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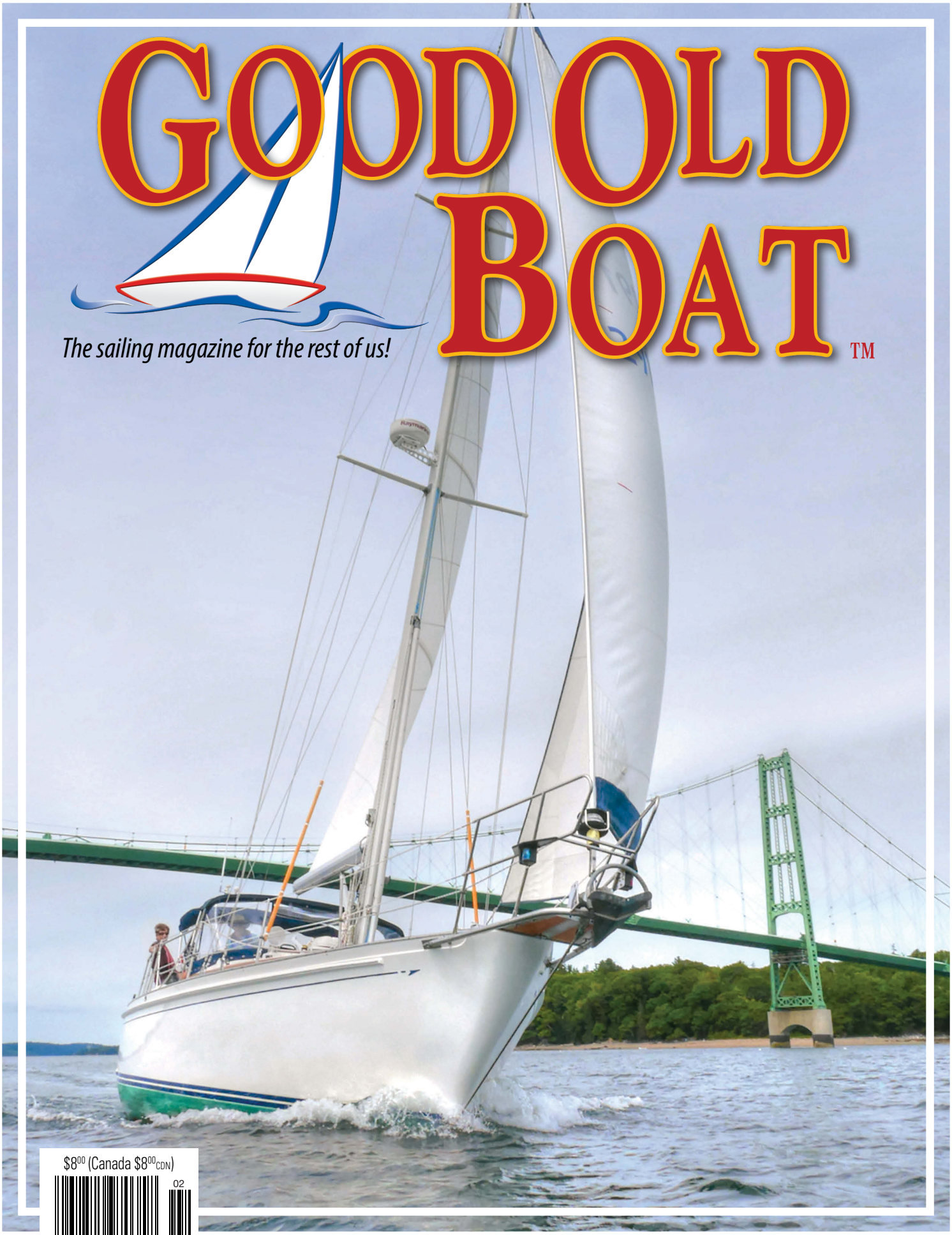
The sailing magazine for the rest of us!



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Issue 112 January/February 2017

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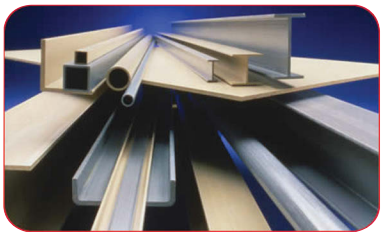

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GOOD OLD BOAT™

JANUARY/FEBRUARY 2017

ISSUE 112

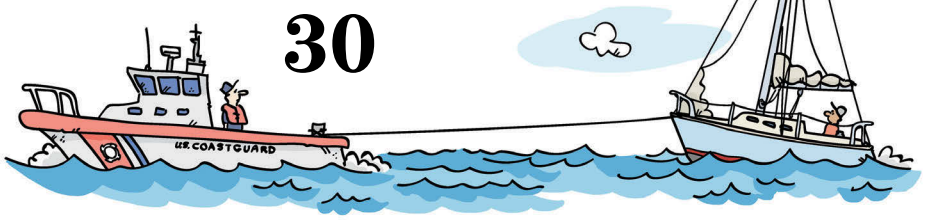
Contents

For the love of sailboats

On the cover . . .

Louis Benjamin Del Guercio, a film and TV director based in Los Angeles, took this photo of his parents, Carolyn and Gino Del Guercio, sailing *Andiamo*, their 1989 Brewer 44, on Eggemoggin reach in Penobscot Bay, Maine. The Deer Isle Bridge is in the background. (Louis used a Panasonic Lumix DMC-GH3.)

Speaking seriously



What's more

Classics in waiting

Could old boats be the new old cars?

BY GEORGE CHASE

*When reader George Chase offered his perspective on owning good old boats, we decided to share it with all good old boat caretakers. –**Editors***

I recently bought a 1971 Honda CL 100 motorcycle that I intend to (or will attempt to) restore. It runs, but just barely. I'm not a skilled mechanic, but I look forward to learning. When people hear what I'm planning, they say: "That's great. It should be fun. Let me know how it turns out." The general consensus is that this is a worthwhile enterprise.

I also own a 1973 Grampian 26. The deck is wood-cored and leaks have resulted in some deck rot and soft spots. Most people said: "It's not worth the effort to fix the deck. Just part it out and scrap the boat." I initially accepted this view and started thinking about selling off parts.

There are subtle contradictions in these views. Why is it useful, worthwhile, and fun to restore a 1971 motorcycle but not a 1973 sailboat? There's little monetary incentive for either project; the return cannot justify the expense and effort. What makes the sailboat "unworthy" of restoration? I recognize that an older sailboat may cost a bit more than an old motorcycle and it has ongoing costs, like moorage, but a sailboat can be bought for little more than an older second car and there are alternatives to paying yearly moorage.

I believe a sailboat is seen as useful but not valued as a classic. When its usefulness ends and it requires too much work/money to repair it, you scrap it. But the motorcycle is viewed as an antique that deserves to be restored. Maybe this has to do with a common view that the "real" classic sailboats are wooden ones, not the plastic ones that succeeded them.

We're gradually losing good old boats, so perhaps we need to rethink how we view them. Few affordable boats are being manufactured to replace the boats we're losing. About 1,000 Grampian 26s were built. Surely no more than half are still in the water; fewer still are being actively sailed and maintained. Old cars and old motorcycles are ubiquitous; anyone who cares to restore an old car or motorcycle can easily find one.

We should view our old sailboats as "classics" worthy of restoration to be passed on to the next generation. If nearly every fiberglass sailboat under 35 feet and older than 30 years were scrapped, we'd have a strong sellers' market for those that remained. Remember when you could buy a beat-up Volkswagen van for $800? No one ever thought they'd be highly sought-after by collectors. Our small fiberglass sailboats may be the same.

Naysayers will note that the value of a sailboat is whatever someone is willing to pay for it. That's its present value, but what about its future value? What small sailboats might be available to the average person in 2030?

Our sailboats have inherent value because they're declining in number and not being replaced by affordable sailboats. Boats like the Contessa 26, Alberg 30, and Westsail 32 achieved a cult following for their ocean crossings and seaworthiness. But what about the humble sailboats that were never designed or built to be ocean-crossing thoroughbreds? They represent a bygone era when smaller sailboats were within reach of the average person: big enough to vacation on and affordable for a family. That era was short: the late '60s and early '70s. Maybe we need to start seeing ourselves more as caretakers, rather than owners, of our good old boats.

Well-meaning surveyors tell us to purchase used boats with our heads, not our hearts, and to do a cost analysis between fixing up an older boat versus buying a newer one in good repair. I appreciate their efforts to save us from ourselves, but they're preaching to the damned. Honestly, do any of us get into boating because we anticipate saving money or selling our boats at a profit? Unless we need a boat for transportation or in the pursuit of our work, we have no logical reason for owning a small sailboat except as a hobby or a pastime.

Obviously, when we buy a used sailboat, we try to find one that will give us the least amount of grief. I'm sure surveyors have seen their share of starry-eyed sailors who end up ritually impaling themselves on that stanchion that just won't stop leaking no matter what they do to repair it. But in the end we never buy boats with our heads. If we listened to our heads, we would never buy them at all.

Instead, take the full cost of your boat, including upkeep and moorage, and divide it by the years you own it. If the result is equal to or less than what you would spend on a vacation and hobbies each year, you're ahead of the game. I am presuming that you enjoy, for the most part, working on your boat. I calculated that it costs me $6 to $9 a day to own my boat. I can live with that. Many people spend much more than that every day just to park their cars.

I'm worried about whether I have the skill, the money, and the stamina to repair the deck and keep my Grampian, but I'll give it a good try. The worst that can happen is that I'll waste some time, effort, and money without succeeding in bringing the boat back. Wait! Isn't that what I'm doing with my motorcycle? Besides, there's always that leaking starboard stanchion I can use to end it all if things turn out badly.

Perhaps in my lifetime I'll attend a floating "show and shine" with my vintage sailboat as an entry.

GOOD OLD BOAT

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Two new article collections available

There are now 13 Archive eXtractions on the *Good Old Boat* bookshelf. These are digital compilations of our greatest hits, so to speak. The two most recent additions are plumb full of articles. Need to repair a sail? Replace a sail? Modify a sail? The Sails eXtraction will put you on the right heading. Need to tune or replace the rigging? Are you considering switching to swageless terminals? The Rigging eXtraction has all the information you need. To learn more, go to the Archive eXtractions page at AudioSeaStories.com.

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Lynns to the podium, high

SSCA honors David and Marcie Lynn

Good Old Boat*'s editors and crew were delighted to learn that the Seven Seas Cruising Association (SSCA) has honored David and Marcie Lynn with its 2016 Seven Seas Award. David is such a prolific contributor to* GOB *that he has been on the masthead as a contributing editor and is now the electronics editor.*

SSCA recognized David and Marcie for their 18-year circumnavigation in their Liberty 458, Nine of Cups, *which took them more than 80,000 miles, many of them well off the conventional cruising routes.*

According to SSCA, "This award signifies the highest international recognition to a cruising sailor whose experiences on the sea demonstrate a deep commitment to good seamanship and an understanding of his ship and environment. Selection is on a worldwide basis and is not restricted to SSCA members. In the 64 years of SSCA's existence, this honor has been awarded only 20 times."

So, David and Marcie, congratulations on being admitted to such an exclusive group of cruising sailors.

–Editors

Matthew makes mayhem

Hurricane Matthew put my Grampian 26 on the hard, across the river from where I keep her. Although my boat was undamaged by the storm, it is now on dry land about 3 or 4 feet from where the marsh begins, with several hundred feet of marsh to cross. The only access is to cross the river; there are no roads where she is.

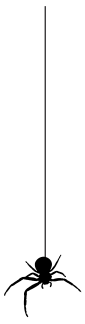
The hurricane broke Hurricane David's record with a storm surge higher than 12½ feet that night. That's what put my boat there. The high spring tide coming up is expected to be at 9 to 10 feet. I hope it will be enough.

I lost two anchors. The rope chafed and broke during the hurricane. I've ordered two more 22-pound anchors and a few hundred feet of ¾-inch rope as well as some ½-inch rope. A friend has a chain hoist come-along and straps. On the next spring tide, I'm going to try planting the two anchors in the marsh (by going across with an inflatable) and securing two dock floats to one side of the keel, reducing the draft to about 2 feet, and then dragging the boat with its side leaning across the marsh back to the water. I don't know if this will actually work, but it's the best idea I've come up with so far.

–Rich Powers, Tybee Island, Ga.

Editor's note: *It has been the policy of* Good Old Boat *for many years to offer a free subscription extension to any of our subscribers who lose their boats or whose boats suffer hurricane damage. Hurricane Matthew was hard on some of our subscribers. Our sympathy to all who were affected.*

Spider hunt



I read Dean Raffaelli's article "Spider Wars" (September 2016) with a deep sense of empathy. We have all had the unpleasant experience of walking face first into a spider web in the middle of the night. I am a strong believer that the best offense is a good defense — so I normally wait until about half an hour after dark to conduct my "spider hunt." By then, the pesky arthropods have built their webs and are comfortably sitting in the middle waiting for dinner to come along. With a flashlight in one hand and a can of spider spray in the other, I make a lap of the deck and cockpit. Every time I find one, I give it a short spritz from the can.

–Bob Allenick, Cleveland, Ohio

and dry, and spider wars

GOB is relevant and helpful in Norway

Thank you for producing such an excellent magazine. After a year of subscribing to another magazine, I'm finding that most of what little editorial stuff they publish between the ads is irrelevant to me. It seems all about trying to sell me the latest bling and boats that are more geared toward mod-cons and hanging around marinas than being solid, reliable pieces of work that you can trust your life to out at sea when the going gets rough.

I grew up in a fishing village far up on the northwestern point of Norway. I've seen what the forces of nature can do and I knew people who were lost to the sea. That's an occupational hazard for fishermen. Thus I prefer real boats, built with focus on robustness, seaworthiness, and seakindliness, not floating RVs advertised as boats.

We just bought one of those good old boats, a beautiful Sweden Yachts C34 (see photo above). She's a 32-year-old lady and is still as sound and solid as the day she was launched. Quality never goes out of style. She's been well cared for by her former owners, which helps a lot too. We are so happy we can hardly sit still.

We also have a small 24-foot Firling 24 sailboat that we are mostly done refitting. She's also 32 years old and looks younger day by day as we work on her. It brings us great joy and satisfaction to see her transform.

So it was really refreshing to find *GOB*, a magazine that actually deals with relevant stuff as far as I am concerned. I have already found lots of useful info in the two issues I have read so far and I am really looking forward to the next issues. I am also considering getting the back issue collections while I wait.

–Hans Jørgen Varfjell, Malvik, Norway

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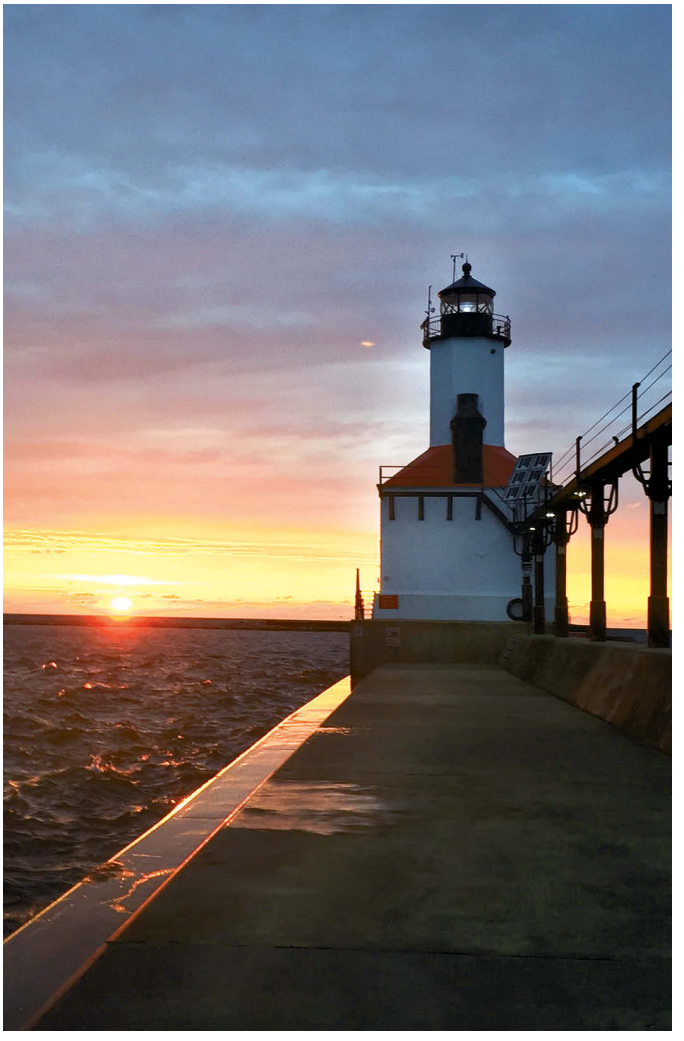


Chip Parsons captured a last look at the setting summer sun near the Michigan City East Pierhead lighthouse, off Indiana's Lake Michigan shoreline. The working lighthouse marks the entrance to Washington Park Marina, where Chip sails *Concession*, his 1985 Catalina 36 tall rig. Do you have a favorite aid to navigation? Send a hi-res photo of it to karen@goodoldboat.com — she just might print it here and send you a *Good Old Boat* cap or T-shirt!

Downeaster 38

A shoal-draft cutter for blue water

BY RICHARD SMITH

Mike and Susan Gover like the flexibility of sail combinations available to them on their Downeaster 38 cutter, *Cabezon Café*.

Mike Gover, the owner of the Downeaster 38, *Cabezon Café*, holds a U.S. Coast Guard certification for up to 100 tons. An avid sport fisherman, he has worked professionally on fishing vessels along the West Coast from California to Alaska and is a veteran diver. Mike was a captain for Seattle's Argosy Cruises, which plies routes between Seattle and destinations throughout Puget Sound. When he took early retirement, he began to contemplate acquiring a boat to share with his new bride, Susan. A financial analyst with a successful private consulting practice that has taken her to many parts of the world, Susan has adapted to a variety of cultures, climates, living arrangements, and lifestyles — good preparation for living on a sailboat. She is also practical, and has contributed many outfitting ideas that make *Cabezon Café* a better boat for the two of them. She improvises easily and has a taste for adventure.

Mike was looking for a boat with good basic performance and accommodations that could be altered to match their ideas about living aboard and to suit their likely cruising grounds, which included Canada, Alaska, and even Mexico. He was partial to the cutter rig — before becoming a professional mariner, he had built a 7-ton 34-foot pilothouse cutter and sailed it from Seattle to Mexico and back. He thought that, with a mainsail area of manageable size, a cutter would be closer-winded than a ketch or schooner and, in the words of the late Hal Roth, whom Mike much admired, there would be fewer strings to pull. He also likes a club-footed staysail that's self-tacking and could be the last sail to come down when the wind pipes up. His previous cutter could sail to weather in winds of up to 50 knots under staysail alone.

As the search narrowed, he and Susan looked at several boats of similar size, performance, and accommodations, including a Cal 40, an Ingrid 38, a Union 36, an Ericson 41, and a couple of Downeaster (DE) 38s. Gradually, they began to lean in favor of the DE 38. Mike liked the lighter displacement, full keel, generous beam, and broad stern. The large cockpit would have advantages when entertaining at dockside. Susan was drawn to the light and spaciousness belowdecks.

They located a DE 38 in San Pedro, California. It looked good on deck and below and sailed beautifully on the trial sail, but the survey revealed a serious case of blisters.

Undeterred, the Govers found another Downeaster in California that needed more work on deck and below but was free of blisters. After settling on a price, they had the boat trucked to Port Townsend, Washington, where they began an extensive refit.

Design

The DE 38 was conceived by Bob Poole who, when he moved to California, carried with him impressions of the traditional sailing craft he grew up with in Maine. In 1974, after a spell at Columbia Yachts, Bob co-founded Down East Yachts with Henry Morschladt, who was later one of the two original founders of Pacific Seacraft.

Down East Yachts built 251 DE 38s between 1974 and 1981. It also built the DE 32, the DE 45, and the pilothouse DE 41. All the Downeasters (also known as Down Easts) have a strong family resemblance, characterized by a clipper bow complete with a heavy bowsprit, trailboards, bobstay, whisker stays, and dolphin striker. The sheer sweeps gracefully from the stem to the wineglass stern, and the coachroof line follows the sheer to just aft of the mast, where it steps up. Large windows in the taller part of the cabin trunk let an abundance of light into the interior.

Construction

The hull of the DE 38 is a hand-laid laminate of fiberglass and polyester resin. The deck, which is for the most part cored with Airex, is solid around its perimeter. The hull-to-deck joint is formed where the deck edge lands on an inward flange molded around the hull sheer, where it's sealed with bedding. Stainless-steel screws, driven up from below and into a heavy ironwood caprail, secure the joint, which is further reinforced with fiberglass tabbing on the inside. The caprail forms a substantial bulwark and a support for stanchions.

Mike says leaks do occur at the hull-to-deck connection as the bedding compound fails with age. The sources can be difficult to find and remedy because the fasteners are concealed.

Below the waterline, the DE38 has a full keel with attached rudder. The

Trimming the headsails on a cutter takes experience, but with both jib and staysail on roller furlers, shortening or adding sail area is easy, at left. Mike likes being able to carry a hard dinghy on the coachroof, and thinks that's the best place for it on blue water, below.

PHOTOS BY KEITH OVREGAARD

ballast, 8,000 pounds of lead, is set into the keel molding and sealed in place with fiberglass.

Two stainless-steel tanks within the keel cavity under the teak-and-holly cabin sole hold 100 gallons of water, and an 80-gallon fuel tank occupies a large compartment in a keel void below the galley sole. A 35-gallon holding tank is under the double berth in the forecastle.

On deck

Secure footing on the foredeck is assured by the substantial bulwarks. Movement fore and aft along the narrow sidedecks between the bulwark and the cabin trunk is largely unimpeded by chainplates, shrouds, and running rigging, which are kept well outboard of the walkway. A grit-in-paint coating provides some non-skid effect on the decks and is comfortable for bare feet, but I felt that a more aggressive surface would provide a more fitting grip for a bluewater boat.

Cabezon Café is equipped with a 35-pound CQR anchor, stowed in a roller on the starboard side of the bowsprit, and 200 feet of ⅜-inch chain. A second Bruce-type anchor is stowed on the port side of the bowsprit. Its rode is 80 feet of 5/16-inch chain and 150 feet of ¾-inch nylon rode. An Ideal electric windlass with manual override does the heavy lifting.

Although the boat came equipped with davits, Mike liked neither the added complication nor the prospect of a following sea coming up against the dinghy. He prefers to carry a 9-foot Minto sailing dinghy on deck in chocks just abaft the mast, where it has little effect on the trim and can be launched quickly. He and Susan are adept at lifting the tender into and out of the water. They chose a hard dinghy for how it stands up to gravel beaches and for its fine performance under oars.

I was surprised at how little positioning the dinghy just forward of the companionway diminished the view forward, especially when compared to the effect of a dodger. A helmsman standing behind the wheel on *Cabezon Café* has a clear view of almost the entire horizon at all times.

DE 38s are known for the number of improvisations and improvements owners have undertaken to meet individual requirements and preferences. An example on *Cabezon Café* is the mainsheet, which was originally attached at the end of the boom and led to a block on the stern abaft the helm. The arrangement was awkward and unsafe, as the mainsheet interfered with the helmsman; an accidental jibe didn't bear thinking about. To improve the setup, Mike moved the mainsheet tackle to a position on the boom forward of the helmsman and fitted a traveler forward of the wheel.

Mike fitted a bench across the stern where guests can sit comfortably away from the action yet have a good all-around view, at left. The sheet winches, mounted outboard of the wide cockpit seats, are a little awkward to use, at right, and preclude fitting a lower lifeline.

The cockpit seats, which extend from the footwell to the sides of the boat, become huge lounging spaces when in port or at anchor. A drawback to the wide seats is that they make the sheet winches difficult to reach and operate, and the footwell provides no footing to aid in serious winch work, especially on the leeward side. With this layout, singlehanding is difficult, and that difficulty is exacerbated by the wheel being so close to the seats that passing between them is almost impossible.

Mike added a removable cushioned bench that extends athwartships behind the helmsman. Although an unusual addition to a boat of this type, the bench provides seating for guests when daysailing or in harbor and looks like a useful addition to a cockpit that might easily become crowded.

Another unexpected feature in *Carbezon Café*'s cockpit is the helmsman's padded and armed perch that seems lifted from a powerboat. It is exceedingly comfortable and worked admirably on the days of our sea trials.

