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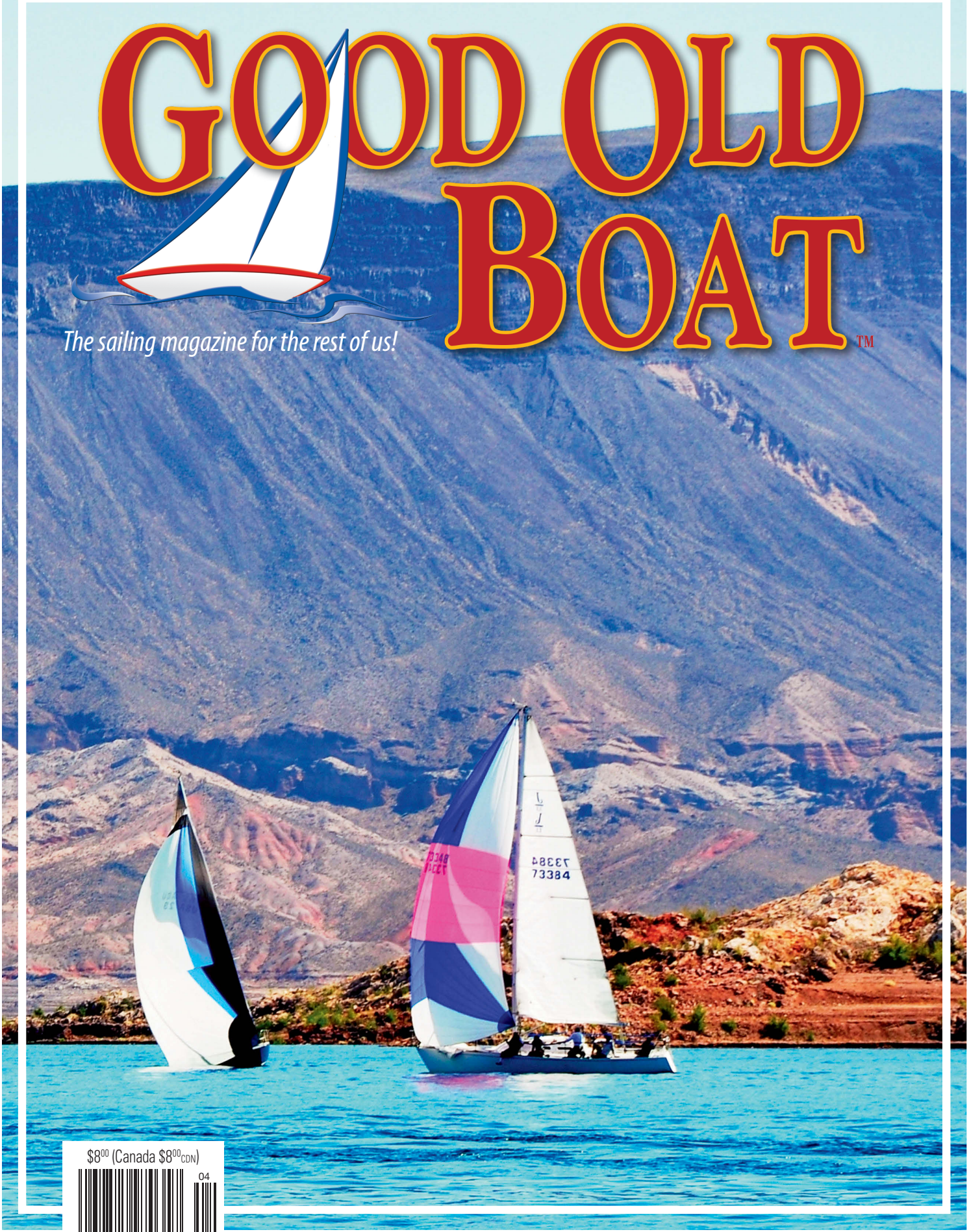
The sailing magazine for the rest of us!



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Issue 125 March/April 2019

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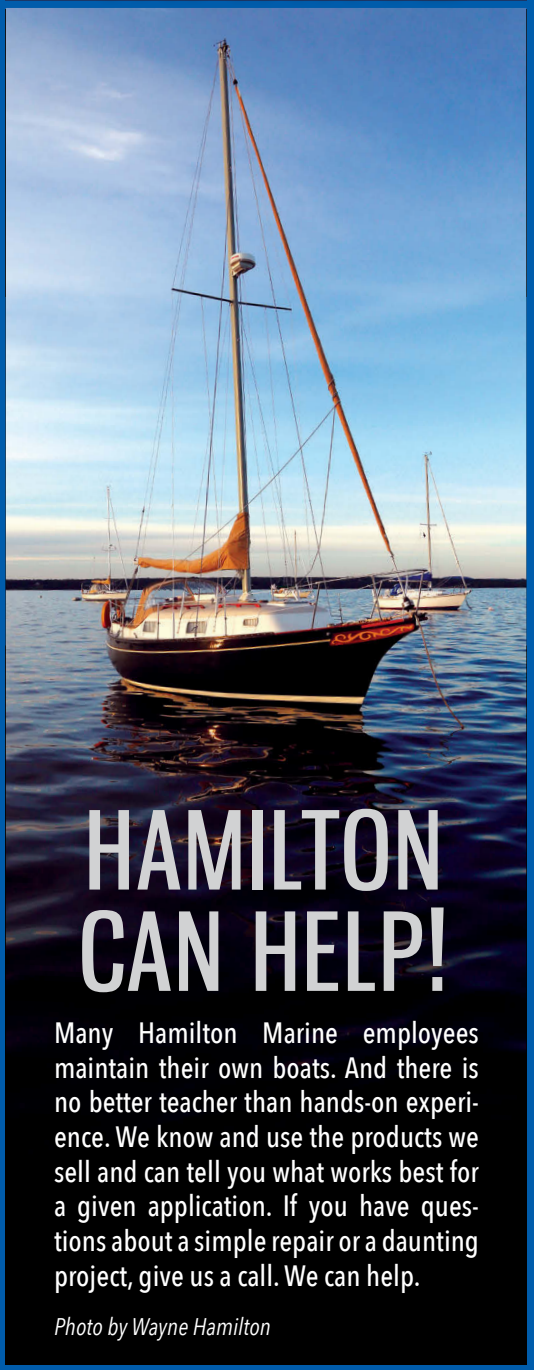

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Good Old Boat

Contents

MARCH/APRIL 2019
ISSUE 125

For the Love of Sailboats

On the cover . . .

Three J/Boats, *Bombardier*, *Norhi*, and *Heeling Art*, battle it out on Nevada's Lake Mead in a spring-series race. Their skippers are members of the Nevada Yacht Club. Angelo Gurreri took the photo with a Nikon D-90 from aboard his 1983 Capri 30.

Speaking Seriously

What's More

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The sailing magazine for the rest of us!

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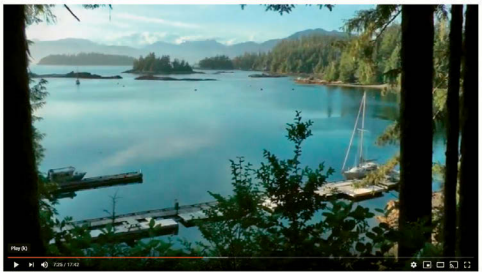
News from the World Wide Web

Salish Sea Sampler

Whether you're a Salish Sea sailor or an armchair sailor interested in the Pacific Northwest, Bert Vermeer's YouTube channel is worth checking out. He's been cruising Desolation Sound, the Broughtons, and Vancouver Island for decades of sailing seasons with generations of his family aboard his 1978 Islander Bahama 30, *Natasha*, and has recorded hours of his experiences in high-quality, well-produced videos. If you're feeling chilled, warm up with Bert's summertime voyage aboard a friend's 38-foot Sabre returning from Hawaii to British Columbia after the Vic-Maui race.



youtube.com/user/bertvermeer013/videos

Sailing in Paradise with a Purpose

As a recreational boater, you likely seek to be in your own paradise, whether that's anchored off a sunny beach in the Bahamas or in an isolated cove on Lake Superior. But then what? Circumnavigator of the Americas Matt Rutherford suggests "finding purpose in paradise." It's the idea that sailors can serve a purpose as citizen scientists. Scientists trying to understand our world's oceans and waterways need data from all over. It's likely that they need data from your favorite sailing grounds. This is where you come in. Data collection can be in the form of observations or sampling or testing, and to contribute to citizen science, you don't need to be an actual scientist to collect data. Here are six citizen-science websites to check out:

Birdingaboard.org
Greatlakes.fieldscope.org
Microplasticsurvey.org
Oceanresearchproject.org
Secchidisk.org
Zooniverse.org

This is a very small sample. If you don't find something here for you, try googling "citizen science" and the name of your waterway, such as "citizen science Sacramento Delta."

PHOTO COURTESY OF BILL ROWNTREE/PPL

Robin Knox-Johnston looks at history

A Retro Race in Retrospect

Could the 2018 Golden Globe Race have been fairer and safer?

BY MICHAEL ROBERTSON

This morning, as this issue goes to press, Jean-Luc van den Heede has won the 2018 Golden Globe Race in just under 212 days. Three of the four remaining competitors have rounded Cape Horn and are bound north for the finish line in France. This seems like a good time for reflection.

Sailing — and sailboat racing in particular — has changed dramatically over the years. This isn't a bad thing on the whole, but somewhere along the line, solo around-the-world sailboat racing morphed into something inaccessible to amateur competitors. In the 1968 Golden Globe Race, all nine entrants were amateurs, and all sailed across the start line in boats they owned themselves. In 1989, for the first running of the Vendée Globe (the modern equivalent of the Golden Globe), Jean-Luc van den Heede took a sabbatical from his job as a schoolteacher and finished third with a budget of about $300,000 (in today's dollars). Today, the Vendée Globe is dominated by professional sailors racing aboard boats owned by sponsors who fork over millions to get a place at the start line.

Then along came Don McIntyre to resurrect the Golden Globe Race for a second running, 50 years after the first. And the 2018 GGR was truly a second running, to the extent that the rules of the race kept the boats modest and largely restricted equipment and technology to what the 1968 racers had on board.

I'm a fan of the 2018 GGR, but I've come to realize that it's not because of the retro nature of the race. I don't care whether the racers are navigating with sextants or with GPS, or whether they're listening to music from cassette tapes or an iPod, or whether their cameras use film or are digital (and the sea doesn't care about these things, either). I'm a fan of this second running because, on the world stage, this is the only sailing race for the rest of us.

Since the 2018 event was announced, it has enjoyed tremendous support worldwide. That enthusiasm hasn't waned, but it has been countered by the voices of some prominent sailors and marine journalists who've been, to varying degrees and for different reasons, critical.

Nearly all the criticism of the race is about the rules intended to keep the race retro. Some critics have cited the several dismastings and rescues as evidence that these rules have put lives in danger. (GGR sailors are restricted to receiving only verbal weather reports, making it nearly impossible for them to be their own weather routers, but to what end? Are we nostalgic for the inherent risks of sailing the Southern Ocean without weather knowledge?) Some object to the seemingly haphazard ways the race rules have been applied, and some think the boat designs allowed are unsafe for this race.

Regardless of the merits of the criticism, I think Don McIntyre has run up against a wall in trying to stage a 1968 race in 2018. If running a genuinely retro race, McIntyre wouldn't regularly communicate personally with the racers via text and satellite phone, giving them an emotional crutch not available in 1968. He would publish online only the racers' self-reported positions, not their transponder-transmitted GPS-derived positions, thereby preserving the integrity of the race's navigation rules. (Credible claims received prior to a recent rule addition imply that at least some racers were receiving positions from SSB communications published online and relayed by third parties.) He wouldn't give racers their positions on a whim because "skippers are interested in where they are in the fleet and where other entrants are . . ." And the irony of restricting the 2018 boats to a short list of full-keel production boats with barn-door rudders is that the nine-boat 1968 lineup was more diverse and included two multihulls.

Trying to re-create the 1968 race is at best a distraction from, and an obfuscation of, what this race is about. At worst, it's resulted in an uneven playing field on which lives could have been lost for the sake of retro.

My hope is that the focus of the 2022 GGR will be on preserving the spirit and accessibility of the 1968 race, not the technology. My hat is off to Don McIntyre for pulling off what he has, but I urge him to shift away from the retro corner he's boxed the race into and instead focus on his biggest accomplishment: running a race that brings us back to that golden age of sailboat racing when the competitor on the world stage could very well be a sailor from your marina, sailing a boat that could be yours.

Prize-Worthy Potion, Monikers for Macramé,

Prize-worthy potion

Is there a Nobel Prize for Contributions to the Boating Arts? I just received the January 2019 issue of *Good Old Boat*, and if there is such a prize, I nominate Drew Frye for his stellar article on banishing mildew. I can't wait to try his Formula B! (Though I suppose a more nautical award would be the Noble Prize, as in Charlie . . .)

–Cory Carpenter, *Bright Eyes*, a subtropical island, Georgia

A French spiral hitch by any other name . . .

Your article "Dress Up the Steering Wheel" (January 2019) made us grin. We decorated the wheel of our 1987 Hunter 31 back in 2000. When I learned to do this at church camp in the 1950s, we called it "overhand-knot work." When I taught it at Boy Scout Camp in the 1960s, we called it "finishing." Being children of the 1970s, we called it "macramé." I cover with line anything made of metal and handled frequently.

We love the magazine. We bought a 1977 Crealock Clipper Marine 26 in 1985. We bought the Hunter in 1999 and we still have it. We sail out of South Shore Yacht Club in Milwaukee.

–Rip Edmundson, *Dulcinea II*, Milwaukee, Wisconsin

Speaking up for electric outboards

I saw the editor's comments [about electric outboards in the Mail Buoy section of] the January issue and want to add support for electric auxiliary power. I have used a modified Torqeedo Cruise 4.0 on my Horizon Cat for 4 years. I don't have an hour meter, but I used the Torqeedo for nine months per year in Florida and the only problem I've experienced is a small hole that developed in the membrane that covers the on/off switch. It has been the most delightful auxiliary power source I've had aboard my many boats. I would never go back to gas or diesel!

–Charlie Flanagan

Sail-trim Video Trove

Reading "How's Your Sail Trim?" (January 2019), I was reminded of the Off Center Harbor video library. The sail-trim videos it features are by Carol Hasse of Port Townsend Sails and are by far among the best practical and understandable sail-trim advice I have seen.

I have cruised and raced during my 43 years of sailing, and it wasn't until I switched to a loose-footed mainsail that I could really see the effects of proper sail trim. It is a beautiful thing when the sails are trimmed and balanced. I imagine sails last longer when they are set properly, stress and fatigue being lessened.

–Daryl Clark, Maple Grove, Minnesota

Thanks, Daryl. We've long been fans of Off Center Harbor.

–Editors

Kudos for customer service

Do you publish notes, like *Practical Sailor* sometimes does, about good customer service? If so, please note that R&W Rope took really good care of me. The ad in your magazine promised 20 percent off my order, but I received only a 15 percent discount due to a website glitch. I contacted R&W Rope and heard back within hours, even though they were closed for the holidays. I got an immediate commitment to fix the problem and they followed through, even making repeated efforts to contact me to ensure that my refund went through. And my 250 feet of ¼-inch Amsteel Blue Dyneema line arrived promptly.

I'm a happy camper.

–Bob Neches, Los Angeles, California

Seeking *Landfall*, a classic cutter

In 1968, my parents bought *Landfall* in San Pedro, California. She was 43 feet on deck and 56 feet overall, including boomkin and bowsprit. She was cutter-rigged, canoe-sterned, and carried two jibs, one club-footed. Her

and Glycol Revisited


PHOTO COURTESY OF JIM FISH

***Landfall* in about 1971 with one of her new owners at the helm.**

hull and spars were solid wood. She was designed by Edson Schock and built in 1936.

Also in 1968, our family sailed down the coast for nine months; we ended up in the Panama Canal Zone in May 1969. My parents sold *Landfall* in Panama, around 1971, to a couple who were stationed there in the Army. About a year later, they sailed to the South Pacific. In the mid-1970s, they returned to Panama, transited the Canal, and sailed up the US East Coast. That is the last I heard about them or the boat.

I would love to find *Landfall*. If anyone has any information about her whereabouts, please contact me.

–Jim Fish, jfishcz@gvtc.com

Glycol toxicity

In his response to a letter last month (Mail Buoy, "Understanding Glycols," January 2019), Drew Frye dismissed concerns about ethylene glycol, stating that it poses no greater risk than propylene glycol to the marine environment. He said the only difference between the two is ethylene glycol's toxicity to mammals. The ocean around our boat is full of mammals.

–Dean Ungard and Fran Keevil, *Evening Star*, 1976 Bristol 32

Drew responds

Thank you for highlighting that seeming contradiction, Dean and Fran. Ethylene glycol is indeed acutely toxic to mammals when consumed. About 1.5 mg/kg is fatal. However, it is neither carcinogenic nor mutagenic. It is very biodegradable and does not accumulate in the environment. And unlike lead, for example, it does not accumulate in the body, nor is it a chronic poison at very low levels.

Whether a few gallons are released in a large waterway from winterizing, or a few ounces over 20 years in the case of a boat project, ethylene glycol is immediately diluted below levels of concern for mammals. Ethylene glycol and propylene glycol are both classified as "relatively harmless" by the US Fish and Wildlife Service.

This is not to say antifreeze, whether ethylene glycol or propylene glycol, should be disposed of casually. In fact, both are recyclable materials, and should be taken to a service station or recycling center. Neither chemical should be poured into the sewer.

–Drew Frye, *Good Old Boat* Contributing Editor

continued on page 54

Tasmanian subscriber Christian Wojtowicz moors his 32-foot steel double-ended Tahitiana cutter, *Beatrice*, in Oyster Cove. Nearby is a snug all-weather anchorage known locally as the Duckpond, and this cardinal mark stands at the channel entrance. The early-morning fog and the cormorants come and go.

Southerly 115

A true shoal-draft cruiser from the UK

BY TOM WELLS

Because its generous beam gives it high form stability, the Southerly 115 achieves good windward performance without excessive heel.

When you are used to sailing a performance cruiser with a 7-foot draft, the prospect of spending winters in the shallow waters of Southwest Florida can be daunting. That was the dilemma facing Chris and Laura Mlynarczyk, who enjoy summers aboard their German Frers-designed Swan 40, *Allegro*, on Lake Michigan. They were concerned that a boat capable of meeting Florida's draft requirements would be a less satisfying platform, but they found an answer in 2017 when they purchased their 2006 Southerly 115 Mk IV, *Blue Sky*. In March 2018, my wife, Sandy, and I met Chris and Laura aboard *Blue Sky* at Burnt Store Marina in Charlotte Harbor on Florida's west coast.

Chris, a Chicago-area native, was drawn to sailing at an early age when he saw the movie *Mutiny on the Bounty*. He became a classical guitarist, performing and teaching as he earned his MBA. During this time he took up sailboarding, and eventually he served as crew in three Chicago-Mackinac races. He owned an IOR Half Ton raceboat while in Chicago. After moving to Southern California, where he spent six years, he gained experience on a variety of boats, including Santa Cruz race-boats and J/40s, and sailed a Transpac race aboard a TP52. He spent the next several years in Dubai, and after his return to Chicago sailed a Baltic 35.

During this time, Chris met Laura. When they found their Swan 40, they knew it was the boat for them and they brought *Allegro* home to Racine, Wisconsin. Because of her growing love for sailing, Laura suggested they could use a second boat for winter sailing. Adding the Southerly 115 as their Florida boat made an ideal sailing situation for them.

***Blue Sky*'s swing keel draws 8 feet. The bow thruster was standard on Mk IV models of the Southerly 115.**

Design

Northshore Yachts of Chichester, England, began producing the Southerly line in 1975 with the introduction of the Southerly 28. It was designed for true shoal-draft sailing and had to be able to dry out in the tidal estuaries around the United Kingdom while retaining good stability and performance qualities.

When looking for a reliable and sturdy design for larger shoal-draft cruisers, Northshore turned to Carter Offshore, a Boston-area design firm known mainly for IOR raceboats. In 1980, the company introduced the Dick Carter-designed Southerly 95, followed in 1983 by the Southerly 110, which evolved into the 37-foot Southerly 115 with more interior space and a center cockpit.

The first version of the Southerly 115, referred to as the Mk I, had a drop keel in the shape of a triangular airfoil and a single shallow rudder to match the keel-up draft. That rudder showed a tendency to ventilate as the

boat heeled under certain conditions, so Northshore had British designer Rob Humphreys modify the 115 and introduced it as the Mk II. Humphreys is known for many successful designs, including Dame Ellen MacArthur's Open 60, *Kingfisher*.

Under Humphreys' direction, Northshore modified the drop keel to provide greater depth and lift, and fitted twin rudders to maintain shallow draft and provide directional control when the boat heeled. Further modifications made in the following years resulted in the Mk III and Mk IV. These modifications were above the waterline and did not affect sailing qualities. The Southerly 115 remained in production until around 2007. Between 250 and 300 hulls were produced.

Northshore Yachts was recently acquired by Discovery Yachts Group, which now produces a line of larger shoal-draft Southerly Yachts in Southampton, England.

Construction

The Southerly 115 has a solid hand-laid-up fiberglass hull below the waterline. The topsides and the deck are cored with balsa except in load areas, where plywood core was substituted. The hull and deck are joined at the top of a bulwark with a through-bolted flange that was also chemically bonded. A teak rail caps the joint.

Internal ballast for the Mk I was a cast-iron "pancake" weighing 4,962 pounds. The hydraulically operated 2,016-pound iron swing keel brought the total ballast to 6,978 pounds and provides added righting moment when down. The Humphreys modifications for the Mk II and later models added weight to the keel, raising the ballast figure to a total of 7,597 pounds.

The foredeck on the Southerly 115 is furnished with heavy stainless steel cleats atop the bulwarks port and starboard, and a windlass and substantial Samson post inside the anchor locker.

A fiberglass floor and furniture pan also covers the swing keel well; a separate fiberglass headliner finishes the overhead.

Rig

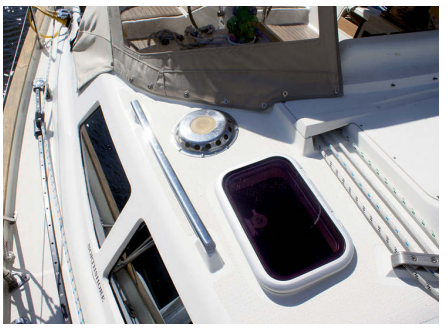
The rig is a deck-stepped Seldén double-spreader aluminum mast supported by a compression post in the cabin. A single chainplate anchors the upper and intermediate shrouds on each sidedeck; lowers attach to a separate chainplate aft. The wide cabin trunk restricts sidedeck space, but because the chainplates are all inboard toward the cabin trunk, there is adequate width for crew to pass outboard of the shrouds. The backstay is single from the masthead but splits above the stern to connect to port and starboard chainplates. A simple block and tackle allows the backstay tension to be adjusted. The Seldén boom has internal reefing lines and is fitted with a Seldén rigid vang.

There is a Lewmar halyard winch on the port side of the mast, and convenient foldout steps on each side for use when working at the mast.

On deck

Most center-cockpit boats are 40 feet or larger, but the configuration aboard *Blue Sky* works surprisingly well and does not seem cramped. When we stepped on board, the first thing we noticed was the wide, spacious aft-cabin roof behind the cockpit. The only fixture on it is the hatch over the aft berth.

The steering system is cable-and quadrant by Whitlock. Controls on the pedestal include the system for raising and lowering the keel and, on *Blue Sky*, the joystick for the bow thruster that was included in the late Mk IV models. A table is fitted to the pedestal.



One trade-off with the center-cockpit design is that the cockpit seating, at just under 6 feet long, does not allow taller crew to stretch out fully for napping, at left. The seats have inlaid teak and there is locker stowage beneath the starboard one. A recess to starboard of the helm houses the engine controls. Lewmar 44 primary winches are mounted on the coamings, and cubbies beneath them provide stowage for winch handles and other loose items.

Catbird seats built into the stern rail provide an excellent view for backseat drivers, center.

Hatches are fitted to port and starboard aft on the forward cabintop, at right, and there is a solar vent on the starboard side, above the head. The companionway hatch slides into a sea hood and lines from the mast are led through deck organizers along both sides of the sea hood and aft to the cockpit.

The teak-capped raised bulwarks enhance safety on deck. Stainless steel stanchions and double lifelines are mounted just inboard of the rail. A gap in the bulwark amidships allows a fair lead for docklines to a convenient mooring cleat.

A large hatch covers the anchor locker and windlass, and when it's closed the foredeck is relatively clear of obstructions. A single anchor roller is fitted to starboard of the stem fitting, and a short stainless steel sprit to port of the stem fitting allows the tack of an asymmetric spinnaker to be set forward of the headstay.

Large windows on each side of the cabin trunk and along the sloping front surface provide lighting below and excellent views to the exterior. The forward cabintop is low and uncluttered, with only the forward hatch and a single Dorade vent to interfere with crew work.

Accommodations

Belowdecks, the interior is richly finished, with teak ceiling along the hull and well-made joinery throughout. Forward, instead of a cramped V-berth, the Southerly 115 has an over/under configuration with two comfortable single berths. Portlights on each side and the overhead hatch provide light and ventilation.

The saloon is spacious. It's a small step down from the V-berth and has good headroom beneath the raised cabintop. A U-shaped settee to port surrounds a table supported on the compression post; a settee to starboard completes the seating. Small shelf areas outboard of the seatbacks provide some storage. Two small fixed windows in the hull on each side above the settees augment the ample light provided by the cabin-trunk windows.

A step up from the saloon leads to the navigation station to starboard and the galley to port. The keel trunk is cleverly incorporated into the interior to minimize interference. It begins just aft of the compression post and rises to join with the galley counter area. The hydraulic mechanism for raising and lowering the keel is located beneath the sole here and is easily accessible.

The roomy nav station has a large chart table with a raised panel for repeater instruments and space along the starboard hull for radios and other accessories. An auxiliary helm was fitted on some earlier models.

