the paint, roll it on with a high-nap roller, and then sift more aggregate onto the paint while it's tacky. Once the paint dries, you can brush off the excess media and apply a second nonskid-laced coat. A coffee can

punctured with an ice pick can be used to evenly sprinkle the additive across the deck.

To prevent pre-mixed non-skid paint from clumping on the roller, try rolling it out on clean cardboard until you see the desired result. (See “Tools and Techniques for Creating a Professional Finish,” page 16)

In the January 2012 issue, we tested a variety of nonskid options, including multiple pre-mixed paints, nonskid paint additives, and large rubber mats. With this report, we check in on the progress of these paints after 10 years—five years exposure, and five years indoor storage.

### WHAT WE TESTED

We limited the test field to commercially available nonskid options. We did not include sand or crushed walnut shells because fewer boat owners are using them as additives these days, and these can be more challenging to get a good finish.

The test lineup comprised one paint with no filler media, five paints ready-mixed with nonskid, three nonskid additives that testers mixed with two-part topside paints, and one nonskid mat. All of the products can be applied to fiberglass, wood, or metal, and all are available from online stores and marine chandleries. We tested a range of grit sizes—from fine to coarse—but many of the test products are also available in various grits.

### HOW WE TESTED

To test grip, we mounted the test panels on a jig that allowed the panels to be inclined at measured heeling angles. With a tester standing on the panel, the incline was increased in 5-degree increments until the tester slipped. We repeated the test with the panels wet and dry three times each and averaged the results. Testers wore boat shoes with medium density synthetic rubber soles, rinsed after each test. The accompanying “Nonskid Traction Test Results”

table shows the average results. Most panels hit the 40-degree mark wet and dry. For more details on the application, test protocol, and rating system, check out “How We Tested” in the online version of this report.

**WHAT WE FOUND**

The larger and sharper the grit, the less friendly it is to your skin. Durabak, Pettit EZ-Decks, and Treadmaster were the roughest on testers’ knees and elbows, but all of the test finishes were acceptable on bare feet. While a fine, sand-like grit is the least abrasive to skin and easier to clean, it tends to offer less grip. The best aggregate for grip is coarse, sharp-edge grit, but it also can be more challenging to apply with uniform coverage and collects dirt.

Lighter colored paints like beige and white showed more dirt than darker colors like gray—but in Florida, we found several boaters who regretted using a darker color because of the heat. The glare associated with white or high-gloss paints can be knocked down by using a flattening agent. The pre-mixed paints typically offer fewer color choices than you would have if you bought a separate additive and a deck paint.

Mats are also the most expensive of the DIY nonskid options while the pre-mixed paints are the least expensive. The cost of applying an additive and a deck paint depends greatly on the paint you choose: A two-part polyurethane is more expensive than a mono-urethane or an enamel, but it also will last longer. (See our long-term topside paint test report in the February 2011 issue.) To get the most life out of a one-part deck coating, many pros use a two-part epoxy primer.

**GRIT-FREE PAINT**

We had only one grit-free paint this round, but we recently picked up some samples of TuffKoat, which like KiwiGrip relies on the texture created by the special roller to provide a grippy surface. Expect an update soon.

**KIWIGRIP**

Manufactured by Seattle-based Pache-na, KiwiGrip is an acrylic polymer that



*After ten years, finish quality varied by type of paint, with two-part polyurethane paints maintaining their color longer. (West Marine’s paint was discontinued.)*

doesn’t use filler media to achieve slip resistance. The coating gets its nonskid texture via application with the company’s supplied “Loopy Goopy” roller sleeves, which leave a textured finish. As advertised, the KiwiGrip lost none of its suspended aggregate over time, thus the virtually unchanged slip ratings. The company advertises a 5-10 year lifespan, and we are now on year six, with light use, so that seems about right.

Testers observed that the KiwiGrip was harder to clean than some of the other paints. It also attracted and held more dirt, but this may have been a result of mixing it too fast, which created bubbles. These left small holes into which dirt could settle, which in turn can feed mold and mildew. The appearance was also flatter than the two-part paints, which is not necessarily a drawback for a deck, where you don’t want glare. A good scrub is all it took to clean our test panel; some of our other panels nearly rinsed clean with a high pressure hose and sponge.

The two big plusses for Kiwi Grip are ease of application (all water clean-up), its aggressive non-skid, and its durable uniform finish.

The KiwiGrip instructions are clear, easy to follow, and offer multiple tips on ways to tailor the finish to match the user’s needs. Various techniques can yield sharp or rounded edges on the raised texture, and the faster the coating dries, the sharper the edges. The finish on our test panel—which was applied on an 85-degree fall day in Florida—had a stippled, sharp-look-

ing texture, but testers found it surprisingly non-abrasive to skin.

The KiwiGrip panel rated Excellent for ease of cleaning, and it was a top performer in the grip and resistance tests.

**Bottom line:** At \$47 per quart, KiwiGrip is our Best Choice for single part paints. Durability will vary by location and use, but our panel held the best combination of grip and appearance among the single-parts.

**PRE-MIXED PAINTS**

Pre-mixed paints were the easy to apply, but the after five years exposure, the finish was showing its age.

**DURABAK**

Manufactured by a Colorado-based company, Durabak is a tough, flexible polyurethane coating that is pre-mixed with specially treated rubber granules. It was easy to apply. Mixed thoroughly and rolled on, the Durabak effortless produced a uniform grit. This coarse aggregate is no doubt why Durabak scored so well in our non-skid test.