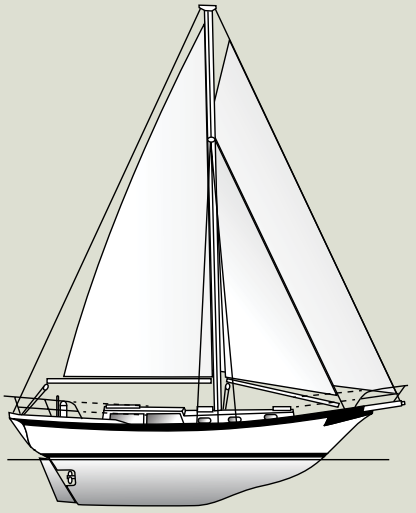
Cockpit storage is good. There are large lazarette hatches to either side of the helm and propane is stored in a vented compartment to starboard.

The rig

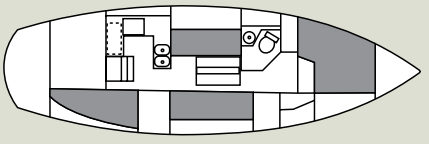
Downeasters were offered as ketches or schooners, but the most popular rig was the cutter, with a roller-furling jib and a staysail on a club boom. Mike found a cutter. A large high-cut Yankee jib on a roller furler serves well in the frequent light winds of Puget Sound while allowing good visibility forward. It also helps the boat point well, while the staysail is a snug rig for work off-soundings. The mainsail is set up with jiffy reefing.

The mast is stepped on deck and supported by a large compression post located unobtrusively within the main bulkhead framing.

Downeaster 38



Designers:	Henry Morschladt and Bob Poole
LOA:	38 feet 0 inches
LWL:	29 feet 0 inches
Beam:	11 feet 10 inches
Draft	4 feet 11 inches
Sail area:	735 square feet
Displacement:	19,500 pounds
Ballast:	8,000 pounds
Disp./LWL ratio:	357
Sail area/disp. ratio:	16.2



Belowdecks

On entering the interior, the first impression is one of spaciousness, due in part to the 6-foot 4-inch headroom and the amount of light admitted by the four large windows in the raised portion of the cabin trunk. This area contains the galley, a chart table with seating at the end of the quarter berth, and part of the dining and saloon space. The nearly 12-foot beam also contributes to the spaciousness.

The DE 38 was designed with three separate iceboxes — plenty of space for general stowage and a boon for aficionados who like to maintain their wine at the proper temperature. Double sinks are located near the centerline.

During *Carbezon Café*'s first winter in the marina, Mike decided to remodel the saloon. The original layout had settee berths and accompanying pilot berths on either side of a hinged table with folding leaves Mike revised this arrangement, putting a fixed dinette table on the port side opposite the single seat berth and a pilot berth to

Mike built a dinette in the port side of the saloon, at left, using knotty pine for its light color, and installed a Cubic Mini wood stove to take the chill off cool nights. The starboard side remains original, with its settee, pilot berth, nav station, and a quarter berth under the cockpit, at right. The large windows in the sides of the cabin trunk shed a lot of light on this roomy interior.

starboard. Where new cushion covers were needed, he and Susan made them with material to match the color and texture of the originals. In addition, for those cold and damp Puget Sound winter cruises, Mike installed a Cubic Mini wood stove on a small slate hearth overlooking the starboard settee. The stove's principal fuel supply is 2- to 3-inch lengths of Presto logs that Mike pre-cuts. The original double berth in the forecabin and a quarter berth under the cockpit remain.

Mike carried out his repairs and revisions over a yearlong outfitting period. He and Susan went sailing often during this time, allowing Mike to put his ideas to the test and act on second thoughts as they arose.

All in all, the cabin is well-planned, comfortable, and tastefully outfitted with fine joinery. If it were my boat, however, I would look for places where I could add a grab bar or two strategically located to help crew moving about in a seaway.

The engine

The DE 38 was originally powered by a Farymann 24-horsepower raw-water-cooled diesel with hand-cranking capability. As time wore on, many owners replaced that engine with a larger freshwater-cooled engine. *Carbezon Café*'s replacement engine is a 38.5-horsepower Beta. It appears to be a snug fit around the sides, but the engine is designed with most of its service points facing forward. Although the sound insulation is minimal, the engine noise on deck is quite agreeable. Mike reports an average cruising speed of 6 knots and diesel consumption of about ½ gallon per hour.

Originally, the starting and house batteries were located high in a space abaft the engine that made servicing them difficult and necessitated long cables. Mike plans to relocate them under the quarter berth, where they will be lower in the boat, easier to service, and the cables will be shorter.

Under way

As *Cabezon Café* moved out of her slip, the 16 x 9-inch three-blade prop got a good grip on the water. She backed predictably, and Mike was able to stop her short within the confines of the narrow waterway before we followed the Seattle ferry out of Eagle Harbor.

We made for open water smartly but lost the wind in short order. As often happens on Puget Sound, all the wind seemed to be in the harbor. Despite the DE 38's reputation for being sluggish in light winds, we moved right along, due in part to a clean bottom, good sails well trimmed, and careful helming. She moved surely in the light air, coming

A peek into the forward cabin shows teak ceiling and a nifty place to store boots, upper right. The slate stove surround is a handsome touch. The U-shaped galley would be nice to work in at sea, at right.

about without hesitation and carrying her way in fine form.

When, on another occasion, I sailed *Cabezon Café* in stronger winds, she perked up and clipped along like a larger boat. She seemed smooth and steady, and was entirely dry. The roller-furling staysail and jib were safe and easy to adjust, making it easy to achieve the right balance of sail area. She made little fuss of the short chop in the 10- to 15-knot winds of the day, heeling only moderately in the gusts. Her helm was uncommonly well-balanced and she sailed herself for long periods on the wind with nothing but a light finger touch on the wheel, if anything at all. She carried very little weather helm on all points of sail.

Conclusion

The DE 38 is a good boat for a variety of coastwise conditions. It is rather shallow in draft for its size, but tough should it ground on a shoal while gunkholing. The boat is also able to perform well off-soundings when heavily laden with fuel and stores. Window protection in the form of storm shutters is essential at sea.

Although it's a tight fit around the sides, the DE 38's engine is otherwise very accessible.

The large cockpit should be made to drain readily in case she takes green water on board. In fact, anyone contemplating sailing singlehanded, or couples planning passages, should take a serious look at the cockpit arrangement on the DE 38. The wheel severely restricts movement to and from the helmsman's perch; a tiller might work better. The wide cockpit seats and their effect on winching can be accommodated when cruising near shore, but a more workable layout would better serve the offshore sailor.

A quick check on the internet turned up five used DE 38s dating from 1975 to 1979. The lowest price was about $30,000, but the highest was $74,000, suggesting that there may be some real values out there.

Richard Smith is a contributing editor emeritus with Good Old Boat. *He has built, restored, and maintained a wide variety of boats and sailed them on Michigan lakes and Oregon reservoirs and from harbors and mud berths in the Irish sea. He sails* Kuma, *an Ericson Cruising 31, on Puget Sound.*

Comments from an owner of a Downeaster 38

I am the second owner of a 1979 Downeaster 38 that I purchased in 2005. I singlehand often. I appreciate her full keel. If I am slow to reef sail and get caught in a blow, her heavy ballasted keel helps keep everything in check. The two most notable things under those conditions are the heel of the boat and the increase in speed, but never the feeling of losing control, just an exhilarating ride. When I first purchased *Princess Anna*, the toerails were made of a fake teak and all the scarf joints were rotten. To repair the problem I ordered 16-foot boards of teak-colored 100 percent HDPE (recycled soft drink bottles), which I have used to replace all 80-plus feet of toerail.

–**Rex McAllister**, Pasadena, Maryland

Putting the "state" in stateroom

It began with reclaiming space from in-deck storage

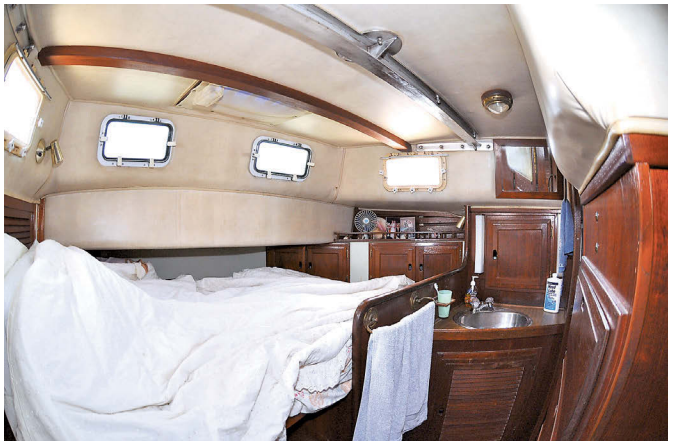
BY ROGER HUGHES

Our Down East 45 has a large aft cabin with an attached en-suite head compartment. Entry to this cabin is by way of a passageway through the galley on the starboard side. As *Britannia* carries her beam well aft, this cabin is quite roomy — 10 feet 6 inches at its widest and 9 feet fore and aft. The head compartment contains a toilet, a shower, and a full-size bathtub.

Unfortunately, the layout of this cabin was not optimal. Across half the berth, which stretched the width of the cabin, headroom was restricted to only 15 inches by a pair of deep lazarettes molded into the aft deck. In addition, a small stainless-steel wash basin was built into a corner on the port side of the cabin, adjacent to a partial bulkhead that stretched halfway across the bunk.

This particular detail mystified me; why install the washbasin in the cabin rather than in the head? And anyone sleeping on that side had to scramble over the bulkhead and basin to get into and out of the berth. Also, small lockers fitted on either side, beneath the lazarette, could only be reached by lying on the bed, and their doors were set so low they would not open when the berth was made up.

The accommodation plan for this cabin had clearly been subordinated by the concept of traditional lazarettes. These were "glory holes." On every boat I have seen that has them, they have been full of anything and everything. Ours included a propane tank lying on



The newly completed cabin, at top, is much grander than it was before Roger got out his saws, above left, when it included an isolated wash basin, a bulkhead to climb over, and inaccessible lockers. Removing the lazarettes opened the space dramatically, above right.

New bucket seats, above left, provide a step up to the bed, which is high to accommodate the steering gear beneath. Roger fitted pinrails to new shelves he built, above right. Foam inserts wedge individually inflatable commercial air mattresses in place, below.

its side (which I considered dangerous because if the tank leaked, gas would seep into the cabin). Both lazarette hatches leaked, leaving the locker contents often sitting in water.

I didn't like this setup from day one, but I could see the potential for a very nice owner's stateroom with an attached head compartment with a bathtub. It just needed a bit of remodeling.

Demolition

The obvious first objective in remodeling this cabin was to make it possible for two people to sleep side by side in the berth without having to climb over each other to get in and out. This meant removing those intrusive lazarettes. Easier said than done.

Because the lockers were an integral part of the deck molding, the job entailed two full and very dusty days of hacking through multiple layers of plywood and fiberglass with a powerful reciprocating saw backed up by a couple of sharp chisels and a big hammer. This was followed by another couple of days trimming the rough cuts and permanently sealing the two deck hatches with fiberglass and resin. Thankfully, that stopped the leaks.

In the cabin below, I further opened up the area by removing the useless little lockers at the foot of the berth. When everything was finally removed, the cabin was considerably larger. I then dismantled the silly little "un-stainless-steel" washbasin, along with its vanity stand and partial bulkhead. I cut away the door to the head, together with its frame and bulkhead.

Restoration

I repositioned the head door and bulkhead at an angle so a washbasin could later be installed inside the compartment, as in any normal bathroom.

Because the rudder stock, steering quadrant, and hydraulic autopilot ram are beneath the berth, the mattress is 3 feet above the cabin sole. Climbing into and out of the berth was difficult at the best of times. I solved this problem by tapering the foot of my new berth framework to allow enough room for me to build, on each side of the bunk, a bucket seat that doubles as a step and makes it very easy to get into and out of the berth. The new bunk measures 6 feet wide at the head (king size), 4 feet wide at the foot, and more than 6 feet long.

Next, I built the curved bucket seats on each side of the bed by laminating together three layers of 1/16-inch plywood, which I could bend easily enough individually to form the seatbacks. Reusing the old cupboard doors, I made new lockers to go above the seats and, above the lockers, shelves that I edged with traditional teak pinrails.

The aft cabin had a bank of five large drawers built into the rear of the engine room. I would not normally have touched them, but I needed a space to install an air conditioning unit for the aft part of the boat. (See "Time to Chill," May 2016.) Removing two of the drawers gave me the space I needed and, rather than lose the drawers, I incorporated them into the space under the bed. It's quite marvelous how, with a bit of ingenuity, space on boats can be reconfigured. In this case, I actually gained 3 square feet to install the AC unit.

Over the course of this project, I used a lot of wood left over from other projects on board. I did end up buying a 4- x 8-foot sheet of teak veneer from Ovisonline.com to finish the curved seats and cover all the exposed plywood edges.

The veneer was easy to cut with scissors, and I glued it in place with contact adhesive, taking great care to place it correctly the first time. Contact adhesive allows little opportunity for adjustment, especially on larger areas. After one coat of clear satin varnish, the result is a very pleasing, uniform appearance.

Roger removed the lazarettes, above left, and sealed their hatches to make the deck watertight. To replace some of the lost storage space, and to provide a location for a propane tank, he bought two plastic garden boxes and fastened them down on deck, above right.

Collateral damage

By removing the lazarettes, I exposed the unfinished inside of the transom. I covered this surface with a sheet of plywood covered with vinyl foam on one side, then ran wires for 120-volt and 12-volt dual-voltage reading lights and sconce lights.

Also left unfinished after I'd removed the lazarette was the overhead. To cover this area, I used Ever-True PVC interior wainscot panels from a big-box home-improvement store. They are tongue-and-groove plastic panels, 7½ inches wide by 8 feet long, that lock together and were easy to screw to the overhead. I trimmed the exposed edge with teak.

I accidently tore the original foam-backed vinyl cabin-side liners during the dismantling work, so I made cardboard templates and replaced them with Plas-Tex pliable plastic sheeting, which comes in 4- x 8-foot panels and is waterproof and washable. I glued it to the sides of the boat with contact adhesive.

On the port side, I incorporated a locker with a solid door to house 50 feet of chain and rope for a stern anchor.

Of course, in removing the lazarettes I sacrificed deck storage and had to decide where to stow the propane tank. I found two plastic seat boxes of the type used on patios and fastened them to the deck, cutting the base out of one so it could carry the gas bottle in an upright position. Most important, the tank is now completely separate from the cabin and any leaks will vent to the atmosphere. The total capacity of the boxes is only a little less than that of the lazarettes, and they make nice seats on the aft deck.

Comfort

The old mattress foam had lost its support and — even when supplemented with an extra 2 inches of new foam — was horrible to sleep on. I like a soft bed, but my wife likes more support, so I accommodated our individual preferences by installing two commercial air mattresses, like those used in hospitals.

Unlike foam, air mattresses are non-absorbent, lightweight, easy to deflate and remove when necessary, and fully adjustable for firmness. They are 2 feet wide, 6 feet long, and 5 inches thick. I surrounded the mattresses with strips of foam that abut the tapered sides of the bed framework and keep everything in place.

The mattresses can be inflated and deflated independently with the 120-volt compressor that came with them. Twin controls on the compressor also allow the firmness of each mattress to be adjusted individually. A 120-volt system obviously works when we're on shorepower, but will also work at sea when the inverter is on. It's not a big power consumer because we rarely adjust the pressure. My wife, Kati, and I agree, this is one of the most comfortable beds we have ever slept on anywhere — on land or at sea.

Kati sewed drapes for the four portlights, adding a nice homey touch to the cabin.

This cabin is what I now call a stateroom. It has space to move about in and dress and somewhere to sit when either of us needs a bit of peace. As a final touch, I am looking for a couple of portlights I can mount in the transom.

The renovation cost surprisingly little, considering it was a total transformation of the principal sleeping cabin. The biggest element was labor.

Resources

Plas-Tex plastic sheet and EverTrue ceiling panels
Lowe's, Home Depot, Menard's

Veneer sheet, 4 x 8 feet
less than $130 shipped
www.ovisonline.com

Air beds and compressor
$393 including freight
www.comfortaire.com

Deck boxes
$39 each www.hayneedle.com

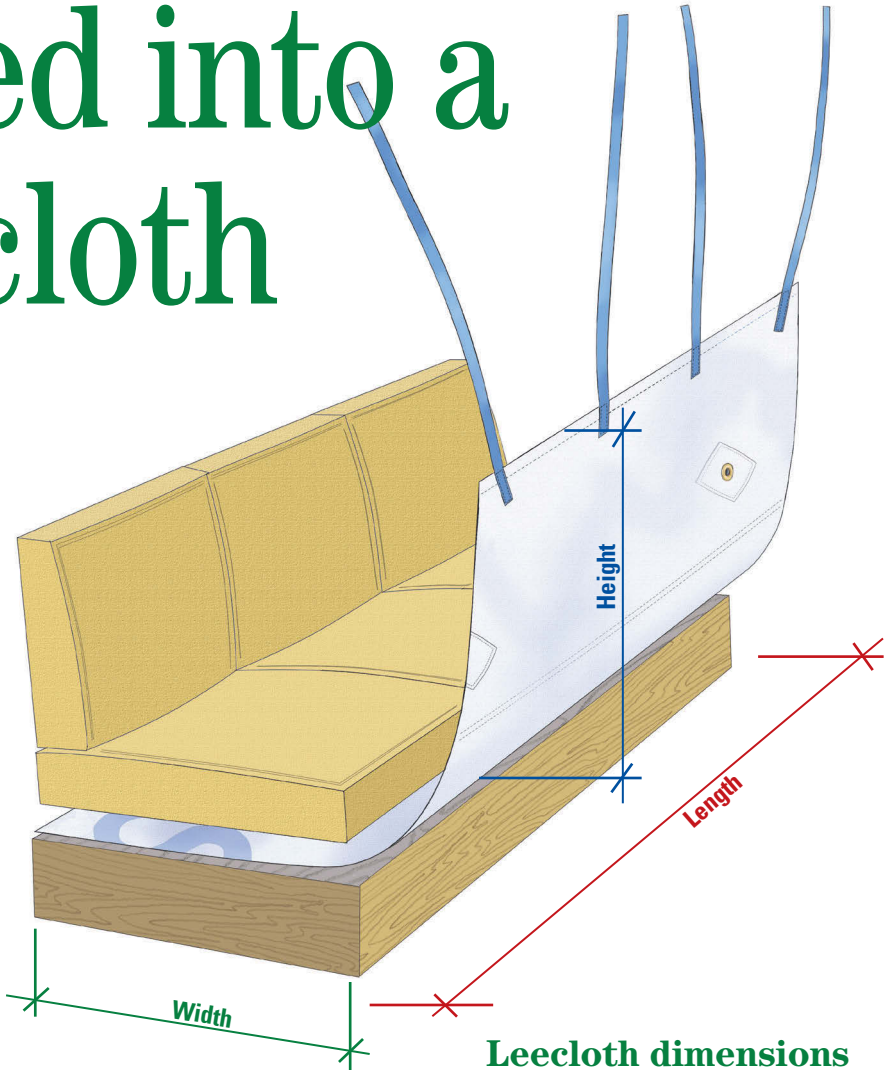
Roger Hughes has been sailing for nearly half a century as a professional captain, charterer, restorer, and happy imbiber on a lot of boats. His present project, the restoration of Britannia, *a once run-down Down East 45, is nearing completion after five years. (Roger thought it would take two at the most.) Roger and his wife, Kati, look forward to cruising later in 2017 and using all the innovations he has incorporated into the boat, many of which have been featured in* Good Old Boat. *To see more of Roger's ideas and innovations, visit his website at www.schooner-britannia.com.*

Recycled into a leecloth

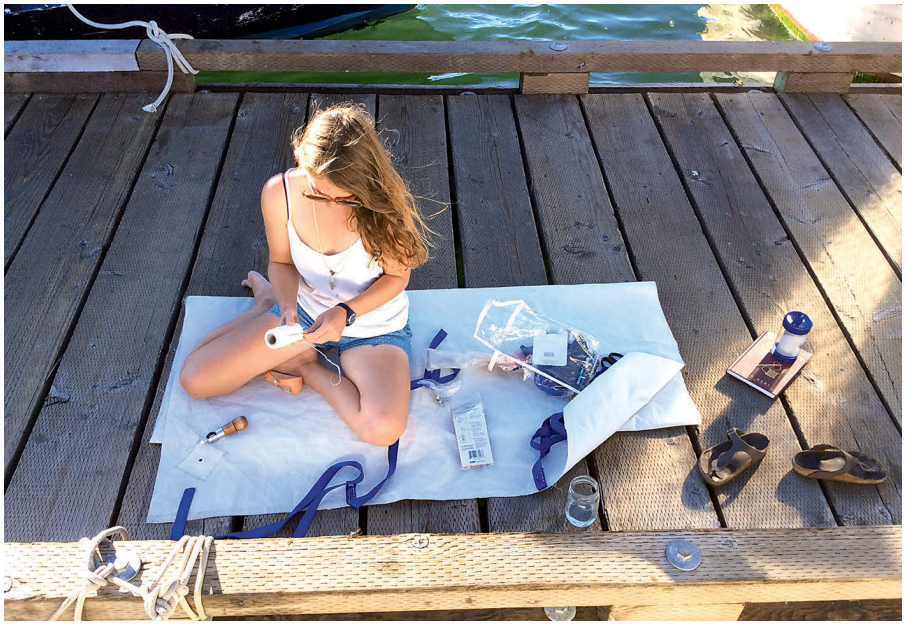
An old sail helps the night watch rest easy

BY FIONA MCGLYNN

After we purchased a new suit of sails recently, I was determined to give our old sails a second life. I couldn't find a recycling program that accepted sailcloth, so I started looking for ways to put our bagged-out old sails to good use. To my great delight, I discovered dozens of weird and wonderful applications for old sailcloth: wine bags, kitty litter boxes, anchor riding sails … My fiancé, Robin, even suggested I make a sailcloth wedding dress. I laughed at that until I learned that one cruiser had done exactly that, as well as nautical chart thank-you cards and a hose-clamp wedding ring! I decided to start with a leecloth as it's a simple shape and doesn't require the use of a sewing machine.



Leecloth dimensions



For anyone planning to do any overnight sailing, as we were, leecloths are a must. They can transform any berth or settee into a sea berth, holding you snugly in place so you don't go flying when the boat suddenly lurches in the middle of the night. Sleep comes more easily, too, when your muscles aren't working to hold you in place. A leecloth can also restrain large items stored in an unoccupied berth.

Leecloths can be made from canvas, ripstop nylon, mesh, or many other strong fabrics. You can buy them online for around $100 or have them custom-made. However, using our old sailcloth I made one for next to nothing. It was a great opportunity to practice working with sailcloth and sailmakers' tools against the day we'll have to make our own sail repairs.

ILLUSTRATION BY FRITZ SEEGERS

Identifying the sea berth

First, we had to decide where to put our leecloth. Generally speaking, the closer a berth is to the boat's center of gravity, the more comfortable it will be under way. We chose our port settee as our primary sea berth because it's in the middle of the boat and we could easily tether our leecloth to the handrail above it — no need to make more holes in the boat! Also, anyone under 6 feet could fit on it comfortably.

The pattern

A leecloth is essentially a big rectangle, so making a pattern was easy. When in use, it assumes an L-shape, with half of it secured under the seat cushion and, in our case, the other half leading vertically toward the handrail above the settee. My plan called for five grommets at the bottom, for securing it to the settee flat, and four straps along the top that we would tie to the handrail. (I've seen grommets along the top used to lace leecloth to handrails or dedicated eyes. I've also seen lines run through small webbing loops sewn to the leecloth and tied off to handrails.)

In measuring the length of our leecloth, I considered functionality. At a minimum, the sleeper should feel supported from the shoulders to below the knee. A longer leecloth that reaches head to toe creates privacy; a shorter leecloth makes getting in and out of the sea berth easier. We decided to go with a longer leecloth.

I removed the settee cushions and measured the height of the leecloth. It has to reach at least 2 feet above the cushion so the occupant won't roll over the top. As I planned to attach the leecloth to the berth flat as far outboard as I could, I added to the height the width of the berth plus a couple of inches as an allowance for the leecloth to curve around the cushion. I ended up with a square about 6 x 6 feet. Had I planned to hem the edges, I would have added ¾ inch all the way around for seam allowance.

Lastly, holding the leecloth in place, I determined where on the handrail I would tie the leecloth and measured the length of webbing I would need for each of the four straps, including a 4-inch overlap for sewing the webbing to the leecloth.