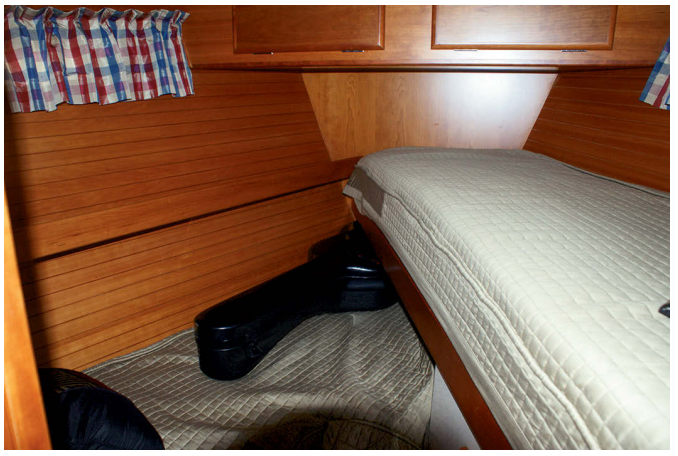
The L-shaped galley, which lies forward of the companionway to port, has ample countertop space. Drawers are fitted aft of the stove, a front-opening refrigeration compartment is located next to the stove, and lockers beneath the athwartships countertop extend inboard to the keel trunk amidships. A sea rail along the counter edge is a good safety feature. There's also a two-basin sink with a teak cover, a raised shelf with recesses for cups and mugs, and storage with sliding smoked-acrylic doors.

Chris has made clever use of the space beneath the raisable companionway ladder by fitting brackets to hold heavier tools and other equipment that might be needed in an emergency.

Aft, a small step up leads to the prominent feature of the interior, a spacious and comfortable owner's stateroom with a berth that's nearly king-size.

Under power

When we left the slip, we noted no pronounced prop walk in reverse. As we proceeded through the channel and out into Charlotte Harbor, the throttle control was precise and there was little or no vibration. The engine compartment has decent sound attenuation; cockpit conversations could be carried on in a normal tone. Once we reached the harbor, Chris throttled up to head



Over-and-under berths in the forward cabin are a good arrangement for families, at left. The focus of the saloon, a step down from the galley and nav area, is the wraparound dinette, at right, which is partially closed off on the inboard side by the keel trunk.

In the navigation station, far left, instruments and charts are close at hand.

The hydraulic system necessary to raise and lower the heavy lifting keel is under the cabin sole, lower far left.

The electrical panel, at left, is beneath the chart table facing the aisle and behind a smoked-acrylic door panel that prevents inadvertent contact with the switches.

for deeper water to drop the keel, and still the noise level was not high.

As a Mk IV model, *Blue Sky* came equipped with a bow thruster controlled by a joystick on the helm pedestal. That makes maneuvering into the slip a piece of cake, even in a crosswind as we experienced.

Under sail

We had two days of nearly ideal conditions on Charlotte Harbor to photograph and sail *Blue Sky*. On the first day, Sandy and I took out our own Tartan 37, *Higher Porpoise*, and observed Chris and Laura sailing *Blue Sky* for the camera. We were not disappointed. *Blue Sky* seemed to revel in the 10- to 12-knot breeze, and her appearance under sail was striking. This is a very attractive boat with nice lines and good proportions. Frankly, we did not expect that of a 37-foot center-cockpit boat. She sailed past us close-hauled, on a reach, and on a run. In each case, she was under control and seemed solid and stable.

On day two, Sandy and I went aboard *Blue Sky* to sail her with Chris and Laura. Once we were in deeper water, Chris lowered the keel and raised the sails. The hydraulic system makes lowering and raising the keel quick and easy; a display at the helm helps in assessing the keel depth.

There was enough breeze to move *Blue Sky* smartly, and we took advantage of the conditions to assess her performance. Going to windward on port tack, we sailed to 35 degrees apparent wind. We were doing 5.5 knots and control seemed precise. I needed only a light touch on the wheel to counteract the desired slight weather helm. We came about and found similar performance on the starboard tack. The dual rudders provided good control throughout. (We have had no opportunity to sail a Mk I model with the single rudder for comparison.)

Solid fiddles and the sea rail on the cabinet faces are the mark of a seagoing galley where a cook can feel secure, at left. A top closure over the stove provides additional counter space when the stove is not in use.

The head compartment, center, is to starboard of the companionway, accessed through a teak door. It doubles as the shower, but the fiberglass moldings are easy to wipe dry. The marine toilet is aft, facing forward.

A nearly king-size berth dominates the aft stateroom, at right, and is flanked to port by a dressing seat. Stowage areas are provided under the berth and beneath the overhead under the aft deck. For light and ventilation, there are deadlights in both sides of the hull and opening portlights in the raised deck section above the berth.

On a beam reach we were making just over 6 knots, and control was again smooth and precise. We did not experience sea conditions that might have caused problems for the shallow rudder system, but I suspect the twin rudders used on the Mk II model and up would likely perform well with the leeward rudder fully immersed.

Bearing off onto a run, the boat exhibited good control and stable tracking with no apparent roll. All in all, the boat performed in a manner similar to a fixed-keel boat. It is a platform that can provide decent sailing performance and yet still allow access to many areas that deeper-draft boats cannot reach.

The majority of the Southerlys are in Europe, and because they have not been raced much here in the US, no published PHRF ratings are available. Only a few IRC ratings are available from European sources, and based on those and comparisons with other boats, the Southerly 115 would likely carry a PHRF rating of 145 to 155, compared to a Catalina 36 at 147 or an Islander 36 at 144.

The first Southerly 115s were equipped with the 36-horsepower Bukh diesel engine. Later models, including *Blue Sky*, were fitted with the Yanmar 3JH4E. Access is provided by doors in the aft passageway and by removable panels.

Prices and availability

As noted above, there are few Southerly 115s in the US, but they do occasionally become available, as Chris and Laura found, and it is worth keeping an eye on the market.

Many of the boats we saw listed were older Mk I models. Converted to US dollars, their prices ranged from $46,500 for a 1987 model in Greece to a 1985 model in the UK for $79,000.

A newer Mk III model was available in Germany for $138,000. It would be necessary to factor in transportation costs or the cost of a passage if considering purchasing a Southerly 115 in Europe.

Tom Wells had a long career as a professional engineer. He and his wife, Sandy, both retired in June 2016, and in August 2016 they set out from Waukegan, Illinois, on a 3,000-nautical-mile voyage south via the Great Lakes, Erie Canal, Hudson River, and the East Coast. They now live aboard their Tartan 37, Higher Porpoise*, and are based in Southwest Florida, cruising and enjoying life.*

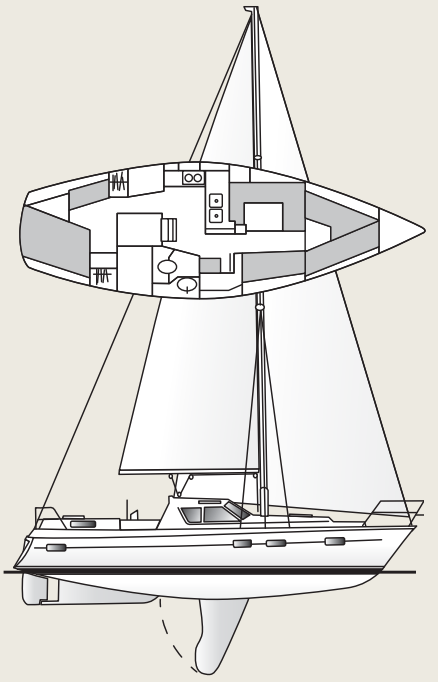
Resources

The Southerly 115 is no longer in production, but the website for Southerly Yacht Services remains live and offers spare parts, even after the acquisition of Northshore by Discovery Yachts: southerlyyachtservices.com/spare-parts

A good summary of the design aspects of the Southerly 115 may be found at YachtsNet: yachtsnet.co.uk/archives/southerly-115/southerly-115.htm

Southerly 115

Designer	Dick Carter Rob Humphreys
LOA:	36' 10"
LWL:	27' 6"
Beam:	11' 11"
Draft board up/down	
Mk I:	2'3"/6'8"
Mk II-IV:	2'3"/8'1"
Displacement	
Mk I:	14,600 lb
Mk II-IV	15,215 lb
Ballast	
Mk I:	6,978 lb
MK II-IV	7,597 lb
Sail area:	540 sq ft
Sail area/disp. ratio: Mk I	14.5
Sail area/disp. ratio: Mk II-4	14.0
Disp./LWL ratio: Mk I	313
Disp./LWL ratio: Mk II-4	327
Fuel:	50 gal
Water:	90 gal
Holding:	15 gal

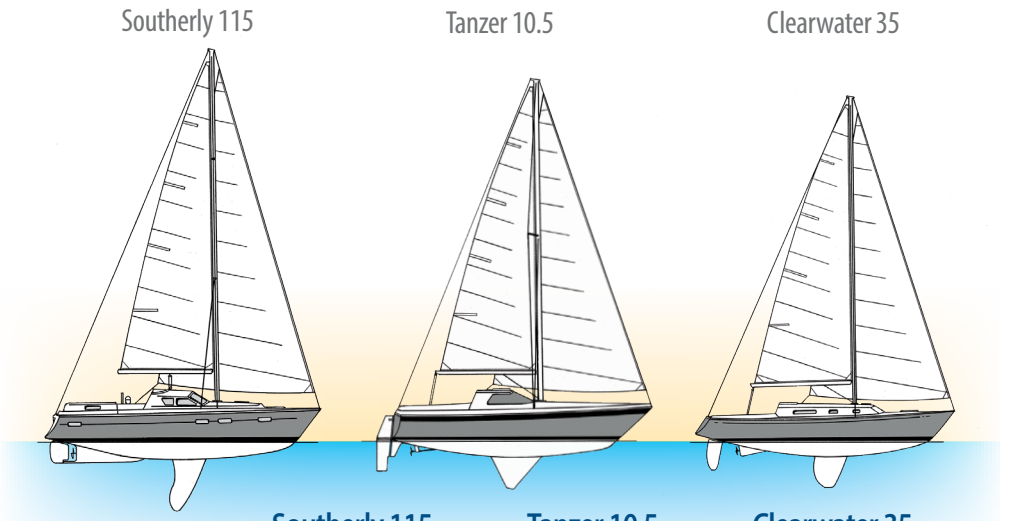


ILLUSTRATIONS BY RICK BEDDOE

The Southerly 115 . . .

. . . and two true centerboarders

BY ROB MAZZA



It is often said that all boats are compromises, but that is especially true with regard to cruising centerboarders when it comes to deciding how much the centerboard box should be allowed to intrude into the interior accommodations. Another factor is whether the builder wants to offer the centerboard configuration as an option on an existing production boat designed originally with a deeper keel. Invariably, the board does not obstruct the interior but resides below the cabin sole in a stub keel that also contains the majority of the ballast. The resulting boat is not really a true centerboarder but a compromise keel/centerboarder. The draft is only partially reduced, and the combination of two markedly different foils is not the best combination for aerodynamic efficiency. The absolute minimum draft can only be achieved by retracting the foil completely into the hull or "canoe body."

It's no secret that I like centerboarders. I even own one, our C&C Corvette, *Trillium IV*. I like the shoal draft they offer, and from my days racing and designing International 14s, I'm comfortable with the centerboard or daggerboard concept. It's refreshing, therefore, to look at three true centerboarders, where the entire foil is housed in the hull so that the minimum draft is that of the canoe body and the resulting efficiency of the foil is not compromised by a stub keel. The featured Southerly 115 and the Tanzer 10.5 are from the always innovative Dick Carter, while the Clearwater 35 is from Craig Walters, who, like so many other talented designers, started his career in the Carter design office.

I should also say that, even though I'm referring to these boats as centerboarders, they are probably more accurately described as having lift keels. That is certainly the case for the Southerly, where the centerboard, which weighs about 2,500 pounds, accounts for more than 30 percent of the entire ballast.

It is also interesting to see how each boat addresses the problem of what to do with the rudder when the keel is completely retracted, since the rudder cannot be deeper than the canoe body if that minimum draft is to be achieved. The version of the 115 reviewed is a

	Southerly 115	Tanzer 10.5	Clearwater 35
LOA	36' 10"	34' 5"	35' 3"
LWL	27' 6"	27' 6"	26' 8"
Beam	11' 11"	11' 6"	11' 4"
Draft (board up)	2' 3"	2' 1"	1' 10"
Draft (board down)	8' 1"	6' 6"	5' 11"
Displacement	15,215 lb	13,000 lb	10,000 lb
Ballast	7,597 lb	5,700 lb	4,500 lb
LOA/LWL	1.34	1.25	1.32
Beam/LWL	.43	.42	.42
Disp./LWL	327	279	235
Bal./disp.	.50	.44	.45
Sail area (100%)	540 sq. ft.	551 sq. ft.	524 sq. ft.
SA/disp.	14.0	15.9	18.0
Capsize number	1.9	2.0	2.1
Comfort ratio	28.6	26.3	21.0
Years built	1983	1983	1988
Designer	Dick Carter Rob Humphreys	Dick Carter Johann Tanzer	Craig Walters
Builder	Northshore Yachts (UK)	Tanzer Industries	Holby Marine

later Mk IV model modified by Rob Humphreys to incorporate twin shoal-draft fixed rudders, while the Tanzer's rudder retracts up the transom on a small fixed skeg, and the Clearwater's rudder pivots aft to reduce draft. The goal, of course, is to still have enough rudder in the water to steer the boat effectively when the keel and rudders are completely retracted.

The other trade-off with a centerboarder is that, in order to achieve the minimum draft of the canoe body, the majority of the ballast is housed in the bilge, not in a deep fixed keel. This results in a significantly higher center of gravity, with a resulting reduction of sailing stability. In almost all cases, shoal-draft boats are given more beam to compensate for the higher CG by increasing form stability. We see this with all three of our chosen boats having beam/LWL ratios over 40 percent. To further increase stability, all three of the boats have large amounts of ballast, resulting in ballast/displacement (B/D) ratios higher than 40 percent in the Tanzer and the Clearwater and a whopping 50 percent in the Southerly.

Although not visible on our drawings, it is also interesting to see how each designer addressed the challenge of the centerboard box intruding into the interior. The Southerly and the Tanzer, coming from the same designer, incorporate the same solution of having the box form the end of the galley and the dinette. In the Clearwater, on the other hand, the whole interior is structured around the box.

If we can trust what the numbers tell us about relative performance, the Clearwater 35 excels with the lowest displacement/LWL (D/L) ratio of 235, compared to 279 for the Tanzer and a hefty 327 for the Southerly. The Clearwater also has the highest sail area/displacement ratio (SA/D) of a very competitive 18, compared to a more normal 15.9 for the Tanzer and a conservative 14 for the Southerly. However, with its lighter displacement, even with a 45 percent B/D ratio, the Clearwater will be reefing earlier, while the Southerly, with its smaller sail plan, higher B/D ratio, and greater displacement, will be standing up well when the wind gets stronger.

The capsize numbers reflect the wide beams of all three boats, but the lighter displacements of the Clearwater and the Tanzer give them values of 2.1 and 2.0 respectively. Capsize numbers above 2 are a concern for offshore sailing. Although it is slightly beamier, the Southerly comes in at a more conservative 1.9, primarily due to its higher displacement, which, at 15,215 pounds, is a full 50 percent greater than the Clearwater's.

These boats present three very interesting approaches to the true centerboard concept, achieving absolutely minimum draft for shoal-water cruising by means of lift keels retracted into the canoe body of the hull. From my perspective, the Clearwater is the prettiest of the three, but its interior layout is the most compromised.

Rob Mazza is a Good Old Boat *contributing editor. He set out on his career as a naval architect in the late 1960s, working for Cuthbertson & Cassian. He's been familiar with good old boats from the time they were new, and has had a hand in designing a good many of them.*

Parallel Parking with the Ferry Glide

An old salt learns an old trick from a docking master

BY JORDAN SNYDER

On day six of a challenging singlehanded adventure tackling the Delmarva loop aboard *Base Camp*, my 27-foot Pearson, I approached the Delaware City Marina dock to tie up for the night. I looked forward to this respite, having that day completed the passage northbound up Delaware Bay.

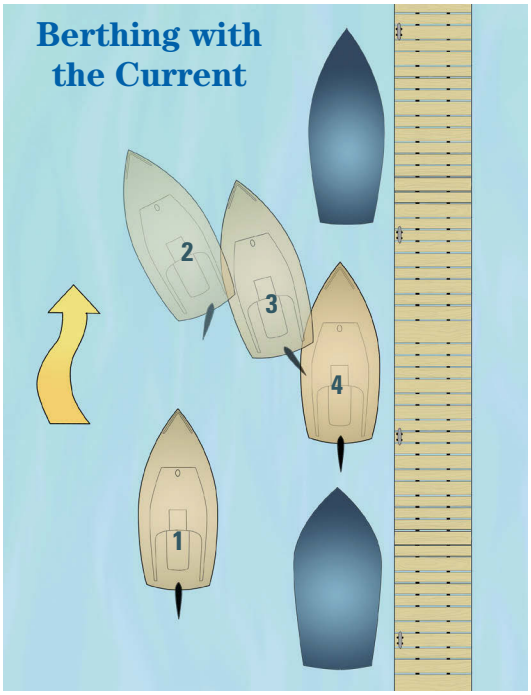
The Delaware City Marina is essentially a quarter-mile-long dock running parallel to the shore in a 50-foot-wide channel that was once an eastern entrance to the Chesapeake & Delaware Canal but now abruptly dead-ends at a low, unpassable multi-lane concrete bridge. The dockmaster, Tim, had assigned me a space on the dock between two larger boats that was not much longer than *Base Camp*'s length. What was going to make the parking job more challenging than I liked was the current from astern that was pushing me toward that concrete bridge at more than 1 knot.

As I wondered how I was going to pull this off, Tim assured me over the VHF that he'd talk me through a precise maneuver that would make it happen. He warned me that some of his instructions may sound counterintuitive. Then, using the current, prop walk, engine, rudder, and Tim's clear instructions over the radio, I performed what I later learned was called a Ferry Glide.

I approached at idle speed and, just before my boat was lined up with the parallel berth, turned the rudder to port and angled my boat about 30 degrees away from the dock (see "Berthing with the Current," below). I then reversed the engine and matched my boat speed to the pushing current to hold the boat stationary. With the propeller effectively acting as an anchor, the boat began to pivot to starboard to align itself with the current. To counter that force I turned the wheel to starboard. As I feathered the engine in and out of reverse, the boat slowly began to slide sideways into the slip. *Base Camp* gently touched the dock, and I handed my lines to my expert instructor. I was lined up perfectly between the two berthed boats.

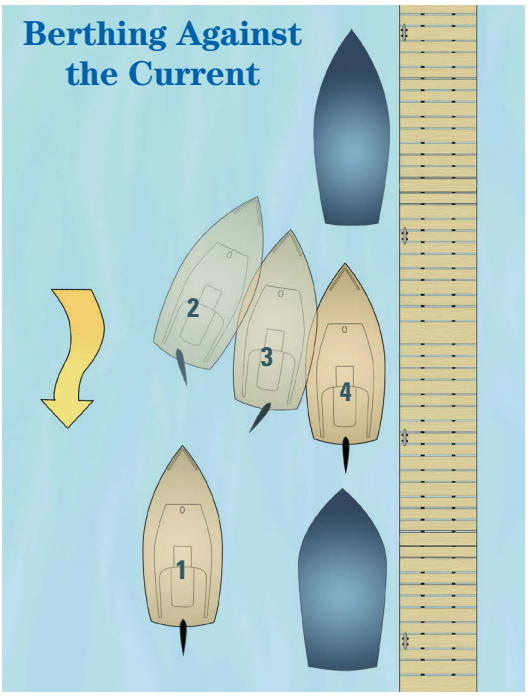
Had the current been in the opposite direction, I'd have maneuvered according to the diagram "Berthing Against the Current," using the hull and rudder in the opposite way and feathering between neutral and forward.

Jordan Snyder, a lifelong explorer and sailor, runs expedition-style multi-day sailing adventures and photography workshops aboard his Pearson 31-2, Base Camp II. *He also works on environmental research and citizen-science projects to help promote awareness of complex conservation issues. Join his adventures at BaseCampSailing.com.*



Left: Approach slowly with the current (1) until opposite the berth, then turn to port (2) while engaging reverse gear. Turn the rudder the other way while easing in and out of reverse to hold the boat on station (3) while it slides sideways into the berth (4).

Right: This is essentially the same maneuver but using forward gear and prop wash on the rudder to align the boat and hold it against the current (3).



ILLUSTRATIONS BY FRITZ SEEGERS

Solar Panel Output Controls

Simple or sophisticated, each type has its merits

BY DAVID LYNN

When we bought our 45-foot Liberty cutter, *Nine of Cups*, in 2000, she needed a number of upgrades to convert her from a coastal sailer to a bluewater cruiser. One of those upgrades was to add solar panels. I did a lot of research and fitted her out with state-of-the-art panels and the best solar controller I could find.

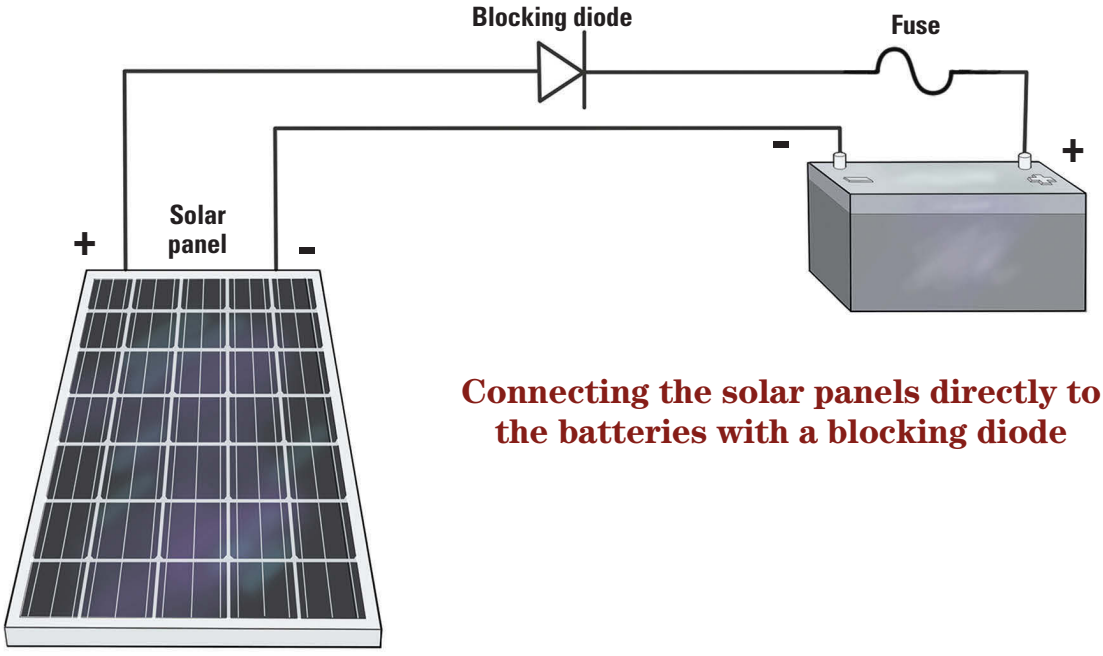
Not surprisingly, the technology has changed considerably since then. Solar panels have seen an impressive increase in wattage per square foot while dropping in price. The biggest change, however, has been in solar controllers. In 2000, the options available for a marine application were fewer and much more expensive than today's offerings. Many years later, when I was planning a new solar installation, and with the prices of the various controllers ranging from around $10 to several hundred dollars, I took another look at the technology. I wanted not only the best solution, but the best bang for the buck. Here's what I found.

Direct connection

There are four ways to transfer the output of the solar panels to the batteries. The simplest way is to connect the solar panels directly to the battery. If the solar panels are very low wattage, this is sometimes an acceptable method to keep a battery bank topped up without too much risk of overcharging and damaging the batteries. A reasonable guideline is to connect no more than 5 watts of solar for every 50 amp-hours of battery capacity. For example, if the house battery bank has a total capacity of 400 amp-hours, the directly connected solar panels should not exceed 40 watts, and there must be a diode between the batteries and the solar panels. When the sun goes down, if there is no blocking diode in the circuit, current will flow from the batteries back to the solar panels, partially draining them. Some panels have a diode pre-installed, but not all.

Diverter

The diverter is essentially a direct connection between the solar panels and the batteries, but with the addition of a voltage monitor and relay. As long as the solar panel voltage is below the maximum charge voltage for the battery, the relay connects the two together. When the panel voltage



Connecting the solar panels directly to the batteries with a blocking diode

ILLUSTRATION BY FRITZ SEEGERS

When David installed a solar battery charging system in the land yacht they now cruise in, he chose a Renogy MPPT controller, at left, to manage and monitor the charging process. The tracer meter, at right, allows him to set charge parameters and perform other functions.

exceeds the recommended battery-charge voltage, or the output voltage of the solar panels drops below the battery voltage, the relay disconnects the panels from the batteries. If desired, when the panels are disconnected from the batteries, the solar output can be automatically diverted to another load, such as the heating coil of a water heater.

This is the type of controller I installed on *Nine of Cups* in 2000, and I found that it did a rather poor job of charging the batteries. When the batteries were less than 80 percent charged, the controller passed all the solar output directly to the batteries, but when they were above about 80 percent of full charge, the solar panel voltage would quickly rise higher than the maximum allowable battery voltage and the relay would disconnect the panels. On a sunny afternoon, we could hear the relay switching the panels on and off every 10 to 15 seconds, wasting all that solar power, even though the batteries weren't fully charged.

The cost of these controllers is on the high side, between $80 and $200, depending on the current rating required and the quality of the relay. Considering the other options now available, I can think of only two possible reasons for choosing a diverter: some types of wind generators require a diverter controller to prevent them from spinning too fast when the battery is charged, and the newer electronic controllers generate radio-frequency (RF) and electromagnetic (EM) noise that may interfere with an HF radio — more on this below.

PWM controller

The specification sheets for solar panels include a number of ratings: maximum power (Pmax), expressed in watts, short circuit current (Isc) in amps, and a host of others. The short circuit current or Isc is the maximum current that the solar panel can produce.

Assuming the solar panel is in full sun and at room temperature, as the battery is being charged, the current produced by the panel is going to stay slightly less than the Isc as the battery voltage slowly rises. As the charging cycle progresses, the battery voltage will continue to rise until it eventually reaches the recommended charge voltage, at which point the charge current should be reduced.

The diverter controller, discussed above, does this by disconnecting the panels from the batteries until the voltage drops back down below the recommended charge voltage. A pulse-width-modulator (PWM) controller does a similar thing, except that instead of disconnecting and reconnecting the batteries every 10 or 15 seconds, it disconnects the two at a rate more like 10,000 times a second.

The PWM controller can also vary the percentage of time that the battery is connected to the panel. For example, if the battery is connected 90 percent of the time, then the average charge current will be .9 x Isc. The designers incorporate a few more components to smooth out the switched current, and the end result is that the PWM controller monitors the battery voltage and varies the charge current from 0 amps to almost 100 percent of Isc as necessary. Pretty clever.