Durabak was not as easy to clean as it aged, and our test panel had faded exposing areas where pigment had lightened, giving it a slightly inconsistent coloring. It was clearly time for a recoating. The coating was relatively easy to keep clean

**Bottom line:** Starting at \$140 per gallon, Durabak was one of the least expensive paints. It comes in more than a dozen colors. We’d describe the finish after five years exposure as functional—hard and grippy, but no pageant winner.

**PS VALUE GUIDE** **DIY NONSKID OPTIONS**

	PRODUCT	PRICE	EASE OF APPLICATION	GRIT SIZE / UNIFORMITY	WEATHER RESISTANCE	EASE OF CLEANING	SLIP ANGLE DRY/WET
PAINTS	Durabak	\$140 gal	Excellent	Coarse / Good	Fair	Fair	40°/40°
	Epifanes Nonskid Deckcoating	\$56 / 750 ml	Excellent	Fine / Good	Fair	Excellent	30°/30°
	Interlux Interdeck \$	\$45 / quart	Excellent	Fine / Good	Fair	Excellent	40°/30°
	KiwiGrip ★	\$47 / quart	Good+	NA	Very Good	Good	40°/40°
	Pettit EZ-Decks ✓	\$51 / quart	Good	Medium / Good	Fair	Fair	50°/40°
PAINTS + ADDITIVES	Awlgrip Griptex 73012+ Interlux Perfection ✓	\$55 / can + \$90 / quart kit	Good	Fine / Good	Very Good	Good	50°/40°
	Epifanes Polypropylene Beads + Epifanes Polyurethane	\$11 / 750 ml + \$78 / kit	Good	Fine / Good	Good	Good	40°/40°
	Interlux Intergrip + Interlux Perfection ★	\$45 / quart + \$90 / quart kit	Good	Fine / Good	Excellent	Excellent	40°/40°
	Tiflex Treadmaster ✓	\$130 (35.5 x 47.5 x 1/8 inch sheets)	Good -	NA	Fair	Excellent	50°/50°

★ Best Choice ✓ Recommended \$ Budget Buy \*NA = not applicable.

**EPIFANES NONSKID DECKCOATING**

Epifanes Nonskid Deckcoating is a one-part, urethane-alkyd-based paint pre-mixed with polypropylene beads. Epifanes also sells the beads separately as an additive.

Although you have to wait 24-hours between coats, it was easy to work with, and coated the panel well. The non-skid in Epifanes was less grippy than some of the other blends, but held equally well wet or dry.

The initial finish had a very professional look, but after five years exposure, it had faded, and there were visible pores where it looked like beads had previously rubbed off. (This also could have been bubbles created during application.) It was time for recoating, but adhesion was excellent, and cleaning was still a breeze.

This is one of the most expensive pre-mixed paints we tested. Epifanes Nonskid Deckcoating comes in four basic colors, although these can be tinted as desired at a paint shop.

**Bottom line:** This paint is easy to apply and to recoat. Time will take its toll on the finish quality, so expect to recoat after five years in the tropics.

**INTERLUX INTERDECK**

A polyurethane resin that is pre-mixed with a fine quartz additive, Interdeck is made by New Jersey-based Interlux Yacht Paints (a division of global chemical giant AkzoNobel). It produces a very hard surface that is designed to protect decks against everyday wear and tear.

Interdeck’s fine aggregate yields an extremely smooth, uniform finish with fine, sand-like grit. This smoothness sacrificed grip in the wet incline test, but dry grip was very good.

It also rated highly for ease of application. In the cleaning test, most of the dirt came off with a sponge and pressure hose, with very little brushing required. Testers rated it among the four cleanest panels after the wash cycle.

Available in five pastel and light colors, Interdeck is formulated to have a very-low gloss to keep glare to a minimum even with the lightest paints. Interdeck was one of the most affordably priced products we tested.

**Bottom line:** A notable performer at a bargain price, Interdeck holds onto its PS Budget Buy pick for paints.

**PETTIT EZ-DECKS**

Manufactured by the New Jersey-based Pettit Paints, EZ-Decks is a tough single-part polyurethane formulated to be easy to apply and resistant to abrasion and UV damage. While testers noted that EZ-Decks was indeed easy to roll on, they rated it Good for ease of application because the instructions advise giving it a week to cure.

Most of the other products we tested needed only 24 hours to cure, but in Florida’s high humidity, the EZ-Decks panel took about eight days to fully set. This is a significant consideration for those in humid climates who have limited time to allow the finish to set up. There is also the option of adding a performance enhancer that “cross-links” polymers within the paint film, boosting durability, gloss, hardness, gloss-retention, scratch resistance, and longevity.

After five years in the sun, EZ Decks is ready for a recoat. Bare grit is exposed throughout the paint, and the overall appearance is flat and a little faded.

