GOOD OLD BOAT™

The sailing magazine for the rest of us!

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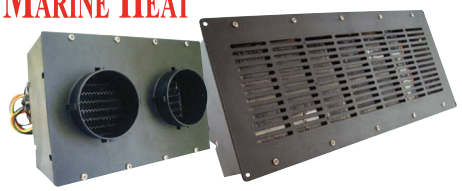

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Typographical errors are unintentional and subject to correction.

Good Old Boat

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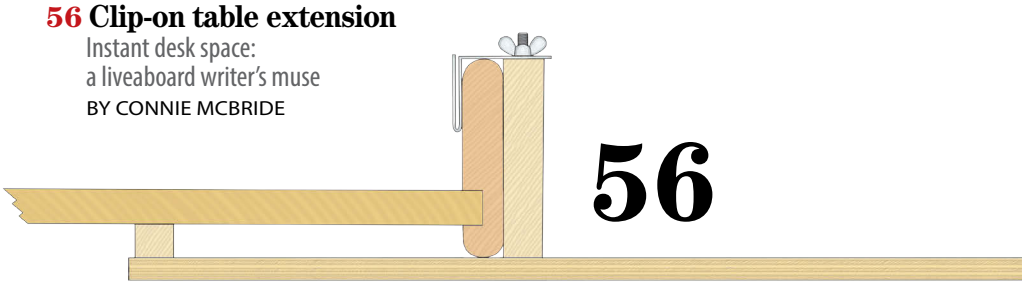
For the love of sailboats

Speaking seriously



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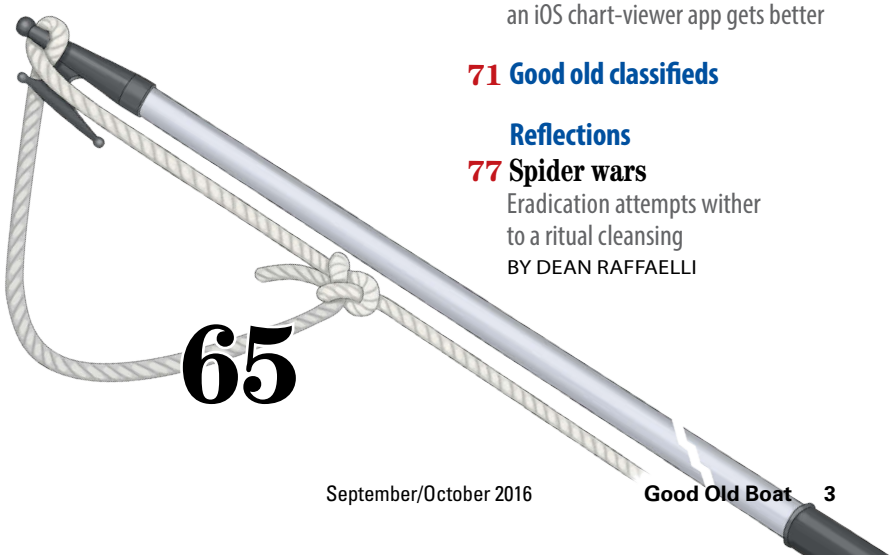
What's more

Just for fun

On the cover …

Lynn Watrous is all smiles at the helm of the 1969 Bristol 39 yawl *Mirari* sailing off Mystic, Connecticut. Lynn's sailing partner is *Mirari*'s owner, Dan Stadtlander. Last year, Dan raced *Mirari* to victory in the Bermuda One-Two, winning first in class and fleet for the singlehanded outward leg from Newport, RI, and first in class for the doublehanded return leg. *Mirari* was the cover girl on the May 2014 *Good Old Boat*. (Cherie Calabrese captured them with her Nikon 7100.)



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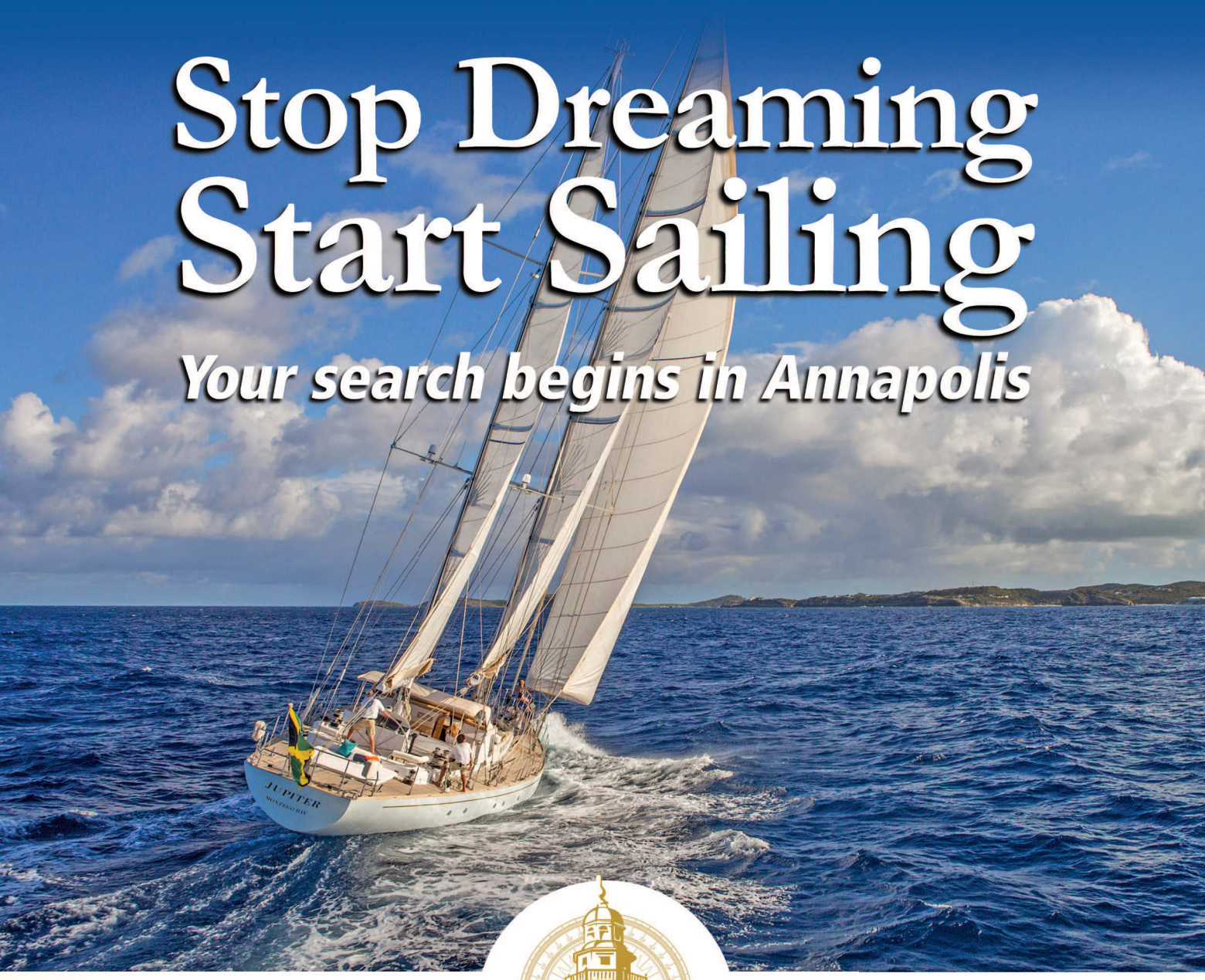