PWM controllers range in price from around $10 to upwards of $150, depending on the manufacturer, bells and whistles, and amperage rating, making them the least expensive option. But there are two drawbacks to these controllers.

While a PWM controller is more efficient than a diverter-type controller, it still leaves much to be desired. Anyone who's been messing around with boat electrics for any length of time probably remembers that watts equals volts x amps. A typical 180-watt solar panel can produce a maximum current (Isc) of 9.6 amps. When charging a battery that is at 13.0 volts, and the solar is producing all it can at 9.6 amps, that 180-watt panel effectively becomes a 125-watt panel (13.0 volts x 9.6 amps). Rarely, if ever, does a solar panel reach its maximum wattage with a PWM controller. In fact, most of the sources I've seen indicate that PWM controllers reduce the output of a solar panel by 30 to 50 percent.

By design, PWM controllers switch large currents on and off, which makes them prime sources of RF and EM interference. Many of these controllers are designed for household or RV use, where a little noise isn't a concern,

but on a boat, they can cause a lot of interference with the onboard radios.

MPPT controller

Solar panels have a very narrow "sweet spot." To get the most wattage from them, the output voltage and load current have to be controlled very tightly. A maximum power point tracking (MPPT) controller incorporates a microprocessor that tracks the panel's sweet spot and makes sure the output voltage and current are optimal. Then it uses a DC-to-DC voltage converter to reduce the voltage to the required charge voltage for the battery, using a smart three-stage charging algorithm. Most also have an equalization mode. While a PWM may be clever, an MPPT controller is pure genius.

MPPT controllers are highly efficient, utilizing 90 to 98 percent of the rated wattage of a solar panel — a major improvement over the other types. In addition, most MPPT controllers can handle a solar voltage of more than 100 volts, so solar panels can be used either in series or in parallel. Putting two solar panels in series versus in parallel doubles the operating voltage while halving the output current — the wattage remains the same. The result is that the wire size can be smaller, and that can yield significant cost savings.

Not surprisingly, there are also a couple of drawbacks with MPPT controllers. For one, the cost is higher. MPPT controllers range in price from just over $100 to upwards of $600, depending on features and wattage ratings. Like PWM controllers, MPPT controllers use switching power supplies to convert the DC voltage levels, and this can introduce RF and EM interference in radios.

Resources

For tables showing wire size vs. wire length for voltage drops of 3 percent and 10 percent:
westmarine.com/WestAdvisor/Marine-Wire-Size-And-Ampacity

Making the choice

In my opinion, it isn't difficult to justify the higher cost of an MPPT controller. On most boats, the available real estate is the limiting factor for the amount of solar that can be added, and it makes sense to maximize the output of the panels. If more than one panel is installed, and they are installed in series, the savings in wire cost will offset some of the additional cost.

My new installation is a good example. I was space-limited to two 180-watt solar panels for a total of 360 watts. (For comparison, the original installation on *Nine of Cups* using 1999-vintage solar panels was 240 watts in the same space.)

If I had gone with a PWM controller, I would have purchased, at a cost of $80, a mid-priced product that was capable of handling the output of my solar panels. Since the panels would be in parallel, the amperage would be double that of a single panel, and the required wire size, using the tables for a 10 percent voltage drop, would be a minimum of AWG 8. The wire length needed was about 25 feet each way for a total of 50 feet. Using West Marine prices, the cost for marine-grade wire would be $70, for a total of $150, and the resulting output, given the inefficiencies of PWM controllers, would have been around 215 watts.

The MPPT controller I chose was a Renogy 40-Amp Commander at a cost of $250. Since the panels were in series, the amperage was less than it would be in a parallel installation. The required wire size of AWG 10 cost $26, for a total of $276 for the installation. The resulting output with the higher-efficiency MPPT controller was 330 watts. In this example, the MPPT option was $126 more expensive than the PWM, but performed more than 50 percent better.

After we'd used our new solar system for a few months, I was very impressed with its performance, especially when comparing it to the old system on *Nine of Cups*. We had a 12-volt DC fridge/freezer, and on a typical day, we powered a coffeemaker every morning, a microwave occasionally, lots of LED lights, a few battery-powered tools, 12-volt DC fans, and the usual laptops, tablets, and phones that require recharging. On sunny days, rarely did our battery bank dip below 80 percent of full charge, and it almost always reached full charge by midafternoon.

David Lynn and his wife, Marcie Connelly-Lynn, lived aboard their Liberty 458 cutter, Nine of Cups, *for 18 years, during which time they put nearly 90,000 nautical miles under her keel and visited more than 36 countries on five continents. They have recently been exploring the US in a tricked-out Ford Transit van named* Blue. *They blog regularly and maintain an extensive website at justalittlefurther.com.*

Small-Scale Solar

A simple system will keep a frugal sailor's battery topped off

BY DREW FRYE

When I first mentioned adding solar power to our Corsair F 24 trimaran, my boating partners choked. They envisioned a complex system, and the big dollar signs that accompany it, of many panels, integrated multiple charging sources, shorepower cables, and inverters to support all the comforts of home. But the power requirements of our F 24 are far more modest. It has only a single battery to charge, basic electronics, a few lights, and no shorepower, so the solar system, too, needed only to be simple.

In fact, the boat came with a factory-installed solar system, but it had been an expensive disappointment, delivering too little power and failing early. I sought to replace this system, and given today's lower panel prices and the limited demands of a smaller boat, doing so promised to be super simple and quite inexpensive. A similar system could serve almost any boat 30 feet and under.

Power budget

When considering a similar system for your boat, first determine how much solar power you need. Multiply the wattage of each of your 12-volt loads (instruments, lighting, etc.) by the average hours of use. Add these watt-hour figures and divide the total by 12.5 volts to estimate the daily amp-hour demand.

If, after you've selected the most appropriate panel for your situation, the amp-hour demand is higher than it can support, it will likely pay to reduce your power consumption, perhaps by installing LED lighting and low-wattage appliances. Lowering consumption will reduce the needed battery size and its charging requirements.

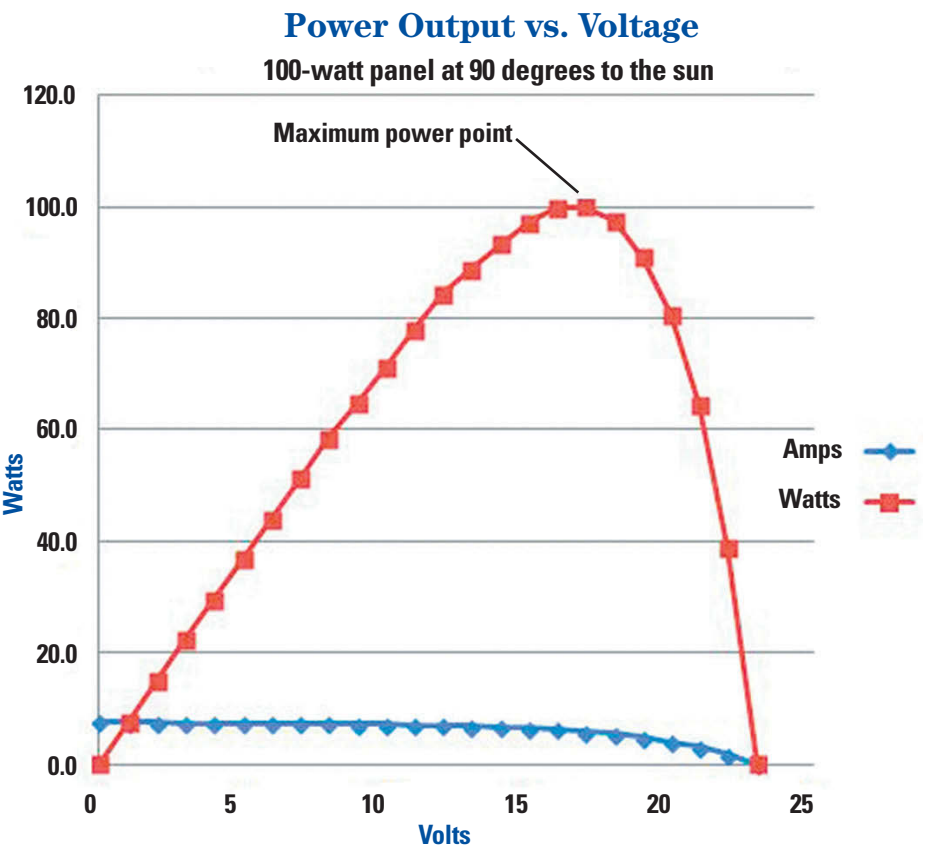
Storage

You need to be able to store enough power to get through the night and perhaps a cloudy day or two, depending on your willingness to economize. Deep-cycle batteries are rated for amp-hour capacity, but to get a reasonable lifespan from a battery, you should not discharge it below 50 percent state of charge (SOC) if you can avoid it, and never below 40 percent SOC. This effectively halves the usable number of amp-hours. Because charging slows toward the end of the cycle, it's generally impractical to recharge with solar above 85 percent SOC, which means only about 35 to 45 percent of the battery's stated amp-hour capacity is available for regular use. A single group 24 battery rated at 75 amp-hours, therefore, has a usable capacity of 30 amp-hours.

Charging capacity

Ideally, panels should be sized so that it's possible to recharge in a single sunny day batteries that have been discharged to 40 percent SOC. Aboard our F 24, the largest panel that fit the allocated space (the companionway sea hood) was 50 watts. The generally accepted rule of thumb for calculating expected panel output is to multiply the rated panel capacity by 5 hours, which assumes typical sailing latitudes and allows for some shading and partly cloudy conditions. On this basis, a 50-watt panel will produce 250 watt-hours per day — 20 amp-hours per day at 12.5 volts. It will be more than this on a nice day and less in the winter.

Volts	Amps	Watts
0	7.6	0
1	7.5	7
2	7.5	15
3	7.4	22
4	7.4	30
5	7.4	37
6	7.3	44
7	7.3	51
8	7.3	58
9	7.2	65
10	7.1	71
11	7.1	78
12	7.0	84
13	6.8	89
14	6.7	93
15	6.5	97
16	6.2	100
17	5.9	100
18	5.4	97
19	4.8	91
20	4.0	81
21	3.1	65
22	1.8	39
23	0.0	0



Solar panels put out maximum power at about 16 volts, but lead/acid batteries accept most of their charge at between 12.5 volts and 13.5 volts, so there is some loss in efficiency. The current is fairly constant until it begins to drop off quickly above 15 volts.

Engine charging

Take into account the ability of the engine alternator to charge the batteries, but bear in mind that the rated alternator output is at full rpm and that you won't be running the engine on lay days. Inboard-engine alternators put out up to 500 watts or more, and outboard alternators from 50 to 100 watts. If you motor all day, this will be material.

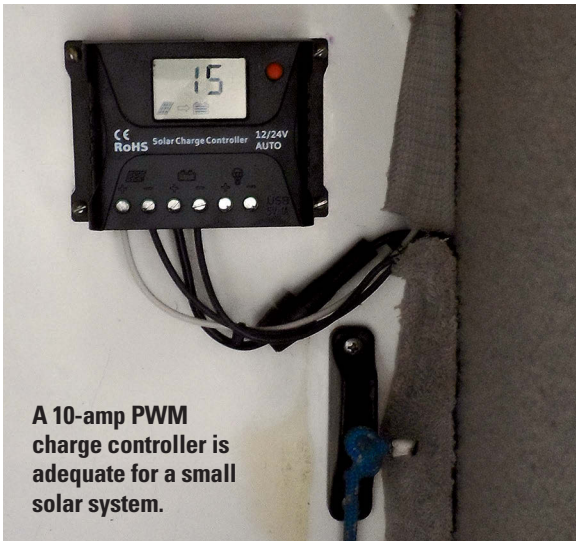
If your engine is electric start, you will want to make sure you do not drain the battery fully overnight, or install two batteries so you can isolate one of them at night. This is less of a concern with an outboard that can be pull-started. Some folks like to put the solar charging only on the house bank, allowing the engine to charge the starting battery, but I prefer to link the batteries during the day for charging, and isolate them only at night.

Panel type

Common solar panels are based on silicon cells, but there are considerable differences in efficiency, mounting requirements, and cost.

Rigid glass-covered panels are economical and offer the greatest capacity per square foot, and even the less-expensive panels generally last 20 years. Because they don't flex, sealing them is simple and the cells don't crack. Look for a panel with a sturdy frame, a well-sealed junction box, and positive feedback from sailors. Kyocera offers good reliability and value at $300 for 150 watts, but acceptable panels can be found priced as low as $120 for 100 watts.

Semi-flexible panels dispense with the glass cover and rigid frame, substituting a stiff mounting sheet and a thin plastic covering. They use the same fragile silicon wafers as in rigid panels and they are flexible only in the sense that thin window glass is flexible. They can take a bend that's slight and uniform, but even minor abuse can lead to micro-fractures and sharply reduced power output. Read the owner's manual for the details; they must be well-supported, can only flex through a limited arc, and should not be flexed repeatedly. Laying a semi-flexible panel across a bimini bow or on a loose canvas top will shorten its life, as the repeated flexing caused by wind and



A 10-amp PWM charge controller is adequate for a small solar system.

A Bare-Bones Solar System

–DF

Aboard our F 24 trimaran, *Fast and Furry-ous*, I decided the best location for a solar panel was the sea hood over the companionway slide, as it sees no foot traffic. It has some curvature, so I needed a panel to accommodate that, and the largest panel that would fit the allocated space was 50 watts. Its estimated output of 20 amp-hours per day at 12.5 volts is, unfortunately, less than my estimated average 24-hour cruising consumption of 25 amp-hours.

The boat's auxiliary power is an outboard, and although running it for 1 hour charging at 50 watts delivers only 4 amp-hours, adding that to my solar-panel charge is enough to bring me very close to my estimated draw, and losing a few amp-hours per day is not terrible. I can also economize by hand-steering and going to bed early. My goal is to avoid running the engine solely to charge batteries.

Installing the system was simplicity itself. I screwed a 50-watt semi-flexible panel to the companionway sea hood, sealed the wire pass-through, and ran the wire along the surface of the interior liner, concealed under strips of fabric. I screwed a 10-amp PWM charge controller to a bulkhead near the battery, and attached two wires from the panel and two wires to the battery posts (one with an in-line fuse).

A significant advantage of mounting the panel on the sea hood was that it could be through-bolted. The sea hood is not cored, so I didn't have to seal the bolts, and any leakage will be into the hatch's drainage gutter. What's more, I was able to remove the sea hood to do the work.

Because I am primarily a day sailor, I favor economy and compactness. If I begin to extend my cruises beyond overnights and weekends, it would make sense for me to add a second battery and a second panel, primarily to deal with rainy days.

the boat's motion will slowly reduce its output. They work very well across the gentle curve of a deck, so long as there is limited compound curvature and no foot traffic. Some premium brands — Ganz and Solbian — have substantially reinforced their panels with stiffer materials and include extra collection wiring to reduce the impact of minor cracks on capacity, but these are very expensive. Panels priced more modestly at about $120 for 50 watts can last for 8 to 12 years.

A subtle corollary is that aggressively polishing semi-flexible panels does more harm than good. The covering plastic will become cloudy over time, but the repeated firm rubbing required for compounding to have any meaningful effect will result in countless micro-fractures in the cells and greatly reduced power output. There is too little gain to justify the risk. Besides, limited testing has shown that lightly discolored plastic has very little negative effect on overall light transmission, and actually reduces reflection at low sun angles.

As for cleaning, use plain water. If you feel a cleaner is needed, or you would like a little ultraviolet (UV) protection, use only products recommended for flexible-vinyl dodger windows; there have been numerous reports of harsh cleaners and deck cleaners causing damage. (Because solar panels do not use significant UV energy, UV protectants in cleaners and waxes do not reduce panel output.)

Flexible and roll-up panels use non-crystalline cells that really can flex, but at a price. Their efficiency is dramatically less than that of rigid panels, so you would need three to five times the surface area — at many times the cost — to generate the same power. They lose capacity when abused or rolled too tightly, so you can't cram them in a corner, fold them in half, or store them under a cushion. As a result, they don't really save space. It was these panels that disappointed the prior owner of my boat. They lasted only a few years and put out only a quarter of the power he needed, while taking up just as much space as rigid panels.

The bottom line is that rigid panels are the more durable option if you have a non-traffic area such as a hard-top or rigid bimini on which to mount them. Semi-flexible panels can work if secured to a smoothly cambered deck where they won't be walked on, or on a flat, tight bimini (but not over a bow). If the panel will be walked on, a Solbian panel fully bonded to the deck is your best bet. For most small boats, a single lower-priced 50- to 100-watt semi-flexible panel is the answer, as it's lightweight and easy to mount.

Bill of Materials

Item	Cost
50-watt semi-flexible panel, Ecoworthy	$ 110
PWM charge controller, 10 amp (many brands)	$ 35
In-line fuse, 10 amp	$ 5
Wire, connectors, sealant, fasteners, etc.	$ 12
Total	**$162**

Charge controller

There are two fundamental types of charge controller: conventional shunt controllers (PWM) that pulse the panel output on and off as the battery nears full charge, and maximum power point tracking (MPPT) controllers, which convert the panel output to the appropriate charging voltage while accepting power from the panel at its maximum power point, or MPP (see also "Solar Panel Output Controls," page 17).

Since most battery charging takes place at 12.5 to 13.5 volts, and panels produce maximum power (Pmax) at about 15 volts, there is some loss in efficiency with PWM controllers. However, in hot weather, panel voltage drops by about 0.2 percent for each degree F above 77°F, so the MPP may be lowered by 0.5 to 1 volt if the panel is mounted to a hot deck. At the same time, hot batteries accept charging at a higher voltage. For a $50 to $150 premium price, the MPPT controllers are about 15 percent more efficient. For larger panel banks, MPPT controllers are nearly always worth the money, but for the smaller systems, probably not.

The controller should be adjustable to the battery-bank voltage (12 or 24 volts), battery type (flooded or AGM), and have automated modes for bulk charging, float, and equalization. An LCD display monitoring charging operation and showing voltage and amperage is nice to have. You should be able to find all of this in a $25 to $40 PWM controller.

Wiring and connections

Voltage drop must be very low in charging circuits — if the drop is too great, there would be no over-voltage to force charging. The 50- to 100-watt solar panels discussed here put out such low amperage that 14 AWG wire is acceptable, but a heavier gauge that would cause only a 3 percent voltage drop (see "Resources," page 19) would be preferable in a system with larger panels. Tinned finely stranded marine wire is best, but THHN machine wire from the home-improvement store is US Coast Guard approved.

Solder-only connections are not recognized by the American Boat & Yacht Council (ABYC) because they can come loose if overheated, nor are wire nuts. The simplest and most reliable connection method is mechanical crimping using a properly adjusted ratchet crimper, a tool that will come in handy through the years of boat projects. Adjust the tool to the type of wire and brand of crimp fittings used, and test a sample for strength by putting it in a vise and giving it a good tug.

Solar charging systems attach either directly to the battery or to studs mounted nearby. Since the intention is to leave the system turned on, it should not be isolated from the batteries by the battery switch or wired to the main panel. This means it needs its own fuse, which must be located on the positive side and as close to the battery as practical. A simple 10- to 15-amp crimped in-line fuse is sufficient for smaller systems.

At a first reading, the steps for installing a simple solar charging system might look complex, but each of those steps boils down to a single or a few logical options for a small boat. Once you have selected and obtained the panel and other components, it should be the work of only a few hours to install everything. When done, you can be free of the tyranny of marina hopping for the sake of keeping your batteries topped off.

Drew Frye draws on his training as a chemical engineer and pastimes of climbing and sailing to solve boating problems. He cruises Chesapeake Bay and the mid-Atlantic coast in his Corsair F 24 trimaran, Fast and Furry-ous, *using its shoal draft to venture into less-explored waters. His book,* Rigging Modern Anchors, *was recently published by Seaworthy Publications.*

Taking It from the Top Part 2

Tips for sailing with a top-down furling spinnaker

BY HUGH JOHNSTON

In Part 1 of this article, in the January 2019 issue, Hugh introduced flying-sail furlers and described how he installed a top-down furler for his gennaker. In Part 2, he offers tips and techniques he's found help him get the most fun out of the sail.

For me, putting my gennaker on a top-down furler brought the fun back into sailing under colored sails. It made setting and dousing the sail safer, gave me a safe way to jibe the sail, and let me sail my Viking 33, *Hagar*, comfortably with a small crew. I've since developed ways to handle the sail, from setting it, through tacking and jibing and dealing with a variety of wind conditions, to dousing it.

Hoisting

The beauty of a furled fun sail, as distinct from a free-flying spinnaker or one in a sock, is that it can be hoisted at the dock or at anchor so it's ready for use when desired. And it can be furled under way and lowered once the boat is back at the dock.

Hoisting a furled flying sail is a simple matter and can be done even on the windward side: attach the halyard, and the tack, lead the sheets according to how you plan on jibing (see page 27), and haul it up.

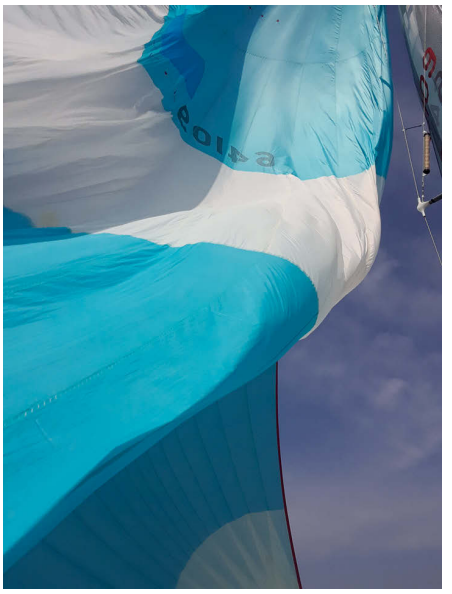
Setting

When it comes time to set a furled spinnaker, it helps to first furl the jib, so as not to blanket the spinnaker and to allow you to watch it as it unfurls. Bring the boat to a point of sail where the apparent wind will fill the sail as it unfurls, and watch the bottom of the sail to make sure it is filling. This is important, because if the sailcloth in the bottom third of the sail collapses while it's being unrolled and gets near the cable while it's turning, the cable can grab the sail and start rolling up the bottom the wrong way. This "backwrap" can be confounding. Unroll the top and the bottom tightens — unroll the bottom and the top tightens.

The way to avoid backwrap is, once the sail starts unrolling, to "blow/fly" the bottom of the sail to keep it away from the cable. Don't just pop the furling line. Pull the sheet and let the sail unroll like a jib, but maintain tension on the furling line to keep the unrolling sail under control. When it does backwrap, stop and roll the furler drum the other way until it undoes itself. Blow/fly the bottom of the sail again and continue to unfurl it. (One manufacturer provides plastic rollerballs that go over the cable to defeat the backwrap challenge.)

Once the sail is unfurled, trim it as you would a really big jib. Ease the working sheet until the luff of the spinnaker curls a bit, then pull the sheet back in until it stops curling. It's the

A flying sail on a furler can be hoisted at the dock before the day's adventure begins.



To obtain the best trim in a spinnaker, ease the sheet until the luff just begins to curl, far left, then sheet back in until the curl just disappears. Easing the sheet too much will cause the sail to collapse, near left.

same process as easing the main or jib until it bubbles at the luff and sheeting it in until it stops. The difference with a top-down furler is that the luff of the sail will not be supported. There will be a torque cable, but that will not get in the way of the sail.

Start with the helm

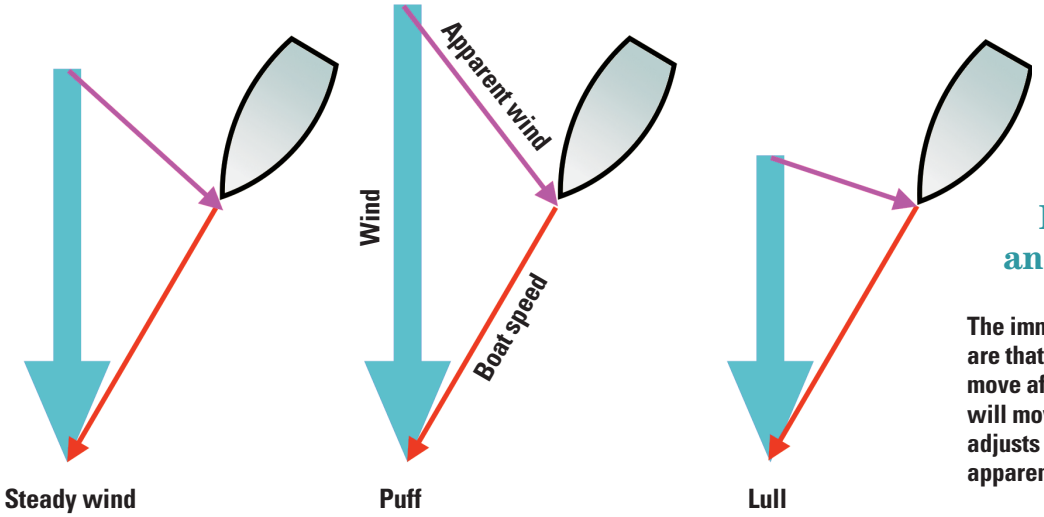
One of the joys of sailing a spinnaker tacked at the bow, whether it's on a furler or not, is that you can cleat the sheet and drive the boat under the spinnaker to maintain trim. Steer up to windward to curl the luff a bit, then head downwind to keep the luff where it's just starting to curl.

No flying sail attached at the bow will like deep sailing angles that are close to dead downwind; it will often collapse as it is blanketed by the main. You'll get to your destination faster by sailing at a "hotter angle" on one tack, and then sailing a similar angle on the other tack.

When you are sailing at these jibe angles instead of dead downwind, puffs and lulls will be important, as they change the apparent wind. The apparent wind shifts aft in puffs and forward in lulls. Respond to these changes in wind pressure, and their effect on apparent wind, by using the helm to control the sail — head up in puffs and down in lulls. In lighter air, don't be too shy with the helm.

If the spinnaker does collapse when you sail too low, it may make a fair amount of noise, and the boat will lose speed. Sheet in the spinnaker and drive the boat up to a hotter angle to refill it. As the boat gains speed again, the apparent wind will shift forward and you can drive the boat back down to a lower angle. As you gain experience, you will get better and better at keeping your flying sail pulling.