On the plus side the grit remains



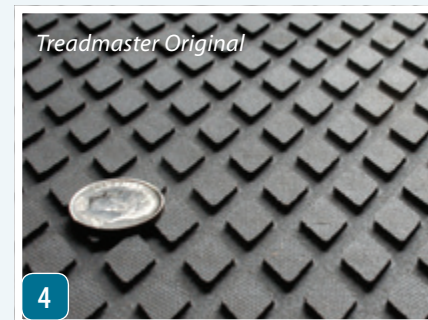
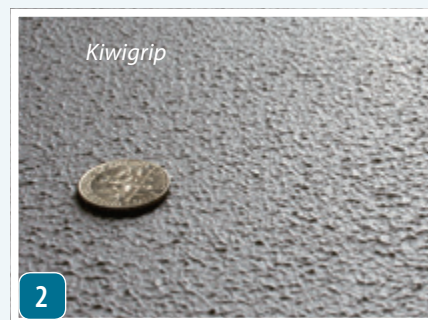
# Choosing the Right Amount of Grip

Except for few cases, you get the grip that you can see. The more aggressive the grit, the more aggressive the grip. The more interesting challenge over time was maintaining consistent color with grit. Textured paints like Kiwi grip maintain consistent color, while only the Intergrit additive maintained a consistent surface color. This could be in part due to the hard nature of Perfection, durable the LPU paint it was paired with.

Despite the “what you see is what you get” truism regarding grip. Probably the more surprising finding was that surfaces that appeared smooth, actually performed well in incline testing.

Following up a fine grit pre-mixed aggregate laden paint, with additional aggregate applied with a shaker, and then following again with a coat of paint is one way to improve grip if you find the first pass too slick.

1. The medium grit Pettit EZ-Decks looked excellent early in the test (shown new). After five years, grip held, but paint had faded.



2. KiwiGrip (shown new) maintained even coloring five years later and its textured finish was evenly distributed by the special roller.
3. The fine grit Intergrit and 2-part polyurethane Interlux Perfection

(shown new) maintained the cleanest, best looking finish.

4. Nothing beat the diamond pattern Treadmaster, which maintained its edge ten years later, though the appearance suffered.

exceptional. EZ Decks held up to a 50-degree angle dry and 40-degrees wet, matching Awlgrip with Griptex for the best grip of all the coatings. Cleaning was more difficult than other surfaces, and a lot of the “dirt” turned out to be exposed grit. Adhesion was excellent and the grit was not hard on feet or knees.

Pettit's EZ-Decks runs about \$50 per quart and is available in three colors.

**Bottom line:** EZ-Decks appearance after five years exposure had dulled weathered, but it retained its exceptional grip and the durable hard finish was intact. It is Recommended.

## PAINT ADDITIVES

Although these additives are designed to be used with like-branded products, they can be mixed into any paint. You can select different grit.

## AWLGRIP GRIPTEX

One of the AkzoNobel companies, Awlgrip's nonskid additive, Griptex, is a polymer bead aggregate that comes in fine, coarse, and extra coarse. We tested the fine grit in this evaluation, but testers have had good results in the past using the Griptex course and extra course on test boats.

For testing, we mixed the Griptex with Interlux's high-gloss, two-part polyurethane Perfection. This takes a little practice, and the right temperature range – warm, but not too warm. Like all of the additives tested, Griptex earned a Good rating for ease of application. With proper mixing, it was easy to attain a near-excellent uniform grit pattern. As with all Awlgrip products, Griptex is recommended for professional use only, but we see no reason for this designation.

Griptex's grip seemed to improve with

age, perhaps as more grit was revealed. After five years exposure, it matched EZ Decks for best coating in the incline test.

The white Griptex and Awlgrip combo retained most of its original luster and was easy to clean. Like EZ-Decks, there were areas of exposed grit, which seemed helped enhance its non-slip properties, and these also seemed to collect dirt.

Griptex is a mid-priced additive. Awlgrip recommends Awlgrip or Awlcraft 2000 topcoat paints.

**Bottom line:** Griptex is a PS Recommended additive. It is affordable and even the fine additive offers very good slip resistance.

## EPIFANES BEAD ADDITIVE

Epifanes' polymer bead additive is sold pre-measured for adding to Epifanes

*Continues on page 19*



The editor sands his 1971 Yankee 30. Choosing the right masking tape (below) can save hours on cleaning up around hardware, toerails, and brightwork.

## Tools and Tips for Creating a Professional Non-skid Finish

**A**n essential aspect of deck painting – or any paint project, for that matter – is to follow the maker’s instructions to a tee. All of the makers in our test provide very clear instructions and have technical support. Use them. Prep steps vary among our paints, but they all emphasize the most important step – and the one most often violated – degreasing the surface once all the sanding is complete. Dirt and oil will prevent adhesion or cause finish imperfections.

The following is a capsule summary of

previous *PS* reports that will help you get the best possible finish. First check out these three “must read” reports from former yard manager Ralph Naranjo, who documented his topside project on his Ericson 41 “Moonshadow.”

–*PS* August 2008 “Topside Paint Test Kicks Off with a Look at Application and Gloss, Tips and Techniques”

–*PS* November 2009 “Topside Paint Exposure Test Checkup”

–*PS* April 2011 “Topside Paint Test Panels Get Checkup.”

One key takeaway from these articles is the advantage of getting an epoxy primer coat down to seal the deck surface and promote adhesion with whatever paint you choose.

### CLEANING

A most common mistake many people make before any paint project is to just start sanding without cleaning the surface first.

*PS* contributor and boat builder Robert Helmick of Calcutta Yachts has restored dozens of non-skid decks on old sailboats and powerboats. When faced with bad mildew, Helmick likes to pressure wash with a diluted chlorine solution and let the water-jet do the scrubbing.