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What boat is that?

When walking the docks, wouldn't it be nice to identify a Tanzer or a Tartan, a Bayfield or a Bristol, simply by its cove stripe and other builder's marks? We can help. Did you know *Good Old Boat* has amassed what is likely the largest online resource of cove stripe identifiers? Check it out. And if your boat's builder (or that of your neighbor's boat) is not on the list, please take photos and send them to karen@goodoldboat.com. We rely on dock walkers like you! At www.goodoldboat.com select Boat Identifiers from the Resources for Sailors tab.

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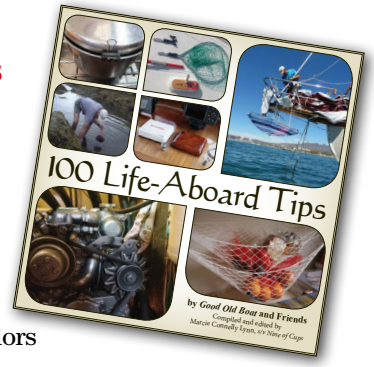
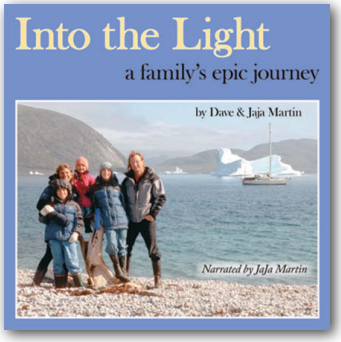


A free download: 100 Life-Aboard Tips

It started as a fun Facebook project: Could we come up with 100 tips for cruisers? With your help, we did. Soon after we celebrated that mini-victory, we heard from the non-Facebookers among our subscribers. "We, too, want to read all those tips!" they said. And thus, a new ebook was born. *100 Life-Aboard Tips* is a PDF file you can download for free from the Free for Sailors section at www.audioseastories.com.



Into the Light

As cruisers, Dave and Jaja Martin consistently chose the path less traveled. One of their unconventional cruising adventures took them beyond the Arctic Circle with their three children — the older two were schooled in Iceland one winter and Norway the next. Their book about this period, *Into the Light*, is an honest look at life aboard in the best and worst of times. Narrated by Jaja and unabridged, it provides 14.2 hours of listening enjoyment. $25 for a download at www.audioseastories.com.

Generation next

BY KAREN LARSON

Sailing with the heirs to our pastime

Opti-student twins Violet and Henry get a feel for a big boat, above. Jerry Powlas and the "adopted" grandkids (from left) Avital, Matilda, and Maggie, at right.

This was the summer that will be remembered fondly aboard *Mystic* for the times we took kids sailing with us. We didn't go far. In one case we were never out of sight of the marina, but we did introduce sailing to five enthusiastic youngsters between the ages of 4 and 14.

Not long after launching our C&C 30 for the season, we invited a family of five to visit for a weekend. They slept in a nearby motel. Due to *Mystic*'s size and the amount of gear we carry aboard, we daysail when we want to share the experience of sailing with others.

They say you can't choose your relatives. In the case of this young family, the children's grandparents are not nearby and they adopted us as surrogates. We were flattered. Shouldn't all sailing grandparents try to impart to the next generation some interest in their favorite pastime? This wasn't going to be difficult. These kids had been wanting to go sailing for quite some time. I had to laugh when I entered their motel room. The two younger girls, were already wearing their life jackets and squealing in delight at the very prospect of a sailboat ride.

We sailed one cool afternoon after a rainstorm had passed and the following morning in much warmer circumstances . . . until the next series of passing squalls complicated our plans and it was time for their departure. Each of the girls — Matilda, 4; Maggie, 7; and Avital, 14 — took the wheel for a time and they all (parents too) helped with our sailing chores: making up lines and stowing fenders, raising the main, rolling out the jib, tacking, and preparing docklines for arrival.

For the younger girls, the destination was the goal, although they will remember some of the sailing activities as building blocks for another visit in a few years. They were looking forward to visiting a beach at Madeline Island on the warm day. All the adults aboard were glad to be tied up there (just coincidentally) when a fast-moving storm blew through. The seven of us huddled in *Mystic*'s cabin as we waited out the blow, which did cut the beach time short.