I have lots of fun sailing my furling spinnaker this way. It's definitely a great way to go when shorthanded, as it's much easier to steer the boat to keep the sail drawing than it is to be sheeting the sail in and out for hours on end. When I want a break from helming, I engage my autopilot and over-sheet the sail a little so it remains stable in the puffs and lulls. If I really want to relax, I use the autopilot controls to make course adjustments as needed to keep the sail drawing.



ILLUSTRATIONS BY JEREMY MCGEARY

Puffs and Lulls and Apparent Wind

The immediate effects of a wind change are that in a puff, the apparent wind will move aft, and in a lull, the apparent wind will move forward. As the boat speed adjusts to the new wind strength, the apparent wind angles will change.

Playing the angles

So how do you know when your boat is sailing at its optimum jibe angle?

One way is to buy or develop a set of polar diagrams or tables that show how fast your boat should sail at different apparent- and true-wind speeds and angles and sail the boat to match the polars. This works best with good wind-speed and wind-angle instruments that have easy-to-read big numbers. This is my least favorite way to sail, as it forces me to keep my eyes in the boat rather than on the sails.

Another way is to look for pressure on the spinnaker sheet. When the pressure on the sheet eases, head up to a hotter angle. As the boat builds speed, head down again and see how deep it will sail with sustained speed and pressure on the sheet.

Adjusting the height of the tack provides another way to determine the best jibe angle. Easing the tack line a foot or two will let the tack move to windward or leeward of the bowsprit. Watch it from the helm. When the tack line points to leeward, steer to leeward to bring the tack to the centerline. When the tack line points to windward, steer to windward. (This method may not work in very light wind if the tack falls under the weight of the sail.)

Easing the tack line when heading downwind allows more of the spinnaker's luff to project away from the mainsail.

In some systems, the tack line is attached to the bottom of the furling drum, so when the tack line is eased, the furling drum rises and the torque cable slackens. In other systems, the tack line is led through a sheave on top of the drum, so the drum remains fixed to the boat and the cable remains taut.

When the wind pipes up

Pressure on the helm will tell you if you have too much sail up. It's best to take action before the sails overwhelm the helm.

First off, learn through experience when your boat gets twitchy with the spinnaker set, so you know to douse it before the dreaded wipeout. This is where a furler really shines.

When you want to shorten sail, head downwind until the pressure on the sheet unloads and roll up the spinnaker. Nobody has to go to the foredeck and there is nothing to dump in the water. I've found that 15 knots of wind is a good "line in the sand" for my boat as the wind speed builds.

To handle a big puff, try easing the mainsheet first, then dump air from the spinnaker by easing the sheet if necessary.

If when sailing under a furling spinnaker and a big puff hits, the boat is heeling too much, and the helm is too hard, the usual first step is to ease the boom vang. This will spill air by twisting off the top of the mainsail, and works especially well with a large mainsail (sprit boats in particular often use the vang first).

If easing the vang is not enough, ease the mainsheet and then, if necessary, ease the spinnaker sheet. If the stronger wind persists, regain control of the sail by heading down to take pressure off the sheet and the sail by moving the apparent wind aft.

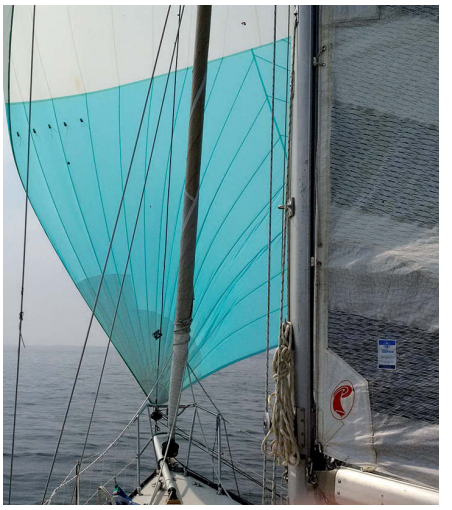
Reaching

Another joy of flying sails is how they power the boat when reaching. The hotter angle brings the apparent wind forward and the boat really gets going. Reaching at true-wind angles of 90 degrees or better can be a blast.

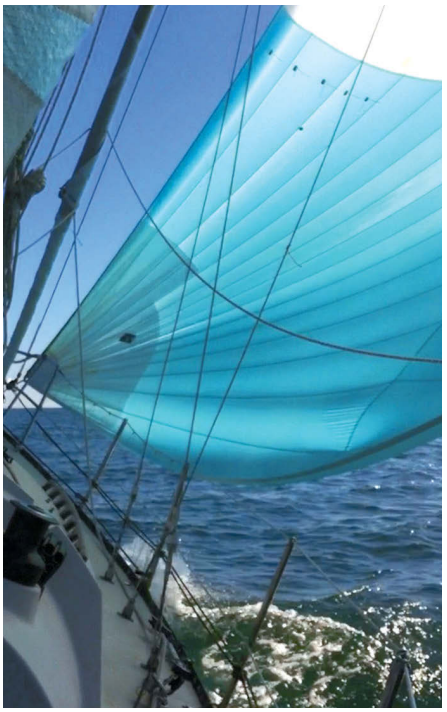
When reaching, tighten the tack line to close the leech as much as possible. Cleat the sheet, and either drive the boat to follow the sail or trim the sail to maintain a heading.

Putting telltales on the spinnaker and using them in the same way as on a jib helps when trimming the sail on a reach, but works best on a flatter spinnaker cut for reaching.

If the boat broaches, the flying sail will flap and make lots of noise, but it's just noise. When the pressure is off the sail, ease the sheet and steer the boat downwind to restore order.



When the tack line moves to windward, head up, far left. When the tack line moves to leeward, head down, at left. The tack line straight up and down, above, is a good sign the boat is sailing downwind at maximum velocity made good (max VMG).



The top-down furling spinnaker really struts its stuff on reaching points of sail.

A genoa will perform better than a flying sail at closer angles to the wind, but if you are not racing, you might want to enjoy the ride even if the boat is a bit slower.

Jibing

There are two ways to jibe a top-down furling flying sail: inside the torque cable and outside the headstay, or outside both. Each method requires the sheet to be led in a different way, so decide which you will use before rigging the sail.

Inside jibe –Lead the working sheet from the turning block to the clew as for a jib, then run the lazy sheet to the clew through the gap between the headstay and the torque cable. The lazy sheet is on the inside of the sail just like the lazy sheet on a jib, but it goes outside the headstay.

To perform an inside jibe, first make sure your sheets are clear and will not snag, then:

Steer downwind to stall the kite behind the mainsail while easing the sheet to unload the sail.

Jibe the main at any time but stay downwind, as blanketing the spinnaker will work in your favor.

It helps to have a crewmember forward to haul on the new sheet and pull the clew through the gap between the headstay and the cable.

Inside jibe: Steer downwind to collapse the spinnaker, top right, pull the clew between the headstay and the cable, center right, and haul it toward the shrouds, bottom right. (Continued on page 28.)

While holding the boat close to dead downwind, keep pulling on the sheet (there's a ton of line) until the spinnaker is through the gap. When the clew is at least back to the shrouds, head up and fill the spinnaker while continuing to sheet it in.

Outside jibe –Run the lazy sheet outside the torque cable and the furled spinnaker before attaching it to the clew. Because the sheet is outside the sail and the cable, it can drop down and slip over the top of the bowsprit and under it, which is something to avoid.

Set the lazy sheet so that it's above the furling drum and does not have a lot of slack in it. The goal is to avoid the sheet becoming snagged below the furler or dropping below the bowsprit and making its way under the boat.

Head downwind but do not stall the spinnaker.

Ease the working sheet to get the clew as far forward as it will go with wind still in the sail. At the same time, pull the slack out of what will become the new working sheet to keep it from dropping down.

Jibe the main, but stay downwind so the main blankets the spinnaker, then haul on the new working sheet and pull the clew of the sail around the cable outside of everything. There is a lot of sheet to bring in.

Once the clew of the spinnaker is around the cable and back to the shrouds on the new tack, head up and fill the sail.

Some sails come with a batten on which to rest the lazy sheet so it does not go under the boat during an outside jibe. You can rig your own batten using rigging tape.

Inside jibe (continued from previous page): Jibe the mainsail at any time but keep heading downwind so it blankets the spinnaker, upper left. Head up to the desired course and trim the sails accordingly, lower left.

The outside jibe is definitely the easier one to perform in stronger winds. It's also the better choice if the flying-sail furler is close to the headstay and leaves little room for the spinnaker to pass between it and the cable.

When I first began using my flying furler, I used the outside jibe, as some talented professionals recommend it and I thought it would be easier. After a few snags under the furler unit and a few submarined lazy sheets, I switched to inside jibes. I find that the apparent wind on an outside jibe is insufficient to blow the spinnaker far enough forward, and I have not been able to get the timing just right.

Handling unplanned events

- ***The spinnaker does not make it around before it starts to fill:*** Jibe back to your original point of sail, refill the spinnaker, and try again.
- ***The spinnaker hourglasses:*** Lower the halyard 4 or 5 feet to free the top swivel and pull the hourglass out with the sheet.
- ***The lazy sheet goes under the boat before the jibe:*** Retrieve the sheet, relead it, and reposition it before starting the jibe.
- ***The new lazy sheet goes under the boat during the jibe:*** Complete the jibe, then grab the offending sheet at the clew with a boathook, pull it all the way through, and rerig it.
- ***The spinnaker wraps around the top of the headstay:*** The halyard is rigged wrongly. Jibe back, roll up the spinnaker, drop it, and rerig.

The chicken jibe

If you don't want to jibe your spinnaker while it's flying, simply roll it up, jibe the main, and unroll the spinnaker on the new tack. Or drop the sail to the deck after rolling it up and relaunch it on the other side after jibing to your new course — this method works when the clearance at the top of the rig is poor and you want to avoid having a halyard bending over the forestay under pressure on the new tack.

Small crew, no problem

Most of our sailing in North America is in moderate to lighter air when a spinnaker can make it a lot more fun. A furling flying sail makes this possible without the need for a large crew to handle it.

We even use our furled spinnaker for around-the-cans racing. We don't beat the best boats out there, but we are in the mix with half the crew and less experience in the boat. When we go daysailing, the spinnaker is often the first choice of sails to rig for a great day on the water. Our furling kite has even earned its local nickname "the Awning," all in good fun.

Hugh Johnston, a lifetime sailor from Atlantic Canada, grew up on a Pilot 35. He sailed prams, Flying Juniors, and Lasers in the 1970s, and competed in the 1977 Canada Games. In his mid-30s he moved to the Great Lakes and brought a Ranger 26 from Florida, then stopped sailing to focus on career and family. Five years ago, he bought the dream boat of his youth, a Viking 33, Hagar, *which he daysails, cruises, and races out of the Ashbridge's Bay Yacht Club in Toronto. Hugh is the website author of Viking33.com.*

Thoughts on Spinnaker Choices —HJ

The best sail for any individual sailor is the one that works best in the prevailing winds where he or she sails and gives the best balance between performance, cost, and ease of handling.

Not all asymmetrical sails are cut the same. An A2 spinnaker is designed for running while an A3 sail is better for reaching, as it is flatter. A Code Zero, with its very flat shape, is best for reaching at closer wind angles.

An A2 runner may not furl as well as an A3. The tighter leech on an A3 can make it easier to deploy.

A Code Zero can be the easiest to furl because the cable is inside the sail; however, it does not perform as well downwind, and it needs stronger gear due to the higher loads imposed by upwind sailing.

If I were buying new, was cruising, and could have only one spinnaker, I think I might go for a Code Zero. Since I was buying used and do some windward-leeward around-the-cans racing, I chose an A2 that is a bit on the shy side for my boat.

On-Deck Propane Storage

A fresh-air solution for a boat that lacks a locker

BY RICHARD DE GRASSE

In the 1970s and '80s, a lot of production sailboats were equipped with alcohol-fueled galley stoves. Accordingly, there was no need for the boats to be fitted with lockers for storing propane tanks. Over time, though, many sailors replaced their alcohol stoves with propane stoves, raising the question of where to store the propane tanks. Many simply hung them off the stern or tied them to stanchions. This works, and the tanks are certainly well ventilated, but to our way of thinking, tanks mounted this way are ugly and unseamanlike. We found it hard to imagine them surviving big seas, and sought a better solution aboard *Endeavour*, our Tartan 34.5.

We learned while cruising *Endeavour* that 20-pound tanks were too big to hang overboard and too big for the space available for making a vented locker in the lazarette. We also determined that a 10-pound tank would serve our cooking needs for about four weeks.

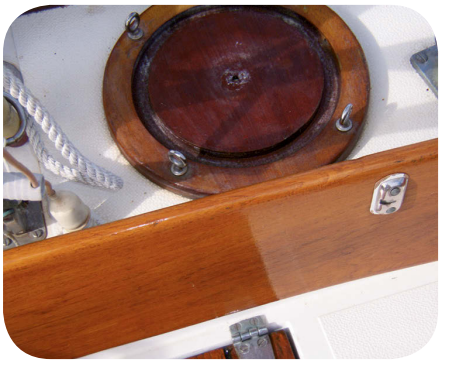
American Boat & Yacht Council (ABYC) safety standards recommend that propane tanks be located where any of the heavier-than-air propane gas that leaks will vent overboard and not enter the boat. The plumbing must be made with propane-approved tubing and fittings and with as few connections and bends as possible.

I identified a spot on the aft deck where two 10-pound tanks could sit upright, leaking gas would vent overboard, and I could easily move the tanks to refill or exchange them.

I cut round bases from a ¾-inch teak board and then used a router to cut a ⅜-inch groove in each base to fit the bottom rim of a 10-pound tank. I secured each of them in place with four eye bolts fastened through the deck, and strapped the tanks to their bases with shock cord hooked into the eye bolts. As a safety feature, the teak base for the in-use tank has a 12-volt solenoid gas valve attached to it operated by a switch in the galley.

When done, to enhance the appearance of the installation and protect the tanks, I had covers made. Now we refer to the tanks as "white lumps."

Dick de Grasse has been at sea since the age of 18, when he enlisted in the US Coast Guard. He currently holds a Coast Guard captain's license. For the past 30 years, he and his wife, Kathleen, have been sailing Endeavour, *a well-outfitted 1972 Tartan 34C, all around the Atlantic, Caribbean, and across to Portugal and back. They are members of the Seven Seas Cruising Association and the Ocean Cruising Club. They live in Islesboro, Maine.*



The propane tanks on *Endeavour* perch neatly on the aft deck, at left. The tank on the starboard side, center, is the "in-use" tank, connected via a solenoid switch to the gas line to the cooking stove. The tanks sit on bases Richard made from a teak board, at right.

And Because It's Friday

They'd set sail tomorrow if it weren't for . . .

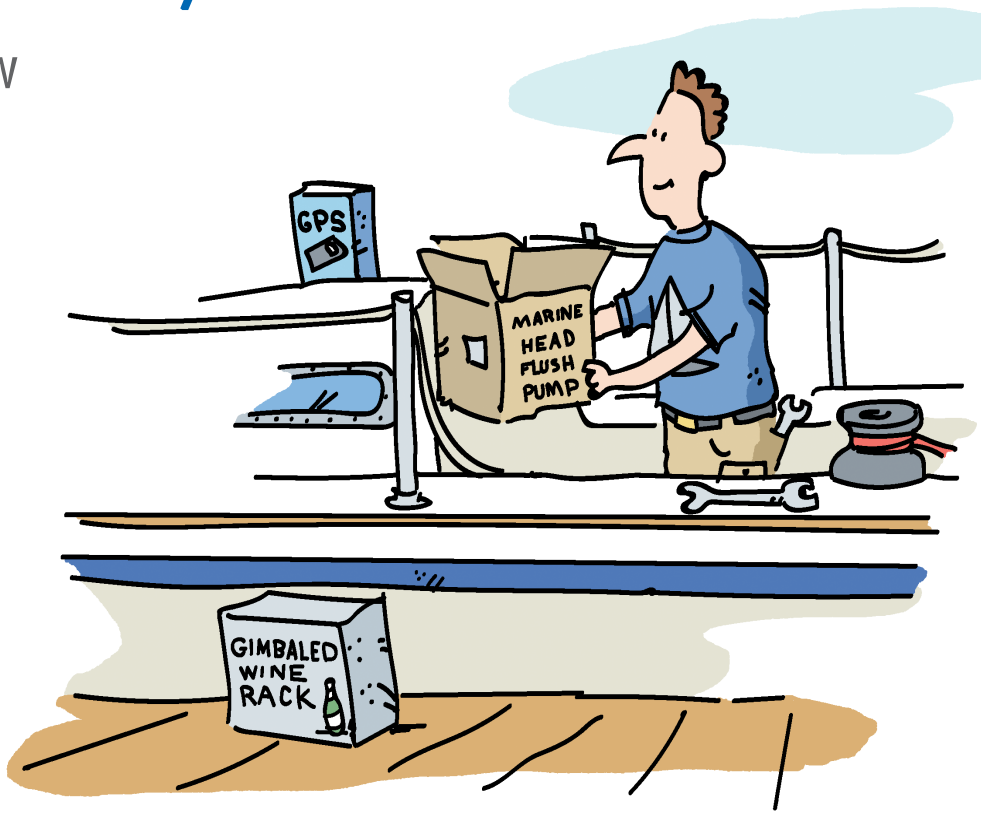
BY DREW FRYE
ILLUSTRATIONS BY TOM PAYNE

We see it all the time. A boat is purchased and an announcement made, but, after some time has passed, either reality or nerves derail a bold plan to sell all and sail into the sunset. No doubt the reasons are fully rational; it matters not. Only some very fancy dancing can save the would-be voyager from humiliation. The retreat must be well reasoned, or at least artfully presented.

Some years ago I found myself at such a crossroads. I had been dreaming of passages to Bermuda and beyond. I even hinted as much to friends. But I found the cost — insurance, EPIRB, sat-phone rental — was more than I could stomach, and the emotional reward less than I'd imagined. Finding the right crew was a challenge, my back was unreliable at the time, and done right, the voyage would take me away from work longer than I could justify.

Faced with this landscape of stumbling blocks, I found myself "climbing down," retreating to the familiarity of coastal cruising. A famous Scottish ice climber with a rapier wit, Tom Patey, wrote a penetrating article under that title some 40 years ago, describing traditional ploys used by climbers when age, situation, or infirmity prevents them from making the grade at the local crag.

Apply the following ploys as you will, either as justification for your land-based life, or to explain why your boat hasn't left the dock for months.



1. The "Off Form" Ploy

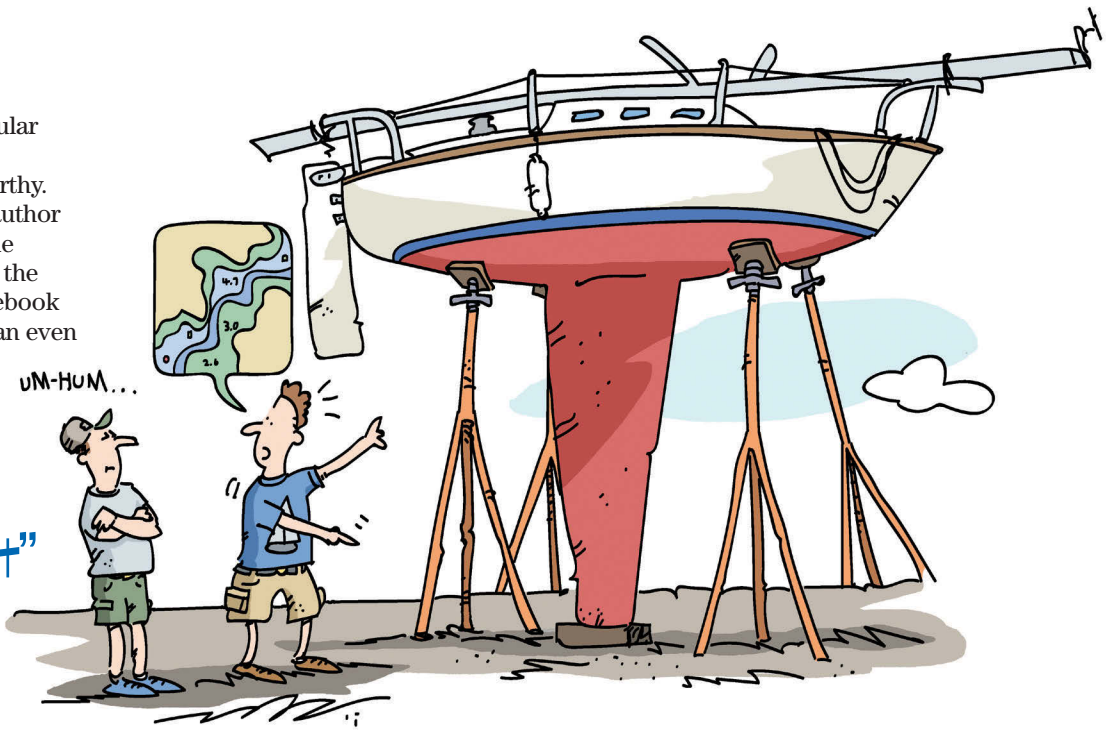
If you've not been using your boat regularly, this ploy is rooted in a bit of reality, adding instant credibility. "I haven't been getting out enough lately to take on anything too serious. Maybe next year, after I log some more miles." Of course, that "something serious" should be a world cruise, or at least an overnight passage.

2. The "My Boat Is Not Finished" Ploy

Of course it isn't. No boat ever is. As such, this will only play for a few weeks unless generously supported with props. Leave some tools here and there. Salvage empty equipment boxes from the marina dumpster and leave them in view, making certain to rotate them from time to time. Avoid exterior projects, unless they are real.

3. The "Gunkhole" Ploy

Guidebooks can help you righteously declare the popular places too crowded and the out-of-the-way places unworthy. (Of course, the guidebook author has never actually visited the gunkholes, having relied on the experience of another guidebook author, who in turn copied an even earlier author.)



4. The "Wrong Boat" Ploy

Never mind that people have rowed across the Atlantic, having a smaller boat might get you out of a world cruise, but not local cruising. Or complain that your boat's deep draft makes thin-water cruising awkward, that its heavy keel is not fun to sail in light winds. Or, taking another tack, that the weather is too strong for your more tender design. By carefully selecting a boat that makes no sense for your local cruising grounds, you can spend years protected by its shortcomings.

5. The "Secret Cove" Ploy

Speak slowly and reluctantly, with a faraway look. "We've been exploring some of the old places, and we'd hate to spoil the sense of discovery for others." Don't maintain a blog or readers will expect to see pictures. Proclaim you leave your smart phone at home for spiritual reasons.

6. The "Solo Sailor" Ploy

The subtlety of this ploy is that no one, other than Solo Sailor, knows where or how he spent the time once he cleared the jetty; everything that happens is a mystery. When you return, describe long, challenging passages instead of shoreside explorations.

7. The "I Have a Family at Home" Ploy

If you happen to have a spouse and little ones at home, you can lay blame at the feet of your responsible self for not having sailed over the horizon (and hope your prevarications never get back to your partner). Many a Solo Sailor, that ploy having worn thin, has contemplated matrimony as the only honorable way out.

8. The "Game Leg" Ploy

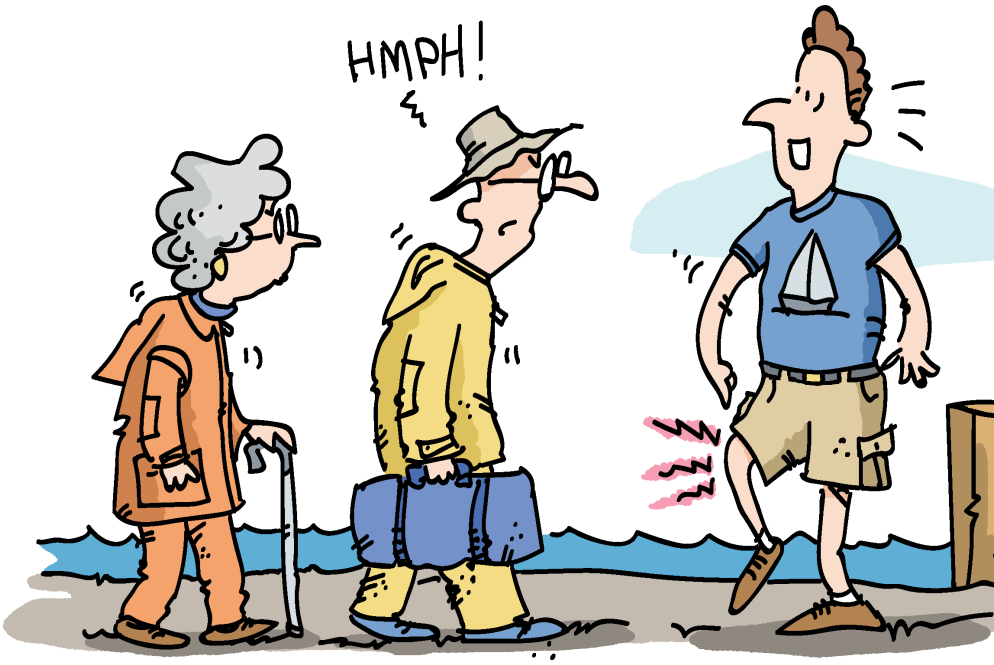
Only an obvious and permanent physical disability is of any real use; a wooden leg just adds flair. The weakness of this ploy is that people older and more disabled than you have sailed everywhere. The sailors you'll be trying this on have just as many aches and pains as you do. All the same, it is a popular gambit.

9. The "Ill Wind" Ploy

The standard British climbing mantra of another age was that it took more courage to retreat than to advance, and the best-loved expression was to "give the mountain best." Hurricane season is a legitimate use of this ploy, but in the hands of a conservative old salt, the definition of "bad weather" can be expanded to include spring storms, summer squalls, fall storms, and, of course, winter storms. Too hot, too cold, and too damp can fill in the gaps. Because absolute safety can't be planned into a cruise of any length, by combining this one with the "Blue Water" ploy, setting sail can be avoided for years.

10. The "Blue Water" Ploy

The underlying assumption is that only ocean crossings are meaningful and that local sailing is not worth the work involved in untying the lines. Owning a heavy boat that won't move without a small craft advisory helps sell this one. Provisioning, preparations, and planning become so involved that an afternoon sail is unthinkable. It helps if you have actually made some passages (not on a cruise ship) or are an accomplished liar.