Marking and cutting

I laid out my sailcloth, measured and marked the four sides of the leecloth using a straightedge, then cut out the cloth. (That the leecloth has patches and other reminders of its previous life as a sail adds to its authenticity.)

On another piece of cloth, I marked and cut out 10 2-inch-square patches that I later used to reinforce the five grommet locations.

Hawing about hems

Initially, I did not hem my leecloth and I found that, after four months and 2,000 nautical miles of sailing down

For Fiona, and for many sailors, the dock is her workshop, far left. The leecloth is a simple canvaswork project for a novice, illustration at top left, as it's a rectangle and requires but three measurements. Fiona stitched hers by hand, at right. Special tools, like the sailmaker's awl, upper right, proved to be useful.

Materials for a leecloth

Sailcloth (free!) – I had a discarded sail to use, but if I hadn't, I probably could have obtained scrap cloth from a sailmaker.

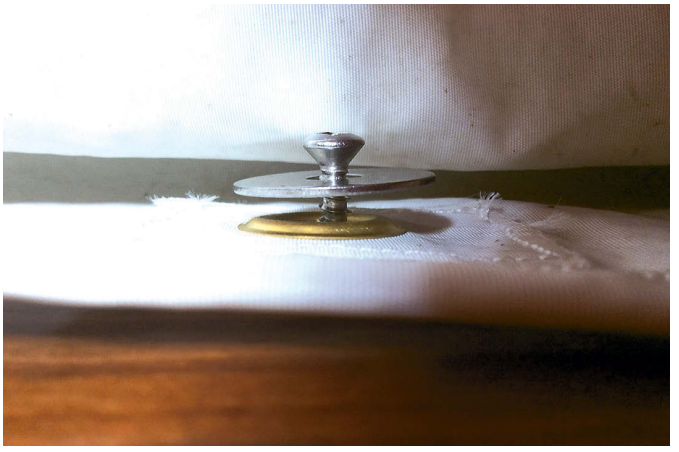
Webbing (around $5) – I didn't have any old jacklines to recycle, but I found webbing for about 40 cents a foot at an outdoor store. We used approximately 16 feet in four 4-foot lengths.

Grommets and punch (around $8) – I picked up a grommet kit (available at hardware stores) that included ⅜-inch brass grommets, a hole cutter, a base, and a flaring tool.

Wood screws and washers ($1 to $2) – I used five #10 wood screws and five fender washers to fasten the base of the leecloth to the settee flat. (Machine screws with washers and locking nuts would also work.)

Sailmaker's supplies –To sew the webbing to the sailcloth I used waxed thread (waxed dental floss also works), a needle, a leather palm, and glue (5200 Fast Cure, 3M 950 Seamstick tape, hot glue, and contact cement all adhere to Dacron). As I was sewing by hand, I used an awl to punch holes for the needle.

Total project cost: $15 to $20
Estimated time: 2 hours



Fiona anchored the leecloth to the berth flat with wood screws, at left, sandwiching the grommets under fender washers, at right.

the coast, the edges frayed very little. After we bought a sewing machine, I did hem the edges, using ⅜-inch Seamstick tape to hold the seams in place while I sewed.

Attaching the webbing

I marked the locations for the four straps along the top edge of the leecloth, one on each end and two equally spaced in between. At these marks, I overlapped 4 inches of the webbing onto the sailcloth, placing Seamstick tape between the cloth and webbing to hold them together.

As I was stitching by hand, I used an awl to punch out a hole pattern with an X-box stitch at the bottom and top of the webbing and a straight-stitch pattern up the sides. I stitched the pattern from top to bottom, then reversed and stitched the same pattern in the other direction.

So the stop-knots in the thread wouldn't unravel, I melted them with a flame . . . and discovered how easily Dacron melts. Lesson learned. I cut two matching patches out of my remaining sailcloth and glued them on either side of the hole.

Setting the grommets

My plan was to fasten the leecloth to the settee with screws, so I installed five grommets along the bottom edge of the leecloth. With a pencil, I marked on the fabric the locations for the grommets, then glued my 2- x 2-inch reinforcement patches on both sides of the fabric, centered on the marks. I could have stitched around the borders of the patches had I thought I needed the added strength.

Once the glue was dry, I laid the cloth on a piece of scrap wood, aligned a hole punch in the center of a reinforcement patch, and gave it a good whack with the hammer. (I sometimes had to give it a second whack.) I then stacked the base, grommet, and flaring tool so the sailcloth was sandwiched between the two grommet halves and gave the flaring tool a good whack. In no time, I had a row of grommets.

Installing the leecloth

To mark the settee flat for the screws, I removed the seat and back cushions, laid the leecloth in position, and scribed through the grommets with a pencil. I drilled pilot holes, lined up the grommets over the holes, placed a fender washer on each screw, then drove the screws through the leecloth grommets and into the bunk board. The reason for attaching the leecloth all the way outboard is so the screws will be in shear, rather than simply relying on their threads to resist pulling out.

My leecloth was now installed. All that was left to do was to replace the settee cushions, tie the straps to the handrails, and step back to admire my work! To stow the leecloth, I fold it back on itself and tuck it beneath the seat cushion.

After all that hard work, I deserved a nap. I took my leecloth for a test snooze to dream about my next project for recycled sailcloth . . . hatch covers, a cockpit shade, dropcloths for work areas . . .

Fiona's partner, Robin, tests their newly equipped sea berth for fit and comfort.

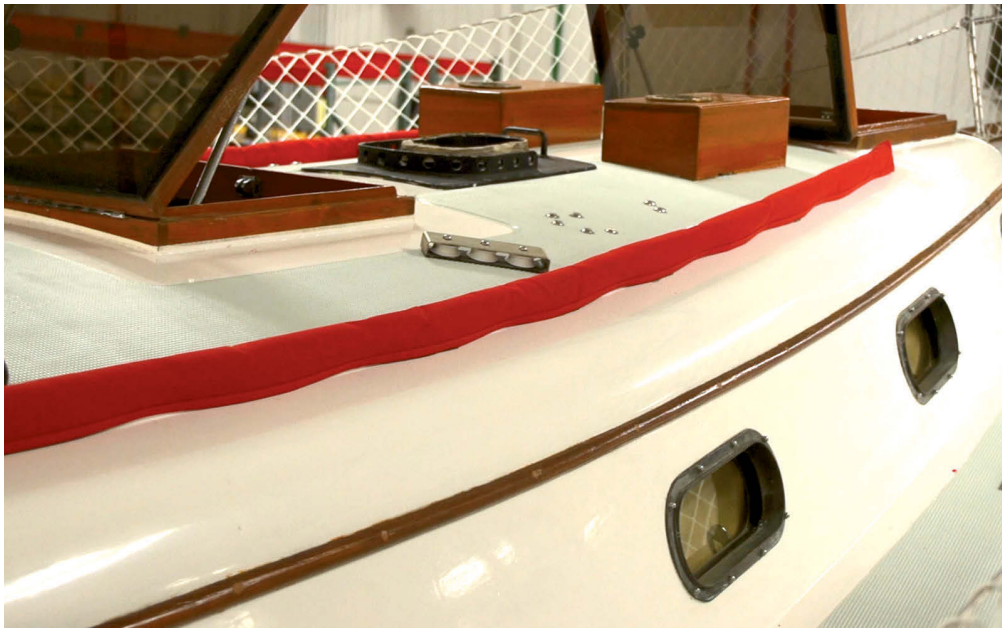
Fiona McGlynn started sailing dinghies at age 6 in British Columbia's Deep Cove, North Vancouver, where she spent most of her time bobbing in the water because she enjoyed capsize drills more than sailing itself. In 2015 Fiona and her partner, Robin Urquhart, left Vancouver in their Dufour 35, MonArk, *with the plan to sail to the South Pacific and are well on their way. Read about their (mis) adventures and "boatsteading" tips at www.happymonarch.com.*

Resources

For more on leecloths, see "Better Leecloths" by Petrea McCarthy, November 2013.

For more great recycling projects, get the free ebook download from AudioSeaStories.com, *100 Life-Aboard Tips,* with clever ideas like wine cork fishing lures and lifeline dinghy locks.

Grabrail guardians

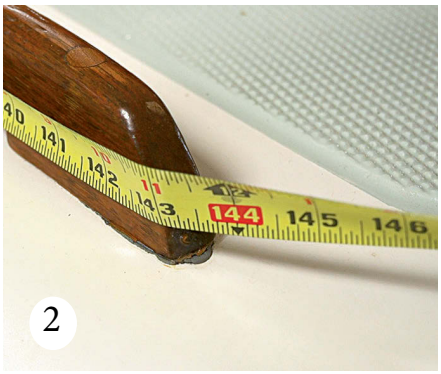


Protect bright-finished handrails with snap-on covers

BY NIKKI DENT

Teak handrails are not just functional, they add a beautiful, classic aesthetic to a sailboat, especially when the teak is newly oiled or varnished. Of course, it's a lot of work to finish handrails and, once they are done, every sailor is eager to protect and prolong that finish. While many sailors use canvas covers to protect finished teak, few make their own. Perhaps you've sewn only a hem and you're intimidated by the shape of handrails. Perhaps you've held off because you don't want to drill holes in the cabintop for installing the snaps? Well, fear not. It's easy to sew your own handrail covers that do not require you to install snaps on your boat.

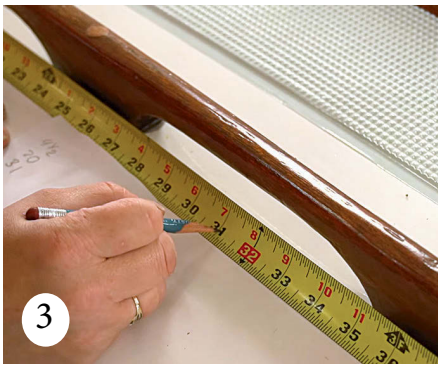
Cover fabric should be UV-resistant and breathable. Sunbrella marine-grade fabric is a great choice because it has both those qualities and it's colorfast. Sunbrella is soft enough that it will not scratch the finish you're trying to protect.

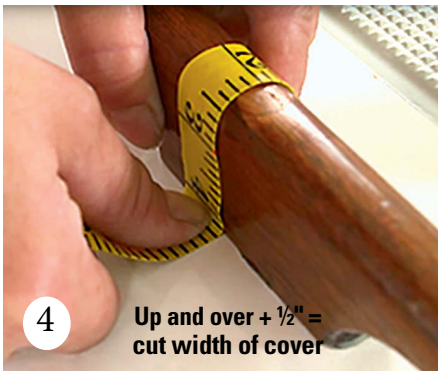


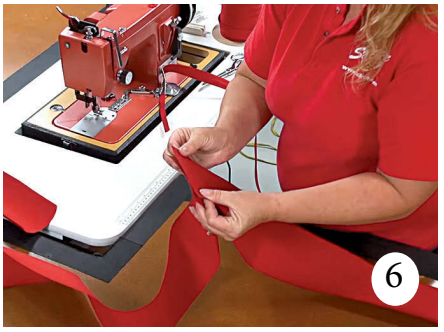
Taking measurements

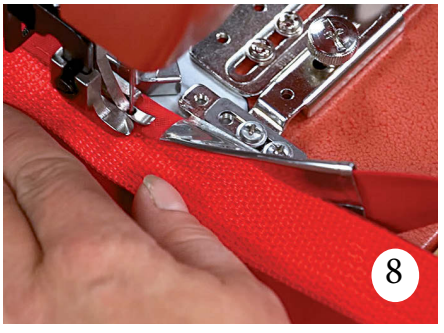
To start, clamp a tape measure to the handrail and measure the longest length, end to end, where it's mounted to the cabintop (1). To this measurement, add 4 inches. This is the length of fabric you'll need to make your cover (2). The finished cover will be secured with snaps that attach the cover to itself through the grab holes in the handrail. For all but the first and last grab holes, these snaps will attach the cover at the center of the hole. So for the center holes, note the distance measurement at the center of each (3). For the first and last holes, take a measurement as close to the outside of the grab opening as possible.

Next, at the side of one end of the handrail, use a soft tape to measure from where the handrail meets the deck, over the top of the rail, to where it meets the deck on the other side (4). Add ½ inch to this measurement. This is the width of the fabric you'll need to make your cover.









Laying out

Mark your measurements on your fabric to form a long rectangular panel (5). Cut out the panel with scissors or a hot knife. **Note:** To reduce fabric waste, or in cases where you don't have fabric long enough for your grabrail, you can pattern multiple shorter panels and seam them together to create a single panel of the desired length (6).

For example, in the project pictured, the grabrails were 147 inches long. To make the best use of the fabric, we used the full 60-inch width of Sunbrella fabric for each of three panels that we attached end-to-end using semi-flat-felled seams. See "The Semi-Flat-Felled Seam" at right for the concept. If you have to join several pieces, do that before continuing.

Now, along one long side of the rectangular panel, on the wrong side (this is the side with the exposed seams that will be the inside of the cover), install 1-inch polypropylene webbing as a reinforcement for the snaps you will install. Place the webbing flush with the edge of the panel and attach it with straight stitches down both long sides of the webbing.

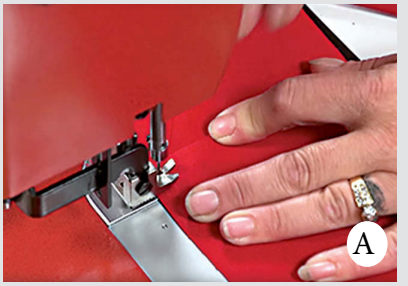
To finish the edges, sew 1-inch Sunbrella Acrylic Binding down both long edges of the cover. The Sailrite Ultrafeed sewing machine has a 1-inch swing-away binder attachment that makes this step easy (7, 8). If you don't have such an attachment, fold the binding in half and sandwich the edge of the fabric into the folded crease of the binding. Double-sided basting tape (Seamstick) will help hold the binding in place while you sew. It's possible to sew the binding in place without double-sided tape if you work in short increments.

To close up one end of your rail cover, fold the fabric in half widthwise with the right sides facing together. At one end, sew across at a diagonal that roughly matches the slope at the ends of your handrail (9). Turn the end right-side out to test the fit.

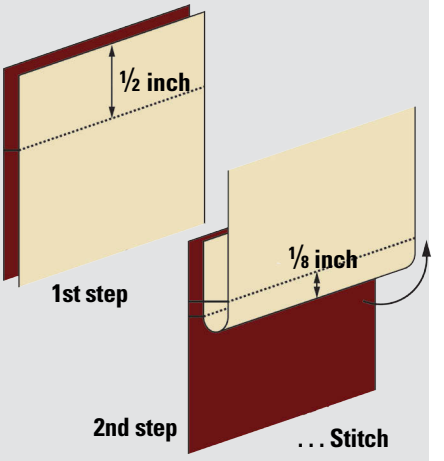
Before closing up the second end, measure from one end seam to the desired finished length of the cover plus ½ inch. Then turn the second end inside out and cut off any excess fabric. Sew this end on a diagonal the same way you sewed the first.

The semi-flat-felled seam

To seam two panels together, lay two Sunbrella strips so they are directly on top of one another with the short edges lined up. To create a semi-flat-felled seam, first sew a row of straight stitches with a ½-inch seam allowance (A). Unfold the fabric and sew another row of stitches about ⅛ inch away from the fold, making sure to stitch both flaps of the fabric seam (B). You'll be sewing through three layers of fabric at once and strengthening your original seam. Repeat this process until you have seamed all of your panels together.



Semi-flat-felled seam



Installing the snaps

It is easier to install snaps than it is to read about installing snaps. You need a special tool to install snap fasteners. Prices range from $3 for a basic setting tool to $100 or more for fancier tools that will cut holes and install snaps in one step. For this project, a simple tool is fine, but if you will be installing snap fasteners frequently, you may choose to invest in one of the higher-end tools. (A video of the basic snap installation process is available at Sailrite.com/Snap-Fastener-Installation-Tool.)

Measure and mark the location of each snap on the cover (10, 11).

Cut 1-inch-wide polyester webbing into 4-inch-long strips, with one strip for every snap location along your cover (12). It's best to cut webbing with a hot knife, to seal the ends. (If you don't have a hot knife, melting the ends with a small flame will work.) Fold one end of a webbing strip over about 1 inch and install the button and socket part of the snap fastener on the folded webbing (13). Repeat this step on each webbing strip (14).

Install the eyelet and stud portions of the snap fasteners at the marked points along your cover with the studs on the outside of the cover. Be sure to install the studs through the webbing reinforcement (15).

Next, snap the webbing straps onto the installed studs and place the cover over the handrail. Pull each webbing strap around and note where the bottom edge of the cover meets the webbing. Mark the webbing. This is where you'll attach the webbing to the cover.

Remove the cover, unsnap the webbing straps, and be sure the cover is arranged so it is right-side out and the studs are facing up. Then, position the webbing straps on the inside of the cover directly opposite the studs, lining up the straps so the socket is facing up and the line you struck on the webbing is even with the edge of the cover (16).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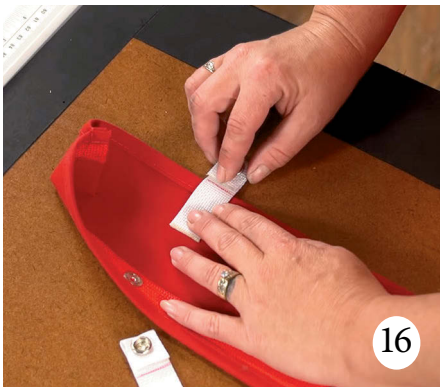
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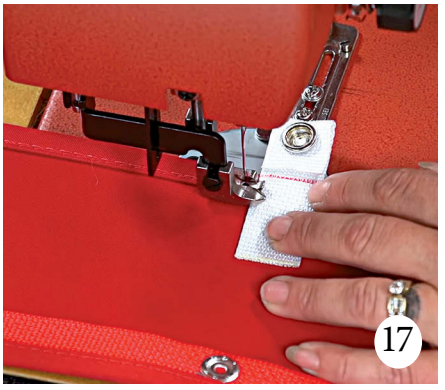
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18


19

Nikki Dent was introduced to sailing as an adult when she started working for Sailrite, where she currently serves as staff writer and blogger. She enjoys spending weekends at the lake and sewing in her spare time.

Finishing

Splay the cover (so you don't accidentally sew your cover closed) and sew each webbing strap in place by running a row of stitches in forward and reverse across the strap's width (17, 18). You can then cut off any excess webbing with a hot knife. Take care not to cut the fabric underneath. Protect it with a metal straightedge or other heat-resistant cutting surface.

Place your finished handrail cover over your rail (19), wrap the webbing strap around the handrail, and snap it in place on the opposite side.

While it takes a little effort to make these covers, imagine the maintenance time you'll save!

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New and cool underfoot

BY TERRY KOTAS

Tired, sole-scorching teak decking gets the heave-ho

"You're delirious — come out of the sun right now!" my wife, Heidi, called to me from the shade of the cockpit. For the record, it was hot, about 90 degrees, but I think she was more concerned about the subject I was broaching. It wasn't the first time she had heard my mutterings concerning this particular cause. To her credit, she'd thus far managed to deflect any serious discussion of my obsession, but now the time seemed right — maybe I could wear down her resolve.

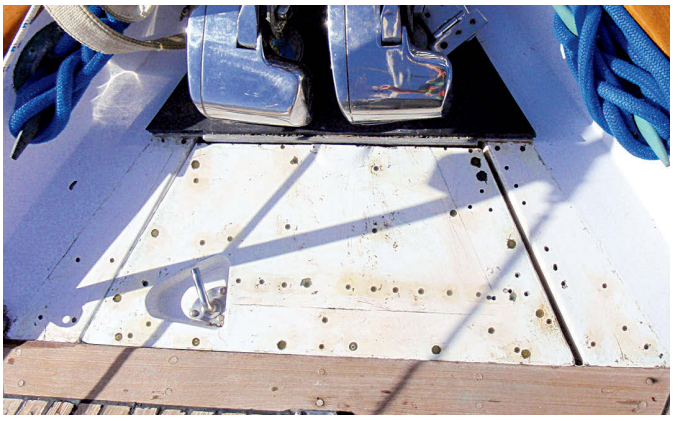
"Stripping the teak off of the deck really won't be that hard to do," I said casually. (I should point out that after owning *Cetus*, our Fantasia 35, for 20-some years, Heidi has seen more than her share of projects I had undertaken go from "not that hard" to turning me into a near lunatic when things went sideways.)

Cetus and crew had recently returned from the high humidity of the South Pacific to the relative dryness of Mexico's Sea of Cortez. Before long, the teak decks started to show signs of shrinking and cracking, and the caulking was pulling away from the individual planks. I was at a crossroads: do we continue to put the time into repairing the old teak decks or do we take them off entirely?

To repair the deck, I would need to recaulk all the seams. This would be the third time tackling this task in the time we'd owned *Cetus*. After the first time, I swore I'd never do it again. A couple of planks now needed to be replaced as well. But no matter the amount of time I spent repairing or recaulking, I feared *Cetus* would continue to have the small annoying leaks I was certain came from the teak deck.

On the other hand, over the same period of time I had replaced nearly all of the 1,200 screws that held the deck in place, and their bungs. Each time I'd replaced a screw, I'd done so with a longer screw, to get a better bite into the 1-inch plywood deck core, and injected epoxy into the screw hole. I was now worried that, if we did take off the teak, I might find bigger problems than I could deal with at anchor

Teak decks are handsome and have great non-skid properties, top left, but it was time on *Cetus* to remove the teak and paint the underlying fiberglass, top right.



The anchor locker hatch offered an opportunity to test the feasibility of removing the teak decking, above left. The fiberglass deck under the teak was sound enough to stand alone, above right. Terry's first step in the main project was to cut around the screws, below.

in the Sea of Cortez. The big unknown was whether the teak added structural integrity to the deck or whether it was just an overlay on an already sturdy deck. In other words, without the teak, would the deck be strong enough to resist oil-canning? And there was also the question of the integrity of the plywood core.

A test panel

While pondering the pros and cons of removing the teak, I realized I could experiment with a small section to see what I was up against. The anchor locker hatch seemed the perfect place to do that. Not only is it small, just 1 foot by 2, it is separate from the rest of the deck. If I found hidden surprises lurking below that teak, I could stop there and the rest of the deck would remain intact.

My plan was to carefully remove the screws and the teak planks. If it then looked like stripping the whole deck was doable at anchor, great. If, on the other hand, I did not get a good feeling about what was underneath the teak

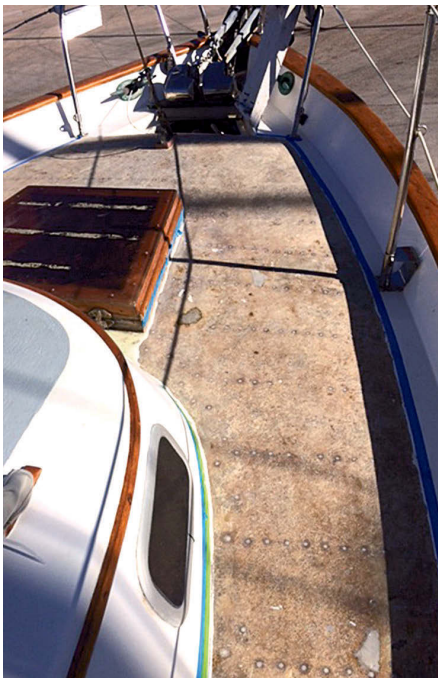
on this hatch, I would simply screw the teak back in place and put the whole project off until we were at a dock and had access to tools and materials we didn't have on the boat. At this point, I should note that I might have been a bit too optimistic making a decision on whether or not I could carry out this major project on the basis of my success or failure on such a small test section.

The small hatch cover that I experimented on had around 20 screws, none of which were the longer fasteners that made up the majority of screws securing the teak to the main deck. After I'd carefully removed the bungs and the short screws, I was able to pry the teak strips right up with the help of a large screwdriver. Underneath, I found a light coating of white bedding compound that came up easily with a putty knife. This was a far cry from the horror stories we'd heard of the thick black tar-like material used to bed teak decks on many other boats built in Taiwan.

My next step on the hatch was to drill out the screw holes, using a bit that was 1/16 inch larger in diameter than the screws I'd removed. I made sure not to drill deeper than the original depth.

I used a bevel drill bit to widen the tops of the holes for better epoxy adhesion, and blew out the dust and debris with compressed air from a can. After wiping down the top of the hatch with acetone, I injected thickened epoxy into the holes. Once the epoxy set, I sanded off the excess and removed the rest of the bedding material from the hatch

The farthest outboard teak planks were set in a white bedding compound and came up quite easily, at left. As Terry worked his way inboard, he found a tar-like compound that was much stickier, center. The teak from then on broke off in smaller pieces, at right.