At 14, Avital was in her glory on board. She had read a series of nautical history books for young adults called the Bloody Jack Adventures, and she immediately imagined herself as Jacky Faber, her favorite heroine in the series. Avital already understood much about sailhandling and wind direction. She took to the wheel eagerly and laughed as the wind blew her hair. She wanted to learn every knot, do every chore, know all there was to know about sailing. We will long treasure her enthusiasm, along with that of her younger sisters who were simply thrilled to participate as part of the crew. We basked in their obvious joy.

A month later, friends at our marina were visited by their grandchildren, 9-year-old twins named Violet and Henry who live in Manhattan. These kids took classes on Optimists every day and were learning about sailing from an entirely different perspective. They had just finished day one of their class when their grandmother introduced them to me as they headed to Grandma and Grandpa's powerboat. Once Henry and Violet learned that I was a sailor, they filled my ears with all the cool things they had done on their little boats that day. Their enthusiasm was contagious.

A few days later, we invited them to sail with us. They had plans in a couple of hours but we all begged, and Grandpa agreed to let us borrow them just for an hour. These two wanted to know every term, be involved in every evolution, identify every part of the boat. They were true sponges regarding all things sailing and had already learned many knots and much of the nautical vocabulary. We enjoyed every minute of the precious time they were aboard, and we hear that, after they arrived back home, they gave their parents an earful about all the sailing things they did during their week in Wisconsin.

For Jerry and me it was revealing, encouraging, and powerful to experience sailing as brand-new through these energetic youngsters. Each one had unique responses to the experience of sailing, and they were all a pleasure to have aboard. We look forward to further planned and serendipitous opportunities to share this pastime we call sailing with the sailors of the future.

Refit reflections, tank troubles,

Sandy Wells caresses the new jib furler, part of the retirement refit she and her husband, Tom, gave their Tartan 37, *Higher Porpoise*.

Refit reflections

When you own an older boat, you'll eventually need to make some decisions. Will you trade it for a newer boat? Will you keep it and perform major upgrades to make it shipshape? Will you keep it and perform major work if and when it is needed? Will you keep it but just do the minimum possible until it's time to sell?

Planning for retirement aboard forces you to make the decision quickly between the first two options, because as-needed maintenance is not an option. We chose to perform a major refit on our beloved Tartan 37, *Higher Porpoise*. Now that work is largely complete, a look back is worthwhile.

We started with a thorough review of each and every system, and our list of upgrades quickly grew to an unanticipated size — and cost! This was a major decision point for us and we chose to forge ahead. Since we planned to perform almost all of the work ourselves, we didn't have to factor in a lot of unknown yard costs, but as very good friends told us at the Chicago boat show, we were still "hemorrhaging money."

Our list included a new engine, prop, shaft, and shaft seal; new standing rigging; new running rigging; new furler; new anchor and rode; new autopilot; new instruments; radar; a new reverse-cycle heat/AC system; a new RIB dinghy and motor with a davit system to carry it; and oh, by the way, several long-deferred repairs including a new lower rudder pintle. We accomplished all of this work over a single winter, and we find ourselves now wondering how we did it.

In retrospect, was it worth the cost and effort? For us, the answer is a resounding "Yes!" When the boat went back into the friendly waters of Mark Twain Lake for a brief period of sea trials, she felt and performed like new.

We still have our boat, but she's now up-to-date and much more dependable. She'll go north to the Great Lakes for the final step and the only work we are having done by a yard: a custom keel reduction so we'll be able to sail the shoal waters of southwest Florida.

Our decision to do the refit is one we won't regret, because it fit our planned lifestyle perfectly. As for you, consider what you want from the boat and how you'll use it. If a refit feels right, don't let the work involved scare you off. You'll find that having the cost of improvements already invested is a great motivator!

–Tom and Sandy Wells, *Higher Porpoise*

Near miss with a corroding fuel tank

I found out the hard way that two of my aluminum tanks (water and fuel) on my 1983 CAL 35, *Caliente*, had to be replaced/repaired because they were in contact with exposed, but out-of-sight, copper grounding wires.

The bottom of the fuel tank was supported at its aft end by the pyramid-shaped housing for the propeller strut. After more than 30 years in contact with the exposed grounding wire for the bronze strut, the tank failed due to corrosion.

I was lucky that my boat was on the hard and the bilge pump was disconnected at the time, or the boatyard would have been assessed a hefty environmental tab for an expensive cleanup and who-knows-what kind of groundwater contamination that 30 gallons of diesel would have caused.

Due to its odd shape, I had to cut the fuel tank into three pieces so I could remove it through the lazarette. There was also a strong lack of resolve for the alternative — removing the engine to extract the tank intact. Using heavy cardboard, I made a mock-up for a new tank that would fit through the lazarette hatch and into position. I also used a liberal dose of 3M 5200 to hold a sturdy piece of rubber in place on top of the strut housing to prevent a recurrence. Off I went to the fabrication shop and, a good part of the unexpected budget expenditure later, a new tank was in place. I lost only 2 gallons of capacity.

The problem with the leaking water tank came to light in a more humorous way. I was in the shower and, suddenly, no water! I was naked, soaped up, and on all fours in the galley, looking under the sink for the diverter valve for water tank number two. It was my first year of ownership, so it took a while. Thankfully, my wife didn't take pictures.

Removing the water tank was much easier. A relatively inexpensive welding job took care of the repair.

–Ed White, Hull, Mass.

and a Cutless question

Crossing swords over Cutlesses

I just read Robin Urquhart's article on stern tube replacement ("Stern Tube Surgery," July 2016). What a job. And it taught me that even bronze may not last. Luckily, my tube is glass.

I must question his decision to epoxy-in a cutless bearing, however. My experience is the bearing needs replacement every eight years or so. How will he remove the bearing to replace it? Am I missing something here?

–Terry Thatcher, Portland, Ore.