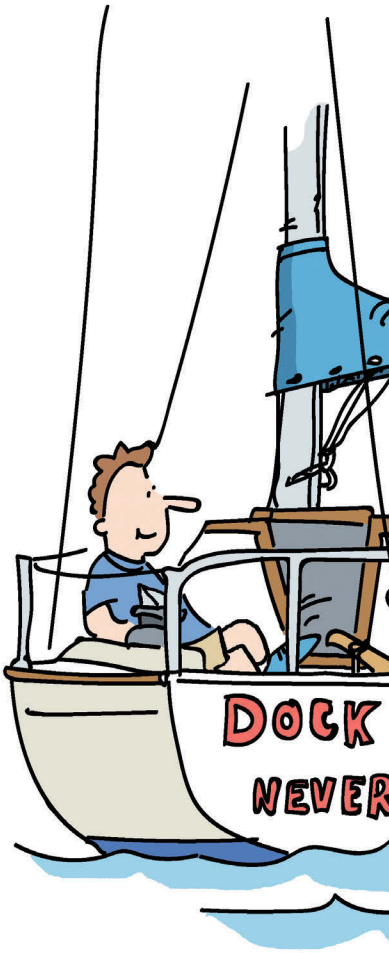
11. The "Old Man of the Sea" Ploy

Reaching a venerable three score and ten helps when using this ploy, but developing a proper vocabulary can substitute. Scribble down the most conservative internet wisdom from sailing forums. Read old sailing manuals; if they speak of fiberglass they are too contemporary.

Phrase	Meaning
Seamanlike	Perhaps quite cautious
Conservative	Overweight
Traditional	Obsolete
Plastic fantastic	Not wood
Classic	Pre-Nixon
Well-maintained	Dock Queen

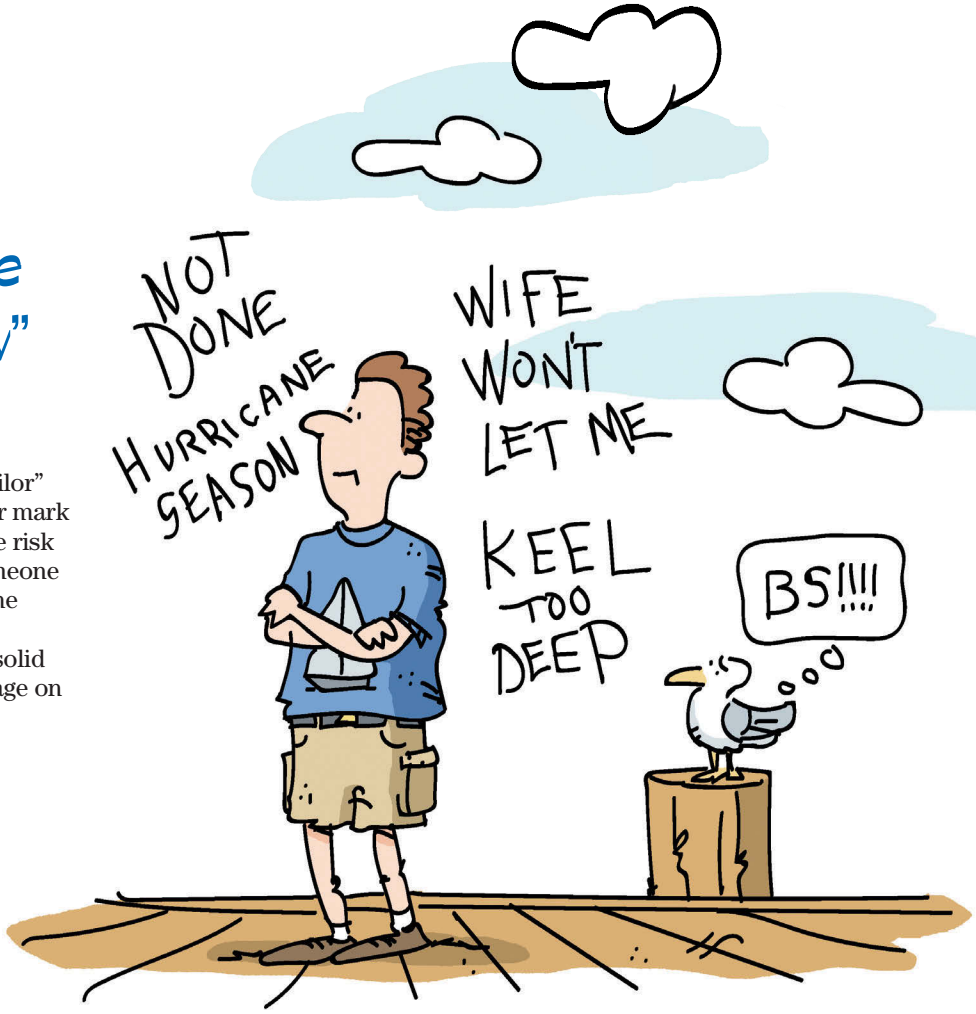
12. The "I Can't Afford It" Ploy

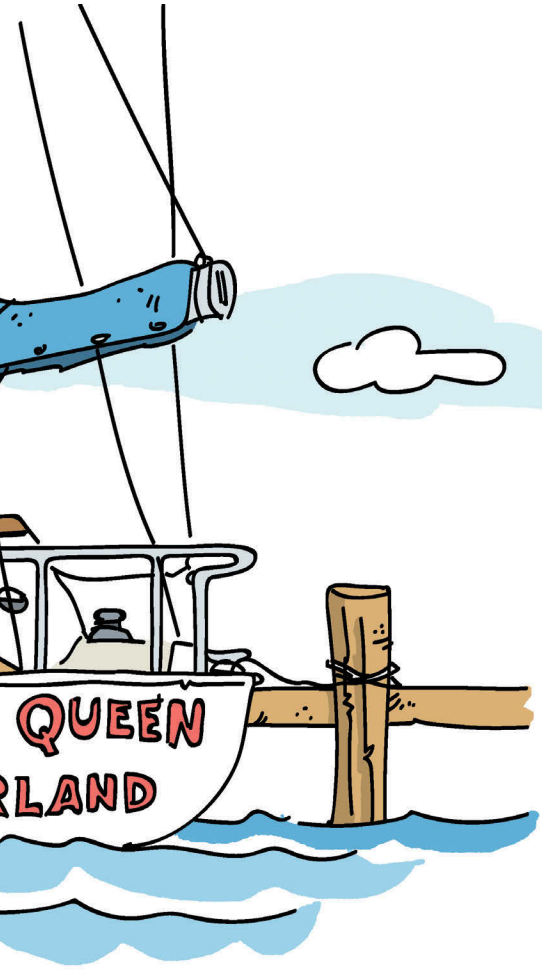
Since glossy mags began selling the idea that 40 feet was the new 30 feet, this one's been easy to sell. Although it can be the plain truth if your ambitions include offshore sailing or competitive racing. (And as a semi-retired engineer getting by on a writer's earnings, I promise you that a nest egg is good and that lack of funds is not a "fun adventure.")



13. The "I Don't Have Reliable Crew" Ploy

This is the inverse of the "Solo Sailor" ploy, but you risk exposure if your mark is a singlehander. There is also the risk you might be invited along by someone else. If this is not the plan, keep the "Game Leg" ploy warmed up by staggering along the dock with a solid limp or wearing an obvious bandage on one hand.





Through skilled orchestration of these ploys, you can safely avoid sailing for many years. A depressingly common variation goes something like this. A dreamer buys his retirement boat, which needs a little work (2 and 12). Budget and physical realities are slowing the work (8 and 12). Though he sailed a little as a child, he is ill at ease (1 and 13) with the new boat, and her deep keel presents limitations (3, 4, and 10). If solutions are suggested, bad weather (9) and obscure requirements of seamanship (11) come to the rescue. On any specific day, family commitments (7) and weather (9) make venturing out inconceivable. Only another sailor experienced in the ploy game can penetrate such multi-layered obfuscation and misdirection and determine whether you had a vague dream that you are still reaching for, or that you are retreating from sailing without actually selling the boat. Perhaps you are undecided.

This is too much work for me. Instead of dreaming up fancy ploys to avoid voyaging, I just say "I don't wanna," and I sail where I want, when I want, the weather be damned.

I don't climb rock as much as I used to either; I just proclaim that I'm old and lame, limiting myself to a dozen trips a year. Ice climbing, on the other hand, still holds mysteries for me, and my skills continue to improve. But the nearest mountains to me, in Virginia, are rather short on ice . . . and there I go using the "Ill Wind" ploy.

Drew Frye's bio can be found on page 23.

Servicing a Raw-Water Pump

New lip seals cure a dripping engine-cooling pump

BY ROBIN URQUHART

The raw-water pump is an integral part of the cooling system of any marine diesel engine. If it should fail, the engine will quickly overheat and could suffer significant damage. While most engines are equipped with an overheat alarm, a couple of visual inspections can give advanced warning that overheating due to the failure of the pump is imminent.

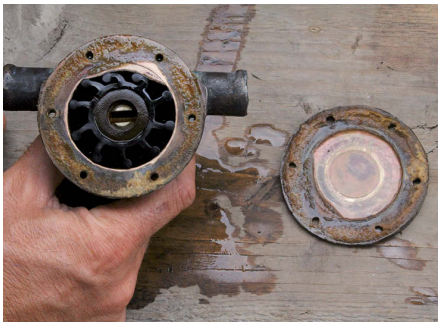
A common mode of failure is a damaged impeller. It's good practice, therefore, to glance overboard periodically when the engine is running to make sure water is exiting with the exhaust. Replacing the raw-water pump's impeller is very often one of the first engine-maintenance tasks a boat owner learns to master.

It's also important to inspect the raw-water pump itself when the engine is running. Most raw-water pumps have a small weep hole on the body. Water dripping from this hole is a sign an internal seal has failed. I saw this happening on the 27-horsepower Kubota auxiliary in our 1979 Dufour 35, *MonArk*. It was a slow but continuous drip, and rust had formed on the parts of the engine where the drips were landing. The repair in this case was to replace a failed seal inside the pump.

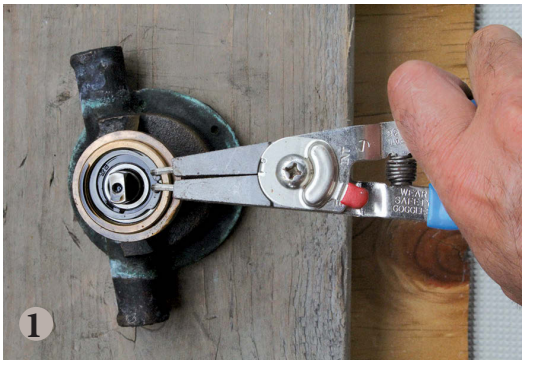
At this point, many owners might remove the pump and take it to a shop to be rebuilt, but when the only problem is a bad seal, this is a straightforward repair any boat owner with a mechanical aptitude can tackle. I have done it several times. *MonArk*'s Jabsco pump is very similar to most pumps found on diesel auxiliaries, so the steps I took in repairing it will be widely applicable. A word of warning, though: on *MonArk* it's possible to reinstall the pump upside down, which would reverse the flow direction, so it's a good idea to take photographs or make a sketch of the pump before taking it off the engine.

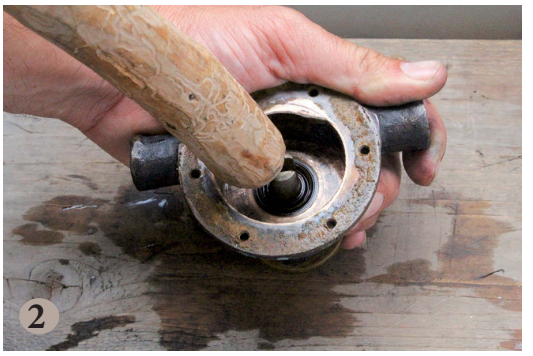
Taking apart the pump

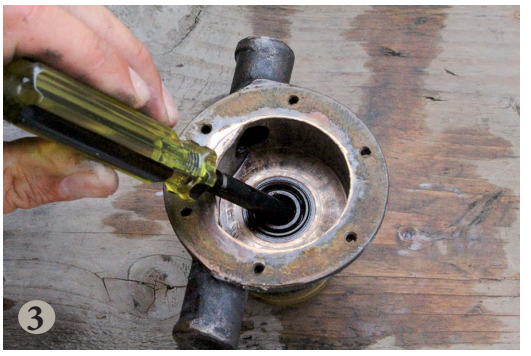
Before starting to work on the pump, first close the raw-water intake seacock, then detach the inlet and outlet hoses from the pump and remove the bolts attaching the pump to the engine. (If the pump is belt-driven, as

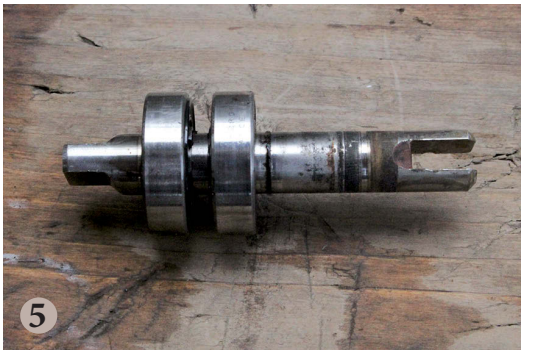


The raw-water pump on this engine shows signs of needing an overhaul, top of page. A Jabsco raw-water pump, at left. The faceplate has been removed, revealing the impeller inside the housing, center. The impeller can be extracted with needle-nose pliers, at right.









Circlip pliers are the best tool for removing the circlip (1). Tapping out the pump shaft with a piece of wood prevents damage (2). A hard blunt instrument works well for tapping out the mechanical seal (3). The cause of the leak: the old seal on the left is missing the garter spring (4). The pump shaft before cleaning (5).

opposed to engine-driven, the process will be a little different.)

To get to the impeller, remove the faceplate. So as not to strip the heads of the bronze machine screws that typically secure the faceplate to the pump, go slowly and keep the screwdriver straight.

With the faceplate removed, extract the impeller. Most professional sources recommend an impeller puller, but very few of us have one of these on board. I find pulling on the thickest part of the impeller blades with needle-nose pliers works best. Again, go slowly, and pull on each blade alternately to ensure the impeller comes out evenly.

Inspect the impeller for wear or damage, and discard it if it shows signs of cracking, its diameter is reduced, or pieces are missing.

The shaft and bearings, which are at the back of the pump, can be taken out by removing a circlip (also called a snap ring or retaining ring). This is most easily done with special circlip pliers. Check the circlip for deformation or cracks.

After removing the circlip, move to the front of the pump and gently tap out the shaft with a piece of wooden dowel.

Between the mechanical and water seals is an O-ring, which I prefer to remove before removing the seals themselves. Pry it out with a screwdriver or needle-nose pliers.

An effective way to remove the seals themselves is to drive them out gently with a blunt instrument, such as a straight socket driver without a socket on it. Pulling or prying out the seals, as is often recommended, rarely works and risks scoring the inside of the pump housing.

Remove the mechanical or oil seal on the engine side of the pump first, as it is far easier to extract the water seal with the mechanical seal out of the way.

After removing the seals, examine them for the mechanism of failure. It can be hard to tell sometimes, as even a small deformation in the shape can lead to leaking. In most cases, the garter spring will have rusted out or broken, allowing the rubber lip to move more than it should.

Something else to examine is the pump shaft. Scoring or pitting can cause the water or mechanical seal to fail. On our shaft, there was a thin rust-colored scaly buildup, which I removed with 800-grit sandpaper (I don't recommend using anything coarser). The shaft underneath was clean and smooth and didn't need to be replaced.

Next, spin the bearings. They should spin freely and silently. Sounds of grating or knocking indicate the bearings likely need to be replaced, a project that is beyond the scope of this article.

Rebuilding the pump

If the bearings and shaft are in good condition, the pump can be put back together. First, make sure all the mating surfaces are clean and smooth. For example, the faceplate and mating surface of the pump often have bits of gasket stuck to them and a scaly salt buildup. Use a sharp blade to cut or scrape off the gasket, while taking care not to score the housing or the faceplate. Clean off any buildup and remaining gasket material with 800-grit sandpaper.

Inserting new mechanical and water seals can be a bit tricky. To make them fit more easily into the pump, some people recommend placing them in a freezer overnight so they contract. I haven't found this necessary. Instead, rub a small amount of dish soap around the outside of the seal and tap the seal fully into place using an appropriately sized piece of wooden dowel. Make sure the spring faces out in both cases.

After cleaning, the pump shaft is ready for the reassembly, above left. The faceplate and its mating surface on the pump body have been polished with 800-grit sandpaper, center. A wooden dowel is used to push the new seals, lubricated with dish soap, into place, at right.

After the seals are in place, insert a new O-ring between them. It is loose at this point, but will go over the shaft as the shaft is inserted into the pump.

When inserting the pump shaft, take care not to damage the seals or the O-ring. It helps to rub a small amount of oil on the shaft before inserting it into the pump. It also helps to rotate the shaft while inserting it. Taking care not to trap the O-ring, push the shaft in until the circlip slot is visible, then reinsert the circlip.

When the shaft is in place and secured, put the impeller back into the housing. Folding the impeller's blades to clear the constriction in the housing makes this easier. The direction in which they are folded isn't too important as they will self-correct without suffering damage. I use an entire tube of impeller lubricant to coat the impeller and the inside of the pump housing prior to insertion, but any lubricant meant for rubber will do the job.

A new gasket will come with the purchase of a new impeller. (When reusing an impeller, trace the shape on a piece of gasket paper and cut it out.) Reattach the faceplate and tighten the machine screws, taking care not to over-torque the screws or strip their

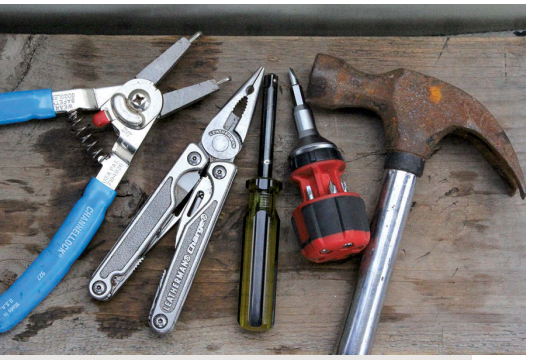
heads. There are torque specifications, but I've found that a quarter turn past when I start to really feel resistance has been enough to compress the gasket and make a good seal without risking stripping the threads.

The pump is now ready to go back on the engine. All in all, the job takes about 45 minutes.

Robin Urquhart and his wife, Fiona McGlynn, recently crossed the Pacific in their Dufour 35, MonArk. *After that voyage, and their earlier passage from British Columbia to Mexico, they can attest to the verity of the old adage that cruising is really about fixing boats in exotic places. Robin is an editor at Waterbornemag.com, a website aimed at inspiring and supporting a new generation of water people.*

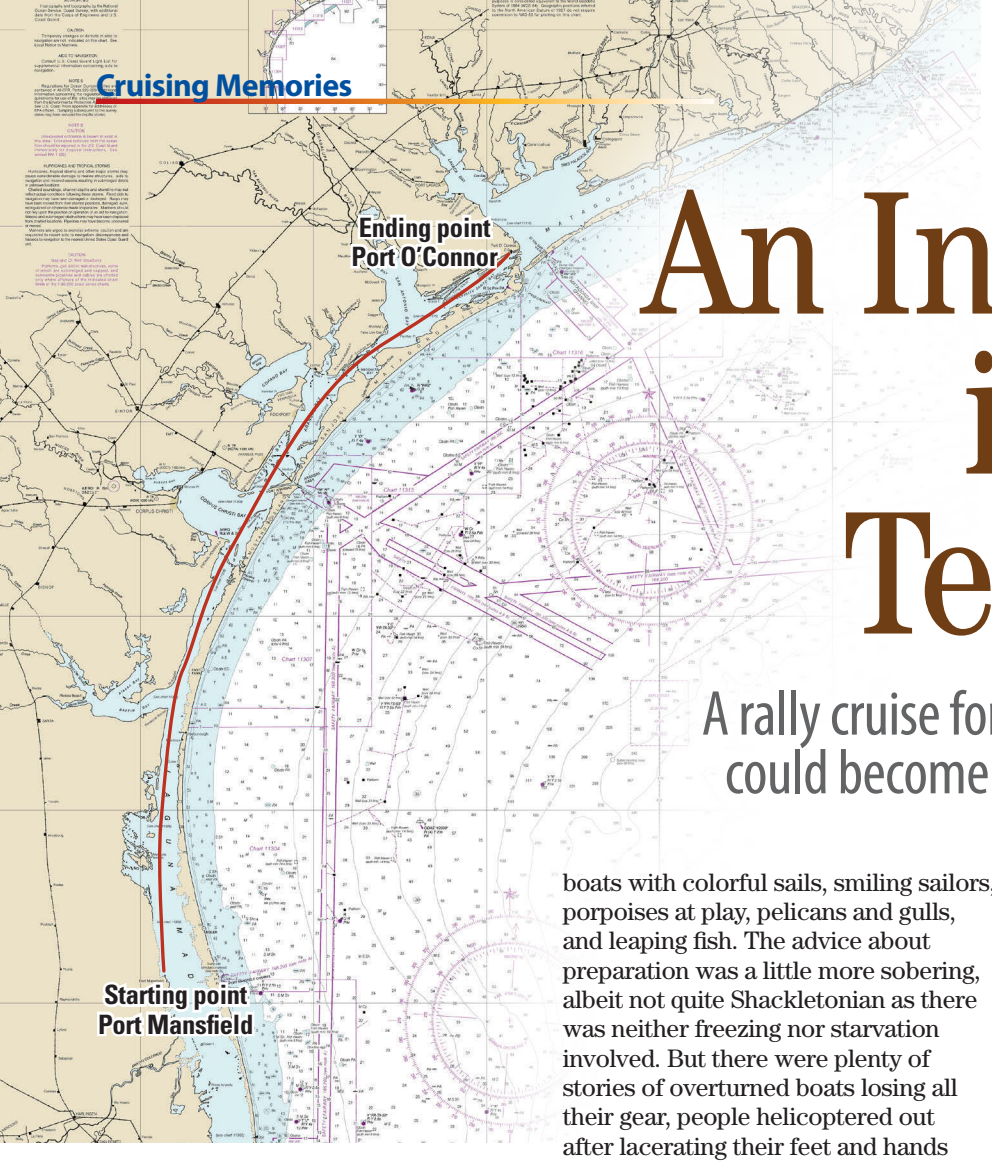
Tools and Parts -RU

Useful tools:
Circlip pliers, needle-nose pliers or impeller puller, socket driver or other blunt instrument, screwdriver, hammer, various diameters of wooden dowel



Parts:
New impeller, gasket, mechanical lip seal, water-side lip seal, impeller lubricant

The tools required, above right. An impeller kit includes the gasket and lubricant, at right.



An Initiation into the Texas 200

A rally cruise for small sailboats could become habit-forming

BY ROBERT HUNT

The best way to start any voyage is by seeking advice, in my case from an old high school friend who was once a professional sailor. Richard immediately affirmed that competing in the Texas 200 would be a great adventure and that *Anoesis II*, my 17-foot Harpoon 5.2 (he'd once sold them), would be a great boat in which to do it. He then recommended I read everything by and about Shackleton, to prepare myself mentally.

That wasn't exactly where I had been going in my mind, so I latched on to his affirmations and went to the Texas 200 Sailing Club Facebook page and website (Texas200.com) to seek further advice.

The Texas 200 is an annual gathering of small boats that travel more or less in company through the Laguna Madre and the bays of South Texas for five or six days and 200 miles. The videos and pictures on its website were encouraging. I saw interesting wooden boats with colorful sails, smiling sailors, porpoises at play, pelicans and gulls, and leaping fish. The advice about preparation was a little more sobering, albeit not quite Shackletonian as there was neither freezing nor starvation involved. But there were plenty of stories of overturned boats losing all their gear, people helicoptered out after lacerating their feet and hands on oyster shells, sunburn requiring hospitalization, equipment failures of all sorts, man-eating mud flats, howling gales, and days of "bob and bake" doldrums. That's the Texas 200. But participants in this carnage sign up to do it again, so I was ready to go.

Committed, my first step was to make major upgrades to my boat. I added a complete electrical system with a panel controlling a cuddy-cabin light, running lights, an anchor light, and charging stations for an iPhone, an iPad, and a VHF radio. To power it all, I bought the largest standard marine battery I could fit, mounted it forward for trim, and installed solar panels aft to recharge it.

While advice from down on the coast was encouraging, back in Dallas, my fellow freshwater sailors were skeptical to the point of giving me a fair amount of grief concerning these upgrades. Many questioned the utility of running lights a mere 12 inches above the water, or an anchor light when beaching the boat was the goal. They weren't convinced that while having a full set of running lights might be quixotic, safety demanded that if I did have to sail at night, I at least be visible to the barge that runs me down. And I did give up on plans for a refrigerator and portable AC, showing what seemed like genuine restraint, although in fact, given the small footprint of the boat, I simply couldn't mount enough solar panels to power them.

A rosy vision

By May, I'd assembled basic camping equipment, a simple bed of cedar planks laid crosswise just behind the cuddy cabin, 20 gallons of water, and way too much food. With two ice chests using a combination of dry ice, regular ice, and a frozen mixture of water and alcohol I read about in *Good Old Boat* (see "Ice Magic," May 2014, and "Beating the Heat," May 2016), I felt prepared. My plan was that each day, after a hard six to eight hours of sailing, I would drop anchor and either read a book in the shade of my specially mounted beach umbrella or, if conditions allowed, go ashore and set up camp. As the sun set, I'd fire up the Coleman stove, cook a decent meal, have a beer or two, and be rocked to sleep by the gentle waves. Come morning, I'd enjoy an early breakfast of tacos, sip a cup of coffee (from the camp-stove espresso maker), weigh anchor, and sail to the next campsite. Living the dream, my friends.

With this vision in mind, I arrived in Port Mansfield, essentially a built-up

The wind at the Texas 200 can blow hard or not at all, as here, when the fleet was ghosting into the Laguna Madre.

fish camp, its familiarity with sailboats indicated by the number of live electrical wires that surround the only boat ramp. That is, they were live until a Texas 200 participant backed his Hobie Cat's already stepped mast into them, depriving half the town of electricity for a few hours. Not that this evinced much of a panic among the locals, who bear the strong fatalism of those who make their livelihood on fishing for redfish and trout and spend three months a year tracking hurricanes.

By the time of this incident, my asking around the bait shop for the whereabouts of the harbormaster had led me to the mayor, a ruddy gentleman lounging in a lawn chair, beer in hand and wearing shorts, flip-flops, and an old Metallica T-shirt.

"I'm not sure what slip I'm supposed to be in."

The mayor pulled out a cell phone and made a quick call, which brought his wife, the only other town employee, to direct me to my berth.