A tedious part of the project was filling the old screw holes with epoxy, above. Heidi and Terry did this before power sanding the deck in preparation for the application of a layer of fiberglass cloth in epoxy resin, near right. After the epoxy had cured in the sun for a week, they sanded it fair, far right, before applying the non-skid finish.

surface with acetone in preparation for painting. Luckily, I then found a leftover can of white paint in the bilge.

Selling the project

After the paint on the hatch was dry, it was time for the dog and pony show that I hoped would get Heidi to buy into the bigger project — a project bound to make things on board a mess for the foreseeable future. As is normal for that time of year in the Sea of Cortez, the temperature was running in the mid-90s and we could not walk on the sun-baked deck without shoes. So when I called Heidi out for the big unveiling, I did so standing barefoot on the teak-less hatch. I instructed her to take off her shoes, step on the hot teak deck, and then join me on the hatch. The temperature difference between the teak deck and the white hatch cover was so dramatic, I think she was instantly sold.

"I just don't think it would be that hard to strip the deck at anchor," I said in a reassuring tone. It was everything I could do to contain my excitement at finally winning her over.

Upon receiving the go-ahead from my wife, I immediately faced my first dilemma.

The work begins

In an effort to prevent leaks into the cabin, when replacing those 1,200 deck screws I had injected epoxy into the holes before driving in the longer screws. That meant they would be very difficult to remove. I knew if I were to use a wrecking bar to lift the planks, I would probably tear up the underlying fiberglass and create more work for myself in the end.

My solution was to leave the screws — bungs and all — remove the teak decking, and then remove the fasteners once they were more accessible. To accomplish this, I fashioned a jig out of a piece of clear Plexiglas 3 inches wide by 6 inches long by ⅜ inch thick. Using a 1-inch hole saw, I drilled a hole through the Plexiglas in the center of the piece. That let me remove the pilot bit from the hole saw, position the hole of the jig over a deck screw, and use the hole saw to cut around the fastener.

I started with the outboard plank on one side of the boat, taking care not to drill into the underlying fiberglass deck. After cutting around all the screws securing that plank, I happily discovered that the bedding material on the outermost teak plank was the same consistency as in my test area. It was just a matter of prying up each piece with a large screwdriver. Unfortunately, as I began removing planks closer to the cabin trunk, the bedding compound changed to the dreaded tar-like material.

This goo was much stickier than the white stuff. When it came time to remove those planks, instead of popping them off nice and easy with a large screwdriver, I was forced to use a small prybar, breaking off 6- to 8-inch splinters of teak one at a time. This was, of course, much more time-consuming.

The other drawback of the newly discovered bedding compound was that, in the heat of the Mexican day, it softened and became very much like road tar. So we wouldn't track the stuff all through the boat, once I removed a piece of teak, Heidi cleaned most of the black menace off the exposed fiberglass right away.

With the Mexican summer in full swing, we were limited to working from roughly 6 to 10 a.m., at which time the heat would drive us below. Nonetheless, in about 10 working days, we managed to remove all the teak decking, remove all the screws we'd left in place, scrape up the bedding compound, and re-drill and fill the screw holes.

Resources

West System epoxy
www.westsystem.com

KiwiGrip
www.kiwigrip.com

Interlux Brightside
www.yachtpaint.com

A sound substrate

We were relieved to discover that the underlying fiberglass deck was in fairly good structural shape. I found two areas, each about 1-foot square, that showed signs of delamination.

After determining that the plywood core was sound, I drilled several holes through the fiberglass skin at the perimeter of an affected area as well as in the middle. I then injected West System epoxy into the holes, making sure the liquid traveled under the fiberglass and out of adjacent holes. When I was sure all of an area had resin in the void, I placed waxed paper over the 1-foot area and used bags filled with beach sand to hold the outer skin against the core until the epoxy cured.

I determined early on during the demolition phase that, to make the new deck truly watertight, the best course of action would be to cover the newly-exposed surface with a layer of resin and fiberglass cloth. And even though there didn't seem to be an oil-canning problem, I liked the idea of adding a little more stiffness to the deck. I borrowed a small generator and an orbital sander and went about preparing the surface for fiberglass, removing the last of the bedding material as well as roughing up the old surface to get the best adhesion possible. While I sanded with 60-grit pads, Heidi sucked up the dust and grit with our small shop vac.

After three days of power sanding, the deck was finally clean and prepped and it was time for the fiberglassing part of our show. This began with a drive to the U.S. to pick up the supplies we needed for the job, none of which we could find easily in this part of Mexico.

To minimize the number of seams I would need to grind down prior to the final non-skid application, we purchased woven 6-ounce cloth in 36-inch widths. The wider cloth is more expensive and would result in a bit more waste, but I hate grinding, so I didn't mind spending the extra money. For the resin, I again chose West System epoxy, figuring 4 gallons should be enough to complete the job. I used West System 209 hardener as it's a slow-set formula that provides longer working times — important in this desert climate as higher air temperatures accelerate the setting of epoxy.

Fiberglassing in stages

We carefully cut the cloth into sections that would cover as large an area as would be manageable in the heat of the morning. We would have only about a three-hour window each day to fiberglass. Our procedure was to clean with acetone the area on which we would be working, dispense the epoxy using the metering pumps, mix a batch, wet-out the deck, and lay down the cloth while using chip brushes to saturate it thoroughly with epoxy. We used a plastic squeegee to smooth the cloth and remove excess resin.

For three hours it was nonstop, barely-able-to-catch-our-breath action. We started with the narrow sidedecks to get a feel for what we might be up

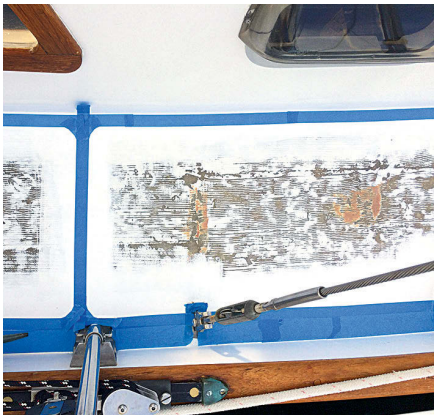
Materials, costs, and time

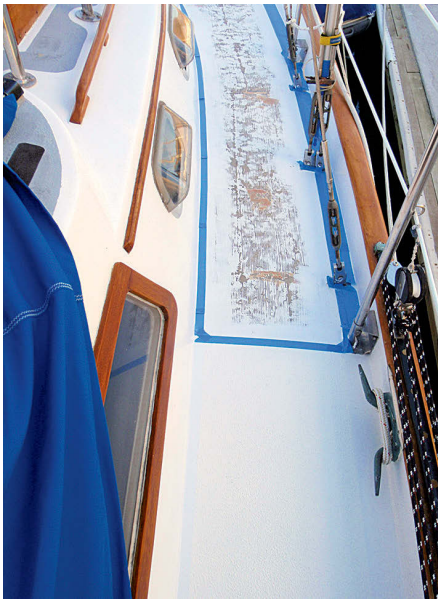
Materials

West System G/flex epoxy for filling screw holes	$35
West System 105 resin: 4.35 gallons	$360
West System 209 Extra Slow Hardener	$155
6-oz x 36-inch woven glass fabric: 11 yards	$177
KiwiGrip: 2 gallons	$250
60-grit pads (orbital): approx. 2 dozen	$36
120-grit pads (orbital): approx. 1 dozen	$20
Acetone: 2 gallons	$20
Miscellaneous tools: rollers, chip brushes, drill bits, Band-Aids	$50

Time for each task

Drill out deck screws with jig- and hole saw	9 hours
Remove teak planks	14 hours
Clean bedding compound	6 hours
Drill and fill holes	5 hours
Grind deck for fiberglassing	6 hours
Fiberglassing	10 hours
Grinding for non-skid	6 hours
Painting detail strips (2 coats)	6 hours
Laying down KiwiGrip	10 hours





Terry painted borders and detail strips with gloss enamel. Taped over for protection, far left, the borders defined areas that could be coated with non-skid in a reasonable time, at left and above.

against in terms of application time and the amount of epoxy we'd need to mix.

By the time we got to the somewhat expansive foredeck, we had more confidence in our ability to do larger areas. After three days of this, the cloth was successfully laminated to the deck. We let the Mexican sun bake the whole works for a week before I broke out the orbital sander and tackled the seams and edges of the newly applied surface. I knocked down the highest of the bumps with 60-grit sanding discs, then switched to 120-grit pads for the final sanding. We planned to apply non-skid, and the 120-grit gave the surface a tooth for it to adhere to.

No-nonsense non-skid

For several reasons, we decided on white KiwiGrip as the final coating for the deck. First, it would be easy to control the texture, and thereby the aggressiveness, of the finished coating to suit our needs. Also, a high-stipple coating of KiwiGrip would render the deck's slight imperfections less noticeable. We chose white because, as we'd learned from our test area, it reflects the sun, with the result that the deck surface would be cooler and, as a bonus, so would the cabin below. Another factor in our decision to go with KiwiGrip is that it's a water-based product that dries fast and is easy to clean up.

To make the finished deck look as pleasing to the eye as possible, we broke up the non-skid coating with bordering "detail strips." These would be painted surfaces, about an inch wide, along the inside of the deck next to the cabin, and a wider strip along the outboard edge of the deck, adjacent to the bulwarks. We also painted 1-inch detail strips across the sidedeck at three places on each side of the boat, from the cabin sides to the bulwarks.

As well as giving the job a more finished look, the detail strips divided the deck area into sections of a more manageable size for applying the KiwiGrip. We used Interlux Brightside Polyurethane one-part enamel on the areas that would not be getting the non-skid coating.

We took special care in prepping the smooth areas because the white gloss paint would reveal any imperfections. Once we'd sanded and filled and sanded again, we applied two coats of Brightside to an area an inch wider than the finished detail strip would be. We let this paint dry for a week before masking the newly-painted surface prior to applying the KiwiGrip.

As advertised, the KiwiGrip went on easily, dried within hours, cleaned up with water, and looks great. We chose an aggressive finish that would feel secure underfoot, even with the decks awash.

While the look is very different from teak, the result of Terry and Heidi's labors is a clean-looking, light-colored deck that reflects heat, is comfortable to walk on, and will be easy to maintain.

Satisfaction

Cetus has had her new deck for a year and I am happy to report that we came through the most recent wet (hurricane) season with no deck leaks. And as an added bonus, I'm still married. Next we'll put it to the real test and go offshore.

Terry Kotas and his wife, Heidi, have lived and traveled aboard sailboats for most of the past 30 years. They are currently enjoying Mexico's Sea of Cortez while planning and readying their Fantasia 35, Cetus, *for their next South Pacific adventure.*

A casualty of corrosion

A rudder head succumbs to its mixed-metal construction

BY JERRY THOMPSON

As the proud new owner of a 1985 Gloucester 22, I'm taking time to go over her thoroughly and return her to near-pristine mechanical condition before I set sail. I am not a skilled craftsman, but I can, mostly, follow instructions. I decided to start with the rudder head and rudder, thinking I would fair and repaint the rudder. Not a huge job, I thought, but it turned out to be a little more involved than fairing and repainting.

The Gloucester 22 has a kick-up rudder. The blade pivots on a stainless-steel bolt that passes through the rudder head, which consists of a pair of 3/16-inch aluminum plates bolted together but separated by aluminum-tube spacers fitted around the bolts. Stainless-steel pintles bolted to the rudder head engage gudgeons on the boat's transom.

I began the project by removing the 3/8-inch pivot bolt. As soon as I did so, I noticed the telltale white powdery substance that's a product of galvanic corrosion.

The corrosion mechanism

Sometimes called dissimilar-metal corrosion, galvanic corrosion occurs when two different metals are mechanically connected and/or electrically connected by a conductor and immersed in an electrolyte.

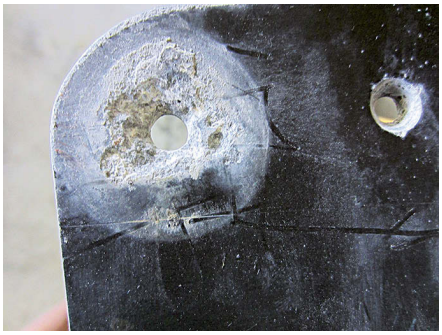
The electrolyte in this instance is salt water, as my Gloucester 22 spent many years in a slip on a tidal river. (Fresh water is also an electrolyte, but is not as conductive as salt water.) The less noble of the connected metals (see any galvanic table) becomes the anode and will corrode, while the more noble metal, which becomes the cathode, will not corrode.

Stainless steel is more noble than aluminum, so when in contact with salt water, it becomes cathodic. The aluminum cheeks of my rudder head became anodes and corroded.

I started to wonder what the unexposed parts of the aluminum cheeks looked like and decided to disassemble the rudder head and inspect it. What I found was downright scary: corrosion on the inside of the aluminum cheeks that was impossible to detect prior to disassembly and was by this time beyond repair. In addition to the galvanic corrosion, some of the holes for the pintle bolts had become elongated over years of use. There was no question; I had to replace the rudder head.

A new rudder head

Gloucester Yachts has been out of business for many years, but I learned I could purchase a complete third-party rudder assembly for around $850. This seemed reasonable, but I decided to build a new rudder head myself.



Jerry's finished rudder head, with tiller attached, awaits a new blade, top of page. The blade will fit inside the rudder head and pivot on a bolt fitted in the hole visible toward the bottom. Corrosion is visible around the lower pintle, at left, and the hole for the pivot pin, seen in close-up, center. Corrosion had also formed around the holes for the bolts that secured the lower pintle, at right.

Jerry painted the aluminum cheeks in the well-ventilated outdoors, at left.

On eBay, I purchased a sheet of 3/16-inch 5052 aluminum plate, 24 x 36 inches, enough for both cheeks. The 5052 aluminum alloy contains magnesium, which adds strength and corrosion-resistance.

Rather than try to cut the new cheeks from this aluminum plate myself using a table saw, which requires a special blade I don't own, and a jig saw for the curved parts, I took the plate and one of the old cheeks, for use as a template, to a machine shop. Using a plasma cutter, it took them only 30 minutes to machine new cheeks with nice clean edges. The cost was $40, about the price of the special saw blade.

Back home, I used a drill press to drill the 3/16-, 1/4-, and 3/8-inch holes in the new cheeks. I used an old cheek as a template, clamping it firmly to both of the new cheeks. I took my time, double-checked what I was doing, and everything turned out well. Having ruined a few pieces with a hand drill in the past, I knew a drill press was essential if I were to achieve straight holes that were properly aligned.

The ends of several of the old aluminum cheek spacers had mushroomed and needed to be replaced. I purchased a 6-foot length of 1/2-inch OD aluminum tube from Newegg.com and made spacers by cutting off 1-inch lengths using a miter box and a hacksaw.

The original aluminum cheeks were anodized, an electrolytic process that enhances the natural protective oxide coating that forms on the metal's surface. Rather than have the new plates anodized, I researched other methods of coating and protecting my new rudder head.

A protective finish

I decided on paint. First I washed the aluminum thoroughly in soap and water to remove any residue left from the manufacturing and cutting processes. I then roughed up the surfaces with clean 220-grit sandpaper.

Aluminum needs to be coated with a special primer to give the paint something to adhere to. I used Rust-Oleum Self Etching Primer in white. Per the instructions on the can, I followed up with two coats of white Rust-Oleum Appliance Epoxy spray enamel. I've used this paint before on dinghy rudders and have enjoyed excellent, long-lasting results. I sprayed outdoors as this product is particularly toxic, and to spray indoors would require good ventilation and I would be well-advised to wear a mask.

Tiller troubles

During the same time period, I worked on the tiller. The previous owner had placed the socket for the tiller extension on the underside of the tiller. I found it awkward to use the extension with the socket in this position, so I removed the socket and filled the hole with thickened epoxy. Then I drilled a new hole for the socket on top of the tiller, about 6 inches aft of the end to leave room for my hand when I steer without the extension. I fastened the socket with two brass screws.

Over the years, the hole for the bolt that passes through the tiller and attaches it to the rudder head had become elongated. The original bolt had threads along its entire length, and they had slowly chewed away at the tiller. To prevent this from happening again, I purchased a 1/4-inch bolt with a smooth shank and threads only at the very end.

After taping over one end, I filled the bolt hole with thickened epoxy. Once the epoxy was cured, I drilled a new 1/4-inch hole through the epoxy, again using the drill press. To finish, I sanded the entire tiller and gave it three coats of spar varnish.

Reassembly

Once the paint was dry and the tiller was ready, I reassembled the rudder head using new stainless-steel hardware. After cleaning the pintles, I applied a thin layer of silicone to the inside sections that would come into contact with the rudder head. I placed nylon washers beneath the stainless-steel nuts and bolt heads so the stainless steel would not be in direct contact with the aluminum. The washers, combined with the enamel paint and silicone, will act as insulators to impede galvanic corrosion.

The finished rudder head looks great and I expect it to perform well. I urge anyone who has a good old boat with an aluminum rudder head to take a close look at it, and even disassemble it to inspect hidden areas. Doing so might reveal some surprises.

Jerry Thompson is an information systems professional who works and lives in eastern North Carolina. He learned to sail more than 25 years ago at the Armed Forces Recreation Center, Lake Chiemsee, Germany. North Carolina's milder winters keep Jerry on the water year round.

Anodizing

BY THE EDITORS

It's interesting that the same process that degrades aluminum is used to protect it. As the name suggests, the metal to be anodized is the anode in a process where an electric current is passed between a cathode and an anode immersed in an electrolyte, usually sulphuric acid in the case of aluminum.

Aluminum oxidizes naturally on exposure to air, and the oxide froms a thin protective layer that prevents futher oxidation . . . until it is damaged. The product of anodization is a thicker oxide layer that improves protection and cosmetic appearance. It does not, as Jerry found out, prevent galvanic corrosion, especially if the aluminum is cut or drilled after it has been anodized.

For DIY instructions on anodizing aluminum parts, see "Need Anodized Parts? Make Them Yourself," March 1999.

Rudders I have loved

. . . and replaced with mixed results

BY CLIFF MOORE

I have lost rudders five times over the course of owning two different boats, each time for a different reason, each time requiring a different fix.

The first time, I was aboard my 22-foot twin-keel Sea Witch and the rudder failed when the key pulled out of the slot on the rudder stock. That was a simple fix, but vexing. The key was in the stock at the tiller, hiding behind a hinged tiller head. This wasn't an unusual design, nor was the fix very difficult. Fortunately, the boat was powered by a Honda outboard steered with its own tiller, so I got home OK.

The second time, I was aboard the same boat just off Point Judith, Rhode Island, where tidal currents converging from two or three directions create lumpy, confused seas. The rudder simply came adrift from the U-shaped brackets that fastened it to the stock. I was able to get to Newport, Rhode Island, just 10 miles away, again by steering with the outboard.

The Sea Witch rudder was pretty small, maybe 2 by 3 feet. I bought some plywood and found all the epoxy, filler, and fiberglass cloth I needed at a marine store just up Thames Street. I borrowed a saber saw and spent an otherwise perfect day making a new rudder at the dock. When finished, I hired divers to bolt my new rudder to the brackets on the stock. The repair lasted long after I replaced that boat with my current boat, *Pelorus*, a 26-foot Paceship.

New boat, same problem

Among its attractions, the Paceship has an outboard rudder. What could be safer, more direct, and less likely to fail than an outboard rudder?

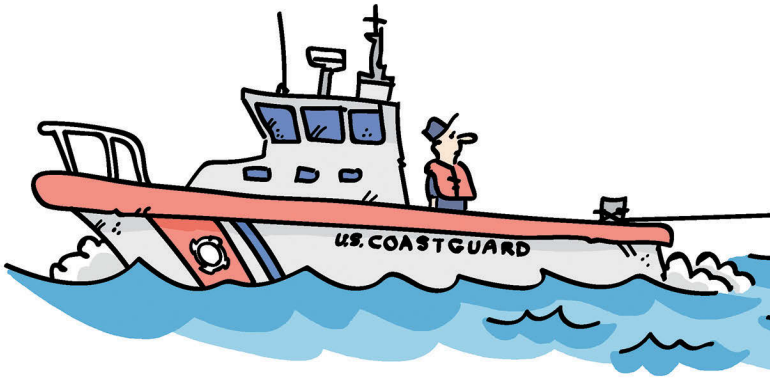
Homeward bound from Great Salt Pond, Block Island, a few miles south of Point Judith, I found a great weather window — wind out of the northeast at 20 to 25 knots with stronger gusts forecast for a couple of days. That meant pure downwind sailing from Block Island, through Plum Gut, and down Long Island Sound. Perfect!

I got about 3 miles.

When the steering seemed too wobbly for the autopilot, I put it down to the boat rolling in the big following seas and gusting winds. I turned off the autopilot and was steering by hand when I heard a sound like a shotgun blast and *Pelorus* rounded up. I got the sails down and the boat lay sideways to the wind and seas. I looked over the transom and saw nothing of the rudder below the lower pintle; it had broken off clean. "Another fine mess you've gotten us into, Ollie," I thought.

I called BoatU.S. for a tow and was told it was blowing too hard for them to come the 3 miles from the Great Salt Pond to get me. So it was the Coast Guard that responded, from Point Judith, 9 miles farther away.

The Coast Guard secured a Galerider drogue to my stern, as rudderless fin-keel boats don't tow well. The Galerider is



and lost . . .

like a big wicker basket made of heavy nylon webbing woven and sewn together. I can say that, at 7 knots, that drogue (it was a commercial model) pulled like a train. Poor little *Pelorus* has never been so wet, not before or since, as we were towed *through* those big waves, not over them. *Pelorus* shipped green water across the deck and a surprising amount of it got below.

The Coast Guard towed me back to Block Island and tied me alongside a semi-abandoned hull with no mast and covered in guano. This derelict was attached to the Coast Guard buoy usually reserved for anchorage offenders. I put in a call to Tony, who runs the Block Island Boat Basin Marine Services. Tony put me on a private mooring closer to the docks and, more important, put me in touch with Larry, who runs a day-tripper trimaran in fine trim called *Ruling Passion* he had built himself. He spent the next six days building my new rudder.

ILLUSTRATIONS BY TOM PAYNE

Plywood, epoxy, and guesswork

All we had to go by was the stump of the old rudder, its pintles and gudgeons still intact, and guesswork. The old rudder was a skin of fiberglass covering innards consisting, it appeared, of a kind of stiff porous open-celled expanded foam with all the structural integrity of a Styrofoam cup. All of its strength was in the outer skin, which may have been damaged by collision or grounding in its past. We needed stouter stuff.

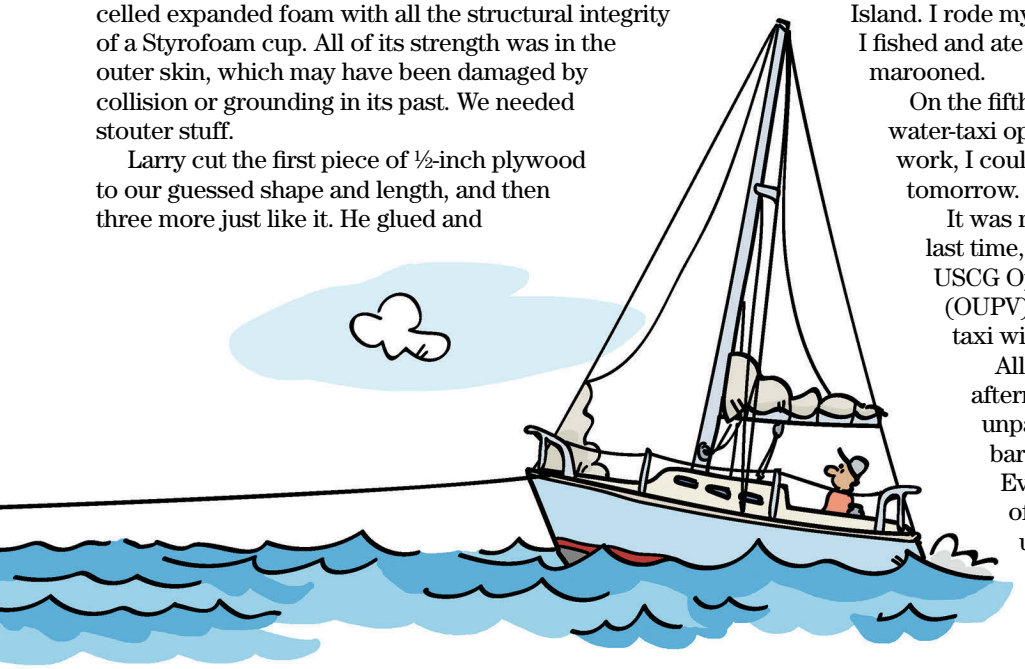
Larry cut the first piece of ½-inch plywood to our guessed shape and length, and then three more just like it. He glued and screwed the four pieces together with thickened epoxy and stainless-steel deck screws. He shaped the squared-off leading and trailing edges with an electric planer, covered the whole of it with fiberglass cloth and epoxy, and filled the weave with thickened epoxy until it matched the width of the jaws on the old pintles. The old stainless-steel pintles fitted closely against the bevel on the forward edge of the rudder. That bevel would later become a problem.