Robin replies

There are a couple of schools of thought that I'm aware of regarding using epoxy to set the Cutless bearing. Some advocate for bedding in epoxy to ensure alignment and as a redundant feature should the setscrews give way. The bond strength on a smooth bearing is not as strong as many would think. Removal can be a little more difficult as the bond has to be broken, but unepoxied bearings often have a corrosion bond anyway, so the removal method is actually the same.

To remove the bearing, I would heat up the strut, tube, or bearing housing to break the bond. I would then remove the setscrews and cut the bearing in half using a reciprocating saw. A screwdriver or metal rod inserted in the setscrew holes and pushed against the bearing will collapse the bearing into itself, further breaking the bond. It should then be easy to remove. This was the case when we originally removed the bearing before finding out we had a problem with the stern tube.

Another common method used when installing the bearing is to lightly grease it and then embed it in epoxy so a bond won't form.

Many people don't use epoxy at all and rely on the setscrews for all rotational resistance. I think it is a matter of preference and bearing style. I've done all methods. I don't use epoxy for bearings that are so tight they have to be frozen and dish-soaped before being inserted into the tube. For others that turn with the screws out, I do. But, to be sure, it can make it more difficult to remove.

–Robin Urquhart, Atlin, British Columbia

Too short

I have a mild complaint. *Good Old Boat* is not nearly big enough. I can read all of it in a single evening. I get my fix and have to wait another two months . . . is this really a complaint?

–Jim Shell, The Woodlands, Texas

continued on page 68

Can you imagine a better September photo? On a Sunday sail aboard *Rapa Nui*, a 2006 Seaward 26RK, Carlos Tessi snapped this image of New York Harbor's green marker #1 with One World Trade Center as a backdrop. The pretty schooner sailing across the Hudson River in the distance is *Pioneer*, 102 feet long and built in 1885 to haul sand. Do you have a favorite photo of an aid to navigation? Send a high-resolution copy to karen@goodoldboat.com. If we print it here, she'll send you a *Good Old Boat* cap or T-shirt.

Dress Blue, an Alerion Express 28

A Bristol modern daysailer with a Bristol heritage

BY BILL JACOBS

From my Florida condo overlooking Sarasota Bay, I frequently scan the water with binoculars, looking for interesting boats. For several weeks my focus was on a beautiful dark blue Alerion Express 28 being smartly sailed on a regular basis. I just had to find out more about her, but the Bay is surrounded with marinas, yacht clubs, boat basins, and private docks and I had no idea where this boat was kept or who the owner was.

One day, I received a phone call from my old friend and foredeck man, Roger Faust. He had recently met his son Harry for drinks at the Coq d'Or in Chicago. Harry was regaling his dad with stories of his first Mackinac race when a man in the next booth leaned over. "I'm sorry to intrude," he said, "but I'm a sailor and I'm fascinated by your conversation." The man went on to tell Roger that he had retired to Sarasota and was now sailing an Alerion Express 28.

"What a coincidence," Roger said, "I have a good friend Bill who lives and sails there."

So, through a chance meeting in a bar in Chicago, I was introduced to Stephen Neumer, owner of the Alerion I'd been admiring. It turned out that *Dress Blue* is hull #395, built in 2008.

I learned Stephen has a background similar to mine; we share a history of racing sailboats on Lake Michigan. His first boat was a Merit 25, a West Coast speedster dating back to 1978. After several years with the Merit, Stephen wanted a larger boat that would be better suited to competing in the port-to-port distance races held each summer by the Chicago Yacht Club. He purchased a new Express 27 designed by Carl Schumacher, one of the young naval architects then making their names in northern California.

When competitve sailing began to conflict with the demands of his work life as an attorney, Stephen stopped sailing and took up golf. A 12-year hiatus from sailboats ended when he retired in 2009 and purchased a winter residence in Florida. The excellent sailing conditions at his doorstep on the shores of Sarasota Bay rekindled his desire to sail. He set out to find, in his words, "the perfect daysailer."

A new horse for a new course

Stephen knew he wanted his daysailer to be reasonably fast and stiff enough for upwind sailing. She would have beautiful lines, an inboard engine, and be easily singlehanded. His main interest was daysailing, so he did not want lifelines to mar the appearance of the boat and he had no need for a full cruising interior. A comfortable cockpit was important. It had to be large enough for the occasional guest and to accommodate all the sail-control lines led aft.

Searching YachtWorld.com with those criteria, Stephen quickly zeroed in on the Alerion Express 28, the boat that, when introduced in 1990, launched an entirely new genre of sailboat, the "elegant daysailer." In response to the Alerion's success, more boats of similar design appeared on the market. Among the builders that produced them were Bluenose, Bruckmann, C.W. Hood, Friendship, Hinckley, Morris, Sabre, W.D. Schock, Tartan, and Wally Yachts. Other monikers for this genre include, "gentleman's daysailer" and, "modern classic," the latter inspired by the generous overhangs, sweeping sheer, and low freeboard that designers gave some of the new designs.

But, like so many things in life, the elegant daysailer was not a completely new concept. It harkened back to the early 20th century; an old concept propelled into modern-day focus.

The work of the Wizard

In 1912, renowned naval architect Nathanael "Captain Nat" Herreshoff, also known as the Wizard of Bristol (Rhode Island), designed a 26-foot keel/centerboard daysailer for his own use, a boat he could singlehand in shallow bays in Bermuda, where he spent time in winter. He named her *Alerion III*, his third boat named after a mythological bird from medieval times. *Alerion III* passed through several owners, the last of whom donated her to Connecticut's Mystic Seaport.

Fast forward three-quarters of a century, to 1988 and a racing sailor in Connecticut, John Schacter, who had a desire for an uncomplicated daysailer. His vision included a hull with the classic good looks of Herreshoff's *Alerion III* but, as a racing sailor, he also sought the kind of performance that could be achieved only with a fin keel. Familiar with the ultra-light, ultra-fast boats coming out of Santa Cruz, California, John scheduled a meeting

with Carl Schumacher, a renowned designer of the type. The two men sat down and discussed John's objectives. The Alerion Express 28 was born.