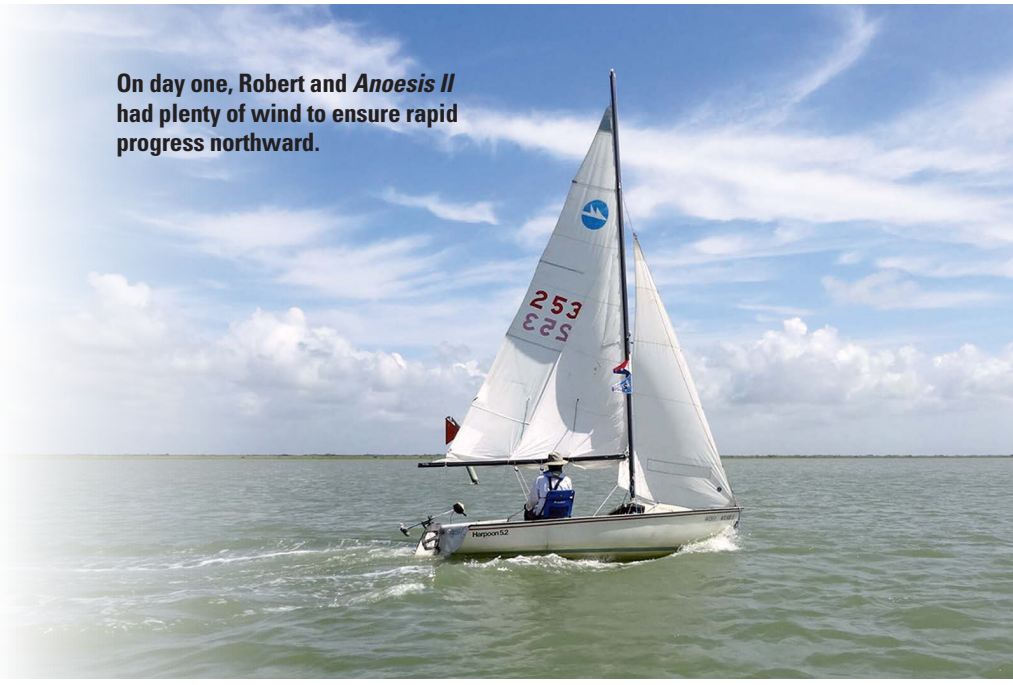
The next day, about 100 of us gathered in a parking lot and met the organizers, one of whom stood on a pickup truck and handed out information packets and burgees. We were reminded that everyone was on his or her own, there was no support of any kind, to keep our VHF radios on 16, reef early and often, and "don't think anyone will wait up for you." Then we caravanned the 200 miles up the coast to Port Lavaca, where we left cars and trailers in the lot of a friendly eat-and-get-gas place, and were bused back to Port Mansfield.

Reality

Day one dawned still as death. I cast off early and under full sail was barely able to ghost out into the Laguna Madre. Yet I passed a few fellow sailors, and as the wind began to whisper, I felt pretty good as I turned north. It was looking like an easy day. And then the wind picked up. And picked up more. And more. At 12 knots, I lowered the jib and stowed it under bungee cords stretched across the foredeck. At 18 knots, I decided on a reef, which is easier said than done singlehanded. Fortunately, I had a lot of space to do 360s until I finally wrestled in and tied down a reef in the main.

Which is when the wind calmed. I could see the fleet to the west passing me by as they headed to the entrance to the Intracoastal Waterway. I shook out the reef, and in 45 minutes regretted it. *Anoesis II* was under control, but I seemed to be headed on a beam reach at breakneck speed for a narrow channel in which merely being under control might not be good enough. Once again, I was busier than a one-armed fiddler while I tied the reef back in. I didn't take it out for the next five days, and sailed one day with just the jib.The wind was often near 20 knots, and rarely below 15, and most of the time I was fully focused on staying upright and in deep water.

The fleet was enormously colorful in terms of boats. Maybe half were production boats like mine. Most looked a bit rode hard and put up wet. I later learned that many were bought nearly derelict just for this event. Two



On day one, Robert and *Anoesis II* had plenty of wind to ensure rapid progress northward.

Robert usually daysails his Harpoon 5.2 on a lake, so he had to make some modifications before taking on the Texas 200. They included building a platform for his bed, at left, and installing an electrical system, at right, for navigation lights and chargers for digital devices.

guys were sailing a 17-foot MC Scow and one a Flying Scot with a homemade mizzen strapped to the transom. The rest were homemade wooden boats, colorful of hull and sail and favoring two-sail gaff rigs.

I couldn't tell much about the people. All of us were wrapped from head to foot against the sun, and in many cases all we could see was each other's eyes. Indeed, at camp on the third day, a figure stood up on a freshly beached boat and pulled off various wraps. An older gentleman standing next to me gasped and said, "My God, it's a girl!" Indeed.

Although, over 40 miles, routing choices and differences in departure time and speed spread us out, we would see more of each other, at least enough to determine gender, but that involved getting to shore. The designated camp locations were, with one grassy exception, strips of oyster-shell beach backed by scrub and surrounded by anywhere from 50 feet to 100 yards of desperately shallow water, typically 12 inches or less and always directly upwind. I had a strategy for this.

I had put quick-release cleats on both my keel and rudder. My theory was that I'd get up as much speed as possible on a broad reach as close to the shallows as I could. I'd turn upwind, let the keel kick up and then the rudder. Then I'd go forward and toss out the anchor before I got blown backward. I didn't realize how badly this could go.

Approaching the first already-crowded anchorage, I executed my maneuver. Except the keel stuck and the rudder kicked up. I did a fast 120-degree turn which released the keel. With the rudder floating uselessly behind the boat, I rapidly accelerated into the fleet, a run being the only option. As I'm not a quitter, I managed to pull the rudder back into place, and tried again. And again. Finally, I managed to get the keel up first, make a little headway before the rudder came up, and throw out the anchor, which I followed into the water.

Half an hour later, I'd dragged the boat up to the shore to join an appreciative audience as other boats tried, and quite often failed, the same maneuver. I was wet from the waist down and didn't really dry out for five days. I couldn't go barefoot because walking on oyster shells is no different from walking on razor blades.

A fraternity of sailors

One of the first impressions I gained was that the Texas 200 has really become a family affair. There were husbands and wives of the old-salt variety, fathers or mothers with their sons and daughters, extended families, even some Sea Scouts. It was a good mix, and there are few sights as energizing as watching kids decamp onto a beach and be kids.

Although that wasn't easy for some on the edge of adolescence. As the sun set the third day, I heard a fragment of conversation between a father and daughter around a nearby campfire in which he said, "This isn't about your feelings." Having a daughter of my own (now grown), I knew where he was coming from. In his defense, they had the only tent built especially to enclose a portable toilet. Everyone else, regardless of sex, had to make do behind the scrub up in the dunes.

Another thing I realized is that the wind blew toward the setting sun, so that my beach umbrella would either get blown away or blown apart if I tried to use it for shade. Thus I usually sat behind the umbrella rather than under it, pretending to relax and drink a beer as the wind howled around me. The first day, I lasted almost 20 minutes.

That's when I discovered a group of guys whose functioning shelter was larger than they needed. They were Aggies (Texas A&M alums), and hence rivals relative to my years at the University of Texas. Any port in a storm, as they say. I brought my chair and an offering of beer and made some new friends. Turns out we'd been in our respective schools' marching bands, even in some of the same games, albeit on opposite sides. The shared suffering of marching on Thanksgiving Day in freezing rain easily led to discussions of the Texas 200 experience. Did I mention they had rum?

As it turned out, time ashore during the Texas 200 could be as good as time on the water. On the water in big wind I really was on my own for eight hours. With everyone sailing on the edge, and the only motor in sight my defunct electric outboard, there was little we could do for each other apart from shouting encouragement as we passed or were passed. But on land it was different.

The second evening, one boat hadn't arrived and couldn't be raised on the VHF. So those of us who had them turned on our masthead lights, in case

our fellow sailors might not find the camp. It turned out that the missing sailors, seriously delayed, had decided to pull up and camp before sunset some five or six miles short of the group. We cheered them on as they caught up the next morning, having made an early start and adopted a different way of setting their sails.

Folks shared their food, and even their beer when it came to it. Boats that limped into camp with broken parts, torn sails, and lost provisions found that others had tools and parts and sail tape to share. Advice was freely offered. My Aggie friends counseled staying close to the protection of the windward shore in Corpus Christi Bay. I ignored them, and had an unnecessarily exciting couple of hours skating down waves and into waves, which made me grateful for my self-bailing scuppers and foam-filled hull.

So even though I sailed solo, and we had all been warned that we were on our own, it wasn't surprising that on the last day, as on the first, I found ready help beaching my boat at Port O'Connor, hitching a ride to my car, and getting my trailer down the ramp to pull my boat out of the water.

Lessons

I discovered on the first day that my electronic charts on the iPad and iPhone weren't all that useful. The devices were hard to read in the sun, and harder to manage with a hand on the tiller and a hand on the sheet. By the second day, after conferring with the Aggies, I'd reduced my routes to a set of landmarks and bearings, and steered by compass.

Which drove home the importance of the hard-won wisdom on how to locate the shortcut passes between the bays. When experienced sailors say to exactly line up a capped gas well and a deserted shack when approaching a pass, best listen. I touched sand a number of times, and learned that charts can't compare with local knowledge.

Over the course of the rally, my Harpoon fared well. Some of the stainless steel fixtures needed cleaning, and the tiller extension, not as robustly stainless as I'd thought, had bent and finally broken in my fight against the inevitable weather helm from a reefed mainsail and no jib. And of course, the boat was covered, inside and out, with a scummy film of salt that would take serious work to wash off.

Dressed against the baking Texas sun, Robert is barely recognizable, above, and the wind defined his use of his umbrella, below. Aggies Michael Breaux (l) and Nicholas McLin (r) brought a huge sunshade, at right.

As a freshwater sailor venturing into salt water, I had feared the incursion of rot, but the wooden seats I'd sealed with multiple layers of spar varnish did fine. So did the cedar boards making up my bed. Water had drained out and not through the wooden reinforcement in the hull. Although the clothes I'd worn for five days were trash, dry bags kept my bedding and other clothing dry. The electrical system, mounted high inside the cuddy cabin and waterproofed, was fine.

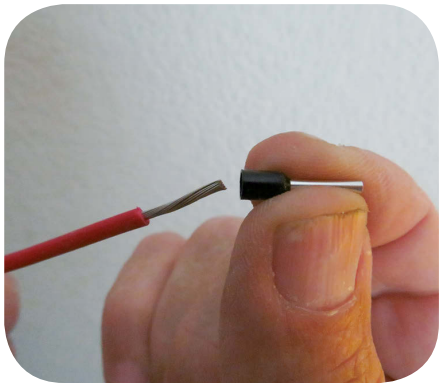
It wasn't until two months later, in a routine visit to the dermatologist, that the shoe dropped. As I stood almost completely naked (when will I get back to doing sit-ups?), the doctor gazed down from her heel-enhanced, always fashionably garbed heights. Looking at the soles of my feet and the calluses I attributed to a well-sandaled summer, she disgustedly pronounced, "Foot warts. What have you been doing to your feet?"

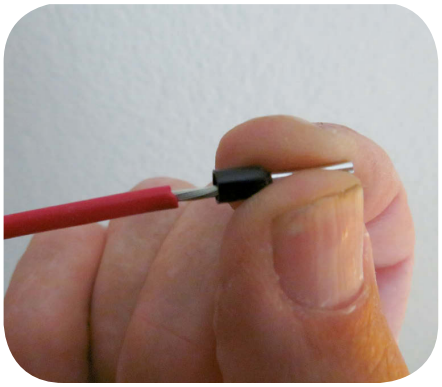
When I explained the Texas 200, she shuddered. She suggested I dress, washed her hands a second time, and had the medical assistant swab the floor. Before leaving, she gave me a prescription for a cream to be applied daily and forever. Our encounter reminded me of the refrain of a Bouncing Souls song favored by my son's punk-rock friends: "I'm a hopeless romantic, you're just hopeless."

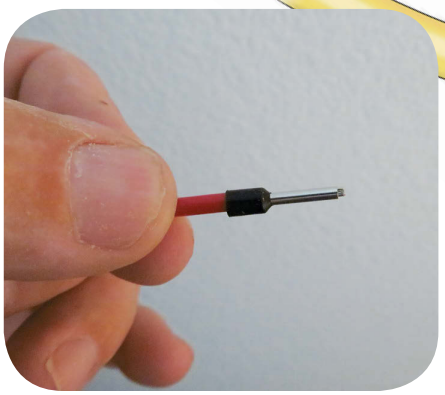
And that's when I knew I'll be sailing the Texas 200 again.

Robert Hunt is the current Commodore of the White Rock Boat Club in Dallas, Texas, where he keeps his Harpoon 5.2, Anoesis II. *He spent time on the Texas lakes and the Gulf of Mexico but mostly for fishing. After 20 years living overseas, he returned home to Dallas and discovered sailing about 8 years ago, and has chartered in a variety of locations. He sails a couple of times a week or more when he isn't traveling for work at Perkins School of Theology, Southern Methodist University. He finds a sailboat offers endless opportunities for ingenuity, and sailors to mostly be a source of gratifying amusement and comradery, and sometimes consternation.*

Why Ferrules Rule







They tame stranded wire and make connections secure

BY DAVID LYNN

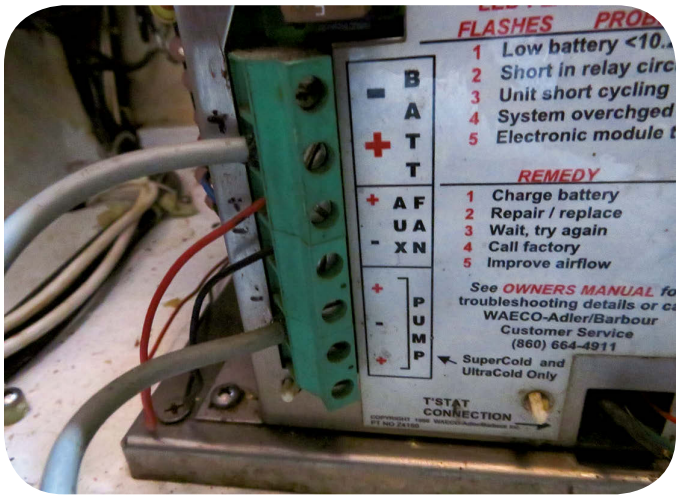
On a boat, stranded copper wires are the norm, and connections are usually made using crimped ring terminals. A lot of the electrical devices on board, however, incorporate screw-terminal blocks. On *Nine of Cups*, the Adler-Barbour refrigerator compressor and the 120-volt AC selector switch, as well as some of the electronics, use screw terminals. For most of the equipment intended for use on a boat, these screw terminals are designed so that it is acceptable to simply insert the stranded wire into the terminal and lock it into place with the screw. A better method is to use a ferrule.

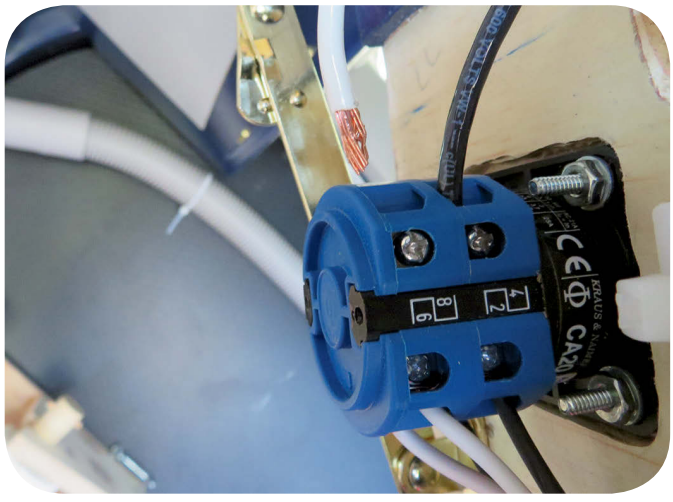
A basic ferrule is a short tin-plated copper tube that is slipped onto the end of a stripped wire and crimped in place. The crimped ferrule holds the individual strands of wire together and forms a gas-tight seal. To make assembly easier and to increase wire durability, most ferrules also have a conical-shaped plastic collar on one end of the copper tube. Ferrules come in a host of different sizes designed to fit wires from AWG 28 to AWG 1. The plastic collars are color-coded to make it easy to identify the size of the ferrule.

Ferrules have two significant advantages over bare wire:

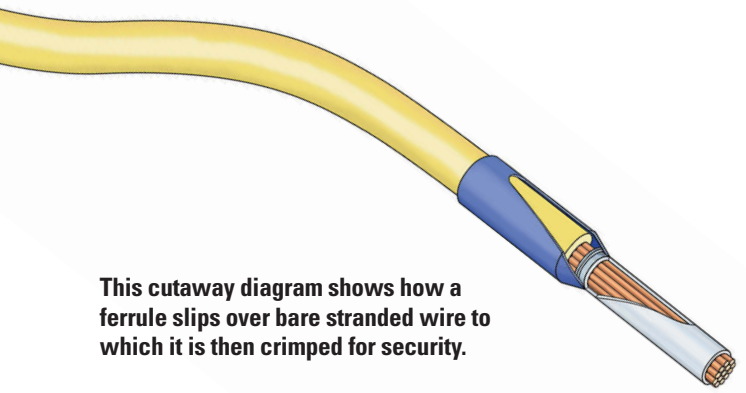
No stray strands –I used 8 AWG wire to power my Adler-Barbour compressor, but the terminal block is located in a hard-to-see place and I found it difficult to push the stranded wire into the screw terminal without a stray strand or two of wire separating from the bundle. When pushing the entire wire bundle into the funnel shape of the ferrule collar, stray strands are easy to spot.

Better long-term connection –Weidmuller, a company that manufactures electrical components, including ferrules, did a long-term study of wire connections using solid wire, stranded wire, and stranded wire terminated in ferrules. The study measured the electrical resistance of the connections in a standard environment as well as a salty environment





A ferrule slips easily over a stranded wire, at top, and ensures that the connection is as secure as it can be in devices that are connected with bare wire rather than crimped-on terminals, such as the Adler-Barbour terminal block, at left, and the selector switch, at right.



This cutaway diagram shows how a ferrule slips over bare stranded wire to which it is then crimped for security.

over a period of years. The solid wire performed the best, showing little change in the electrical resistance of the connection over a four-year period, whereas the stranded wire showed a significant increase in the electrical resistance with time. In fact, the study showed the resistance of the stranded-wire connection reached an unsafe level in just over three years in a salty environment. The addition of ferrules to the stranded wire resulted in a connection that performed almost as well as the solid wire.

A special tool is required to properly crimp a ferrule, but for those not expecting to crimp hundreds of connections, an inexpensive tool can be purchased online. For less than $30, I bought a kit that included a crimper and a large assortment of ferrules that will suffice for most of the electrical work on the boat.

David Lynn's bio can be found on page 19.

Ferrules are color-coded for size and can be purchased in a kit that includes a crimping tool.

Resources

American Boat and Yacht Council Inc.
ABYC E-11: AC and DC Electrical Systems on Boats

Link to Weidmuller Ferrules White Paper: search with "white paper weidmuller"

"Marine Electrical Wiring 101," ***Good Old Boat,*** **July 2014**

Testing the Waters in PHRF Part 2

If at first you don't have speed, trim, trim, and trim again

BY ROBB LOVELL

In "Testing the Waters in PHRF Part 1," November 2018, Robb Lovell introduced us to the world of PHRF sailboat racing. He encouraged interested sailors to dip their toes in those waters and outlined practical steps for getting started. In this second article in the series, Robb gives tips for optimizing the performance of a good old boat to improve the chances of success on the course. Much of the advice in this article will help non-racers get more out of their boats.

Racing is all about speed, and when racing a sailboat, the principal factor in generating speed is sail trim — setting and shaping the sails to derive power from the wind in the most efficient way.

On a conventional sailboat with a modern rig, the headsail and the mainsail effectively function as a unit. The headsail creates lift and drive for the boat and also directs airflow over the mainsail. When trimmed in concert with each other, the two sails keep the boat balanced and fast.

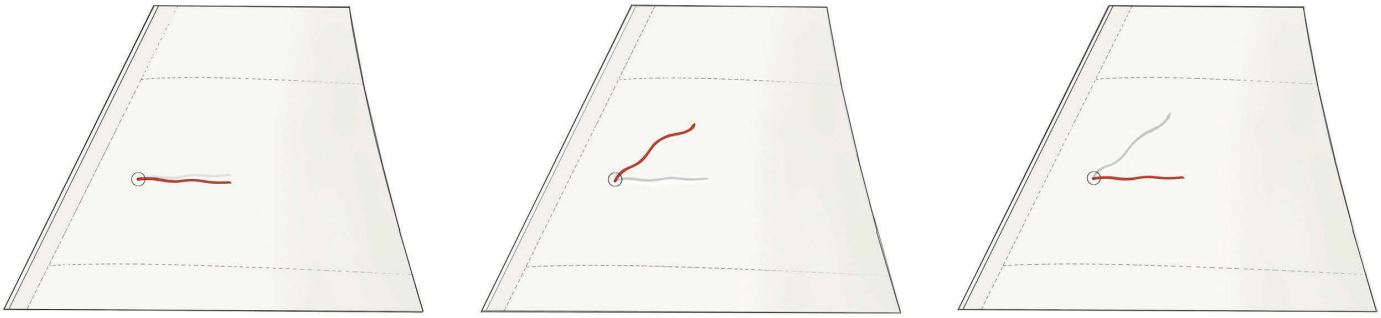
Sails are airfoils, and are subject to the same aerodynamic lift and drag forces as airplane wings. Obtaining the best performance out of an airfoil depends largely on setting it at the correct angle of attack — the angle at which the wind meets the sail. To identify this angle, sailors use telltales.

Telltales

Telltales (sometimes called ticklers) are perhaps the most important tool sailors use to ensure their sails are properly trimmed for maximum efficiency and boat speed. Usually short lengths of yarn or narrow tape, they are sewn or glued to a sail near the luff.

Justin Taylor and Tony Berends tend to sail trim aboard a Beneteau First 345 racing alongside a sister ship helmed by its owner, Kenny Byth.

ILLUSTRATIONS BY FRITZ SEEGERS



When the jib is properly trimmed, the windward and leeward telltales will stream aft. If the windward telltale is lifting, bear away a little or sheet the jib in a touch. If the leeward telltale is lifting, head up a little or ease the jibsheet a touch.

On the headsail, telltales are used to indicate the airflow close to the surface of the sail near the luff. A common arrangement is to affix three telltales about a foot to 16 inches aft of the luff and on both sides of the sail, spaced at one-third of the luff length up from the tack, at the center of the luff, and one-third of the luff length down from the head. To use them, the helmsman must be able to see them, and the best place from which to view them is the windward side of the cockpit, which is why many helmsmen steer while sitting on the windward rail.

Telltales spaced along the luff in this way provide feedback on what is occurring on each third of the sail. For example, if the bottom two groups are flowing aft nicely but the top telltales are breaking upward, that shows that the leech is open and is spilling wind off the top third of the sail.

When all the telltales on both the windward and leeward sides of the sail are flying aft smoothly, airflow across both sides of the sail is laminar, the ideal condition, and the sail is set at the correct angle of attack.

On the mainsail, telltales sewn into the leech near each batten pocket will show whether the airflow off the sail is smooth or not.

Some sailors also attach telltales about a foot to 18 inches aft of the luff of the mainsail, spaced vertically as on the headsail. These groupings provide feedback on what is going on at the top, bottom, and middle of the mainsail.

While telltales on the sails show how the wind is interacting with the sails, telltales tied at about head height to the backstay and to the port and starboard upper shrouds indicate the direction from which the wind — the apparent wind — is striking the boat. Perched on the windward rail, the helmsman doesn't have to look up at the masthead windvane or down at the wind instruments but can see, by glancing at the telltales on the sails and shrouds, both the wind direction and the state of trim.

The backstay telltale is handy for downwind work, especially when the masthead vane is affected by the boat's rolling motion.

> "The object of trimming sails is to achieve the smooth airflow across them that will make them perform at their best."

Sailing in a jib-and-main (JAM) race gives crew an opportunity to become familiar with the spinnaker pole without having to deal with a sometimes unruly spinnaker.

In search of good sail trim

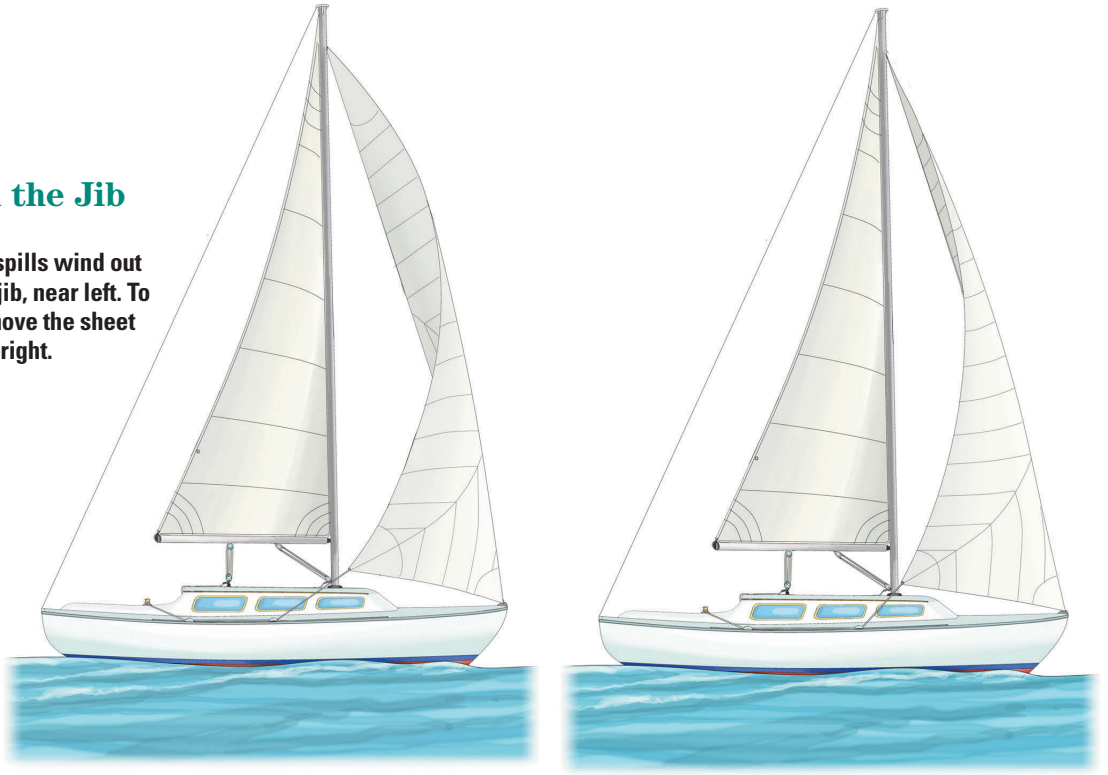
The object of trimming sails is to achieve the smooth airflow across them that will make them perform at their best. The most important factors are the sail's shape and its angle of attack, and several controls allow these to be adjusted to suit the wind direction and strength.