Instead of chlorine, a citrus based “green” surfactant/degreaser could also do the trick. Tech editor Drew Frye’s excellent summary of boat cleaning chemistry (See *PS* April 2017, “The One Bucket Cleaning Kit”) includes a link to the recipe for our favorite cleaners, Formula A and Formula B, both very cheap DIY solutions. Former editor, Nick Nicholson liked Simple Green cleaner, which he used for every buffing job (see Inside *PS* Blog “Waxing and Polishing Your Boat.”)

### SANDING TOOLS

A high quality DA sander is your best friend (see *PS* October 2020, “Random Orbit Sander Runs Circles Around Hand-sanding”). Ideally it is hooked to a powerful vacuum to keep dust down (see “Dustless Sanding” *PS* May 2016).

As for sandpaper, our exhaustive 2001 test yielded three winners that still stand out today: Carborundum’s Premier Red, Norton’s Blue (A975), and 3M’s Imperial (see *PS* May 2001, “Sandpaper: Carborundum’s Premier Red Shines For The Price”). When you get down to finer grits many yard workers favor mesh-style papers like Abranet, or Diablo for their exceptional cutting ability.

### TAPING AND PAINTING

Whether you are going to spray or roll and tip, you’ll want to tape all the hardware, or trim that you didn’t remove. Because this is a multi-day project you’ll want tape that seals well, but doesn’t make a mess removing days later. 3M 2080 or 2090 blue tape are favorites. Be aware that some spraying solvents can “eat” fine-line vinyl tapes (*PS* October 2013, “3M Masking Tape Match-up”)

When it comes to painting, a good idea for first-timers do a few practice runs to figure out how best to achieve the desired flow, and textured finish. Helmick says he gets the best results by rolling his roller out once or twice on a piece of cardboard until he sees even distribution of media. This also helps avoid clumping that can occur if you simply roll it out in the paint tray each time. Once the cardboard is also covered with grit, he replaces it with a fresh piece.



Continues from page 17

polyurethane and mono-urethane paints. We added it to the Epifanes polyurethane for testing.

The fine-grit media resulted in a very smooth finish that delivered very consistent grip. In grip tests, it matched Kiwigrip and Intergrip, but its weathered appearance after five years exposure was a step behind.

The Epifanes additive was fairly easy on bare skin and easy to clean.

Priced at \$56 for three-fourths of a quart (750 milliliters), the Epifanes was one of the priciest additives tested.

**Bottom line:** Epifanes' additive was on par with Interlux Intergrip in terms of grip after five years of exposure, but the price is higher.

### INTERLUX INTERGRIP

Testers mixed the Intergrip polypropylene beads with Interlux Perfection paint, an easy to apply two-part topcoat that would be a good candidate for recoating an entire deck. (see "Test Panel Pageantry: 29 paints, 1 Year Later," November 2009).

According to Interlux, the Intergrip spheres are less likely to collect dirt because of their regular shape. After five years of exposure this proved to absolutely true. Not only did the Intergrip/Perfection combo maintain a consistent white finish, it collected less dirt and cleaned up easily.

With a fine grit and an even finish—the smoothest of all coatings tested—Intergrip was easy to clean. Age did not seem to impact grip, as the paint held our testers up to the 40-degree angle.

The Intergrip beads were the least expensive additive product tested.

**Bottom line:** This combination finish looked almost new after five years in the sun, but was a step below others in terms of grip. Its consistent finish and grip makes it a Best Choice among additives.

### MATS

Only one of our two types of mats we tested was still available on the market after ten years, the rugged Treadmaster. We tested the grey sheet, original diamond pattern. It's available in several other colors.

### TREADMASTER

The nitrile rubber/PVC Treadmaster mat, made by UK-based Tiflex, was PS's top pick among nonskid mats in the Feb. 1, 2003 and Nov. 1, 1995 evaluations. The original diamond pattern held at 50 degrees incline, even after five years.

However, after ten years, five of them in the sun, our grey mat had faded and the diamonds had grown brittle, with many small pores opening up in the grip. We could easily flake off corners of each diamond with our thumbnail. The grip was still exceptional but the surface was very hard. We would recommend knee pads for deck work (see PS July 2018, "Knee Pads and Braces for Sailors"). Although it may seem straightforward, cutting down these mats is a big project. We learned the hard way not to spill any of the proprietary two part epoxy (see PS September 2021 "Quick Tips for Cleaning Up Spilled Epoxy").

Made of ground cork and nitrile rubber, Treadmaster is designed to resist stretch, wear and tear, and chemical damage. It comes in eight-plus colors. Prices vary by sheet size, but re-fitting the whole deck with Treadmaster would definitely be more expensive than painting it.

**Bottom line:** Treadmaster has exceptional grip, but in the Florida sun it faded, and grew stiff and hard and seemed to degrade faster than the top two-part paints. Unless you are an expedition boat that cares little about aesthetics, we would reserve it for places where exceptional grit is required—foredeck, cockpit sole, boarding areas, stairs. And be prepared to replace it in 7-10 years. This is an industrial strength non-skid surface with an industrial strength finish.

### CONCLUSIONS

Choosing the right nonskid for you is a balancing act between taste, traction, time, and budget. The expensive two-part paints will add to your application challenges, but extend the period between recoating. All of the one-parts were showing their age, but recoating is not a huge chore, nor expensive.

If grip is all you care about, Treadmaster will serve well, but the aesthetics is not for everyone, especially as the



An angled incline was used to evaluate grip both wet and dry. Three successive attempts were averaged for each panel.

surface ages. Removal is a huge chore. You can do nearly as well with a more aggressive grip media, which is more easily renewed.