Even on paper she was beautiful. Her sweeping sheer encompassed generous overhangs and relatively low freeboard. A 9-foot-long cockpit and less than 8 feet of beam would allow just enough space below for a four-bunk interior, a small galley, and a head that was not enclosed. Below the waterline, the design's fin keel and spade rudder promised the agility under sail that John was seeking.

Production of hull #1 began in 1990, after John partnered with Holby Marine in Bristol, Rhode Island. Holby built seven boats before selling the molds to Tillotson Pearson, Inc. (TPI). By the end of 1992, TPI had built another 25.

After a few years, concerned that the Alerion Express 28 was a little on the tender side, TPI called in Garry Hoyt, creator of the Freedom line of sailboats and the Hoyt Jib Boom. The result of this collaboration was the addition of a lead bulb on the keel, bringing the

Nathanael Herreshoff knew how to make a boat look good and sail fast, so it's no surprise the Alerion Express 28, main photo, drew its inspiration from The Wizard of Bristol, who would have appreciated the technology in the eye-catching carbon fiber sails on Stephen Neumer's *Dress Blue*, upper inset. In the absence of lifelines and stanchions, the view from the helm is of a clean foredeck, lower inset.

Performance improvements are in the details. The Hoyt Jib Boom, above left, controls twist in the jib by maintaining tension in the leech when the sheet is eased. Lightweight control lines, above right, get even lighter when the covers are removed (green line at right) where not needed for handling. The multi-part mainsheet, at left, makes trim adjustments easy, and with all the control lines led aft along the cabintop, below, the sails can be set and trimmed from the cockpit.

ballast up to 2,200 pounds, and the Hoyt Jib Boom on the foredeck.

After making these modifications, TPI built more than 300 more boats. Today, USWatercraft makes several models of Alerion sailboats, including the Express 28, for Alerion Yachts.

Stephen was looking for one of these boats that was used but in excellent condition, and he found one in South Carolina. Her owner, a retired airline pilot, had named her *Dress Blue*. Stephen took a trip to see her and, after a rigorous survey, he purchased *Dress Blue* and had her shipped to Florida. He had her hull polished and her bottom painted at Snead Island Boatworks in Palmetto before sailing her the last 20 miles to Sarasota.

Tuning the well-tuned

After a couple of seasons sailing on Sarasota Bay, Stephen began looking for ways to make *Dress Blue* faster and easier for him to sail singlehanded. He contracted with Doug Fisher, the owner and sailmaker at Ullman Sails in Sarasota.

As well as running a successful loft, Doug has a specific interest in keeping aging sailors in their boats for a longer period of time. He believes some of the technology developed for racing sailboats can be adapted to cruisers and daysailers to make sailing them easier. "It makes me happy if I can help an owner stay in his boat and keep sailing," says Doug, whose father is in his 80s and still sailing.

He presented a number of suggestions he thought would make *Dress Blue* meet Stephen's new expectations. The first was a new suit of sails built of carbon fiber-reinforced sailcloth instead of Dacron. Stephen did not intend to regularly race *Dress Blue* but he does enjoy going fast, so he was interested. Beside the speed benefits, Stephen learned the exotic material is an excellent choice for reducing deterioration under the hot Florida sun, as carbon

fiber is more resistant than Dacron to damage from UV rays.

"The laminates enclosing the carbon fiber threads are still not as durable as conventional sailcloth, but they are getting better all the time," says Doug. "The material makes excellent cruising sails. The only disadvantage is the initial cost, which is about twice that of a Dacron sail."

Doug also told Stephen that, because the carbon fiber cloth is much lighter than Dacron, the mainsail would be easier to hoist. To Stephen, the gains in performance, durability, and ease of handling were appealing and worth the investment. *Dress Blue* got a new radial-cut main and working jib.

The roller-furling jib's carbon fiber cloth is further protected from the sun with a leech cover. A clew block on the jib allows Stephen to easily control the sail's shape from the cockpit.

To make singlehanding easier, Doug gave the main halyard a two-to-one purchase and installed the Strong track-and-slide system from Tides Marine on the mast. Guided by new lazy-jacks, the mainsail drops obediently into a custom mainsail bag permanently attached to the top of the boom. Doug also added purchase on the main outhaul, the traveler car, and the backstay.

Stephen had Doug replace all of the standard running rigging with low-stretch Dyneema yacht braid, which is stronger than polyester line and allows smaller, lighter line to be used, reducing weight aloft. Taking it a step further, Stephen had the covers stripped off the running portions of the halyards and control lines to reduce friction where they pass over sheaves. All this attention to detail resulted in a finely tuned, high-performance, easily handled daysailer. Stephen is delighted with his "new" boat.

> "Admiring this boat through binoculars was one thing. Getting a chance to sail aboard *Dress Blue* was another."

The voyeur gets a ride

Admiring this boat through binoculars was one thing. Getting a chance to sail aboard *Dress Blue* was another.

On a breezy late-winter day, I met Stephen at his slip. The first thing I learned is that he is a perfectionist. He'd made sure everything was ready for the day, down to carefully laying out the docklines in preparation for leaving the dock.

Stephen introduced me to his ultimate accessory for easy sailing, Patrick Hibbs, an excellent young sailor who frequently accompanies Stephen. Patrick is an able deckhand and his eagle eyes are constantly searching the water ahead for crab pots, shallow water, wind shifts, and other boats.

Before we cast off, I took a quick look belowdecks, stepping through the companionway hatch onto the removable ice chest that doubles as a step. The Alerion's low profile allows only 5-feet 1-inch of headroom below, but that is plenty for sitting in comfort. In Herreshoff style, smooth white laminate surfaces are trimmed in teak and the sole is actual teak and holly. There is a V-berth forward and a settee and a handbasin in the main cabin. While she doesn't boast a liveaboard interior, *Dress Blue* would be very comfortable for an overnighter or even for a weekend cruise.