Halyard –On headsail and mainsail alike, the halyard sets the tension in the luff. When the sail is full and drawing, horizontal wrinkles emanating from the luff indicate too little luff tension for the wind strength; vertical wrinkles along the luff indicate too much luff tension. In either case, the tension can be corrected by adjusting the halyard.

To take the guesswork out of setting the halyard tension when hoisting a sail, mark the halyard with a whipping or indelible marker where it exits its clutch when set for a moderate wind. Use that mark as a starting point when first hoisting the sail, then ease the halyard if the wind on the racecourse is light or increase the tension if the wind is heavier.

Twist and the Jib

Too much twist spills wind out of the top of the jib, near left. To take out twist, move the sheet lead forward, at right.



Jibsheet lead position –The angle at which the jibsheet pulls on the jib's clew has a big effect on the sail's shape and the airflow across it. For this reason, the jibsheet lead is usually mounted on a car that slides on a track so the lead position can be moved forward or aft.

Moving the lead aft puts less downward tension on the leech. This opens up the leech aloft — adds "twist" — and depowers the top of the headsail. If the upper jib telltale is lifting while the lower two are flying aft, the sail has twist (see "Twist and the Jib," above).

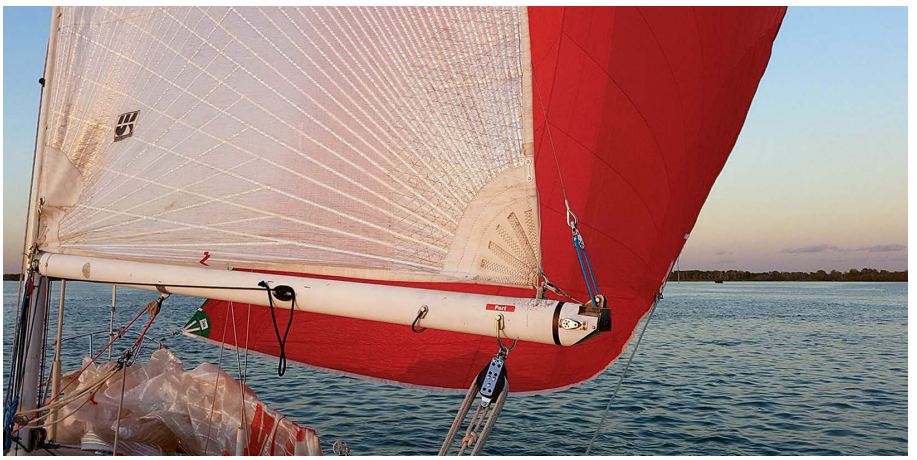
Twist can be helpful when sailing in heavy air and the boat is overpowered. Move the jibsheet lead aft and look up at the top inside jib telltale. It will now be flying upward instead of aft, because the top of the sail is open and releasing wind pressure from the top third of the sail.

Easing the sheet, as when bearing away to a reaching course, allows the jib's clew to rise and the leech to open up. Take out the resulting twist by moving the sheet lead forward.

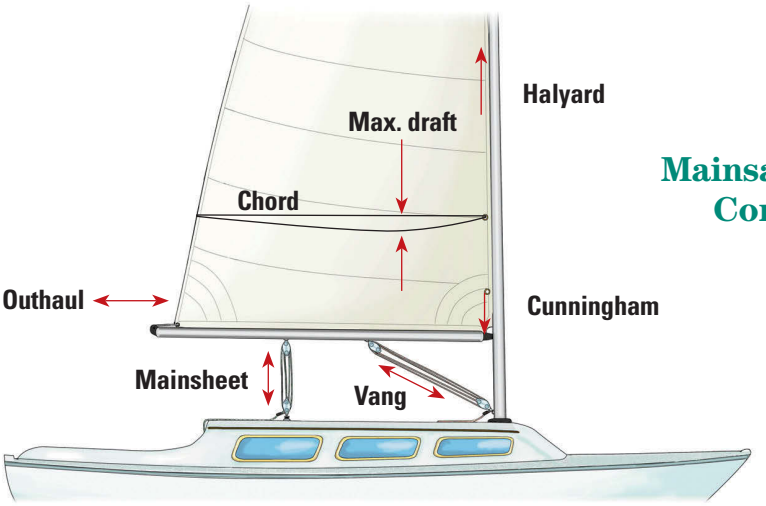
To establish a baseline for the jibsheet lead position, find the spot on the track where, when sailing close-hauled in moderate wind, the sheet is at about 45 degrees to the deck and all three luff telltales are breaking evenly. Mark this position on the track with a Sharpie. If you have jibs of different sizes, set a baseline for each one.

Mainsail outhaul –The outhaul sets the tension in the foot of the mainsail. Tensioning the outhaul flattens the sail, increasing the angle of attack and reducing power, and provides a way to adapt to a stronger wind. Easing the outhaul deepens the "draft" of the sail (see the diagram on the facing page), giving it more power, which is helpful in lighter wind or when sailing downwind. To be effective in heavy air, an outhaul needs purchase. In the heyday when good old boats were new, many were built for club racing, and some were equipped with a multi-part tackle fitted inside the boom.

Cunningham –Named for its inventor, America's Cup winner and yacht builder Briggs Cunningham, this is a downhaul on the lower portion of the mainsail's luff. It is used in heavier air to depower the sail by increasing tension in the luff of the main, which flattens the sail, opens the angle of attack, and pulls the point of maximum draft forward.



***Jade*'s mainsail is fitted with an outhaul (black line along the boom), Cunningham (above the boom at the mast), and vang, all of which have particular sail-trim functions. The boom is even labeled "port" and "starboard" so the crew can easily confirm which tack *Jade* is sailing on.**



Mainsail Shape Controls

ILLUSTRATIONS BY FRITZ SEEGERS

There is no Cunningham on a headsail, as it is headstay tension that dictates the sag in the headstay and therefore, to some extent, the sail's draft (see "Backstay," below).

Boom vang –The vang acts to tighten the leech of the mainsail by limiting the upward movement of the boom. A tight leech in lighter winds ensures that the upper part of the sail is more effective. Easing the vang will allow the boom to rise, loosening the leech and causing the battens to twist off to leeward and spill wind off the upper part of the sail, depowering it. Tensioning the vang will take out twist.

Mainsheet and traveler –Used in concert, the mainsheet and traveler control the position of the boom and the angle of attack of the wind on the mainsail. The traveler controls the bottom of the sail, especially when sailing upwind and close reaching, while the mainsheet controls the tension on the leech, and therefore twist. When the traveler is all the way to leeward, the mainsheet and boom vang control the amount of tension on the leech.

The primary use of the traveler is to keep the boom centered when sailing close-hauled. Even when the mainsheet is tightened in fully, the boom will still fall off to leeward. Moving the traveler to windward will center the boom and ensure the mainsail is most effective. In heavy air or in gusts, running the traveler down to leeward will spill the wind off the mainsail, depowering it.

Backstay –Many good old boats are equipped with a means to adjust the backstay tension. On a masthead rig (where the headstay is attached at the very top of the mast), the backstay's main function is to add headstay tension, which flattens the entry of the headsail and can improve the boat's upwind pointing ability, especially in moderate to heavy air.

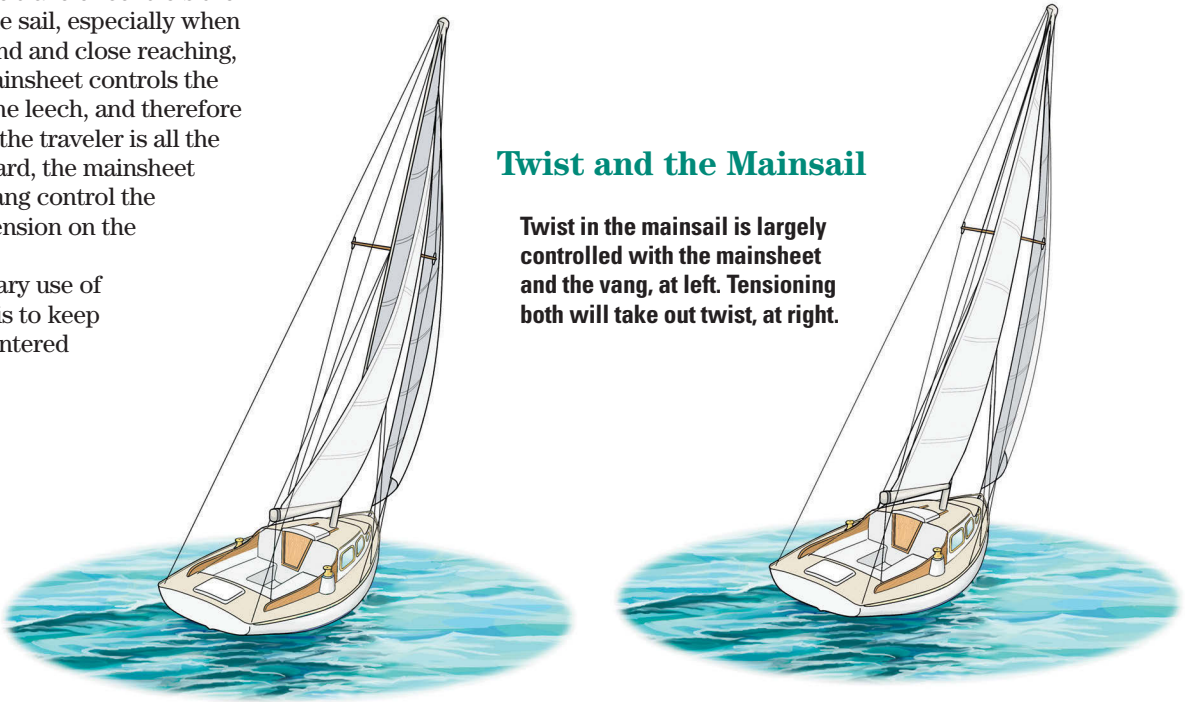
On a fractional rig, the backstay serves to bend the top of the mast aft. This shortens the distance between the top of the mast and the end of the boom, opening the leech of the mainsail and adding twist, which depowers the mainsail, especially toward the head. This can be helpful when a boat feels overpowered. Conversely, releasing backstay tension powers up the top of the mainsail. The running backstays can be used to control the tension in the headstay.

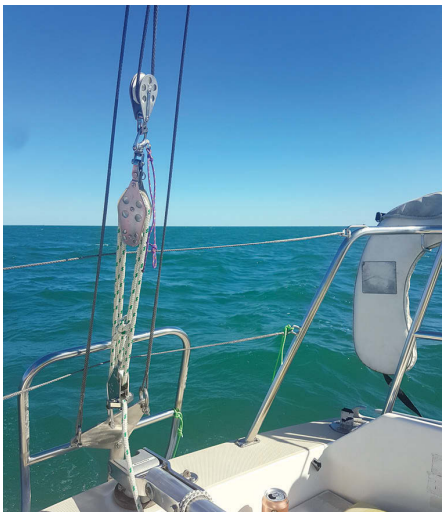
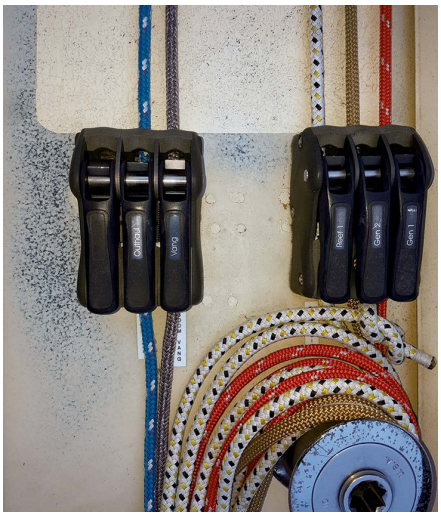
In high winds, maintain a tight headstay and lots of backstay tension (or running-back tension on a fractional rig) to keep the headsail flat. In lighter winds, reduce the headstay tension for a deeper, more powerful sail.

The backstay is not effective at depowering the mainsail on a masthead rig. That is accomplished principally with the mainsheet, the traveler, and the boom vang.

Twist and the Mainsail

Twist in the mainsail is largely controlled with the mainsheet and the vang, at left. Tensioning both will take out twist, at right.



***Jade*'s boom vang has a single cascade that gives it a purchase of 8:1, at left. The red line is low-stretch Dyneema. One of the first improvements Robb made to *Jade* was to add a three-part low-stretch Dyneema cascade for adjusting backstay tension, center. Lines of different colors and labeled clutches help crewmembers identify sail controls easily, at right.**

Deck layout

All the sail adjustments descibed above are made with control lines, and how those control lines are led and identified will have a big effect on how efficiently the crew can work to achieve the desired sail trim. A well-thought-out deck layout will pay dividends, and some sailors say there is an art to it. While personal preference plays a part in laying out a deck, some proven best practices are widely adopted by racers.

Refining a deck layout so that it works best on a particular boat takes some trial and error over the course of many races and many practice sails. To get some ideas to start with, walk the docks and note how other boats are set up, and engage in discussions with other sailors.

Here are some tips for laying out control lines:

1. Arrange control lines so they are easy for crew to access without obstructing other crewmembers doing their jobs.
2. Think through sail changes. Picture the steps, who does what, and where the crewmembers are positioned on the boat. Set up the control lines to reflect this.
3. Ensure every control is set up with enough purchase (mechanical advantage) that the weakest crewmember can easily operate it.
4. Label all the controls so they are easy to identify. Label clutches and cam cleats with the names of the lines they control. It's also helpful to use lines of various colors. "Hey, Jenny, can you ease the vang a little? It's that red line over there," is much better than pointing at a group of identically colored lines and letting Jenny guess which one you are referring to.

On the racecourse

An older gentleman who was an excellent racing sailor told me something that I always keep in mind while racing. "If the boat is fast, leave it alone, but if you are behind or feel slow, be constantly dissatisfied." That is, keep adjusting and trimming until it feels right; don't be content until the boat feels, and is, fast.

A common sailing expression worth remembering is "If in doubt, let it out." Whether trimming the main or the jib, it's easy to tell from looking at the luff if it's undertrimmed and out too far — the windward telltales will droop and the luff will flutter. It's much more difficult to identify an overtrimmed sail because it looks full of pressure. So, if the sails look full but the boat feels slow, ease the sheets while paying attention to the knotmeter (or GPS), and watch the

Sailing *Jade* -RL

When helming, I don't simply look at where I am going but scan everything around me, shifting my focus between different features on the boat and outside the boat. I look at my sails to check the telltales and trim, then scan the racecourse for competitors and to spot the next mark of the course. I then move my focus to my instruments to check my depth, speed, and course. Scanning like this, focusing on the important things inside and outside of the boat, lets me take in all the relevant information I need to sail my race.

Sailing upwind on *Jade*, we start to trim the main using just the traveler. We tighten the mainsheet to put the ideal amount of tension on the leech of the sail and use the traveler to change the sail's angle of attack.

One of the best additions I made to *Jade*'s deck layout was to mount a simple $20 cam cleat on the mast for the spinnaker halyard. As well as preventing the halyard from pulling off the arms of the crewmember jumping it in heavy air, it freed up the cockpit crew from having to tail the halyard so they could work the guy and pole controls on launching the spinnaker. Marks on the spinnaker halyard at this cam cleat and at the clutch let the crew know when the spinnaker is fully hoisted, which otherwise can be difficult to see when jumping it during a race. My foredeck crew told me that this was the greatest improvement I had ever made on the boat.

luff telltales, which should come alive and start streaming aft once the sail is properly trimmed.

When sailing in heavy air, the sails should be trimmed flat (think "Flat is fast"). To achieve flat, tighten the sail controls — halyards, mainsail outhaul, and Cunningham.

Conversely, in lighter air, the sails need the power gained by easing the controls to give them deeper draft (think "Full is powerful").

When beating to windward or close reaching, pay attention to how much the boat is heeling. Sailors new to racing sometimes make the mistake of thinking that sailing heeled over at 25 degrees is fast. It might feel fast, but most boats sail faster when sailed on their feet. Too much heel usually means the boat is over-canvased. It will sail faster, and with less pressure on the helm, with the sails depowered or reefed. Keep in mind that pressure on the tiller or wheel translates to drag on the rudder, and drag is the enemy of speed and performance. Adjust the sails to balance the boat and it will come alive with speed.

A clinometer shows the boat's angle of heel. Installed where it's visible from the helm, it will provide one more piece of information helpful to new sailors and racers alike.

If the boat feels overpowered, start depowering it by opening the leeches of both sails. Move the jibsheet leads aft and ease the vang and/or the mainsheet. The twist this adds will depower the sails by spilling wind off their tops.

Still overpowered? It's time to start shortening sail by reefing, or by changing to a smaller headsail. On many boats, the first step is to reef the mainsail, as shaking a reef out of the main when turning downwind or if the wind dies is easier than changing back to a bigger jib.

Beyond the sails

Boat speed is not solely a function of sail trim. The hull and its appendages — keel, rudder, and propeller — are big factors, as they all create drag.

It stands to reason that the smoother and more fair the boat's bottom, the less drag it will create, and reducing drag can dramatically improve a boat's performance. The obvious remedy is to keep the bottom clean, but if the racing bug bites deep, there are steps the serious sailor can take.

Many a good old boat has a fin keel and a spade rudder, both of which are designed as airfoils. To work efficiently, they need to be fair, smooth, and symmetrical. Some time spent in the boatyard with fairing compound and templates of the keel and rudder will pay back.

On a boat with an inboard auxiliary, a fixed-blade propeller can cause a lot of drag and significantly reduce performance under sail. On many boats, swapping it out for a folding or feathering prop can increase boat speed by more than half a knot. While some folding props may not drive a boat as efficiently as a fixed-blade prop, some feathering models perform almost as well, even in reverse. The loss of power is a small trade-off for the increased performance under sail — and after all, it is a sailboat!

Final thoughts

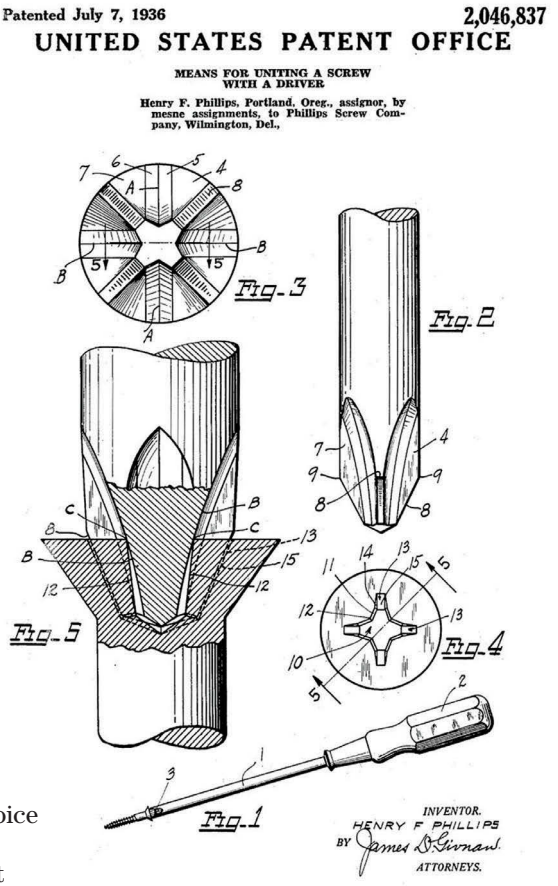
The best way to learn how to sail a boat fast is to get out there and sail or, better still, go out and start racing. Experiment with sail trim to see how it affects boat speed, and adjust the deck layout if that will improve crew efficiency. The wind, sea conditions, currents, competitors, and the racecourse all will be in flux and change, but a well-set-up vessel will be a constant in a sport that has few constants, and will provide a stable foundation on which to build performance.

Robb Lovell grew up sailing on Lake Huron aboard his family's Endeavor 40, where he caught the sailing bug. That was about 20 boats ago. Rob enjoys buying and restoring boats, and is an avid racer and cruiser based out of LaSalle Mariner's Yacht Club (LMYC) in Ontario. He currently races on a Cal 9.2 named Jade, *but owns three other sailboats and a tugboat. Yes, he has a problem!*

The Trouble with Screws

Trying to undo them exposes their stubborn side

BY ROBERT BERINGER


Patented July 7, 1936 2,046,837
UNITED STATES PATENT OFFICE
MEANS FOR UNITING A SCREW WITH A DRIVER
Henry F. Phillips, Portland, Oreg., assignor, by mesne assignments, to Phillips Screw Company, Wilmington, Del.,
Fig. 3
Fig. 2
Fig. 5
Fig. 4
Fig. 1
INVENTOR. HENRY F PHILLIPS BY James B. Kirman ATTORNEYS.

The title of Henry James' classic novel *The Turn of the Screw* is a metaphor for the stress felt by a governess in her struggles with resident ghosts, but for those of us who work with screws, it's the *un*screwing that's often our undoing.

Every sailor has a maddening screw story. Screws are devious and conniving little creatures that, in collusion with their ham-fisted installers, are virtually guaranteed to make trouble for boat owners who struggle to free them. Sometimes they spin right out and we smile, but often they punish us by stripping, seizing, galling, or simply refusing to budge.

Somewhere within the most difficult-to-reach spot of your boat lurks a group of screws that must be removed. They will get progressively more intractable as you twist, until the last, which steadfastly will not yield. And there you are in the dark with bloodied knuckles, covered in sweat, shouting at an inanimate object, "You little [choice epithet], why won't you come off?"

And is there a boat on the planet that doesn't contain "spare" screws in the lower reaches, dropped there over time by poor souls attempting to do a two-handed installation with one hand?

Screws have been with us for a long time. The ancient Greeks used them in olive and grape presses, and Archimedes adapted them for irrigation. In Europe they were handmade by skilled craftsmen, mostly for furniture or weapons; each was unique, expensive, and sold individually.

The Industrial Revolution in England changed all that. After the invention of the cutting lathe by the Wyatt brothers in 1760, the screw could be produced precisely, quickly, and cheaply. Hence the rise of the machines. When steam engines were installed in ships in the 19th century, screws replaced nails, because they performed much better with the constant vibration, and they have been the marine fastener of choice ever since.

This looks like a large collection of screwdrivers, but does it include the one needed for the next screw to be turned?

It's all in the head

Marine threaded fasteners generally come in three flavors: machine, self-tapping, and wood/sheet-metal screws. On a boat, the heads of these screws are primarily either slotted or Phillips.

The bane of boaters and technicians everywhere is the cursed slotted screw. In use for centuries as it was the cheapest and easiest to make, its presence is usually indicative of an older boat. You can only remove older screws subject to corrosion, seizing, or galling, by pushing down hard and torquing with all your might. If you're not careful, the flat-bladed screwdriver will "cam out" and strip the head, making the screw insanely difficult to remove and your day much more interesting.

American screw manufacturers spent decades attempting to solve the shortcomings of the slotted screw. Patents were awarded on all sorts of screw-holding gadgets, but none were effective. And the deeper the slot stamped in the head, the weaker the head became and the more likely to break or strip.

In 1909, Canadian inventor Peter Robertson was awarded a patent on a socket-head screw that had a square recess with chamfered edges. Eureka! Its square-headed driver fit tightly and didn't cam out. Fisher Body loved it, became a big customer, and in 1913 Robertson went all in on production. But during World War I it failed to catch on in Europe or America, and the Robertson screw was scarcely sold outside of Canada. Today it's known as the deck screw and is used primarily in construction.

Enter Henry Phillips of Portland, Oregon, an inventor and salesman who incorporated a new shape, a cruciform, into the socket of the screw. It was, he said, "the biggest little invention of the 20th century — particularly adapted for firm engagement with . . . a driving tool." Learning from Robertson's mistakes, he moved to license, not manufacture, his screw.

He was then abruptly rejected by all the major screw manufacturers, who basically said that the new design did not promise enough commercial success.

Trouble awaits should the slotted screws securing this genoa track need removing.

But, like a seized deck fastener, Phillips was a stubborn man and persevered. His screw was particularly suited to power-driven operations, and the American Screw Company convinced General Motors to use the new screw in the 1936 Cadillac. The new design saved time and money, and by 1939 most American screw manufacturers were producing what we now call the Phillips screw. And it was such a hit that one boatbuilder wrote that, by using the Phillips screw, its workers saved up to 60 percent of their time.

During World War II, the screw became the industry standard, and by the 1960s when its patent expired, it was being made in 240 factories worldwide.

But . . . regardless of design, screws on boats are destined to get stuck and often can be removed only with resort to chemical solutions like PB B'laster, CRC Freeze-Off, Liquid Wrench, or, as a last resort, a drill. And after many frustrating turns of my screws, I finally learned to apply anti-seize lubricant *before* reinstalling the fastener, and to refrain from yelling at stuck fasteners — they're just not listening.