Among the single part paints that required no special mixing or additives KiwiGrip delivered the best combination of fine finish and grip.

Sailors who want the ability to customize their nonskid application and want to choose their own deck paint would do well with the Griptex additive, but if you're picky about finish the Intergrip delivered good grip and a more pleasing look after five years. In instances where a company sells a pre-mixed paint and a nonskid additive using the same media, as Epifanes does, we'd likely use both products, applying the paint and sifting extra aggregate over it. This would likely save money and time in the long run. ▲

### CONTACTS

#### DURABAK

[www.durabakcompany.com](http://www.durabakcompany.com)

#### EPIFANES YACHT COATINGS

[www.epifanes.com](http://www.epifanes.com)

#### INTERLUX (AWLGRIP)

[www.yachtpaint.com](http://www.yachtpaint.com)

#### PACHENA (KIWIGRIP)

[www.pachena.com](http://www.pachena.com)

#### PETTIT (KOP-COAT)

[www.pettitpaint.com](http://www.pettitpaint.com)

#### TREADMASTER

[www.tiflex.co.uk](http://www.tiflex.co.uk)

Photo by Darrell Nicholson

*Teflon-laced pipe dope remains soft long after it is applied. Fittings may have to be snugged down firmly.*



# Leak-proof Unions Get a Second Look

*PS testers plunge into the plumber's realm: liquid sealants, PTFE tapes, and good ol' pipe dope.*

By Drew Frye

After replacing the raw water pump on his 30-plus-year old Universal diesel, PS Editor Darrell Nicholson reconnected the tangle of hoses on the cooling system, fired her up and... drip, drip, drip. It wasn't the lip seals on the pump that were causing the leak this time. Nor was it a gasket. Little beads of water were trickling up the new threaded elbow he'd put on the fresh water pump. It had never leaked before.

Disassembly began anew, some pipe dope was added to the threads, and the air filter and fuel lines (removed to gain access) were bolted back into place.

Drip, drip, drip.

As it turns out, the problem was a common one on older plumbing fittings ranging from through hulls to sink drains to cooling pumps. The mating threads had been bugged (that is the technical term we believe). Corrosion is the common culprit, but in this case, it appeared that the brand new elbow was very poorly machined. The threads had burrs, chips, and a couple threads were flattened as if the

elbow had been crimped in a vice. The lesson was learned – new does not necessarily mean new condition when you are buying plumbing fittings.

Some thread reconditioning (see PS Advisor, page 24) and some yellow Teflon tape did the trick and the engine sump was once more as dry as a bone.

## PROPER FIT UP

Sealants prevent leaks resulting from tiny fitting imperfections, but they are not intended to compensate for mismatched threads, deep scores, dirty threads, or distortions. Be sure to clean all pipe fittings using a small wire brush before every assembly and restore the threads on old fittings as needed. Dry fit any compression fittings and tapered pipes before tightening down, to confirm that they match and fit properly.

Running threads, most commonly found on mushroom thru hull fittings, do not seal well to tapered pipe threads. The pitch (threads per inch or TPI) is the same, and it might feel like they fit, but the threads on the

mushroom are weak and they don't fully engage. The result of this all-too-common cost-cutting measure, that the thru hull might loosen and begin to wobble.

The correct solution is thread the thru hull into a flanged seacock adapter or flanged seacock and seal it with liquid pipe sealant instead of threading the valve directly onto the thru hull. Groco has a patented flanged seacock adapter (IBVF adapter) made explicitly for this purpose ([www.groco.net/products/fittings/thru-hull-fittings/ibvf-flange-adaptor](http://www.groco.net/products/fittings/thru-hull-fittings/ibvf-flange-adaptor)).

Examine mating fittings closely, hydraulic and boss fittings may look like pipe thread, but they often require a gasket or o-ring for proper sealing.

Hose barbs are often damaged during the removal of stubborn old hoses; hacksaws can do a lot of damage! Either replace the barb or fill the gouges with epoxy and file smooth. Thread sealants—or any sealant, for that matter—are not for hoses and generally don't work.

## SEIZING

All of the reviewed products will prevent galling and seizing due to dissimilar metals if properly applied, though Teflon seems most effective. I've run miles of stainless and copper in refinery settings using Teflon tape or Teflon pipe dope and never encountered a seized fitting that had been assembled using an appropriate thread sealant.

Overheating and subsequent decomposition of Teflon can produce perfluoroisobutene, which is 10 times as toxic as phosgene. Inhalation of even a minute amount can be fatal. Do not use Teflon on extreme (>500F) temperature areas of exhaust manifolds, cooking appliances, or heater exhaust.

## WHAT WE TESTED

We also tested popular brands of both tape and liquid sealants. Nearly all of them can be found at local hardware

# Simple Tricks for Sealing Threads

There are as many options for sealing pipe threads as there are pipefitters. And every pipefitter has their favorite sealant. Like boxers vs. briefs, we're not going to attempt to persuade anybody with a settled opinion. We can compare strengths and weakness, and describe the differences in application so that you can make up your own mind which works best for you. There is no single product that applies to every situation, and most pros use several types, according to the application.



1. Apply tape by winding 3-4 layers around the threads in a clockwise direction (facing the end of the pipe). Leave the last 1-2 threads bare so that the shreds of Teflon tape do not fall inside the pipe.
2. Apply pipe dope by brushing at a 45-degree angle to the threads; this will fill the grooves better than brushing in the direction of the threads.



stores or big-box retailer. They are readily available online.