As we motored out of the channel, I raised the carbon fiber mainsail, and was impressed with how little effort was required to pull the sail up the mast with its double-purchase halyard. A nice sea breeze built in from the southwest, probably 10 to 15 knots. When we unfurled the jib, *Dress Blue* began to fly. The large instrument displays mounted on the bulkhead next to the companionway showed us making an honest 7 knots on a beam reach.

At the forward end of the cockpit, color-coded control lines exit a bank of rope clutches mounted on either side of the cabintop. These manage the boom vang, traveler, slab-reef lines, jib boom, and backstay tension. Beneath each clutch, extra line is coiled neatly

Dress Blue **was designed as a daysailer, and that's how Stephen uses her, but she does have basic (and discreet) facilities, at left, for those who wish to stay out all day. The V-berth, at right, could be used for naps or overnights. The decor is typical of the Herreshoff style.**

For a 28-foot sailboat, 7 knots is an impressive speed, at left, fast enough to create white water and put a smile on the face of *Dress Blue*'s owner, Stephen Neumer, below.

and close at hand. Some might consider so many lines allowing for so many adjustments a bit excessive for daysailing, but Stephen, with his racing background, enjoys constantly tuning the sails and rig to match every change in the wind.

Because all the control lines for the sails are led aft to the cockpit, there is little need to go on deck and, accordingly, I didn't miss the lifelines. I did appreciate how their absence improved the sightlines.

Of course, on a daysailer, the cockpit is the focus of activity, and *Dress Blue*'s can comfortably accommodate four adults when sailing. The cockpit seats have a molded radius edge where they turn down to the cockpit sole, and the angled coamings, which are faced with teak that extends above the deck, provide plenty of support.

I took the helm and was pleased with the perfect balance of the tiller in my hand. Even in sudden puffs I needed no more than two fingers of pressure to keep her in the groove. Apparently, the ballast bulb was doing its job. Contrary to what I expected, *Dress Blue* is remarkably stiff in a breeze despite her relatively narrow beam.

Dress Blue **sailing in her suit of black sails is a common sight on Sarasota Bay. Stephen is often accompanied by his young friend Patrick Hibbs, another accomplished sailor.**

I have sailed many boats over the last 50 years and the Alerion Express 28 is exceptional. It feels like a much larger yacht while retaining the sportiness of a dinghy. The jib boom, which I had considered a visual blemish to *Dress Blue*'s lines, can only be appreciated under sail. The ease with which we tacked the boat, is incredible. Simply put over the helm and both main and jib slide smoothly to fill on the opposite tack. No releasing and no trimming — a godsend for the singlehander. The boom controls the leech tension on the jib, so the sail can be easily adjusted for wind strength and direction without the need to move jibsheet fairleads.

We sailed most of the length of Sarasota Bay (about 7 miles) in less than an hour and reluctantly turned around for the sail home. When we reached the dock, I enjoyed watching the precision with which Stephen and Patrick backed the boat into the slip, picking up each carefully placed dockline and making them fast. I can't imagine a more perfect afternoon of relaxed — yet high-performance — daysailing. The Alerion Express 28, as prepared and maintained by Stephen Neumer, is a beautiful, very modern example of the daysailer envisioned by Captain Herreshoff almost a century ago.

Bill Jacobs has been sailing for more than 50 years, racing one-designs and offshore boats as well as cruising the Great Lakes and the Gulf Coast. His current boat, and probably his last, is a 27-foot wooden sloop designed and built by George Luzier in 1962. She is genuinely old and genuinely good.

The Alerion

. . . meets a precursor and a follower

BY ROB MAZZA

As Bill Jacobs notes in his article on page 10, the design of the Alerion Express 28 was inspired by *Alerion III*, the boat Nat Herreshoff designed and had built in 1912 for his winter use in Bermuda. Given my fascination with the evolution of yacht design over time, I could not resist comparing *Alerion III*, essentially a 19th-century design, to one from the late 20th century to see how the "gentleman's daysailer" has developed over the last 100 years.

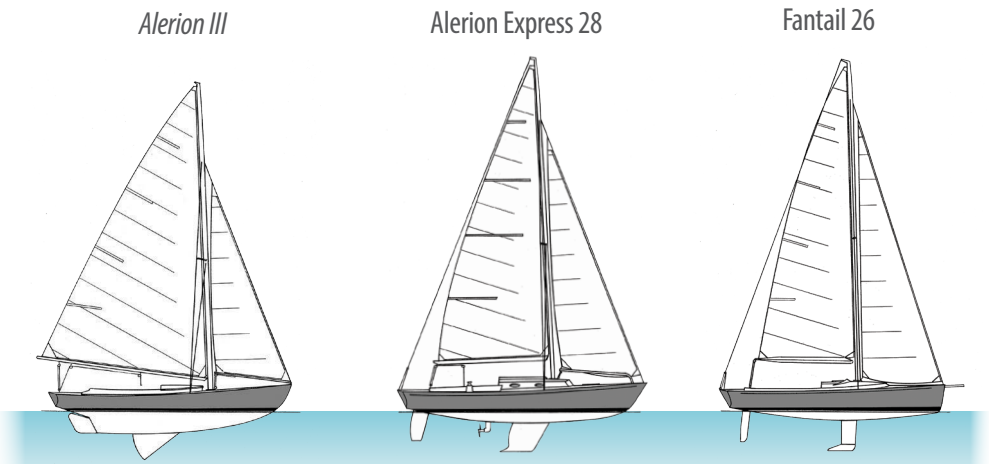
The third boat I have chosen for this comparison is the Fantail 26 designed by my old friend Tim Jackett and built by Tartan Marine. The Fantail 26 again embodies the same combination of elegance and performance that is the hallmark of many a daysailer.