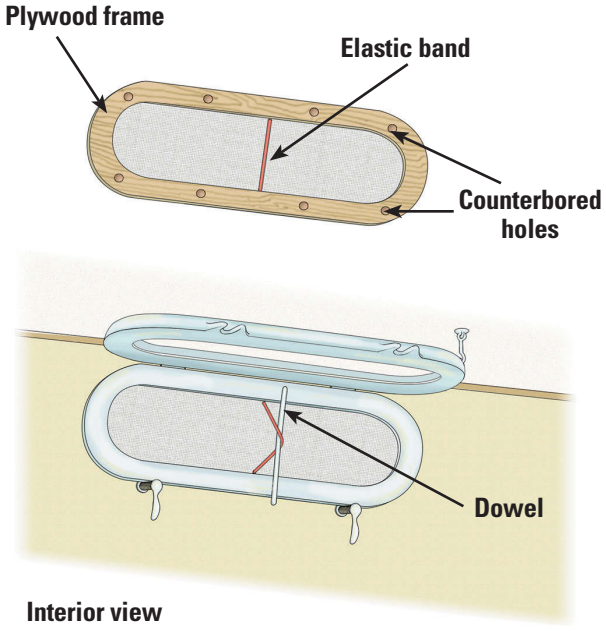
Robert Beringer is a Florida-based freelance marine journalist and photographer and a member of Boating Writers International. He learned to sail on the Great Lakes in a Hobie 16, holds a USCG 50-ton master's license, and has logged more than 28,000 miles under sail. His first book, Water Power!, *a collection of marine short stories, is available at Barnes & Noble.*

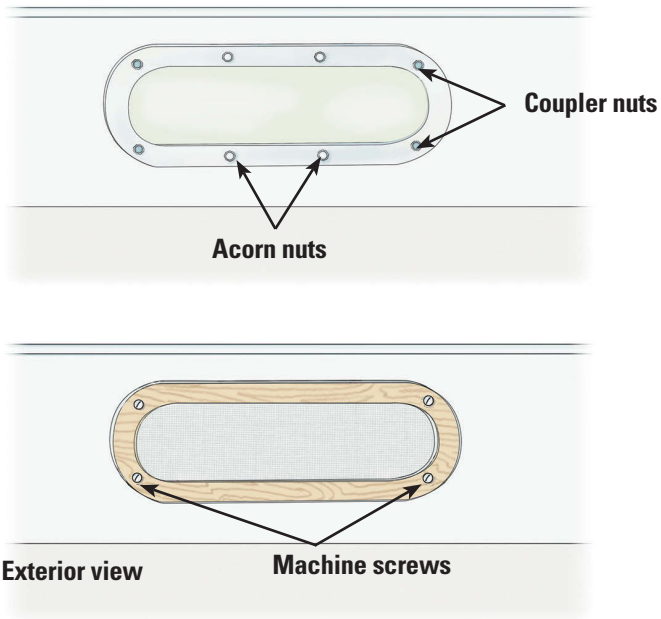
Screen Testing

Prototyping bug-proofing possibilities for opening portlights

BY JIM SHELL

My friend's Westsail 32 has 10 opening portlights. That's a lot of ventilation. Without screens, it's also a lot of entrances for bugs. The portlights have an exterior metal bezel that's about ¾ inch wide with a flush spigot. Each one is secured by eight flat-head machine screws with acorn nuts on the outside. The interior lens frame has two hinges on the top and two cam-lever closing dogs on the bottom. My friend had been unable to find off-the-shelf screens to fit these portlights, so I made some prototypes to see whether any met his needs.





Outside frame with elastic band

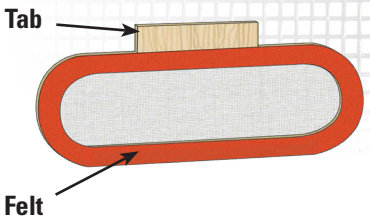
For this screen, I cut a ring from ½-inch plywood to match the exterior bezel and counterbored holes in it to accommodate the acorn nuts so the frame would lie seated against the cabin side. I stretched insect screen over the outside of the frame and attached it on the inside with stainless steel staples. To give me a grip when positioning the frame from inside the boat, I stapled nylon webbing between counterbored holes. I then secured a sturdy elastic band to the inside of the frame with a small screw eye. To secure the screen in place, I stretch the elastic band around a wooden dowel that rests across the inside frame of the portlight.

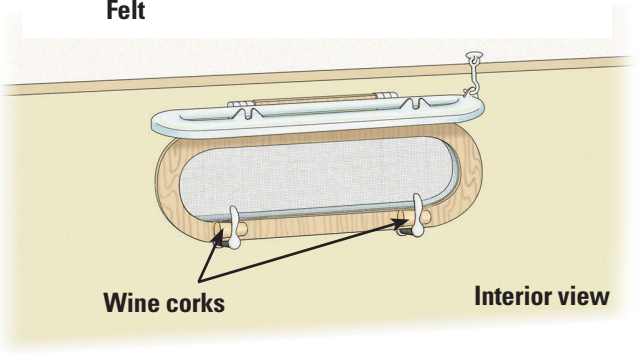
The screen must be removed when closing the portlight.

Screw-attached outside frame

To make this screen, I cut the same bezel-sized ring from ½-inch plywood and drilled counterbore holes for the four acorn nuts in the middle of the portlight frame. For the four fasteners closest to the corners, I drilled holes through the bezel to accommodate coupler nuts, which I threaded onto the portlight fasteners. I was then able to fasten the bezel to the outside of the portlight with machine screws. As there is no need to access the frame from inside the boat, I attached the screen fabric between the frame and the boat.

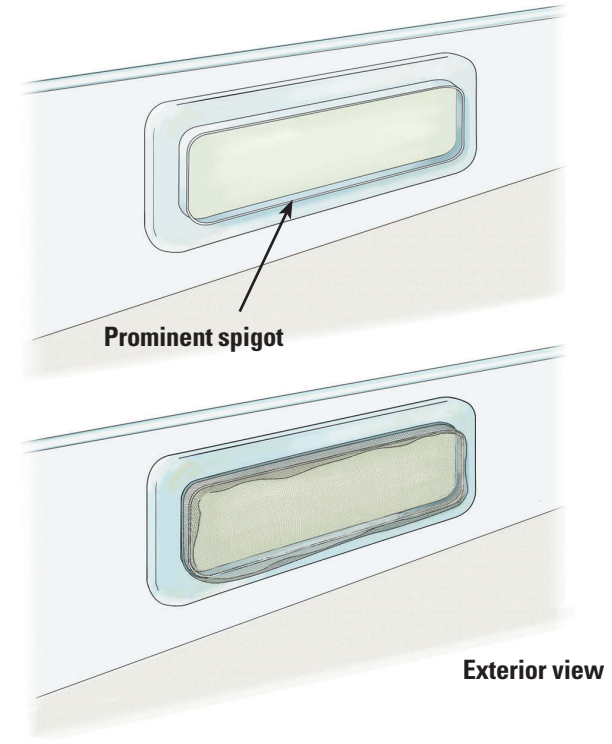
Because it does not need to be removed for the portlight to be closed, this screen can remain installed for extended periods of time.





Interior wedged screen

For this variation on the theme, I cut ½-inch plywood to the size of the interior bezel but with an extension tab on the top to fit between the hinges of the glass lens. I affixed the screen to the side of the frame that touches the cabin side and covered that surface with felt. To use the screen, I simply slide the tab up between the lens hinges and the open portlight bezel and then press the frame to the cabin side. To keep it in place, I wedge wine corks between the frame and the upturned dog cam handles. This option has the best exterior and interior appearance and looks like it is part of the boat and not something developed as an afterthought.



Shower-cap screen

I developed a fourth prototype that does not work on the portlights on the Westsail but will work on any portlight that has a large protruding exterior spigot (common to all New Found Metals portlights). A video on the Sailrite website shows how to make an inside portlight cover, but the same method would apply to making an outside cover or screen (sailrite.com/How-to-Make-a-Portlight-Window-Covers-Video).

With a little thought and ingenuity, it should be possible to create a workable insect-screen system for any portlight. It might be necessary to use different plywood thicknesses, and the type of bugs to be kept at bay will affect the choice of screen mesh. Regular mesh will keep out mosquitoes, but no-see-ums require a much finer mesh. Storing any of these screens is easy, as they will stack flat.

Jim Shell and his wife, Barbara, sail their Pearson 365 ketch off the coast of Texas.

Wandering the Port of Edmonds boatyard in Washington, Peter Marshall took this photo of Tim McDonald cutting in the waterline on *Puffin*, his 1967 Bill Garden-designed Vashon Island Cutter. Peter reports that Garden later tweaked the design of the Vashon Island Cutter by adding a clipper bow and large davits, and renamed it the Spice Island Cutter. If you have a great photo you'd like to see here, send it to michael_r@goodoldboat.com. We can't print them all, so grab our attention with a unique shot.

continued from page 7

Reefing safely

In the Mail Buoy column thread "In the Cockpit or at the Mast?" (The Dogwatch, *November 2018*), *readers made arguments for either running lines aft or going forward to reef the main. J.C. d'Almeida of Vancouver, British Columbia, wrote in that issue, "From a safety perspective, I heave-to before putting in a reef, and that calms the boat's motion such that going forward is not as crazy as it seems when crashing through the waves."*

We received the following letter echoing J.C. ***–Editors***

Here's how a solo 70-year-old sailor stays safe. Hove-to, my Alberg 29 (modified 4,000-pound lead full keel) is rock-steady in 2-meter waves. The following reefing steps work for me on my boat. For the neophyte, practice in lighter conditions.

- Furl the jib so that the clew is forward of the forward lower shroud.
- Tack without releasing the jibsheet, thereby backwinding the jib.
- Turn and lock the wheel upwind and ease the main until the boat motion is easy. The opposing forces between jib and main will balance. The boat is hove-to.
- Go forward. A double-tether harness allows me to tether myself to the mast while staying hooked to the jackline.
- Release the main halyard enough to set the reef point through the reefing horn.
- Reset the halyard.
- On my way back to the cockpit, I secure the unused sail between the reef points and sail slides with ties, to keep things tidy. (I never tie all the way around the boom.)
- Once in the cockpit, I detach from the jackline and hook to a pad eye.

I have an additional thought for sailors aboard boats with hank-on headsails who may be caught in a squall. This is something that has worked for me on Lake Erie.

- Install a small snatch block at the forestay tack.
- Run the bitter end of a ⅛-inch line from the cockpit, through the block, up to the uppermost hank, and secure it there with a bowline. This line serves as a downhaul, making it far easier, after the jib halyard is released, to rapidly douse a big genoa, for example, so it can be tied down on deck.
- After the wind passes, either stow the sail or rehoist it.

–Dave Toogood, *Cadenza I*, Erieau, Ontario

The Dogwatch from Good Old Boat

We want to hear from you!

Send letters to the editor to michael_r@goodoldboat.com. We publish more letters in our monthly digital supplement, *The Dogwatch*. In fact, all *The Dogwatch* content is unique — and free! — so don't miss it. If *The Dogwatch* isn't landing in your email inbox each month, email brenda@goodoldboat.com.

Bio protection for propellers

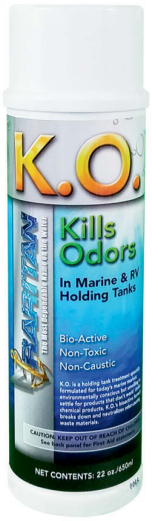
Before our June launch this year, after cleaning the prop thoroughly I coated it with PYI's Velox Plus propeller antifouling paint. Everything I needed to apply the paint — primer, paint, and brushes — was included in a kit, and I followed the drying times and steps diligently.

When we hauled five months later, marine growth was particularly bad on the hull, yet the prop looked great. I have never before used antifouling on the prop and I'm used to prop performance waning as the months pass, due to growth. This season, the Velox wore away in only a few specks and spots around the hub and the prop performed consistently well. I expect that, had I not hauled, the prop would not have needed cleaning for the rest of the year. I can't say the same for the hull.

For more information: antifoulingpaint.net.

Tom Young
Good Old Boat **contributor**

Smells banished biologically



Holding-tank odors result from bacteria trying to decompose waste without enough oxygen to do the job. The metabolic byproducts stink to high heaven and permeate many materials. Installing an oversized vent line (1-inch diameter or larger) can reduce odors, but does not solve the problem.

This is where Raritan K.O. comes in, as it is effective even without enhanced ventilation. The product contains a live bacterial culture, enzymes, nutrients, and surfactants, which combine to break down waste and establish a low-odor aerobic culture. Pre-treating the tank creates an immediate effect. If K.O. is added to an established tank, a few hours of vigorous sailing and a half day to rest will do the trick. K.O. will extend the life of sanitation hose by reducing permeation. Because it is based on live culture, it continues to work for long periods of time and it has some reseeding effectiveness, even if you forget to treat the tank after pump-out.

For more information: raritaneng.com.

Drew Frye
Good Old Boat **contributing editor**

Multi-use low-amps light

We're liveaboards and, for the past several months, we've used the Davis Mega-Light Utility as an auxiliary anchor light and cockpit light. It has a 15-foot cord that plugs into a 12-volt receptacle and a light sensor that turns it on at dusk and off in daylight.

When on, the light uses less than .1 amp and is surprisingly bright — perfect for illuminating the cockpit for social gatherings. It's a welcome deck-level light for when we return to the boat after dark, and it enhances security when we're at anchor by deterring intruders and providing additional visibility to nighttime traffic. The plastic housing has proven durable and the light shows no sign of stopping.

For more information: davisinstruments.com.

Phil Nance
Good Old Boat contributor

We present these profiles as a service, as firsthand accounts from fellow boaters. Neither *Good Old Boat* magazine nor the folks who profiled the products on this page were paid for these profiles. Most products were sent to *Good Old Boat* for review consideration by the manufacturers. We profile only a small percentage of the products that marketers contact us about, choosing only those we're interested in, in the hope you're interested too. A few products we pick up on our own, because we want to share.

Boats for Sale

C&C Corvette 31
1970. Our family boat for 38 yrs. Freshwater boat w/original engine, well maintained and a pleasure to sail. Lots of new and current equipment/gear/sails. Main '10, #1 '15, #2, #3, spinnaker, boom cover & dodger '16. Bimini, wheel cover, and wheel. VHF w/DSC, chart plotter, AutoHelm, new AC wiring, 40A batt. charger. New V-berth cushion '16. Complete set of drawings, winter cover & frame. USD $8,000 or CAD $10,000.
Andrew Good
416-879-4294
agood2@live.com

Cat Ketch 24
1986 Sand Hen. Chuck Paine design. Draft 2'/4'. Disp. 5,000lb. SA/D 20. Freestanding masts on tabernacles. Sails old but serviceable. New sailcovers. Lines from mainmast led aft. Honda 4-stroke w/alternator, low hrs, 2x50-AH AGMs. Simrad AP. Solar panel. Sleeps 4. Galley with sink, counter, storage. 100l flexible FW tank. Porta potty. Danforth anchor w/200' rode, 25' chain. Two-axle galv. trailer. Castine, ME. $7,500.
Silas Yates
207-326-0663
greendolphinsby@roadrunner.com

Cape Dory 28
1977. Yanmar 2GM20F 16-hp diesel, RF 135 jib, reefed mainsail, new bimini, Garmin GPS Map 441s, Raymarine ST 2000 AP, solar-charged batteries, new Jabsco head. Origo 2-burner stove, Magma propane grill, standing headroom. Engine serviced recently. Many accessories. Veteran of several East Coast voyages. Owner ready to retire. Slip paid through March, 2019. Galesville, MD. Reduced to $9500.
Dixon Hemphill
703-250-9277
dixonh999@gmail.com

Freedom 25
1984. Good condition. Simple, safe, easy to sail. Hoyt "gun mount" spinnaker system. Yanmar diesel, ST1000 Tiller Pilot, sail stack pack, Icom VHF w/ Command Mic. Yorktown, VA. $6,000.
Mike Webb
757-810-8318
sailboatmike@hotmail.com

Marieholm 26
1973. Folkboat hull. Full-keel bay or bluewater cruiser (sisterships have crossed Atlantic). 18-hp Yanmar 2GM20 diesel. Custom hard dodger, chart plotter, radios, AP, Max-Prop, Doyle Stackpack main, jib, genoa, spinnaker. Head and galley w/standing headroom. New bottom paint and prop coating '18. USCG documented. Annapolis, MD. $19,000.
Terry Otis
571-332-4473
terry.otis@verizon.net

Bayfield 29
1986. Exceptional small cruiser set up for "off grid" living aboard. Fresh water only. Sails well, can be singlehanded. Well-maintained Yanmar. Due to the addition of grandkids we've bought a bigger boat. Write for extensive list of upgrades. Mackinaw City, MI. $21,500 OBO.
Brad
choirboy4@netscape.net

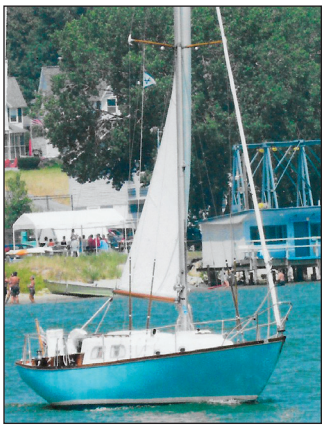
Catalina 30 Mk II
1987. Tall rig, fin keel. Dodger and bimini. Numerous upgrades: new GPS, autohelm, lazy-bag sailcover, jib and main halyards, freshwater pump, engine injectors, PYI dripless packing, SS prop shaft, Cutless bearing. Bottom painted May, '18. Solomons, MD. $23,500.
Alan Suydam
410-394-3150
alansuydam@comcast.net

Hinterhoeller 28
1966. Freshwater boat. Tiller steering. Sleeps 5. North main new '17, RF genoa. 1988 Mariner 9.9 elec-start OB in well. Autohelm 1000. Raymarine knotmeter. Electrical systems new '15. Plumbing upgrades '15. Life jackets, life ring, MOB pole, cushions, cockpit awning, Danforth anchor w/chain/nylon rode. Custom tandem-axle trailer. Clayton, NY. Price reduced $8,500.
Mark Fontaine
410-956-5841
mrflady@hotmail.com

Cape Dory 330
1986. Alberg's redesign: cutter rig, taller 35' mast, roomier interior and cockpit. *Annie Laurie* is jewel of the fleet, loaded with upgrades: new Yanmar engine in '08, new yankee and Schaefer RF, new main in '12, new Bierig self-tending jib in '16, Hood in-mast RF, new rigging '14, 4 Awlgrip jobs since '00. Solid, safe, a joy to cruise, gorgeous. Perfect boat for couple with occasional guests. Mount Desert Island, ME. $55,000.
Contact the broker:
Newman Marine
207-244-5560
yachtworld.com/boats/1986/Cape-Dory-330-3220159

C&C 35 Mk I
1973. Rare classic racer/cruiser. Draws 5'3"; fast, nimble, fun to sail. All lines led to cockpit. Solid hull/no blisters. Many upgrades, incl. 30-hp diesel, folding prop, FB main w/Dutchman, RF, 4 headsails, new halyards, bimini. Compass, GPS/Chartplotter D/S/W, VHF. Shorepower, regulated battery charger, dripless stuffing box. H&C water, microwave, propane cooktop. AM/FM/CD, electric bilge pump. Spinnaker/whisker poles, swim ladder, anchor. MD. $14,500.
John Filipini
703-409-9187
johncfilippini@gmail.com

All of these classified ads and more appear on our website
GOODOLDBOAT.com



Pearson Vanguard 32
1966. Freshwater boat with same owner for 41 years. Heated inside boat storage. *Starcrest* is hull number 331 and features the dinette arrangement. Comes with many sails and a newer Universal diesel (only 237 hours). Many extras, including tender, dodger, Autohelm tiller pilot, very nice steel cradle. Holland, MI. $15,000.
Henry Dejong
hysinc@gmail.com
616-335-3144

Pearson 26 Weekender
1976. Great daysailer, excellent PHRF racer, heavy-duty gear, spinnaker-rigged. Lots of accessories. Includes long-shaft OB, car trailer, steel cradle. Plymouth, MN. $8,000.
Michael Barnes
763-557-2962
granite55446@gmail.com

Alberg 37 Mk II yawl
1975. *Shearwater* is a classic bluewater cruiser (always noticed in an anchorage). Second owner. Re-engined w/Kubota-based 37-hp diesel. RF, WS w/AP. Solar panels on dodger and bimini (500W). Complete cockpit canvas enclosure. 3 anchors (Manson, Bruce, CQR) w/200' chain-and-nylon rode. Other additions too numerous to mention. Achilles inflatable w/9.8-hp Nissan OB also available. Kinsale, VA. $30,000.
Tom or Kaye Assenmacher
804-472-3853
tjkasen@gmail.com
www.alberg37.org
("Search the Site" for Shearwater)

West Wight Potter 19
2002. Easy to sail, excellent for daysailing or weekend overnights. No comparable trailerable sailboat offers better stability. Easy handling and towing. Mast-raising system, RF jib, 5-hp Nissan OB. Draft 8"/3'7" (keel up/down). Good condition, many extras. Pacific trailer w/disc brakes included, titled, inspected in '18. Edgewood, MD. $5,000
Scott Redding,
410-836-7387
sredding@gmail.com
photos.app.goo.
gl/5VX0BQGPx1nmU9p22

L. Francis Herreshoff Golden Ball
1985. *Alondra*: classic gaff ketch w/leeboards, great for near-shore sailing. Hull: composite (epoxy over oak), laminated oak frames, oak stringers. LOA 46'6", draft (boards up/down) 2'8"/7'0", beam 11"0'. Twin Yanmar 3JH4E 39-hp diesels, Max-Props. VHF, depth sounder, radar, chart plotter. AC in saloon, aft cabin. Galley: double sink, 3-burner stove, lots of storage. Pine Island, FL. $85,000.
Barry Hague, Broker
954-951-9500
www.yachtworld.com/
boats/1985/herreshoff-
goldenball-lee-
board-ketch-3225708/

Ohlson 38
1971. Einer Ohlson design known as one of the finest bluewater offshore and cruising sloops ever built. *Whistler V* was molded by Tyler, England, 1971, finished in Gothenburg, Sweden. LOA 38', beam 10.5', draft 5.5'. Cruising/max. disp. 16,000/18,000 lb. Fully equipped w/7 sails, including storm jib, trysail. Full instruments/comms package: VHF, SSB (802), Pactor modem, AIS, chart plotter, Raymarine EV100 AP. New 4-man Viking offshore life raft. '16 out-of-water survey available. $60,000.
John Parkes
778-977-4642
thewhistler@shaw.ca

West Wight Potter 19
2004. Easy to sail, excellent for daysailing or weekend overnights. No comparable trailerable sailboat offers better stability. Easy handling and towing. Bluewater layup, mast-raising system, bimini, RF jib, 4-hp Yamaha OB. Draft 8"/3'7" (keel up/down). Good condition. Trailer included. Galesburg, IL. $4,500.
Ben Johnson
239-980-2761
benjjohnson45@hotmail.com

Pearson 35
1969. Beautiful, classic sailboat in exc. cond., very well equipped. Never in salt water. Flawless A-4 w/electronic ignition. North sails w/LazyMate flaking, 2 Harken 44-2ST winches. 3-burner propane stove, propane locker. Humminbird 535 depth/knots, Garmin GPSmap 620, 6" Ritchie Globemaster compass in binnacle, Navico WP5000 autopilot. Simpson-Lawrence Hyspeed manual anchor windlass with 125' chain and 75' nylon rode,15 kg Bruce. Lake of the Woods, Kenora, ON. $14,000 US.
Robert Skene
807-221-9970
bob@skeneholm.ca

Aloha 32
1986 V-berth model. Mark Ellis design, Canadian built. Westerbeke diesel. Windlass, radar, new cockpit enclosure, interior cushions '15, new main and jib '17, new barrier coat '17. Includes '14 RIB w/4-hp Suzuki. Prime So. Cal location; Channel Islands, Santa Barbara, Catalina just hours away. $22,500.
Thomas Newhard
805-797-0446
newhardradar@yahoo.com

Pearson Vanguard 32
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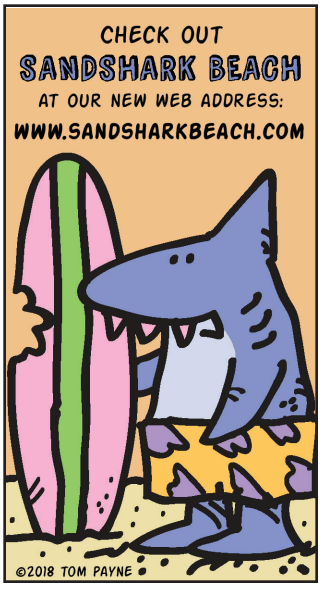

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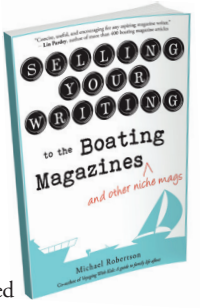

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FALL: a Northern Sailor's Blue Season

BY GREGG BRUFF

For the sailors among us who live in the northern latitudes, the sailing season is woefully short — barely six months in a good year. While our neighbors are harvesting grapes, getting ready for deer camp, or planning holiday gatherings, we sailors are taking that last sail and making the final trek to the boatyard. This unfailingly coincides with the onset of a somewhat uncommon malady shared by the few venturesome souls who intentionally live around larger bodies of water.

Onset of the malady coincides with the arrival of shorter, windier, cloudier, and rainier days, and an early symptom is the "loath to pack up boat gear" feeling that's followed by "autumn despondence." This is often triggered by the ritual of emptying lockers of anything that will freeze: food, paint, hull polish, sodas, beer, and other sundry items that we must lug ashore and take home. To combat this despondence, I take the brass ship's clock and barometer home, so I can listen to the clock's soft chimes all winter long and periodically consult the barometer for signs of changes in the weather.

As I clean the boat, I run through my mental checklist for winterizing the craft for the next six months of its lonely frozen existence. The same questions come up every year: how does the process go for pumping out the holding tank, draining the water from the engine, disassembling the water pump, and removing the batteries? It seems that each year I wrestle with a new plan to keep the boat tarp from shredding in the wind. How will this winter stymie my efforts to keep the boat covered?

When stricken by the end-of-sailing-season blues, some of us find reassurance in lists. I list jobs to do between now and spring, like removing the furler drum and taking it home to rebuild in the shop, and tasks I need to accomplish once the weather warms up in the spring, such as staining and varnishing. This particular one is easy because it rolls over from one year to the next, never complete as I strive to keep my old boat in Bristol condition.

Another list is that of sailing books that "need" to be read over the winter. This list grows each season, as I'm always on the lookout for a sailing book to settle down with on a cold winter's night when the north wind howls and the snow falls. My other winter pastime is poring over charts. I can spend fruitful hour upon fruitful hour studying the places we sailed this year and the places we want to sail next year, looking for potential new anchorages and noting what kind of bottom we expect to find.

Despite my annual plunge into the boat-cradle blues, hope is always on the horizon. The nightly display of stars in the sky will progress from winter to spring constellations. Orion will wax, then be replaced by Leo. Winter storms will come and go, the snow will eventually melt, and the chunks of ice that formed in the cockpit well will drain out the scuppers.

Before I know it, I'll be attaching the boom to the mast, installing the new genoa sheets purchased over the winter, and connecting the freshly charged batteries to the system. The sailboat will once again float beneath the travel lift, the drive-shaft packing gland will not drip, and the engine will start on the first crank. Then we sail . . .

Gregg Bruff is a retired National Park Service ranger who relocated from Lake Superior to Lake Michigan and the "banana belt." He and his wife, Mimi, sail Arcturus, *a Columbia 8.3. Gregg is a landscape painter, writer, and avid reader, and enjoys all things outdoors. When not sailing, he gets satisfaction from teaching classes and working with students on the high-ropes challenge course at Clear Lake Education Center, where Mimi is the director.*

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