## HOW WE TESTED

Ratings are based on forty years as an engineer and sometimes-pipefitter in the petroleum and industrial wastewater industries, and 35 years of boating. I've assembled a lot of pipes, and fought plenty of leaks on old equipment. I've dealt with all styles of fittings, many chemicals, lots of heat and pressure.

All of the products listed in the table are rated to 10,000 psi and at least 400F. Differences in quality and performance are too minor to quibble over, but do note set (medium vs. soft) and material compatibilities (some should not be used with PVC).

Note that we did not review gasket sealants or silicon caulks as pipe sealants. They fail way, way too often. Don't try it.

## TEFLON TAPE

Comprised of 95 percent Teflon and no adhesive, Teflon tape is clean and

easy to use, compact, and has no shelf life. Several rolls (it runs out fast) belong in every tool box for those reasons. It's handy and is very effective when properly applied to pipe up to about 1-inch in diameter. In larger sizes, pipe dopes are often more reliable. Tape allows immediate full pressure use, which is important on hydraulic systems. Dopes require curing period (typically 4 hours) for pressure over 100 psi. Because pipe dope does not set, the fittings are easier to disassemble, but they may require slightly greater torque for sealing and to resist accidental twisting.

There are several types of Teflon tape, and color designates their preferred use, but it does not mean the tape is limited explicitly to that purpose:

- White: used on NPT threads up to 3/8 inch
- Yellow: used on NPT threads 1/2- to 1.5 inch, often labeled "gas tape"
- Pink: used on NPT threads 1/2- to 1.5 inch, safe for potable water (but so are white and yellow tapes)

- Green: oil-free PTFE used on oxygen lines and some specific medical gasses

- Gray: contains nickel, anti-seizing, anti-galling and anti-corrosion, used for stainless pipes

- Copper: contains copper granules and is certified as a thread lubricant but not a sealer

You would think that more layers of white tape could do the same job, but not in my experience. It just shreds. You need the thicker tape.

Apply by winding 3-4 layers around the threads in a clockwise direction (facing the end of the pipe). Leave the last 1-2 threads bare so that the shreds of Teflon tape do not fall inside the pipe. Because pieces can shed, tape is generally considered unacceptable in hydraulic and diesel fuel systems, but with careful attention to thread ends it is safe. Excessive layers are sometimes applied to adjust the fit or to compensate for stripped threads, but this can interfere with proper sealing and reduce the pressure rating and mechanical strength.

BRAND	MODEL	CONTAINS TEFLON	COLOR	SET	PROPANE/GASOLINE/FUEL	PVC/CPVC/ABS	NYLON/MARELON/METALS	SIZE	PRICE/OUNCE	PRICE
RECTORSEAL ★	No. 5	No	Yellow	Soft	Yes	No	Yes	4 oz.	\$2	\$8
RECTORSEAL ✓	T plus 2	Yes	White	Soft	Yes	Yes	Yes	4 oz.	\$2.75	\$11
RECTORSEAL ✓	True Blue	Yes	Blue	Medium	Yes	Yes	Yes	4 oz.	\$1.75	\$7
OATLEY ✓	Pro Dope	No	Gray	Soft	Yes	Yes	Yes	4 oz.	\$1.50	\$6
OATLEY	Great White	Yes	White	Soft	Yes	Yes	Yes	4 oz.	\$1.75	\$7
OATLEY ★	Real Tuff	Yes	White	Soft	Yes	Yes	Yes	4 oz.	\$2	\$8
OATLEY ✓	Block	Yes	Blue	Medium	Yes	Yes	Yes	4 oz.	\$2	\$8
LOCTITE ✓	575	No	White	Medium	Yes	Yes	Yes	8 oz.	\$7.88	\$63
LOCTITE ✓	567	Yes	Off white	Medium	Yes	Yes	Yes	8 oz.	\$9.50	\$76
PERMATEX ✓	Pipe Joint Compound 80045	No	Black	Soft	Yes	No	Yes	16 oz.	\$0.53	\$8.50
PERMATEX ✓	Thread Sealant with PTFE 80633	Yes	White	Soft	Yes	No	Yes	16 oz.	\$0.96	\$15.40

★ Best Choice   ✓ Recommended   Each of these sealants is recommended for specific jobs. Best choice products can serve in many situations.

**OATLEY TEFLON TAPE**

**White.** This is for 1/8- to 3/8-inch pipe and useable up to about 1-inch. It is thinner than other Teflon tape products and is suitable for water and all fuels.

**Yellow.** For 3/8- to 1 1/2-inch pipe, it is thicker than white Teflon tape and is what gas inspectors want to see. This is suitable for water, all fuels, natural gas, and propane. (This is what the editor used to seal his water pump elbow.)

**Pink.** Similar in thickness to yellow gas tape, it is used for potable water. However, it is suitable for all fuels.

**Grip Tape.** Thicker than yellow gas tape, it is suitable for water, gas, and all fuels. We like it for 1.5-inch pipe, specifically in cases where we want a more robust connection than we would get if we used pipe dope.

Note: We have used tape from Rec-

torSeal and found the performance identical to that of Oatey. Off brand tapes seem to shred more easily and sealing may not be as reliable.