Alerion III has a centerboard, which in some ways matches the fin-keel configurations of the other two boats by introducing a distinct and separate lifting surface, although the ballast center of gravity would be considerably higher. Note also that the modern-day Express 28 and Fantail 26 have the counter stern, moderate overhangs, fractional rig, self-tacking jib, and attractive sheerline that reflect the design aesthetic of 100 years ago. All three of these boats embody the large cockpit and minimal interior amenities of a daysailer but, in a lot of respects, the layout of the Fantail 26 with its cuddy cabin more closely matches that of *Alerion III*.

The Alerion Express 28 is the largest of these three boats by a little more than two feet. It is about a foot longer on the LWL than *Alerion III* and about a foot and a half longer than the smaller Fantail 26. However, the Fantail has the widest beam at 8 feet 5 inches, giving it a beam/LWL ratio of .4 against .35 for *Alerion III* and .36 for the Alerion Express. Also note that *Alerion III*, at 6,000 pounds is, not surprisingly, the heaviest of the three, with the Alerion Express being about two thirds her weight and the smaller Fantail about half. This produces a displacement/length ratio of a conservative (but not heavy) 260 for *Alerion III*, compared to a competitive 165 for the Alerion Express and a sprightly 144 for the much lighter Fantail.

In spite of her heavier displacement, with her larger 422 sqare feet of sail, *Alerion III* has a sail area/displacement (SA/D) ratio of a competitive 20.4, almost equal to the Alerion Express with its smaller sail area of 352 square feet. However, the Fantail, which has almost exactly the same sail area as the Alerion Express 28 on a displacement lighter by 1,400 pounds, earns a very performance-rated SA/D ratio of almost 27.

So, around a racecourse in light air, you would have to put your money on the Fantail 26 with so much more



	Alerion III	Alerion Express 28	Fantail 26
LOA	26' 0"	28' 3"	26' 0"
LWL	21' 9"	22' 10"	21' 2"
Beam	7' 7"	8' 2"	8' 5"
Draft CB down/up	5' 2"/2' 5"	5' 6"	4' 6"
Displacement	6,000 lb	4,400 lb	3,050 lb
Ballast	1,200 lb	2,000 lb	1,200 lb
Beam/LWL	.35	.36	.40
Disp./LWL	260	165	144
Bal./disp.	.20	.45	.39
Sail Area (100%)	422 sq. ft.	352 sq. ft.	353 sq. ft.
SA/disp.	20.5	21.0	26.9
Capsize number	1.7	2.0	2.3
Comfort ratio	27.0	16.8	12.1
Years built	1912	1990 to present	2011 to present
Designer	N.G. Herreshoff	Carl Schumacher	Tim Jackett
Builder	Herreshoff Manufacturing	Tillotson Pearson Inc. Alerion Yachts	Tartan Yachts

Express 28 . . .

sail area for its light displacement. As the wind builds, the wider beam of the Fantail will contribute to better form stability and better crew-induced righting moment, so that even in moderate breezes she would be a threat. As the wind builds and boat speed increases, the longer LWL of the Alerion Express will start to allow a higher hull speed. Once they turn more off the wind, the Fantail will certainly start to surf, if not plane, as the wind builds, especially when powered by the large asymmetrical chute on its short bowsprit. Close reaching in heavier air, *Alerion III* will come into her own with her heavier displacement generating stability even though her lower ballast/displacement ratio means she has a higher center of gravity. (I have had to take an educated guess at the ballast weight of *Alerion III* as I could not find it in any of the published literature. The construction plan for the boat indicates there wasn't a lot of it!)

With regard to comfort and safety, the heavier displacement of *Alerion III*, combined with her narrower beam, produces an easier motion with a comfort ratio of 27, and a very safe capsize number of 1.7. The Fantail's wider beam and lightest displacement produces the least desirable comfort ratio of 12.2 and an unhealthy capsize number of 2.3. However, since these boats were not designed to venture far from shore, one should not put too much emphasis on these numbers.

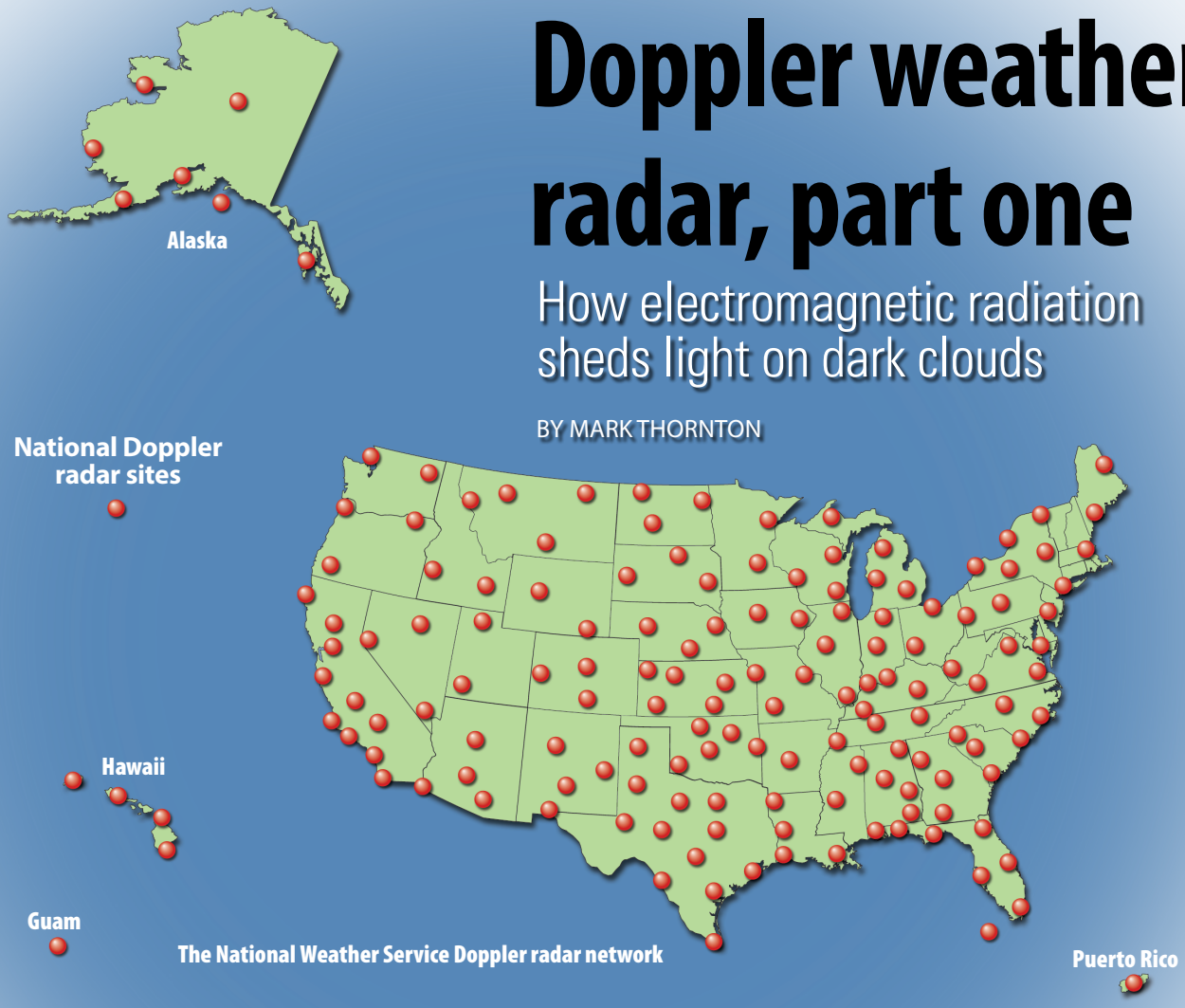
So, what great leaps forward do we see in the Alerion 28 and the Fantail 26 compared to Herreshoff's *Alerion III*? The biggest difference, of course, is lighter displacement as a result of modern building methods and materials, as well as reduced wetted surface from eliminating the full keel and its attached rudder. On the other hand, the rigs and design aesthetics are very similar. Nat Herreshoff might feel right at home in any of these three boats.