The wind held in the northeast until the day before the repair was finished, then it shifted back to the prevailing southwesterlies, right on the nose. "Of course," I thought, "Why wouldn't it?" But for five days I had enjoyed blue skies, cool temperatures, and beautiful weather on Block Island. I rode my folding bicycle. I visited with friends. I fished and ate well. There are worse places to be marooned.

On the fifth day, Larry, who also was one of the water-taxi operators, told me, "If I didn't have to work, I could have your rudder ready for you tomorrow. Didn't you say you had a 6 pack?"

It was my moment of glory. For the first and last time, I was able to use my hard-earned USCG Operator Uninspected Passenger Vessel (OUPV) license authorizing me to run the water taxi with up to six passengers.

All good things come to an end. The next afternoon, Tony and Larry brought me the unpainted finished rudder. It had to resist barnacle growth only until I got it home. Even though we'd guessed the dimensions of the rudder, it fit perfectly, as Larry had used the old rudder stump as a guide for locating the pintles. The only problem was that the rudder floated. I secured the pintles with stainless-steel cotter pins and that held it in place.



After I got home, I took the new rudder ashore and painted it with the last of an old can of bottom paint. Over the winter, I melted about 15 pounds of lead into pie pans and bolted them to the rudder, one on each side. Meanwhile, I found the proper rudder dimensions online and found that my guesswork, while close, was off a bit.

The Paceship 26 rudder is the balanced type, with a small amount of surface area in front of the axis of the pintles on which the rudder turns. This has the effect of making a balanced rudder easier to turn than a rudder with no balance and makes a free-standing rudder with some balance preferable to one with none. However, my new rudder was over-balanced. When I turned it more than 12 or 15 degrees, it would swing hard over all by itself, which made steering a lot of work. That winter, I cut away some material from the leading edge, rounded over the squared edges, epoxy-glassed it, and rehung the rudder in time to splash in June.

That repair lasted two years.

That familiar feeling

While we were under power approaching Cuttyhunk Island, in southeastern Massachusetts, the tiller suddenly turned rubbery. When I looked over the transom — something I was getting good at — I saw the lower pintle was unhinged. The jaws were still where they should be, the rudder was intact, but the pin had broken off at the weld. As Roseanne Roseannadanna used to say, "It's always something . . ."

This time, I got a tow from the BoatU.S. towing service to the marina in Fairhaven, Massachusetts, just inside the breakwater to the northeast and across from New Bedford. Instead of a nice, expensive Galerider drogue to keep the tow stable, we used a 5-gallon mud bucket on a 30-foot painter tied to a stern cleat. It worked surprisingly well, but tow speeds never got above 5 knots.

At the marina, which handles boats of every size, including massive fishing trawlers, I found a welder who charged me $10 to weld a new stainless-steel pin to the broken pintle. Then he said to me, "It's stainless steel. This stuff shouldn't be in salt water. It gets crevice corrosion at the welds."

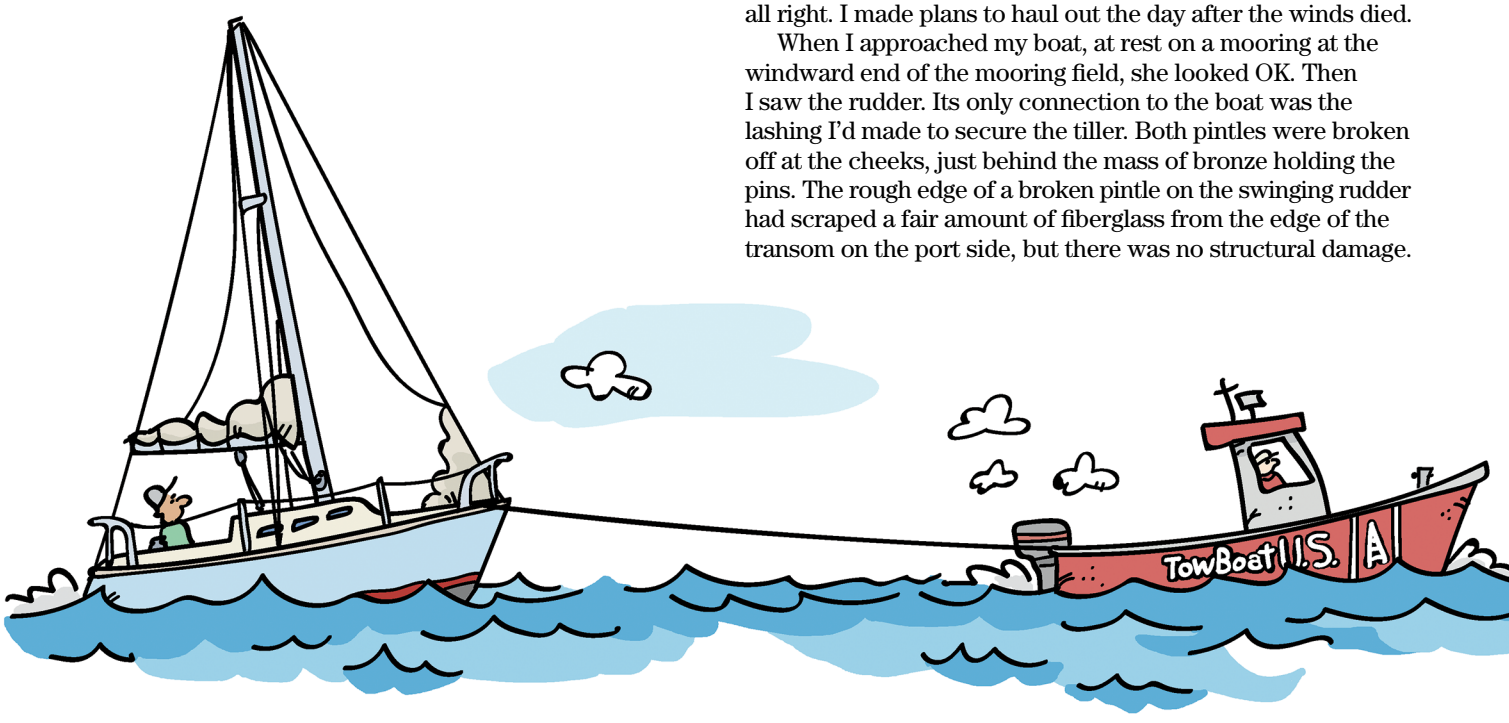
I sat at the dock contemplating the wicked ways of the world. Who would put stainless steel at the waterline, where it was sure to fail? I consoled myself remembering that this was the same harbor, possibly the same dock, from which Joshua Slocum began his solo voyage around the world. I was sure he must have had similar thoughts when he first laid eyes on the wreck that would later become *Spray*, arguably the first and greatest good old boat.

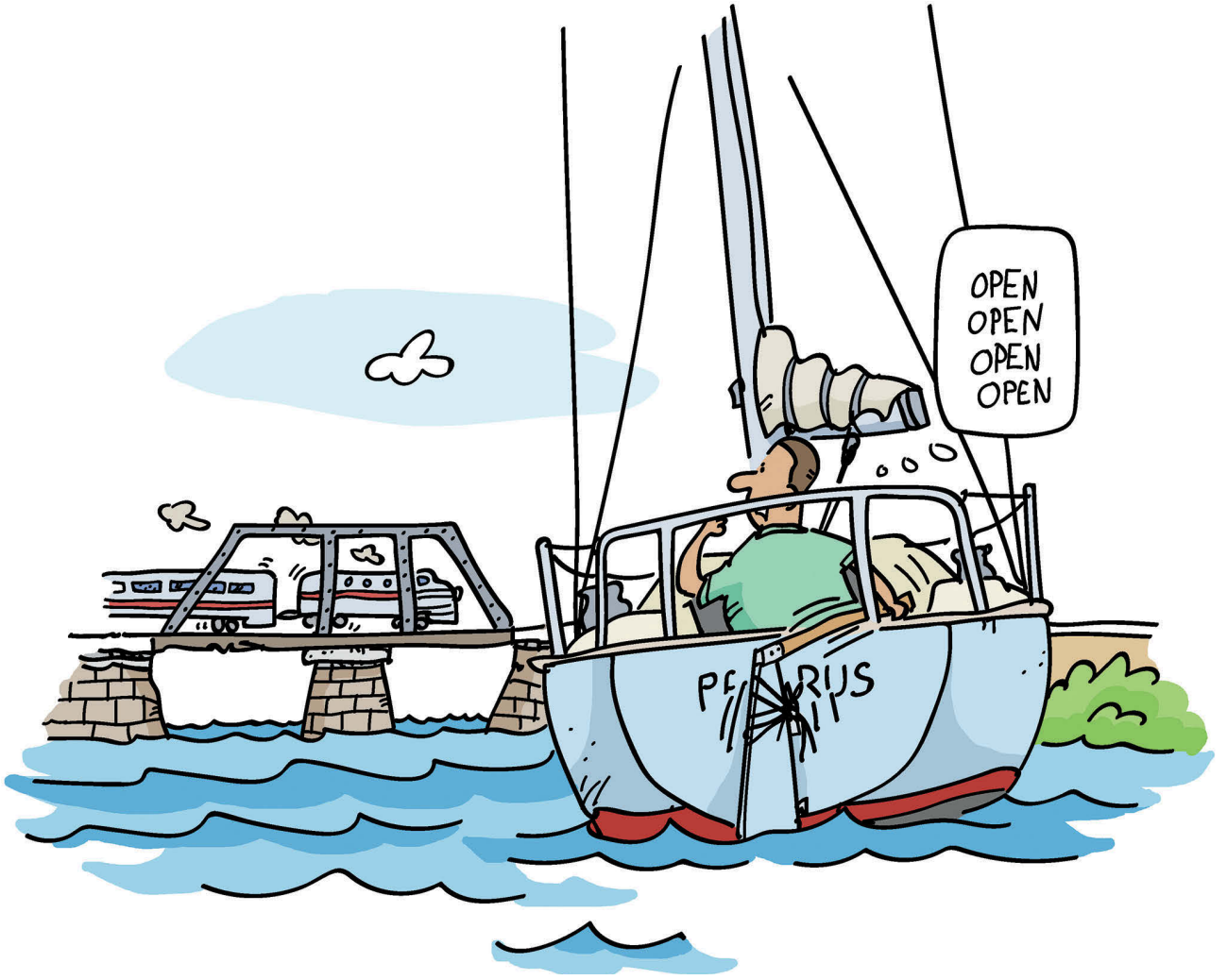
Clearly, I needed something bulletproof in the way of pintles. But the bulletproof pintle I needed had to span the 2¼-inch-thick rudder, and it didn't seem that such a thing was still made by anyone. Then I found Port Townsend Foundry, a maritime bronze caster in Washington, that supplied me with a massive set of bronze pintles and matching gudgeons just in time for spring boatyard work. They certainly looked bulletproof, but they were squared off behind the pins. The forward edge of my rudder, as noted before, was beveled. How would these bronze pintles fit? Even though they only contacted the leading edge of the rudder at the pointy end of the bevel, the cheeks looked more than strong enough.

And once more

So much for Eyeball Mk I. My bulletproof bronze pintles lasted until October 2015, when Hurricane Joaquin struck. By the time the storm hit New Jersey, it was no longer a hurricane, as its winds were under 65 knots. However, high winds blew for a few days from the east, the worst possible direction for boats in Raritan Bay, on the New Jersey shore just south of Staten Island. Still, I thought *Pelorus* should be all right. I made plans to haul out the day after the winds died.

When I approached my boat, at rest on a mooring at the windward end of the mooring field, she looked OK. Then I saw the rudder. Its only connection to the boat was the lashing I'd made to secure the tiller. Both pintles were broken off at the cheeks, just behind the mass of bronze holding the pins. The rough edge of a broken pintle on the swinging rudder had scraped a fair amount of fiberglass from the edge of the transom on the port side, but there was no structural damage.





A year before, I had purchased a roll of thin Dyneema line, gossamer stuff, as thin as fishing line but, I had been told, with a breaking strength of 200 pounds and without any stretch. I used this line to lash the rudder to the gudgeons. It was ugly, but promising. I had only 3 miles to go to get to the yard, and I was damned if I was going to pay for a tow. If they wouldn't leave Block Island to tow me when it was blowing like stink, I wasn't going to reward them with a flat-calm tow in Raritan Bay.

Hanging by a gossamer thread

The waters were glassy and there wasn't a breath of wind. Ordinarily, it would have been a perfect day for going to Morgan Marina, which lies at the end of a narrow, serpentine creek and abuts the Garden State Parkway. There are two drawbridges along this route. The outer highway bridge opens on demand, on the hour. The inner railroad bridge opens only when no train is expected. Timing, as they say in comedy, is everything. I was determined to make it, and notified the boatyard by VHF that I was on my way but I might have a problem. They told me they could meet me, but only inside the bridges, not outside.

I didn't know if the lashing would hold. To make it as far as the breakwater, some 2 miles from my mooring, I had to dodge shoals on both sides and could only approach the entrance directly from a quarter mile out. What if I had to wait for the bridge? I figured that if I lost steerage outside the breakwater, I could always anchor.

The lashing held, but it was like steering with shock cords, with the boat yawing 10 degrees or more every time I touched the tiller. At one point, a moment of inattention had the boat heading 90 degrees off course. As it happened, the wait for the outer bridge was only a few minutes, but I had to wait 20 minutes for a train. A tide was running. Although I could go in circles without too much trouble, one side of the circle tended to edge down tide toward a mud bank.

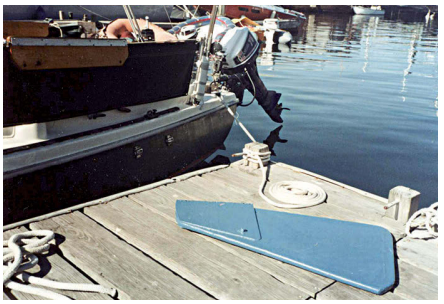
Eventually, the train passed. Eventually, the bridge opened. Heart in mouth, I headed in slowly, shoved along by the incoming tide. I now faced a dogleg turn, three marinas, a set of pilings in the middle of the channel, and a final hard turn to starboard to line up with the dock in front of the Travelift. All the while, the tide was sweeping me hard to port. If the rudder failed and I missed the turn, the tide would sweep me into a bridge abutment.

The lashing held!

Once the boat was hauled out, I removed the rudder and pulled what was left of the pintles.

Final fix?

After some thought, I think I understand what happened: one of the broken cheek ends was corroded. Though it had lasted for years, it had clearly failed at some time, perhaps only weeks before, as a consequence of being unsupported for ¾ inch at the forward edge of the rudder. My bad. I should have built up the beveled edges of the rudder to match the square-ended pintles. I could have used wood, fiberglass, or epoxy. Unsupported, the cheeks had flexed, just a little, every time the tiller moved. At some point, one of the cheeks on the lower pintle let go. During the storm, the wind drove waves sideways against the rudder as the boat yawed at her



Cliff honed his shipwright skills on the dock in Newport, Rhode Island, at left, building a replacement rudder for his Sea Witch after failure #2. In event #3, *Pelorus'* rudder sheared off at the lower pintle, center. Event #4 was the result of a corroded pintle pin, at right.

mooring, flexing the pintles more until the second cheek eventually let go. In a short time, the upper pintle failed, and that was that. Happily, it didn't happen while we were negotiating a treacherous passage like Hell Gate or Plum Gut.

Right away, I ordered new pintles from the foundry. I'm glad I did. These are not off-the-shelf parts and they would not be ready until mid-May. I planned to launch June 1. To avoid the installation mistake I'd made with the previous set, I had to ensure the pintles made full contact with the forward edge of the rudder. To accomplish this, I had to fill the void created by the beveled leading edge of the rudder. While waiting for the foundry to fabricate new pintles, I cut two pieces of teak to a bevel complementary to that on the rudder. I glued them to the rudder with epoxy before covering them with cloth and glass tape. Before the epoxy cured, I coated the glass with schmutz (my mix of epoxy and filler with the consistency of peanut butter) to fill the weave.

The new bronze pintles matched the old ones and are perfectly cast, as well-made as the gears of a Swiss watch. I knew I had to install them so the pins were perfectly aligned with each other and with the gudgeons on the transom. This is where I found that the lower gudgeon was off axis by about ¼ inch and tilted slightly, a gigantic error. I removed it and filled the holes with schmutz. While I was at it, I also repaired the transom where the rudder had clawed it during the storm. That was the easy part.

I remounted the lower gudgeon using a ¾-inch aluminum tube, the same diameter as the pins on the pintles, as a guide, simultaneously bridging the upper and lower gudgeons.

From prior experience, I knew it's much easier to remove and replace a rudder when the pin on one pintle is shorter than the other. The long pin can be engaged in its gudgeon first and act as a guide for aligning the second. Before mounting the upper pintle on the rudder, therefore, I shortened the pin by ¼-inch. Then I cut about an inch off the cheeks of the upper pintles because they were longer than the upper part of the rudder is wide and would otherwise stick out like rabbit ears. I placed the new upper pintle just a little lower on the rudder than it had been. This raised the tiller so it no longer rubs on the top of the transom when it's hard over.

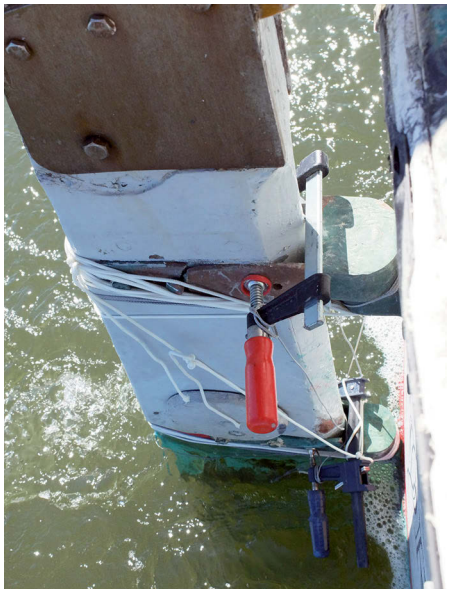
With the upper pintle in place, but bolted only at the forward hole, I roughed in the lower pintle, holding it in position with clamps while I marked the rudder for the ⅜-inch bolt holes. After drilling, I worked thin epoxy into the holes to seal them and, I hope, prevent rot, as the fit between the cheeks of the new pintles was too tight to seal with caulk.

Once all was in place, I fitted the tiller. Moving it, I felt no binding that would work the hardware or over-flex the transom due to misalignment. The entire installation took longer this time than the first time, but the results seem better.

Resources

The Paceship, a website for owners of boats built by Paceship Yachts and related companies:
www.paceship.org

Port Townsend Foundry
www.porttownsendfoundry.com



After failure #5, Cliff cobbled the remains of the pintles to the rudder head and the gudgeons, at left. The proximate cause was the bevel on the rudder's leading edge that led to fatigue in the cast pintles, below. New gudgeons and pintles installed, *Pelorus* is ready for another season, at right.

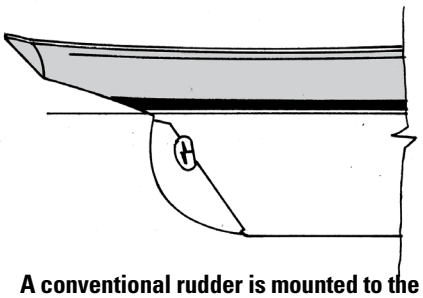
Satisfied, I applied two coats of primer and two coats of topcoat to the transom repairs. Unfortunately, although I used paint from the same can, the paint already on the transom had darkened a little with age. Fixing that mismatch will just have to be next year's job. Time to go sailing, with the most reliable, smoothest-working rudder yet, right behind me.

Cliff Moore is a Good Old Boat *contributing editor. His first boat was a Kool cigarettes foam dinghy with no rudder or sail. Many years and many boats later, he's sailing* Pelorus*, a 26-foot AMF Paceship 26 he acquired and rebuilt after Hurricane Bob trashed it in 1991. Cliff is the editor of a community newspaper.*

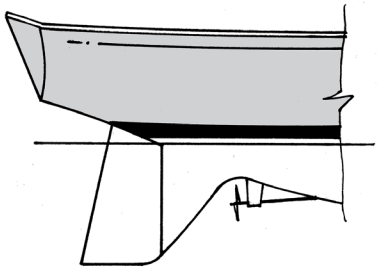
THE TRANSOM-HUNG RUDDER

How it can come unhinged under stress

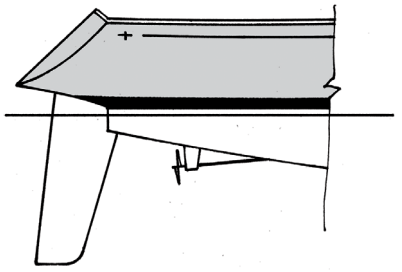
BY ROB MAZZA



A conventional rudder is mounted to the massive keel deadwood with time-tested pintles and gudgeons.



Designers began eliminating the deadwood but left a skeg to which the rudder might be attached, but sometimes not.



In the cantilevered spade rudder, all the rudder loads are absorbed by the stock.

Cliff Moore has had his share of trouble with transom-hung rudders (see "Rudders I Have Loved and Lost," page 30). In my article "How Sailboat Rudders Evolved," in the January 2015 issue, I touched on almost every rudder configuration except the transom-hung rudder. I'll now rectify that omission.

The primary advantage of a transom-hung rudder is that it can be more easily removed without having to haul the boat. Mounting the rudder on the transom also greatly simplifies the structural requirements of the rudder stock, stock seal, bearings, and tiller head. The vast majority of transom-hung rudders are tiller-steered because of the challenge of mounting a quadrant through the transom. For this and other reasons, transom-mounted rudders tend to be used most often on boats well under 30 feet in length.

At one time, all rudders were mounted with pintles and gudgeons — USS *Constitution*, *Cutty Sark*, HMS *Bounty*. Even on yachts, well up to the 1950s, rudders were traditionally hung by pintles and gudgeons to the deadwood that formed the full-length keel of most boats (see the illustration at top left). In this configuration, the load on the rudder was uniformly supported by the massive structure of the deadwood. The only real load on the rudder was torsional, imposed by the tiller or the wheel.

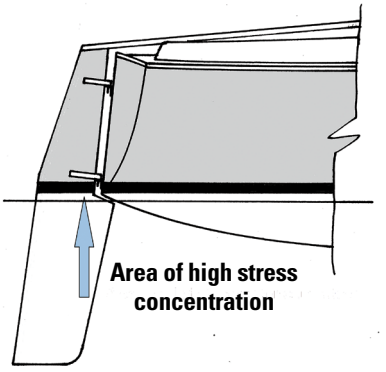
The way rudders have to cope with loads has changed since designers started to cut away the deadwood to reduce wetted surface aft, leaving the rudder to operate independently of the deadwood. Some skeg installations maintain full support of the rudder over its length (see the illustration at middle left), although a lot of skegs are *not* structural.

This process led ultimately to the fully cantilevered spade rudder that has now become pretty well the norm in modern yacht construction (see the illustration at bottom left). In this configuration the entire load of the rudder is absorbed by the stock in bending at the point it exits the hull.

A confluence of weaknesses

On a free-standing transom-hung rudder, the bending moment must be supported by the rudder itself at the point of the lowest support, the lower pintle. For a fiberglass rudder, that means the fiberglass shell of the rudder must be strong enough to support that bending moment at the location of the lower pintle.

The upper part of the PY26 rudder where the pintles are attached is a box section of fiberglass over a foam core. The resistance of such a structure to bending loads is calculated using the strength of the material, in this case



On a balanced transom-hung rudder, the maximum loading and stress are concentrated where the lower pintle is attached.