**PIPE DOPE (LIQUID THREAD SEALANTS)**

Liquid sealants are comprised of combinations of Teflon and/or clay in a suspension based on oils and solvents. All dry to some extent, but some remain flexible and easy to remove, while others stiffen to some extent, providing added support but making removal more difficult. Loctite products belong in a separate group. It is comprised of methacrylate, which needs no oxygen to cure. Less torque is required for sealing, but these sealants create a glue-like bond making it more difficult to take apart. Many fastidious workmen swear by Loctite products for permanent in-

stallation of critical lines. Maybe a small tube for the engine room makes sense, but it has a shelf life. US pipefitters use Oatey or Rectorseal for 98 percent of their work.

Liquid dope is better than tape for straight threads because estimating the amount required is not critical, and because it flows to fill gaps. Through-hull fittings are a classic example of a straight-thread union that is best served by liquid sealant.

Apply dope by brushing at a 45-degree angle to the threads. This will fill the grooves better than brushing in the direction of the threads. Apply dope only to male threads in sizes up to 1 1/4-inch. Apply to male and female in larger sizes. I often use a cut-down 1/2-inch chip brush, because the brush attached to the cap can become worn-out.

STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION (Required by 39 U.S.C. 3685). 1. Title of Publication: Practical Sailor. 2. Publication No.: 0091-7100. 3. Filing Date: 9/24/21. 4. Issue Frequency: Monthly. 5. No. of Issues Published Annually: 12. 6. Annual Subscription Price: \$84.00. 7. Known Office of Publication: 535 Connecticut Ave., Norwalk, CT 06854-1631. Contact person: Tom Canfield, 203-857-3139. 8. Headquarters or General Business Office of the Publisher: Same as above. 9. Publisher: Timothy H. Cole. Editor: Darrell Nicholson. Belvoir Publications, Inc. 535 Connecticut Ave., Norwalk, CT 06854-1631. 10. Owner: Belvoir Media Group, LLC 535 Connecticut Ave., Norwalk, CT 06854-1631. 11. Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amounts of bonds, mortgages or other securities: None. 13. Title: Practical Sailor. 14. Issue date for circulation data below: August 2019. 15. Extent and Nature of Circulation (Average No. Copies Each Issue During Preceding 12 Months/ No. Copies of Single Issue Published Nearest to Filing Date): a. Total No. of Copies Printed (13,333/13,800) b. Paid and/or Requested Circulation: (12,495/12,505) 1. Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541 (14,241/13,224). 2. Paid In-County Subscriptions (0/0). 3. Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution (626/704). 4. Other Classes Mailed Through the USPS (0/0). c. Total Paid and/or Requested Circulation (13,121/13,209). d. Free Distribution by Mail: 1. Outside-County as Stated on Form 3541 (13/13). 2. In-County as Stated on Form 3541 (0/0). 3. Other Classes Mailed Through the USPS (0/0). 4. Free Distribution Outside the Mail (42/42). e. Total Free Distribution (55/55). f. Total Distribution (13,176/13,264). g. Copies not Distributed (158/536). h. Total (13,333/13,800). j. Percent Paid and/or Requested Circulation (99.6%/99.6%). 17. I certify that all information furnished on this form is true and complete. Tom Canfield, VP Circulation, 8/27/21.

A thin coating of pipe dope over compression fittings and unions adds lubrication, easing the fit-up and glossing over minute imperfections. This is mostly applicable to larger fittings (larger than 1-inch for unions and larger than 1/2-inch for compression fittings).

With smaller fittings, a new compression fitting is the better answer. Teflon tape over compression fittings is generally frowned upon, but it can work pretty well in non-critical applications.

Using pipe dope to seal leaking hoses is a botched repair that will leak. Fix the barbs, position the clamps properly, and replace the hose if weathered.

Dope is generally not used on PVC or ABS threaded fittings because solvents can cause cracking; check product approvals. Plastic fittings generally require minimal lubrication and sealing, so a few wraps of Teflon tape is plenty. Dope can be used on polyethylene or nylon/Marelon fittings. Overtightening plastic fittings can lead to cracking of the female part, so tighten the parts gently.

### RECTORSEAL

This is the go-to product for plumbers and pipe fitters, although, as mentioned, stating this will probably ignite the ire of the Oatey fans, and others.

### RECTORSEAL NO. 5

This is probably the most popular pro product, is it the standby for most plumbing unless something else is called for. The prevalence of seawater and corrosion suggests a product with Teflon would be better for most applications, but this is still good stuff for general use onboard.

### T PLUS 2

Rector's other popular product is similar to No. 5, but is based on Teflon (PTFE). I encounter a lot of this used on refinery cooling water systems.

### TRUE BLUE

This is another Teflon product but with a medium set. Popular around boilers and applications with extreme vibration.

### OATEY

Most home supply stores and hardware stores stock at least one or two types of Oatey sealant. You'll find it in the plumbing aisle, of course.

### PRO DOPE

Nearly as popular as Rectorseal No. 5, this is a conventional dope with reliable performance.

### GREAT WHITE

This product is comparable to Rectorseal's Real Tuff, but at a slightly lower price point. I find it is not as effective as Real Tuff, but this could just be a personal bias.

### REAL TUFF

This is my go-to product for most boat and industrial applications that are not better served by yellow Teflon tape. This has a high volume of Teflon, provides good sealing, and is easy to remove. I've used it on seacocks.

### HERCULES BLOCK SEALANT

This is similar to True Blue, and one of my best contractors swears by it for boiler work, and I've got to agree with him. Specifically, it seals old rusted fittings subject to vibration and extreme temperature cycling better than soft set sealants. But you'll need a long wrench to get it loose.

### LOCTITE 575 AND 567

These products are expensive and add some locking to the joint. I've only seen them used on hydraulic systems. Both are medium set and both are harder to remove after setting, making them less preferable for many applications. They are slightly thinner and require a better fit for good sealing.

### PERMATEX

Although the editor has used a variety of Permatex products for sealing water pumps, exhaust flanges, and other components, I have less experience with these.

### PIPE JOINT COMPOUND 80045

Much like RectorSeal No.5, this is a conventional sealant with a solid reputation.

### THREAD SEALANT WITH PTFE 80633

This is a Teflon soft set sealant. It is comparable to Oatey Real Tuff.

### CONCLUSIONS

You need several products. Yellow or pink Teflon tape is perfect for smaller stuff and handy to keep in the tool box. Soft set liquid sealant can be better for older fittings with worn threads. Reserve medium set dope for things you don't ever plan to remove, and only for places with room for a big wrench.

A thread restoring file is a life saver when a seacock thread or engine bolt gets bugged up, or even when rebedding a deck full of fasteners that are clogged with sealant. Combined with a wire brush, a set of taps, and some diligence, you can solve most thread problems.

*Technical Editor Drew Frye is the author of "Keeping a Cruising Boat for Peanuts." He blogs at his website [www.sail-delmarva.blogspot.com](http://www.sail-delmarva.blogspot.com).*



Rectorseal No. 5



Hercules Real Tuff

Photos Courtesy of manufacturers

## CONTACTS

**RECTORSEAL,**  
[www.rectorseal.com](http://www.rectorseal.com)

**OATEY,**  
[www.oatey.com](http://www.oatey.com)

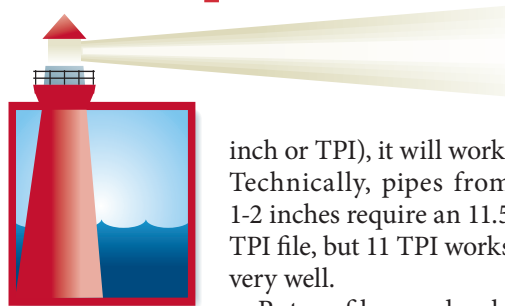
**PERMATEX,**  
[www.permatex.com](http://www.permatex.com)

**LOCTITE,**  
[www.loctite.com](http://www.loctite.com)



## File Away Your Pipe Thread Problems

Thread restoring files cannot restore stripped or severely corroded threads, but they can work wonders on threads that have been distorted by impact, clogged with corrosion products or adhesives and paint, or where the first few threads have been torn off or mangled. Common Unified National Fine (UNF), Unified National Coarse (UNC), National Pipe Tapered (NPT), and metric threads all use the same 60 degree angle, so if the thread restoring file matches the pitch (threads per



**PS ADVISOR**

inch or TPI), it will work. Technically, pipes from 1-2 inches require an 11.5 TPI file, but 11 TPI works very well.

Rotary files need only match the angle (60 degrees), but except for very large threads, I find they can be hard to control and hard to work with in tight spaces. Unlike thread restoring files they are not stabilized among multiple threads so the repaired thread may wander, especially when cross threading is involved.

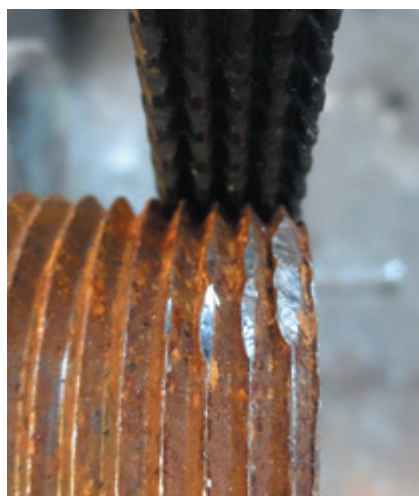
Finally, they only remove material rather than straightening bent threads. They are best on very large threads and only for cleaning up a starting thread (not for load bearing threads).

The primary advantage of a rotary file is that it can be used for internal threads, but I have not had much success with this. Internal threads can be dirty, but unless you cross threaded a part, they are seldom damaged. If seriously cross threaded, chasing with a tap is generally the only road back.

A fine triangular mill file has a 60 degree angle and a small one can restore threads in a pinch, but like the rotary file, it is not stabilized by multiple threads. It can work in a pinch, but the results are often disappointing. I would not use this method on an expensive or critical part.

Our recommendation is a double ended, 8-thread restoring file, covering 11-24 TPI. This will repair pipes up to 2 inches, NF bolts from 5/16-inch to 1.5-inch, UNC bolts from #10 to 5/8-inch, pipe from 1/8- to 2-inch, and some metric bolts in the same ranges (a separate file for metric is better). The sort of tool you won't use often, but if it works once, it's paid for.

When using a thread file wear gloves and remember to align the file with good threads as you repair damaged ones (see photo at left).



*Straightening 1-inch pipe threads using a General Tools thread restoring file (left). To use the file, align the file with threads, and work from good threads outwards, so that several of the rows of teeth are always engaged with good threads. Use moderate pressure; enough to keep the file from skipping, but not enough to cut deeply into the pipe or bolt. Take your time. Clean with wire brush when finished.*

*Technical Editor Drew Frye is the author of "Keeping a Cruising Boat for Peanuts," and "Rigging Modern Anchors." He blogs at sail-delmarva.com.blogspot.com.*