CALCULATING RUDDER LOADS

The load imposed on a rudder is derived entirely from the lift the rudder generates when it is turned to present an *angle of attack* to the flow. For any given angle of attack, the lift is determined by the simple equation:

Lift = K x (D x A x V^2)/2 pounds

K is the lift coefficient
D is the density of water in pounds per cubic foot
A is the area of the rudder in square feet
V is boat speed through the water in feet per second

As the rudder is turned, its angle of attack increases, and in so doing it generates lift.

The lift coefficient, therefore, increases with the rotation of the rudder. The values are well documented for low-speed aerodynamics and low-aspect-ratio foils.

When designing a rudder system, we are interested only in the maximum lift generated, as that is the maximum load the rudder will experience short of a high-speed grounding. Consequently, we are interested only in the maximum lift coefficient achieved. When the fixed values (D and the denominator 2) are combined with the maximum lift coefficient, we get a constant of 1.19 for our rudder design formula:

Lift = 1.19 x A x V^2 pounds

The lift coefficient is zero when the rudder is parallel to the flow and at its maximum at full rudder angle, just before the rudder suffers from flow separation and stalls. From this equation, it's clear that doubling the area of the rudder doubles the lift for a given speed and rudder angle.

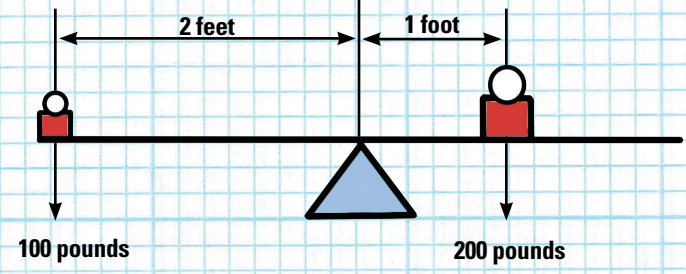
Lift on a rudder will, quite clearly, increase with boat speed, but the increase is not linear. Because V in the formula is squared, doubling the speed, say from 3 knots to 6 knots, does not merely double the lift for a given area and angle of attack, it increases it by a factor of 4.

This brings us to the question of what speed to use to calculate the maximum load on a rudder. For that, we look at the boat's theoretical maximum hull speed, which is related to its waterline length, using the formula:

Vmax = 1.34 x √LWL knots

where 1.34 is the speed/length (V/L) ratio commonly used for most good old boats. However, we all know instances of hull speed being exceeded when surfing down waves. Experience shows a V/L ratio of 1.7 results in a reasonable maximum speed to use in the rudder-load calculation.

PRINCIPLE OF MOMENTS



100 pounds placed on the beam 2 feet from the fulcrum creates a moment at the fulcrum of 100 x 2 = 200 foot pounds

200 pounds placed on the beam 1 foot from the fulcrum creates a moment at the fulcrum of 200 x 1 = 200 foot pounds

The moments are equal and on opposite sides of the beam: the beam stays level.

The Paceship 26 rudder

Cliff's Paceship 26 has a waterline length of 22.5 feet. The maximum speed to use in the lift calculation would be:

1.7 x √22.5 = 8.1 knots = 13.6 feet per second

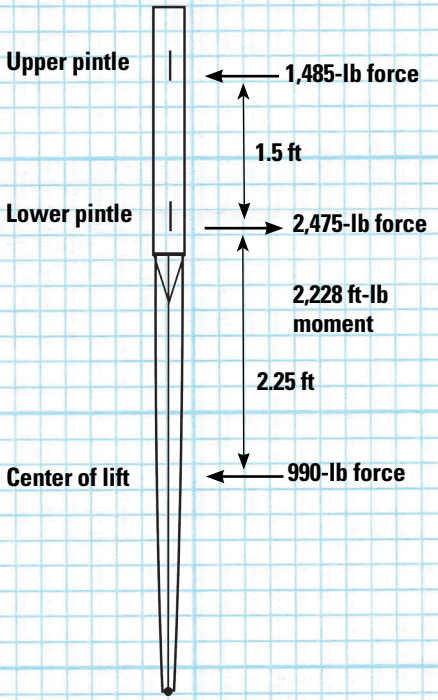
Absent specific dimensions, assuming the area of Cliff's rudder is 4.5 square feet, the maximum lift on this rudder would be:

1.19 x 4.5 x $(13.6)^2$ = 990 pounds.

That is, the Paceship 26 rudder is capable of generating almost 1,000 pounds of lift. The rudder's structure, and its hangings, should be capable of bearing that load.

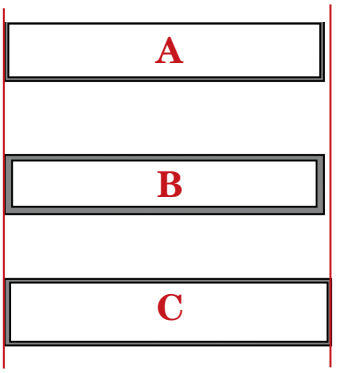
With the freestanding rudder, like that on the PY 26 or a cantilevered spade rudder, this load translates into a bending moment at the lowest support point of the rudder and a moment arm that extends down to the center of loading of the rudder blade, which is about halfway down the depth of the rudder. If on the PY26 rudder that distance is 2 foot 3 inches, the bending load is 2,228 foot-pounds (990 pounds x 2.25 feet). The shear force on the lower pintle is 2,475 pounds.

LIFT FORCE ON RUDDER AND CORRESPONDING BENDING MOMENT ON RUDDER AT LOWER PINTLE



The pintles must be able to withstand the applied force in shear. The rudder blade must withstand the bending moment at the lower pintle. Resistance to bending is calculated using the strength characteristics of the material to be used and the section modulus of the cross-sectional shape of that material.

Section modulus — strength from shape



12 in x 2.25 in x .125 in thickness
Section modulus = 3.16 in^3, Area = 3.5 sq in

12 in x 2.25 in x .25 in thickness
Section modulus = 5.56 in^3, Area = 6.88 sq in

12.25 in x 2.5 in x .125 in thickness
Section modulus = 4.56 in^3 Area = 3.625 sq in

Where material is added affects the strength gained. Rectangular shape A has a skin thickness of .125 in. Holding the outside dimensions and doubling the skin thickness (B) increases the section modulus by 76 percent and the area/weight by 97 percent. Maintaining the .125-inch thickness but increasing each dimension by .25 inches (C) increases the section modulus by 44 percent for a weight increase of only 3.5 percent.

fiberglass, and the *section modulus* of the area of material. (See "Section Modulus," above). The integrity of the foam core is crucial to maintaining the box shape.

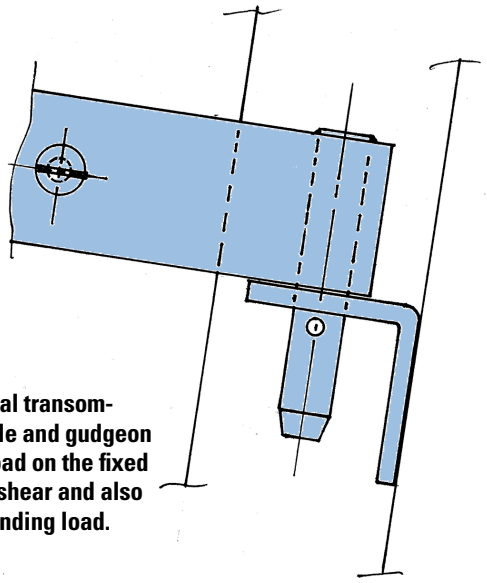
The foam core is fine for the first few years of a boat's life, if no water ever enters the rudder. But water will always enter the rudder — through the fasteners for the pintles and thence by gravity into the core, through the leading- and trailing-edge bond lines of the rudder, or through grounding damage. Once this water is absorbed into the low-density urethane foam and is exposed to a few wintertime freeze-thaw cycles, the core starts to break down and lose its properties.

Cliff's rudder could potentially generate 990 pounds of lift (see "Calculating Rudder Loads," page 37). If the foil-shaped rudder blade had simply faired into a rectangular shape at or near the waterline (some distance below the lower pintle), the full width of the blade and its thickness, (2.25 inches), combined with adequate laminate thickness, should have had sufficient section modulus to withstand the bending load. However, the need to balance the torsional loads on the rudder by placing as much as 12 percent of the rudder's immersed area in front of the turning axis (the pintle pins) enters the picture. (That 990-pound lift acting at a point 25 percent along the chord of the rudder would produce a load at the end of a 36-inch tiller of more than 100 pounds!) By adding a 12 percent balance to the rudder, that tiller load is essentially cut in half.

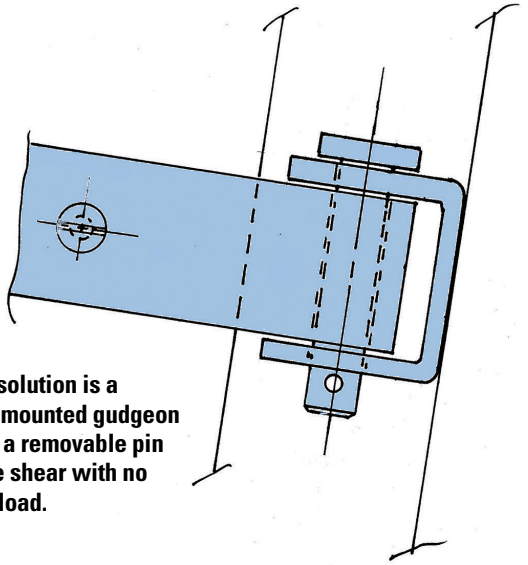
On a transom-hung rudder, that balance area has to extend forward of the lower transom corner, which creates an offset in the leading edge of the rudder and reduces the cross sectional area and, critically, section modulus, right in the area of the lower pintle, which is also the location of maximum bending moment.

With all these challenges facing the design of a transom-hung rudder what could possibly make it worse? Let's look at the core in this critical area below the lower pintle. The outer skins in this transition area are extremely highly loaded in tension on one side and in compression on the other. All that separates these load-carrying surfaces is the core material. This core, trapped between the area of maximum tension on one side of the rudder and maximum compression on the other, is supporting very high shear loads. At the same time, the skins on the compression side want to buckle under that high loading and the only thing preventing that is the core that is adhered to this skin.

So, even when everything is in good shape and the core has not degraded, you are asking an awful lot of the rudder in this very highly loaded area. On top of all that, drill two fastener holes for the pintle right in the middle of this area, and you really do have a



A conventional transom-mounted pintle and gudgeon puts a high load on the fixed pin in single shear and also possibly a bending load.



A better solution is a transom-mounted gudgeon that puts a removable pin in double shear with no bending load.

PHOTO BY MICHAEL ROBERTSON

HMS *Bounty*'s rudder (what's left of it), which is on display at a museum in Fiji, is an example of 18th-century rudder construction. The design changed little on commercial vessels and only began to change on yachts in the mid-20th century.

"tear along dotted line" scenario for a rudder failure, as Cliff found out.

Shear on pintles

Another breakage Cliff described was due to shear failure of the pintle pins. As Cliff noted, the advantage of a transom-hung rudder is the ability to lift it vertically upward to remove the rudder from the transom-mounted gudgeons. In this arrangement, the entire bending load on the rudder is now supported by that one pin in *single shear* (see the illustration at bottom left on the facing page). The shear load on that pin for 990 pounds of lift is about 2,475 pounds. A ½-inch diameter stainless-steel pin should take that with no problem, but is very susceptible should there be stress concentration, bad welding, or corrosion in that very defined area of shear.

Also, if the upper pintle makes contact with its gudgeon before the lower pintle makes contact with its gudeon, the lower pintle pin can be subjected to a bending load in addition to the high shear load. A much better solution is to put that pin in double shear, just like a rigging pin, which not only halves the shear load on the pin, but eliminates any welding and most machining (see the illustration at bottom right on the facing page). This can be achieved with interlocking gudgeons with either separate pins or a single long pin that passes through the upper and lower gudgeons and can be removed by pulling it upward to remove the rudder. This is by far the best solution for mounting transom-hung rudders on boats of any size.

Scaling up

To see the effect boat size has on rudder loads, let's look at the same rudder configuration as described above on a boat with a 25-foot waterline, an 11 percent increase in size. Following the Law of Scales, rudder area increases by 11 percent squared (23 percent) to 5.54 square feet. Speed, due to greater waterline length, would increase to 14.4 feet per second, and the resulting lift would be 1,360 pounds. The moment, therefore, increases to 3,060 foot pounds. So, an 11 percent increase in size generates a 37 percent increase in lift and a 53 percent increase in bending moment. This is one reason that transom-hung rudders tend not to make the transition to larger boats.

Although a transom-hung rudder appears pretty simple in principle, as Cliff's adventures illustrate, it presents design challenges that can lead to dramatic and sudden failure. The areas to watch most closely are the highly loaded area below that lower pintle as well as the shear and bending loads on the pintle pins. The rudder should be inspected for stress cracks or crazing and the pintle for signs of bending or corrosion. Both potential failure points should be improved if necessary.

Rob Mazza, a contributing editor at Good Old Boat *had a long career designing sailboats and engineering their structures and associated appendages. The rudder design parameters at C&C Design were developed from research studies Rob made on low-aspect-ratio foils.*

PHOTOS BY JEREMY MCGEARY

At any facility where boats are stored on the hard, the evolution of sailboat rudders will be on display, presenting an opportunity to inspect the various types of rudders in use and the ways in which they are attached to boats.

Living the dream . . .

. . . means coping with the occasional nightmare

BY SHIRLEY JONES

What happens when someone who has discarded a dream, a dream clearly beyond reach, meets a dreamer? Possibilities germinate. You know the dream. It was the "sailing away someday" dream and it was deeply rooted, sparked in my childhood.

One of the highlights of my youth was summertime crewing for a childhood friend in a Bluejay. The dinghy was aptly named *Mosquito*, in honor of the critters so well known to those of us in northern Ontario, the same critters that surely tormented the girl's father as he'd lovingly crafted it.

A decade later, backpacking through Australia, my husband and I hitched a ride with a friendly liveaboard for an offshore passage of a few weeks along the Great Barrier Reef. That experience turned childhood fantasy into an adult goal: one day I would have a boat of my own and pursue sailing adventures.

Fast-forward another decade or so. We had settled in Haileybury, Ontario, a scenic lakeside town, where we put down roots as we raised our family. Our home's front balcony offered a lovely view to the east, where we watched with longing the sails that graced Lake Temiskaming.

Then Mother's Day weekend of 2001 arrived. I do not recall what errand took me by the still-bundled boats at the marina — call it serendipity — but I clearly recall being hit with the jolt of possibility when I noticed a "For Sale" sign on one. We phoned the owner, who arrived minutes later to offer a tour of a charming Tanzer 7.5 named *Scallywag*. Throwing caution and my logical research-based approach to decision-making to the wind, I listened to my heart, secured an agreement from my somewhat hesitant husband, and signed the check. We had a boat. What a perfect Mother's Day gift it promised to be.

Scallywag brought lots of happiness and some heartache. I treasure the memories of day outings and overnight campouts at anchor with our children. On the other hand, tension between a couple with divergent perspectives grew. One desired peacefulness, solitude, and the challenge of honing skills while exploring the far reaches of the lake. The other craved motor outings to raft up and enjoy beer with friends. Even my rose-colored outlook could not disguise the obvious. Our partnership was not suited to realizing the dreams of future sailing adventures. The onboard strains were symptomatic of deeper relationship fractures that grew beyond repair. The incompatibilities became insurmountable and *Scallywag* was one of many casualties of the marriage's end.

New partner, new potential

A few years later, new love struck in the form of a gentle, caring guy, passionate about nature, mechanically skilled, and living a self-sufficient lifestyle. Tim Martens had only modest sailing experience from the distant past, but it was enough to plant intentions of someday doing more. He had recently acquired a fixer-upper Cal 21. Casual conversations in our early dating days fanned the dying embers of my sailing-away-from-it-all dream. Soon, the dream evolved into "someday" plans of cruising together.

We considered our options for making this a reality. Tim was self-employed and his usual pattern of seasonal

***Ariose* is equally at home on land or at sea (Lake Temiskaming, that is). Shirley Jones and Tim Martens are at home on *Ariose*.**

> “Our dreaming led Tim to fall in love again . . . this time with an Alberg 30.”

work lent itself to such adventure. My full-time employment was an obstacle. Perhaps I could get an extended leave from work? How could we augment our limited sailing skills? What would it take to sail from northern Ontario to the Caribbean and maybe beyond? The tropical waters and breezes and the allure of living in the moment seduced us. The challenges we would face excited us. The experiences promised by new lands and people inspired us. We recognized the hurdles in our path: knowledge, skill, finances, and time, not to mention finding the right boat!

Our dreaming led Tim to fall in love again . . . this time with an Alberg 30. It did not take much to convince me that this graceful lake-sized, but ocean-worthy, beauty would be ideal for us. If Yves Gélinas could accomplish his solo circumnavigation in one, certainly we could manage some coastal cruising in one. Easter weekend was just ahead and we had no plans. At that time, there just happened to be three — yes, three — Alberg 30s for sale in Ontario. With inspection checklists firmly in hand, we set off on a weekend road trip around the province.

We first checked out a very discouraging specimen. This Alberg was still on its cradle in ill-fitting winter garb and had not been opened since fall. When we climbed the ladder and stepped through the companionway, we were shocked to step into water. We were able to verify that the cockpit cushions were indeed buoyant and we figured that the engine was likely spic and span, having enjoyed a long submersion bath. This boat had suffered too much neglect and the refit she required was beyond our current means.

The next Alberg had been relatively well-cared-for and was a delight to tour. We thought perhaps this could be ours, but it was a little pricey and some of the modifications, though well done, were not what we were looking for. Besides, this was, after all, just a reconnaissance tour. Work commitments precluded us from getting on the water that summer and we had no intention of actually buying a boat.

Just right

Our final stop was a well-cared-for, reasonably priced 1971 beauty sitting high and dry on a trailer. Cue the Goldilocks syndrome: the first too wet, the second too pricey, and this one . . . Well, with this one, which bore the melodious name *Ariose*, we tried to feign disinterest. But Tim’s whistling snips of “Halleluiah,” from Handel’s *Messiah*, may have given us away. As soon as the owner was out of sight and, we hoped, earshot, we let our enthusiasm bubble over and agreed this was it!

A few weeks later we were back, a long day’s drive from home, with a surveyor at our side. Once he confirmed that nothing daunting seemed to be lurking, *Ariose* was ours. We hooked her up and cautiously hauled her to her new home eight hours north. Her first summer with us, she sat on the hard at Haileybury Marina, overlooking Lake Temiskaming, her future waters.

Haileybury is a two-part marina and we chose the southern section, which has wider berths, fewer boats, lots of maneuvering room for learners to navigate, and more privacy for overnighters. By some geological quirk, building a stone breakwater proved impossible, so the eastern portion of the south marina’s protective breakwall is a floating structure. Although not as effective as solid stone, it does calm incoming waves. For the coming season, we chose the slip farthest from shore, where the effort of the longer trek when laden with gear was more than rewarded by the spectacular eastward view toward the shores of neighboring Quebec and by the illusion that we had the marina and lake to ourselves.

Finally afloat

It was a long year’s wait to spring 2015. Crane day finally arrived and, as proud and nervous new owners, we secured lines where it seemed they would balance all 9,000 pounds of her. The crane lifted her gently and lowered her into the water. We resolved to spend as much time aboard as we could squeeze into our precious, limited northern season.

Our first weekend on *Ariose* we addressed rigging challenges. After accepting a tow from the launching dock to her berth, we spent our time unravelling the mysteries of blocks and lines and the jib furler and the art of getting comfortable on board. It was all new. Next weekend we would get out and sail. We were sure of it.

On our second weekend we focused on the engine. We figured out what went where and, step-by-step, with the Yanmar diesel manual close at hand, we completed the regular servicing and reassured ourselves that it — and we — were ready to go. We approached everything cautiously, enjoying the building anticipation of getting out for our first sail. Sunday evening arrived far too quickly, as ends of weekends are prone to do, and the demands of Monday’s work called us away. Next weekend nothing would stop us. Our adventures would begin.

Our first adventure was closer than we realized. Saturday arrived and our final preparations occupied us all day. We enjoyed dinner on board at the marina and turned in early. That night, tucked in safe and sound, we slept well, lulled by thoughts of heading out on Lake Temiskaming with the rising sun for a gentle maiden sail.

We did not expect our first sail to bring with it severe heeling. Nor did we expect to be thrown about in our cabin, surrounded by the sound of flapping sails. We had no experience of heavy weather sailing and were in over our heads. Then the haze of sleepy confusion lifted and we realized we were not, after all, under way. It wasn’t even first light, we were still tied to the dock. What the heck?

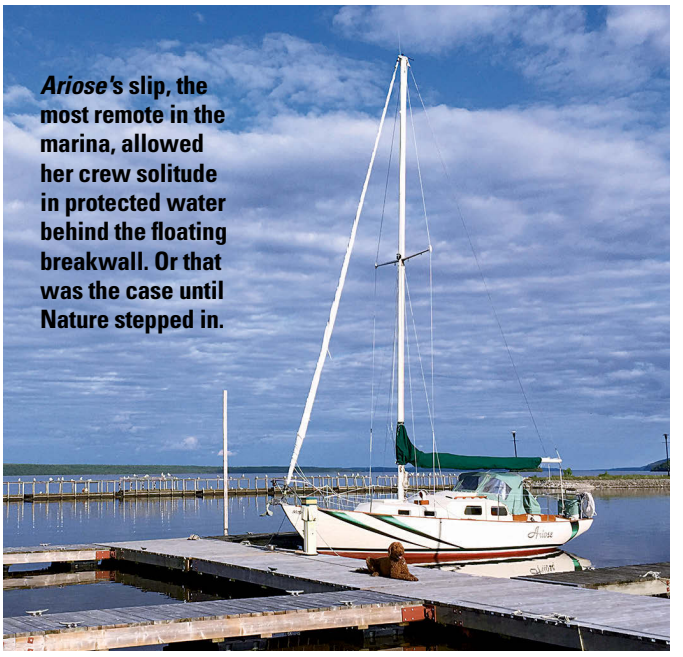
One small oversight

We thrust our heads up through the hatch and peered through the driving rain. Our situation immediately became clear. The weekend before, we had been so pleased with ourselves

for finally figuring out the workings of the jib furler it never occurred to us to secure its line. *Ariose* was showing her determination to set sail!

How big is a 150 percent genoa? Anyone watching would say it was definitely too big for a couple of novices challenged to an unexpected middle-of-the-night wrestling match. Make that a World Wrestling Federation-worthy match between half-naked participants competing against the backdrop of the flogging sail, whipping sheets, and the wind's thunderous roar. Add in a slippery heeled deck and lines straining against a heaving dock and all the elements were in place for imminent disaster or an entertaining show. Our greenhorn egos were grateful that others had headed home to sleep in drier, more stable conditions and were not witness to our blundering. Then I remembered the season-opening marina meeting where municipal staff proudly announced upgrades. Yes, security cameras had been installed this year and the whole marina was now in view. This match could soon be on YouTube!

In the end, we underdogs triumphed. We tamed and untangled the sheets, re-rolled the foresail, and secured the lines. Did I mention that we secured the lines? We crawled back into our cozy V-berth and eventually the adrenaline coursing through us subsided enough for us to be rocked back to sleep. We overslept our intended sunrise departure and, when we woke, the lake still looked far too angry for a first sail. It would be another day in the marina.



***Ariose*'s slip, the most remote in the marina, allowed her crew solitude in protected water behind the floating breakwall. Or that was the case until Nature stepped in.**

Déjà vu?

Our third weekend arrived and we were ready! The forecast wind was strong but within our capability. We overnighted at

our slip (as was becoming our routine) and planned to get an early start the next morning, determined to spend the full day on the water at last.

You can imagine our alarm when we were rudely awakened that night by our bodies being tossed violently port to starboard and back in the confines of the V-berth. The immediate fright was further fuelled by the soundtrack of crashing and ramming with taut lines screeching their protest. We jumped up, ready to reef the main, or bend on our trysail, or heave-to . . . something! (Yes, after the previous weekend we had checked to see what Google could teach us about storm tactics.)

But wait, this felt like déjà vu. We had yet to leave the dock. Hurricane-force winds are a rare event in northern Ontario, but surely, we thought, this gale must be up there on Mr. Beaufort's scale. We peeked out the hatch, startled to see a starry moonlit sky, no storm clouds in sight, and only a fresh breeze.

But strangely, the protected waters of the marina were whipped up with whitecaps. All the docks and their partnered boats were engaged in a raucous groaning and clanking rock 'n roll dance. By 0500 the sky brightened enough for us to make sense of the mystery. Haileybury Marina's floating breakwall had let go and swung into the marina, narrowly missing our stern. Our slip was now exposed to rolling surf driven by the easterly winds.

Not only had our sleep been interrupted, but our maiden sail was once again foiled. The breakwall now acted as a closed gate, trapping us in the marina. It would be days before equipment could be brought in to reset it. The harbormaster thought there might be 5 feet of depth at the breakwall opening and, with our Alberg's 4½-foot draft, we did consider an escape. But visions of grounding on our first sail — in the marina no less — caused wiser thoughts to prevail. We would not further tempt our fate.

Subsequent to that unfavorable start to the season with *Ariose*, the tide, so to speak, turned. We spent almost every weekend of the summer sailing gorgeous Lake Temiskaming — 30 days and nights in total — getting our sea legs, figuring out *Ariose*'s quirks, and beginning to set her up to suit ours.

Those someday dreams are now within reach. We have a winter filled with several necessary — and some nice-to-have — upgrades and general restoration. Future drama awaits, at dockside and beyond.

Shirley Jones, now that her three amazing kids have left the nest, is taking a break from her career in the mental health field to focus on making more of her dreams become reality. She was born and has lived most of her life in northern Ontario, and currently resides with her partner, Tim, near North Bay. When not aboard Ariose, *they live off-grid in a cozy straw-bale cabin.*

Hunter 20

Boats to review often come to me via interesting paths. In response to a request by *Good Old Boat* editor Karen Larson for photos of readers' boat barns, Sam Ault of Seymour, Indiana, sent in his submission, along with a note to say he has to temporarily put smaller wheels on the trailer to get his boat and trailer into his storage shed. This in turn led to Sam offering his nicely updated 1983 Hunter 20 for review. He sent excellent photos to show why it deserved a review (Sam is an aerial photographer). We accepted his offer.

I took a trip to Lake Monroe, near Bloomington, Indiana, in June 2016. Sam had by then moved his Hunter 20, *Memory Maker*, to a slip in the state park marina where he and his fiancée, Cindy, had been teaching themselves to sail. Cindy was on *Memory Maker*'s helm during the photo shoot.

The breeze on the day of the test sail was light and our photo boat was not readily at hand, so I hailed a passing Hunter 23. Owners Bob and Cathy agreed to provide the photo platform. I never got their last name, but am indebted to them for this service.

Memory Maker is a good name for this Hunter 20, as Sam and Cindy were married in July 2016 on the beach in Empire, Michigan, and took this handy trailerable boat on their honeymoon trip to Michigan's Lake Charlevoix and on to explore Canada's North Channel of Lake Huron.

Sam is very handy and inventive. One of the many improvements and updates he's made to *Memory Maker* was to completely repaint her. She looks like new.

History

Hunter Marine founder, Warren Luhrs, began building Luhrs and Silverton Sea Skiff powerboats in 1969 with his father, Henry, and brother John. The first sailboat he built on a production basis was his 1972 Hunter 25 "box top" model. Hunter Marine went on to build vast numbers of sailboats made affordable by streamlined production methods.

Reviewing the boats built by Hunter Marine on Sailboatdata.com involves a tedious counting of models ranging from 14 feet 6 inches (Hunter 145) to the oceangoing Hunter 50s. A total of 94 models spans 1972 to the present. The Hunter 20 was the 11th design.

Cortland Steck was the lead naval architect. Hunter only built this model in 1983 and 1984 and production numbers for it are not known, but it's safe to assume plenty are available on the used-sailboat market. Hunter Marine was sold to David E. Marlow of Marlow Yachts in 2012. Models since that date bear the Marlow-Hunter name.

Design and construction

When I sailed with Sam and Cindy, they were already talking about purchasing a larger boat. "You can have more comfort," I argued, "but you won't have better sailing than this 20-foot Hunter."

The Hunter 20 has a sleek underbody, and 400 pounds of its 1,700-pound displacement is in the cast-iron swing keel, which does not intrude into the cabin. The draft is 4 feet with the swing keel down and 1 foot 3 inches with it up. Much of the keel remains exposed below the hull when retracted, which might create a problem in a hard grounding. There is considerable overhang to the straight raked bow, while the transom is vertical to make the most of the boat's length. The sheer is relatively flat.

The sail area/displacement ratio is a lively, but not overly so, 19. A PHRF of 274 to 285 (depending on fleet) compares favorably against the

A handy trailer-sailer that's easy on the boating budget

BY ALLEN PENTICOFF

The Hunter 20 is a good basic boat for beginning sailors or those who are content to have a roomy cockpit and a tidy cabin for overnighting. Even if just daysailing, being able to use the toilet in privacy is a big plus.

Aquarius 21 and a swing-keel Balboa 20 with essentially the same numbers.

The boat's construction is standard: single-skin hand-laid fiberglass hull and deck, the latter stiffened with squares of ⅜-inch plywood. An aluminum rubrail covers the screwed-together hull-to-deck joint. One owner says he reinforced the transom in way of the rudder pintles, and the keel trunk where it had become worn from raising and lowering the swing keel.

Rig

The Hunter 20 is a ⅞ fractionally rigged sloop with single spreaders and single lower shrouds. It has boom-end sheeting for the mainsail, but the boom is quite short, so the sheet tackle is attached to the cockpit sole, where it's handy to the helmsman. I suggested Sam look into repositioning the cam cleat to be "up" for releasing the sheet. In my experience, this renders it easier to make speedy trim adjustments.

No winches are fitted on the Hunter 20. The halyards secure to horn cleats on the mast. This is acceptable on a 20-foot boat, but it does require a hard pull on the halyard to obtain good sail shape, particularly on the main. Sam replaced the original sails with Precision sails, including a 122-percent genoa on a CDI Flexible Furler.

Deck

The most obvious deck detail I noted was the pop-top above the cabin that gives standing headroom below. Fitted with a nice cover, this adds much to the comfort of the small living quarters. A small-boat pop-top also provides a nice place to stand and watch the world sail by while under way.

When Sam repainted *Memory Maker*, he added considerable non-skid grit to the paint he used on the narrow sidedecks. Because the inboard-mounted shrouds are in the way on the sidedecks, the usual path to the roomy foredeck is to hop on top of the cabin and go forward inside the shrouds. Teak cabintop handrails aid in staying aboard. Using a kayak hatch, Sam innovated an anchor locker in the foredeck where none previously existed.

This Hunter 20 is equipped with tall bow and stern pulpits with single lifelines, but they appear to be optional. Aft, a notch built into the transom accommodates a small outboard motor. The cockpit is plenty wide and roomy for several people, but four is probably the limit. I give it a PNI (Penticoff Napability Index) of 3.5 to 4 on a scale of 1 to 5. The port seat is adequate

The sloping cabintop extends far forward to maximize space below, yet the foredeck is clean and uncluttered, at left. Sam made the non-skid more aggressive to make walking forward safer, and he cleverly used a kayak hatch to add an anchor locker, at right.

The cockpit has room for four adults on seats that are comfortable when the boat is upright but less so when heeling, at left. The aft end of the starboard seat is short to allow space for a fuel tank. Shallow lockers under both seats provide stowage for deck gear, at right.

but the starboard seat is a bit short in the absence of an extension to cover the space for the fuel tank. There are shallow lockers beneath each seat. The seatbacks are comfortable when the boat is upright. Although the cockpit is self-draining, the outlet may need to be plugged while under sail if too much weight is aft.

The bridge deck is low, making cabin access easy. Three dropboards in teak guides close off the companionway.

Cabin

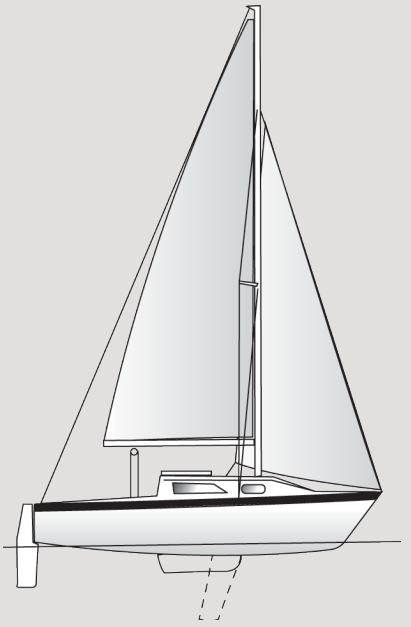
Two fixed windows, two opening portlights, and a forward hatch make the Hunter 20's cabin light and airy even when the pop-top is down. The V-berth is roomy enough that the newlyweds share this space. Raising a cushion reveals the portable toilet tucked under the V-berth. Two small quarter berths. extend under the cockpit.

The dinette can accommodate four, while the table drops to form another berth, but five people sleeping in a 20-foot boat is a crowd. Sam has replaced the countertop and the plywood bulkhead and relocated the sink to where the cooler had been. He reports that the stock sink needed a stopper to prevent water from backing up through the drain while heeled.

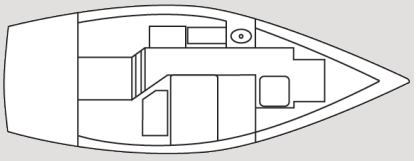
An aluminum compression post is something to hang onto while below. Sam covered it with PVC foam to avoid banged noggins. In addition to many storage cubbies in the cabin, there is storage aft under the cockpit footwell. A soft gray fabric helps soften the shiny white gelcoat of the furniture pan and the overhead. Cindy fabricated attractive and colorful cabin cushions with a starfish theme.

As previously mentioned, the swing keel does not intrude into the cabin space, but the winch for raising it is located on the bottom of the mast compression post. Below and to starboard is the electrical panel, upgraded by Sam to include a solar controller. Speaking of electronics, I noticed a tablet computer mounted above the foot of the V-berth on the aft face of the anchor locker so Sam and Cindy can watch movies while in bed — a nice touch. Sam has added a lot of natural-finished wood to the cabin, making it feel warm and comfy.

Hunter 20



LOA:	19 feet 8 inches
LWL:	15 feet 6 inches
Beam:	7 feet 6 inches
Draft keel up:	1 foot 3 inches
Draft keel down:	4 feet 0 inches
Displacement:	1,700 pounds
Ballast:	400 pounds
Ballast/disp. ratio:	.23
Sail area:	169 square feet
Sail area/disp. ratio:	19.0
Disp./LWL ratio:	204



Under way

I found no surprises under power as we departed from the Lake Monroe Sailing Association dock. While we had light and variable winds, some of the occasional puffs were strong enough to initiate a little weather helm and demonstrate that you can't just let go of the tiller and expect the Hunter to track straight. A reef in the main would have helped if the puffs had been more frequent. The transom-hung kick-up rudder blade has no balance area so, although quite effective, it feels a bit heavy on the helm. Sam reports the rudder can lose authority at high heel angles and cause the boat to round up. This is typical among smaller trailerable boats and points again to the need to reef early.

The location of the tiller allows the helmsman to stand up when conditions

The winch mechanism for the swing keel is at the base of the compression post under the mast. Opening portlights, windows, and the forehatch provide adequate light and ventilation in the cabin. Amenites include space for a portable cooler to port, and a table that lowers to form a berth with a basic electrical panel beneath. Sam has installed his electronics next to the wide companionway.

permit — or to lean against the stern pulpit and have a grand view all around. Visibility forward is not obstructed from a normal seated position. The cockpit seats are well spaced for bracing while heeled, but the coaming edge can dig into your back. Maneuvering around the mainsheet is easy.

Although the Hunter 20 points as well as your average little sloop, coming about was not quite as quick as I'd have expected in a boat of this length — not slow, just not dinghy-quick. We encountered no conditions in which to judge what the boat might be like in bigger waves but, going by its weight and ballast, it should do well in winds under 20 knots and seas of 2 to 3 feet. All in all, it is a very enjoyable boat to sail, with no surprises.

Conclusion

Trailerable boats of this size and age vary considerably in condition, so prices range from a steal at a few hundred dollars to a bargain at a few thousand for one like *Memory Maker*. The average price is about $2,500. Sam readily admits he has far more in *Memory Maker* than she's worth on the market but he's enjoyed working on this fine little boat.

Small Hunters in general are not overbuilt. As inland trailerable boats, they are not expected to sail offshore, and the scantlings and hardware reflect this. Nevertheless, they are affordable boats that deliver good value for a particular size. They are sort of the "Chevy" of sailboats. No one can deny that, by providing affordable means for people to access sailing, Hunter boats, new and used, have helped keep the sailboat industry afloat.

I would expect leaks in windows, gelcoat issues, and possibly damaged rigging on a small boat like this. But with some TLC such as Sam and Cindy Ault gave *Memory Maker*, these boats surely qualify as good old boats.

Allen Penticoff, a Good Old Boat *contributing editor, is a freelance writer, sailor, and longtime aviator. He has trailer-sailed on every Great Lake and on many inland waters and has had keelboat adventures on fresh and salt water. He owns an American 14.5, a MacGregor 26D, and a 1955 Beister 42-foot steel cutter that he stores as a "someday project."*

Resources

Don't expect Marlow-Hunter to have parts for this vintage boat, but much of the hardware is easily found at any chandlery or salvage yard.

Plenty of support is available through the network of Hunter owners and several Hunter groups on the internet, including: http://hunter.sailboatowners.com

Hunter 20, *Memory Maker*, lived up to her name by taking Sam (in his *Good Old Boat* T-shirt) and Cindy (Venus de Milo) Ault on their honeymoon.

Plumbing refreshed

When water pipes reach the end of the line

BY ROGER HUGHES

The plastic freshwater plumbing that had been in my Down East 45 schooner, *Britannia*, since 1977 was a horrible spaghetti-like mess at the bottom of the bilge that leaked constantly. The piping just hung there unsupported and fittings would vibrate loose or crack from old age. Tightening a connection or making a repair was a job for a contortionist.

Talking to other old boat owners — and owners of old boats — I learned that problems with old pipes are common. Plastic pipes and fittings become brittle due to heat, cold, and plain old age.

I decided to bite the bullet and replace the whole system with new fittings and pipe, along with a more powerful water pump. Our 3-gallons-per-minute (gpm) pump did not have the capacity to serve multiple outlets simultaneously.

I found a nice-looking plumbing system at Lowe's, something used in new-home construction as an alternative to expensive copper pipes. I reasoned that if this system was considered suitable for installing permanently behind walls, then it would also be suitable for my boat.

I bought two 100-foot coils of ½-inch-ID crosslinked polyethylene (PEX) tubing for $27.95 each. One coil is red for hot water, the other blue for cold water.

Color coding by itself would be an improvement. Because all the old pipes were gray, it was difficult to know which was which without running hot water through them. Also, the original pipes were routed behind bulkheads and panels, where they were easy enough for the boatbuilder to install but inaccessible to the owner trying to do maintenance years later. I planned to re-route my new pipes where they would be more visible and I could inspect them and get to the connections. By doing so, I could also make the pipe runs shorter.

Lowe's also sells the matching PEX pipe connectors made by Blue Hawk and guaranteed to 100 psi. Ace Hardware stores sell similar fittings under the trade name Watts. Although a bit more expensive, the Watts ½-inch female adaptor (of which I needed seven) has a useful advantage: an internal sealing ring on the straight threaded adaptor eliminates the need for reams of PTFE tape to form a watertight connection.

I estimated how many elbows, tees, and straight connectors I thought I might need, but ended up having to change some for others (I used 28 in total). An advantage of buying from large chain stores is that I was able to return items for exchange or refund.

Roger says the original pipework must have been installed by someone with a grudge against boat owners, top left. He cursed it every time a connector leaked. The new hot and cold manifolds are easy to inspect, identify, and repair, top right.

After being packaged as coils, far left, the pipes would not straighten out without Roger's ingenious method of "racking" them. The black plastic insert goes into the PEX pipe, near left, to stiffen it before it's pushed into the connector. Pushing the blue removal tool against the connector allows the pipe to be pulled out. Pipe shears cut the pipe square and clean without any burrs or swarf (shavings), below.

Running pipe

Uncoiling the tightly rolled plastic pipe was like wrestling an octopus. It didn't want to form into anything like a straight length. I decided to tie one end to the pulpit of the boat and uncoil it down the deck, then tie it to the stern rail and leave it there in the Florida sun. Within a few hours, the pipe had succumbed to the heat and become workably straight.

To route the pipes more directly to the aft cabin head/shower, the forward head/shower, and the galley, I had to drill ¾-inch holes through bulkheads, some of them in hard-to-reach places. *Britannia* has 10 hot and cold outlets, including for a washing machine. By the time I'd run twin pipes to all of them, I didn't have much pipe left over.

We had been living with a 3-gpm electric pump for years, but it never really had enough pressure to supply the washbasin faucets in both heads at the same time. Simultaneous warm showers were out of the question.

I decided to double the flow, using a 6-gpm Par-Max Plus pump by Jabsco that I bought at West Marine for $187. This is a powerful pump and I was a bit wary of increasing the pressure from 35 psi to 60 psi, but I knew, if it proved to be too much, I could return it in exchange for a lower-capacity pump.

I first set about making hot and cold manifolds, using tee connectors joined together. I screwed these to the side of our machinery bay just below the cabin sole, where they would be easy to get to in the event of a failure. I installed the heavy pump just below the manifolds, head down, per the instructions.

It was then just a matter of leading each pipe to a manifold connector, trimming it to length, placing the insert in the pipe end, and pushing the pipe into the connector. The best way to cut this type of pipe is with pipe-cutting shears that slice through the pipe perfectly square and leave no burrs.

Pieces of pipe are easy to join using the connectors: simply place a small insert into the end of a pipe and then push the pipe end into the connector until it bottoms out through an O-ring in the fitting, which seals the joint. An internal barbed ring prevents the pipe from blowing out.

These fittings are surprisingly easy to disconnect. Place a small C-shaped removal tool over the pipe, push it against the fitting while pulling the pipe, and out pops the pipe.

The Watts connectors are a far cry from those I replaced, in which the female outer bezel first had to be slid onto the pipe, along with a sharp barbed ring (that I cut myself on more than once) and a plastic ferrule. The outer coupling then had to be screwed into its male connector — but not too tight or the plastic coupling could crack and I would have to begin again. Repairing one of these in the bottom of the bilge was a tedious operation, especially if it was behind a panel.

Resources

Lowe's
www.lowes.com

Ace Hardware
www.acehardware.com

West Marine
www.westmarine.com

Out with the old

I'd spent two days getting this far. To keep our water supply on, I had left the old pipes and pump in place. This also allowed me to double-check the old connections against the existing layout to be sure I was joining the right pipe to the correct side, whether hot or cold. (The color-coded pipes made this much easier to do.)

On the third day I was ready to disconnect the old pipes. We knew we would not be able to run any water until all the faucets were reconnected, so we first filled a few pans and the kettle with water. I then spent the better

As a reward for his labors, Roger can now refresh himself under a powerful shower.

part of a day stretching inside lockers, unscrewing the old connectors, and "piping up" the new ones. One reason it took so long was because the threads on the faucets were not all the same size. After all, it's a boat! So I made the inevitable trips to the store to buy adaptors and exchange fittings.

I fitted stop-cocks in the hot and cold supplies at the washing machine. We close these when the machine is not being used in case the machine's internal valves fail.

I also replaced the 15-amp circuit breaker in the electrical panel with a 20-amp breaker. The new, more powerful pump would draw more current than its predecessor.

The pressure goes on

After all this came the moment of truth. Because there was only air in all the new pipes, I opened all the faucets, checked all my fittings for the third time, said a little prayer, and then pushed the breaker. The pump immediately started up . . . then ran, and ran, and ran, but with absolutely no sign of water at any faucet. The newer diaphragm pumps like the Par-Max Plus are capable of being run dry, so I was not immediately bothered by this turn of events. But after a few minutes passed, I wondered why I wasn't seeing even the slightest spurt coming from the outlet nearest the pump.

Then it dawned on me: both water tanks have shut-off valves that enable either one to be used as required. I remembered closing the valves to prevent leaks while I connected the new system, and I couldn't remember opening them. Without thinking to switch off the pump, I lifted the floorboard above the valves. Both were closed. I quickly opened one.

The pump instantly changed its tone, as though it were talking to me . . . and what it was saying was not complimentary! In an instant water gushed from all the faucets with much more force than we had been used to. I switched some off, then turned on the shower in the aft cabin — it was as powerful as our house shower!

I quickly inspected all the connectors. I would be lying if I said I had no leaks. On three connectors, I hadn't pushed the pipe fully enough to engage the O-rings, but that was easy to remedy. A couple of the threaded connectors dripped, too, but a few extra turns of a wrench took care of them.

After this, all became silent . . . until I opened a faucet and the pressure drop activated the pump. The moment I closed the tap, silence again. Wow! But that means we might need a larger hot water tank. Six gallons will not last long in a powerful hot shower, even if it is mixed with cold water

Repercussions

Few improvements you can make on a boat are without some sort of downside. In this case, the greatly increased water flow and pressure would likely cause us to use much more water than previously, especially in the shower. Luckily, the boat has a larger than average water capacity for its size, 330 gallons. Still, at 6 gpm, it doesn't take long to use a lot of water. This would be no problem when we had a shore supply, but we recognized that we would need to be more frugal at sea. It's just a matter of remembering to not open a faucet quite so wide as we were used to.

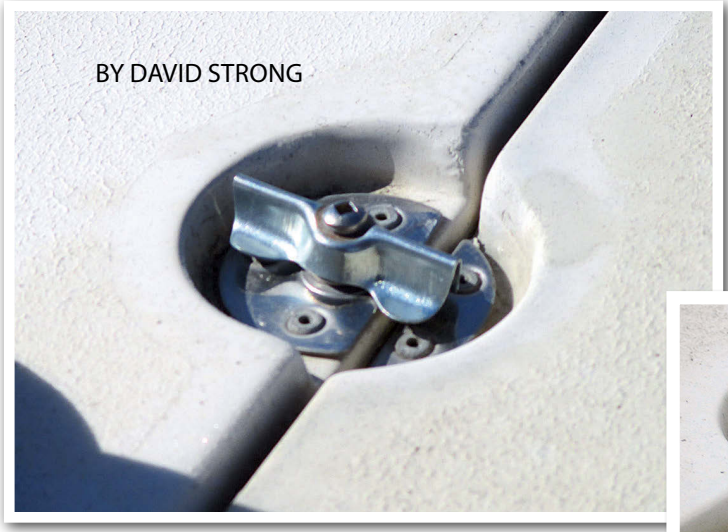
Then again, we could always buy a watermaker. After all, as a very famous yacht designer once told me, "You can do anything you want to on a boat. All it takes is money."

Roger Hughes' bio is on page 13.

Buttoning down the anchor hatch

A stubborn small task is done at last

BY DAVID STRONG



David's turn-button assembly for his anchor hatch, above and far left, replaced the original plastic ones that had long since disintegrated, at left.

When we purchased our 1976 Ontario 32 sailboat a few years ago, we knew she needed a refit. Most of the tasks on our to-do list, from large to small, were straightforward. Yet one very small, but significant, item plagued us for several years.

Sometime in the boat's 40-year life, the plastic elements of the turn-button catches that secured the anchor locker hatch at the bow had simply disintegrated. Only gravity held the hatch closed. Because the locker is massive and holds a lot of expensive ground tackle, temporary workarounds would need to evolve into a permanent solution.

I was loath to make a mess of the deck, or to go through the effort and expense of installing completely new hatch closures, and it took me quite some time to think up a simple, cheap, and humbly elegant solution to the problem. Since the metal wear plates of the existing closure system were still there and in perfectly good shape, I focused on making a replacement turn button.

The final design solution came in the form of a traditional zinc-plated folded-metal turn button (also known to some of the Canadian persuasion as a toggle), a #10 x 2-inch stainless-steel through-bolt with a washer and double nuts, and a short length of scrap rubber tubing.

One key design consideration was that vibration might cause a loose turn button to open at the worst possible time. The role of the rubber tubing, a scavenged ¼-inch-diameter fuel line, was to prevent this. I cut a piece of the tubing long enough to sit inside the main body of the turn button and protrude just a little from it. The idea was that, when I installed the turn button, the tubing would compress against the deck plate and provide sufficient friction to hold the turn button in place. I experimented until I found exactly the length of tubing needed to provide the right level of resistance.

The compressed rubber also provides a moderately effective seal against water penetration through the deck. Because it is largely concealed from the sun within the body of the turn button, it should age slowly.

The turn button itself has a very low profile and mostly fits within the recess created for the old fitting. Still, for the safety of those walking barefoot on deck, before installing it, I spent a few minutes filing off sharp corners, taking care not to significantly damage the zinc coating.

To install the new turn button, I removed the old post by simply pulling it out, then drilled through the center of the existing plate where the post had been. I inserted the bolt through the turn button, tubing, and deck, and with the help of a second pair of hands down below, slipped on the metal washer and locked the bolt in place with two nuts. As a bonus, the system is slightly adjustable for depth, up to the length of the bolt and the rubber tubing. When I eventually replace the locker seals with new thicker foam, raising the the hatch a little, I will simply back off the locked nuts to achieve the required depth.

All told, using parts available from any hardware store, the turn button refit cost less than $5. Although I have no intention of testing the system in a knockdown, I am now confident that the anchor locker hatch is properly secured.

David Strong is a professional engineer who has sailed for many years on Lake Winnipeg, Manitoba, Canada. He enjoys tinkering with boats to a point that might be defined as "refitting" them. He is always on the quest to make his boat a more robust and resilient cruising platform. He currently cruises with his wife and their young golden retriever aboard Scheherezade*, an Ontario 32 with many fine stories to tell.*

Vacuum-packed cushions

No more huffing and puffing when stuffing

BY RICHARD SILVER

As an amateur cushion-maker for multiple sailboats, I enjoyed Connie McBride's article in the March 2016 issue, "Building Settee Cushions." I also like the look of an overstuffed cushion with no cover wrinkles and, like Connie and Dave McBride, I have struggled to stuff an oversized foam piece and accompanying batting into a finished cushion cover. Recently, I discovered a neat trick to simplify the job.

I took great pride in having come up with this trick and was excited to share my accomplishment with others. However, as with other aspects of sailboat restoration, something always comes along to keep me humble. While watching a how-to video on the Sailrite website, I was amazed to see this very technique being used . . . and deflated to discover I was not its sole inventor. But if Connie McBride has not yet discovered the method, I think it must still be worth sharing.

Wrap plastic around the long sides of the foam (1), tuck it in securely, hospital-corner style, on both short sides (2), and attach a vacuum suction hose at the zipper end (3). The miracle happens at this step (4) when the foam shrimks to a pancake. Insert the foam in your new cover (5) and remove the plastic or not, according to your plan.

To perform this trick, you'll need a vacuum cleaner with a hose attachment and a sheet of thin plastic large enough to completely wrap around and cover the foam and batting about one and a half times, with extra plastic overhanging the sides. I use a 6-horsepower shop vac and a 3-mil plastic painter's dropcloth.

Start by wrapping the foam and batting in the plastic, like a taco, leaving the zipper side open and with lots of extra plastic on that side. Fold the sides of the plastic under, as when making a bed with hospital corners, to make an airtight seal on each end. Place the vacuum cleaner suction hose directly on the foam at the open zipper side and gather the plastic tightly around the hose. Turn on the vacuum. The foam and batting will quickly shrink to a pancake.

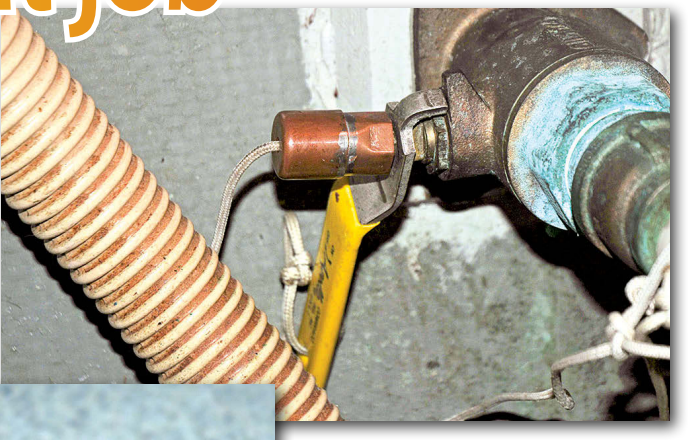
While the vacuum is still running, slip the compressed foam and batting bundle into the cushion cover. (A helper makes this part of the task easier.) Turn off the vacuum and adjust the cover as necessary. You may then remove the plastic or leave it in the cover. Zip up the zipper and you're done!

Richard Silver built an 8-foot pram dinghy 56 years ago. Properly initiated, he has since sailed a couple of S2s, a Hunter 27, a Watkins 33, a Morgan 321, and is currently rebuilding an Offshore 33. His mother taught him to sew, and it has paid off.

Just another nut job

Getting a grip took a little help

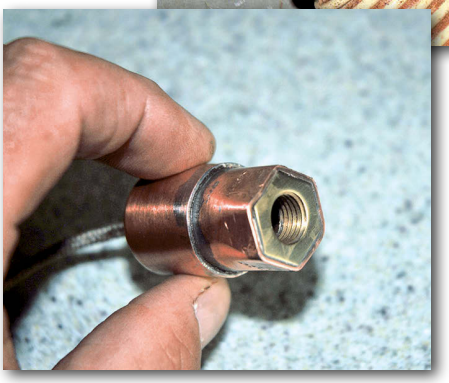
BY GLYN JUDSON



To comply with the spirit and rule of USCG regulations, we keep the seacock on the holding tank's overboard discharge closed and disable it by removing the handle. When I need to operate the seacock, I retrieve the handle, which hangs on a short tether in the bilge, and slip it over the square shaft.

My wife, Marilyn, had difficulty holding the handle in place while applying enough effort to operate the stiff seacock. Rather than have her fiddle around with the original stainless-steel nut to attach the handle every time she needed to open or close the seacock, I made her a special tool.

I shaped a short length of ¾-inch copper pipe around a 7/16-inch #20 brass nut, fitted the pipe into a ¾-inch copper end cap, and sweated all the pieces together. The cobbled-together nut hangs on its own lanyard next to the handle. When Marilyn needs to operate the seacock, she can now easily secure the handle in place.



Glyn Judson and his wife, Marilyn, have sailed Santa Monica Bay and the Channel Islands together since 1982, for the last 20 years on their 1979 Ericson Independence 31, Dawn Treader, *that they keep in Marina del Rey, California. They always sail with Glyn's current guide dog in training.*

No-spill oil filter change

A juice box traps both oil and cartridge

BY BOB WEISMANTEL

Changing an oil filter without making a mess is a challenge I have long faced, as have many other boat owners. Despite having relatively good access to the side-mounted filter on the Universal M-30 in *Larina*, our 1984 Tartan 33, I never seemed to be able to change it without spilling some oil.

Then a good friend suggested cutting one side out of a plastic milk container to make a catchment device I could slip under the filter to catch any oil that drained as I removed it. I found that a cardboard juice container is just the right size for my filter and the cap is conveniently placed where I can later drain the captured oil through it.

To make my filter trap, I cut the side of the container opposite the cap so it forms a flap. I slip the container under the filter, then spin the filter off and simply set it into the container and remove everything from the engine room at the same time. The flap helps contain the oil as I maneuver the container away from the engine. Clean and easy!

Bob Weismantel started boating when he was in his teens. He and his wife, Ginger, have been sailing together for 46 years. They have owned their current boat, a 1984 Tartan 33, since it was first launched 34 seasons ago.

The horizontally mounted oil filter is perfectly designed to spill oil when it is removed, at top. A common juice container can be quickly adapted to catch both oil and filter by cutting the side of the container opposite the cap around three sides and leaving it as a flap, above. With the container in place, the filter can be spun off and dropped into it, along with the oil, far left. The flap helps contain the filter and oil in the juice carton while it's being moved around, and the oil can be drained through the cap, at left. The filter and container can then be discarded together.

"This is my 3-year-old grandson, Lucas, and me aboard *Freedom Row*, my 1971 Columbia 34, out for Norfolk's Harborfest on Chesapeake Bay. The little guy was not nervous at all, not even when the Coast Guard told us to move farther out from the Navy base!" When Bill Flandermeyer shared this photo, we posted it on goodoldboat.com. When we selected it from dozens of others to appear in this issue, we sent Bill a *Good Old Boat* cap or T-shirt. Have a favorite photo of your boat or crew? Send it to karen@goodoldboat.com!

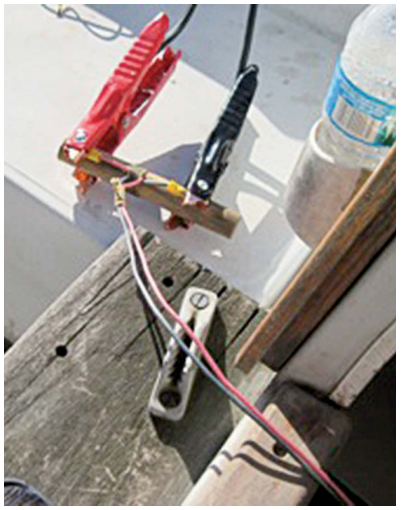
continued from page 5

A good find

I found a free copy of your magazine in my boat at Spicers Marina in Noank, Connecticut, this weekend. After some research, I discovered that one of your contributing authors, Ron Chappell, used to own my present boat, *No Mas!* He wrote several articles related to *No Mas!* in 2000, including one specifically about his refit of the boat. So in the span of 24 hours, I discovered your magazine, discovered Ron Chappell, and read an article specifically about my boat in the magazine left in my cockpit.

Ain't the sailing community great?

–Jonathan Brackett, Hollis, N.H.



Power bar

Tom Wells' portable power supply in the November 2016 issue of *Good Old Boat* reminded me of this dingus I made with parts on hand. The battery for my Balboa 20 spends the off-season in my basement. When I want to test the electrical systems without schlepping it out to the boat, I clamp my jumper cables to my truck battery, and the other ends to the brass bolts on the dowel. The leads from the dowel are attached to the battery leads down in the hull. This provides power to test the radio and check the lighting systems.

–Chas. Hague, Des Plaines, Ill.

GOB got him through

Last year was not among the best. My work position was eliminated, my boat was wrecked in a nor'easter, and my best canine pal of 17 years passed. The one constant was *Good Old Boat*. The one highlight of the year was *GOB* publishing my article on repairing portlights.

Things are looking up. I recently moved to northeastern Mississippi where I have a great position with a fine health-care system and I'm about 15 miles from Lake Pickwick on the Tennessee River.

This is trailer-sailer country and I may be in the market for another boat very soon. You can bet that I will happily renew my subscription to *Good Old Boat*.

If I can't sail . . . I can dream.

–Howard Nelson, Corinth, Miss.

Slipper 17 and Starwind 27 reviews

The reviews of the Slipper 17 and Starwind 27 (September 2016) caught my interest. I own a 1990 Seaward Fox and a 1987 Starwind 223. I found the articles fairly accurate.

The Slipper 17 is my model of the Seaward Fox, an excellent sailboat. It's the model in the gap between the original Slipper 17 and the cat-rigged Seaward Fox introduced in 1993. When I first saw a Slipper 17, I just had to have one. Luckily I found the one I currently own. I made many improvements on it to bring its quality up to that of a sailboat I would be proud to own.

Setting up the Seaward Fox for a sail takes but 15 to 20 minutes. One person can easily rig, launch, sail, and retrieve her. Responding to the many inquiries from onlookers takes much more time. As it has the hull of a catboat, a sloop rig, and a winged keel, I get many questions.

I had a near dismasting last year when the stem fitting cracked and broke. I found out that Racelite Hardware manufactured the original hardware. Every piece of hardware for my Fox is still available.

When reading the review of the Starwind 27, except for the additional length and the inboard, I thought I was reading a review of my Starwind 223. It is a racehorse waiting to get out of the gate — pure energy under any wind. She heels quite quickly and can get away from you very fast. The workmanship is fantastic. When you enter the cabin, you are not entering a fiberglass shower stall like so many other sailboats of her size; she's very well appointed.

Thank you for the articles. If you get a chance, glance through my blog, At the Helm (http://standingatthehelm.blogspot.com).

–Bob Macks, York Springs, Penn.

Boats for Sale

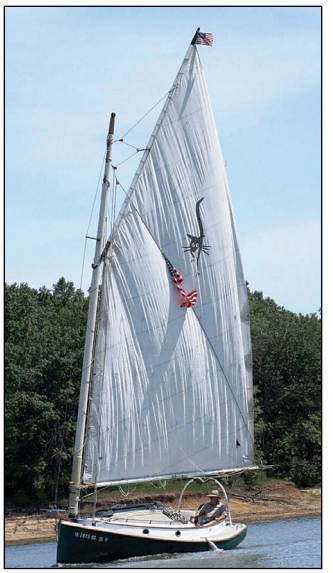
Westerly Tiger 25
1969. Well-maintained, fin-keeled sloop, hull 90. 7-hp Volvo MD1 diesel. Awlgrip '04. FB main, Genoa, working, No 2 jib, spinnaker, whisker pole, Furlex furler, Evo ST 30 chrome sheet winches. Numerous electrical upgrades to hull, mast, control panel, and starter/generator circuits. GPS/plotter/sounder, VHF, and AP. Forward cabin w/enclosed head. Propane stove, enlarged icebox, and modified dinette converts to double berth. Steel cradle and much more. Dollar Bay, MI. $9,750.
Jim Spence
spencetimes2@gmail.com

Bristol 32
Classic 1975. Turnkey! Very dry! Restored: painted hull and topsides w/non-skid. Deck hardware, toerails, handrails, eyebrows all rebedded. Fabricated new rubrail, little-used new main and RF jib, bungee-retractable lazy-jacks, new SS opening ports screens, custom-built fridge, nav station and storage cabinet. Press. H/C water system, nearly new 25-hp diesel, canvas like new. Owner's age forces sale. Chesapeake Bay. $35,000.
Frank Parish
410-231-2045
ftparish@comcast.net

Seaward 22
1986. 9.9 Tohatsu and aluminum trailer. RF. Excellent cond. Lake Norman, NC. $5,000.
Larry Williams
336-764-4467
336-462-0393
willialw@wfu.edu

Pearson Vanguard 32.5
1964 sloop. Always in fresh water. Restored '02 to '07; better than new. 20-hp diesel, 3-blade feathering prop, new cherry/mahogany interior, Sunbrella cushions. New plumbing and electrical. Awlcraft and Awlgrip. Race/cruise equipped. Profurl, standing rigging replaced. Cradle, custom winter cover. Lake St. Clair, MI. $29,000 OBO.
Peter Polasek
313-886-3781, 313-550-1259
dppolasek@aol.com

Passport 47
1984. *Chessie* is a big, strong, capable offshore vessel. Repowered recently, less than 250 hours. Generator, air, solar panels, wind generator, refrigeration, and good ground tackle. With some updating she will be ready to sail anywhere. Her rig is ICW friendly at 63.5'. Her owners lived aboard for 9 years and moved ashore several years ago. She's almost ready for her next adventure. Hampton, VA. $119,000.
Ron Mclean
757-480-1073
bayhbr@aol.com



Bill Boyd Catboat 23
1979. 23' x 10' x 27" draft (5' CB down), 6,000 lb. Wm. Garden design. Pretty, roomy, heavily built, stable, environmentally friendly with lots of character. Will go about anywhere. Folding mast, new sailcover, good sail. New cushions, Porta Potty, new canvas cockpit cover. Triple-axle King trailer. Electric Yacht IB. She's a joy to sail! Williamson, IA. $8,000.
Ford Brockman
fsbrockman@hotmail.com

Sea Sprite 33
1984. This is not your father's Sea Sprite. *Panache* has been featured in 2 episodes on PBS. Relaunched in '07 after $200,000+ keel-up restoration with more upgrades every year since. New Awlgrip Timeless Green hull paint in '15. Brightwork refreshed every year, fresh bottom paint '16. Butterfly hatches added '14. This full-keel vessel backs like a dream with its powerful bow thruster. Manitowoc/Kenosha, WI. Minimum bid $125,000.
Richard Charette
847-867-8296
richchar96@gmail.com
www.panachesailboat.com

Pearson Vanguard 32.5
1964. Championship boat. Exc racer/cruiser. Very good cond. 3' bowsprit. Racing main and genoa, cruising main and genoa. Many extras. 3GM30F Yanmar engine w/500 hrs, feathering prop. Hempstead Harbor, Long Island, NY. $25,000.
Robert Tatem
516-984-5654

Menger Cat Boat 19
1995. Nice, lightly used by a string of senior mariners. Includes Yanmar, depth, 2 mainsails, cockpit cushions, stove, Porta Potti, etc. Lots of stuff included. In the water and ready to go. Original EZ Loader trailer in decent shape (not registered) is free if desired. New River, Jacksonville, NC. $14,400.
Dale Weston
910-455-9916
majortest@earthlink.net

Pearson Vanguard 32
1964. Hull #66. Same owner 32 years. New Profurl, rigging, spreaders. Beta Marine engine w/86 hours. Cushions inside and out. Secondary forestay, 2 awnings, cap rail covers, ST winches. Tiller autohelm, Aries steering vane, solar panel. 4 sails, roller boom, reef points, lazy-jacks. New stovetop, good fridge. Avon tender, anchors, etc. Many extra parts. Dodger frame, Awlgrip paint. Fort Lauderdale, FL. $17,000.
Pierre Soucy
954-515-8240
Solutions5@hotmail.com

Camper Nicholson 35
1976. Classic good old boat. Reviewed *Good Old Boat* Sept/Oct 1999. Fully equipped and ready to sail away. Boat does need some "lipstick and rouge" to bring back her luster; she is priced accordingly. An extensive equipment list is available. Lake Charlevoix. $38,500.
John & Cristina Staats
231-373-0955
jstaats@racc2000.com

Cabo Rico 38
1984. Handsome, classic design by Bill Crealock. Cruising cutter, full keel, protected rudder. Heavily built ocean cruiser. Fresh water since 2004. Good, clean cond. Professionally restored hull. Deck recaulked. New bowsprit. New main, Genoa, spinnaker, staysail, running rigging. Many reviews including in *Good Old Boat*, May/June 2012. West Michigan location. Stored inside. $95,900.
Warren Fritz
269-345-8004
jubilate38@gmail.com

Kalik 33
1979. Beautiful sailing yacht w/sleek long lines and unrivaled responsiveness. Full teak decks. Well maintained, one owner. Equipped for racing and cruising. Welcoming/spacious teak interior, sleeps 7, large U-shape galley w/ stove/oven, dedicated nav station w/chair. Lots of storage. Tall rig, spinnaker gear, aft-led halyards, 6 oversize 2-speed winches (2 ST), folding prop. Large sail inventory. Raymarine ST60 electronics including radar/chartplotter. Yanmar 20-hp diesel. Competitive race record. City Island, NY. Winter storage included. $29,500.
Frederic Chandler
347-927-3350
fred.chandler@barronsboatyard.com
http://www.barronsmarine.com/news/kalik-33-35-000

Islander 29
1967. Well maintained in good cond. Bristol brightwork. Raised dinette saloon w/ample storage throughout. New interior and cockpit cushions. New holding tank system. Well-running Atomic 4 engine, freshwater-cooled w/ electronic ignition. Vapor and high water alarms. Pro-Furl RF, 3 anchors, 2 Plastimo cockpit compasses along w/Datamarine knotmeter and depth sounder, 3 bilge pumps, 2 VHF radios, new stereo, Raymarine GPS. Many extras! Beverly, MA. $11,000.
Dean Gibbons
978-609-6903
deangibbons67@gmail.com
http://islander29.tumblr.com

Willard 30
1995. Custom-built downeast-type trawler. To step aboard is to return to an era when naval design featured rugged construction and traditional layout. Interior is light, airy, and uncluttered. Salty looking with bronze opening ports and cowl vents and stabilizer poles w/ paravanes. Heavy displacement, 2,500 lb encapsulated lead ballast. Extra fiberglass in bilge provides great stability. Mechanicals all modern. Dinghy included. Long Island, NY. $79,000.
Andrew Galasso
631-722-3400
Andrew@lighthousemarina.com

Vineyard Vixen 29
1976. Solid fiberglass hull. Rigged for bluewater sailing. New Doyle main and custom hank-on jibs w/ self-tacking boom, including 110 jib, storm jib, Genoa, sheets, and rigging lines. Sits 6 in cockpit, sleeps 3. Marine brass gudgeon '13. Insulated for winter sail. Newport Dickerson wood stove '11. 8.6' beam, 4.6' draft. Inboard Westerbeke 4-cyl diesel w/50hrs. 15-gal bladder '14. 30-gal water tank, 15-gal fuel tank. AC 110volt, DC 12volt. 2 Batteries '14-'15. Brooklyn, NY. $14,000.
Christina La Bue
347-668-4747
clabue@gmail.com
http://newyork.craigslist.org/brk/boa/5801958688.html

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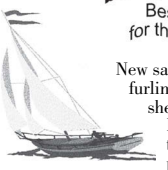

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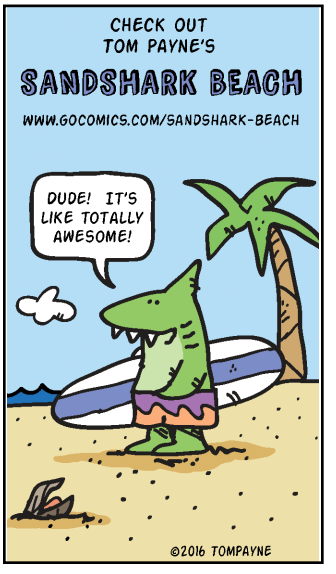

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Mar/Apr	Jan. 2, 2017
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Winter solitude aboard Avanti

A logbook by lamplight and a flood of memories

BY TOMMY COOK

I'm an old man with an old boat moored not far from my old house. My desire for new things has waned into a dying moon sliver with the passing of this 70th winter and my 52 years spent on, around, and sometimes in the salt waters of the world. I say to my wife, "... going down to get some heat in her," and she knows I'll be gone awhile.

Most things I do aboard are menial. I start the engine, check the batteries, and percolate some coffee. I rub my special blend of teak oil and pine tar here and there to shine things up a bit and renew *Avanti*'s special boat smell. I check the bilge water with a drop on the tongue to see whether it's rain or salt water. After taking care to get my mug-o'-Joe just right, I sit down and break out a palm and needle to put whippings on an old halyard cleaned new again in the washing machine.

A small rain begins when the shadows of the Olympic Mountains swallow the dim winter day. I light *Avanti*'s fireplace and lamps, refresh my coffee, then open the ship's log. I put in the date, the weather, and write "done" at the end of "replace main halyard" on the work list. There's something about writing the ship's log by lamplight that floods the mind with long-gone memories.

I mused about being a sailor long before I saw my first boat. Born a Midwesterner who would never see the ocean as a boy, as a barefoot lad I still saw every tree climbed as a mast, every swing a ship. In school, I inspected globes pole-to-pole and searched geography books for maps.

Hindsight makes it easy to see now how all my voyages really began the first time I heard the word "ocean." I was young, very young. My mother, the teacher ever ready to open doors of the world to children, put a seashell to my ear and said, "Listen, that's the sound of the *ocean*."

Old boats spark good memories and in them I find my very oldest. It is of my mother taking me from bed and wrapping me in a blanket, saying, "We've got to go, there's a cyclone coming." And went we did, quickly, I remember, to the communal storm cellar in the schoolyard of the little Oklahoma town where she taught eight grades in one room for $75 a month. It was 1949-ish and it was there I saw my first kerosene lantern, watched its flame, smelled its fumes, and waited out my first storm, the first in a long, long line of storms.

Also interspersed among these memories is one of the summer night when my oldest brother pointed skyward and said, "Look! The Dippers." I did look and my small paradigm rumbled, shook, then shifted, never to shrink again. I came to know those stars by their names: Polaris, Kochab, Dubhe, and more. I learned the sextant, chronometer, compass, and spherical trigonometry. I know how to fix my position on any ocean of the world.

The rain turns harder as the darkness deepens. I put down the pen to search for leaks around the ports and in this locker and that. As expected, I find some, leaks being a way of life for old boats and old men, but the only thing to do now is add them to the work list. One job done, two more to do.

Outside, nightfall chills the air. Inside, the fireplace warms the cabin. I think about all the ships and all the boats. I think about the seafarers I've met and anchorages I've found. I think about the money too ... all the money I've spent on moorages, fuel, boatyards, and busted gear. And in a moment of delicious solitude, I come to a conclusion: I'd rather have had a boat than money. I'd rather have had this boat and the memories of all the boats I've owned than all the money I've ever earned. Money means so little now compared to the boats that brought my childhood dreams true.

Tommy Cook sailed professionally and for pleasure for 50 years. He has owned eight sailboats from an AMF Mini-Fish to a Corsair F-31UC. Over the course of a 24-year career in the U.S. Coast Guard and a 26-year career as a merchant marine captain of ocean vessels to 1,600 tons, he has sailed every ocean of the world. In all those thousands of sea miles, no adventure was greater than his ongoing quest to sail the Northwest Passage singlehanded. He's crossed enough oceans to know that coastal cruising is the most fun.

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