Rob Mazza is a Good Old Boat *contributing editor. He is very familiar with the nature of good old boats because, during his long career as a yacht designer, he put a lot of thought and energy into creating good new boats.*

Doppler weather radar, part one

How electromagnetic radiation sheds light on dark clouds

BY MARK THORNTON



The National Weather Service Doppler radar network

LAYOUT AND ILLUSTRATIONS BY TED TOLLEFSON

Rain, high winds, and thunderstorms can put a damper on any sailor's day. But forewarned is forearmed, and the best resource for monitoring the locations and movement of thunderstorms is Doppler weather radar. In this first of a two-part series, Mark Thornton explains the basics of how the radar works and describes the most common types of image created from the data.

The National Weather Service's Doppler weather radar network is comprised of 155 ground-based stations strategically placed to provide coverage over major population centers. Overlap in the system ensures continuous coverage in the event a station is offline for maintenance or due to an unplanned outage.

As a station's antenna spins, it emits very short bursts of energy pulses (at a wavelength of 10.7 cm) that travel radially away from the station at nearly the speed of light. If these pulses encounter a target, such as a raindrop, hailstone, bird, insect, or other object, a portion of the energy is reflected back to the station — backscattered. Although it sends out pulses 1,300 times a second, the station spends the vast majority of its time listening for, and extracting data from, the backscattered energy.

A lot of useful information is derived from the pulses, such as the target's direction and distance from the station, its height above the ground, its shape, and other physical characteristics. While the wavelength of backscattered pulses doesn't change, the frequency of the pulses shifts based on the movement of the target. By detecting this change — the Doppler shift — the station can determine if the object is moving toward or away from the station and the speed at which it is moving.

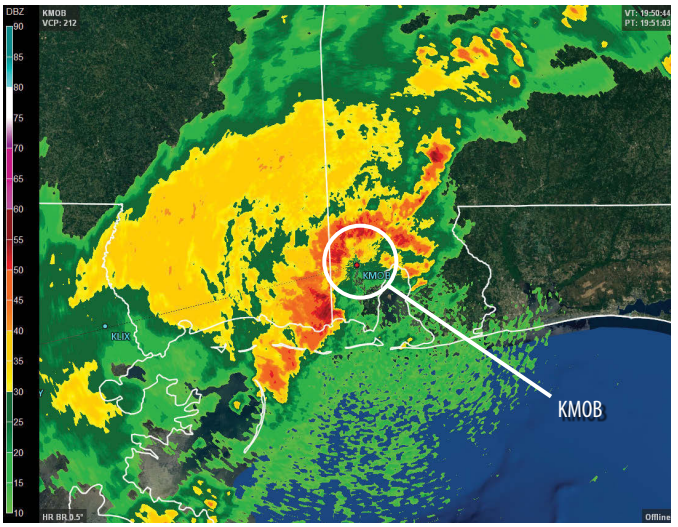
Data from the radar can be used to create several types of imagery. The two most commonly used are reflectivity imagery and velocity imagery.

Doppler imagery: reflectivity

Reflectivity imagery is very useful in assessing the overall size, intensity, and evolution of a weather system. Reflectivity is the amount of energy, measured in dBZ, that is back-scattered by a target. It is related to the precipitation rate (how hard it's raining) and varies dramatically based on the size, number, shape, and state (liquid or frozen) of targets. Values less than 20 dBZ indicate mist, dust, and other small particles. Extremely small particles, such as cloud droplets, are too small to be detected by NWS radar. Reflectivity values associated with rainfall range from 20 dBZ to 50 dBZ, depending on the number and size of the raindrops. Hail is typically present when dBZ values are greater than 55.

Reflectivity imagery is presented in two ways, base and composite. Base reflectivity displays only the data collected from the lowest layer of the atmosphere. Composite reflectivity, as the name suggests, merges the data from multiple layers of the atmosphere into a single image. By presenting

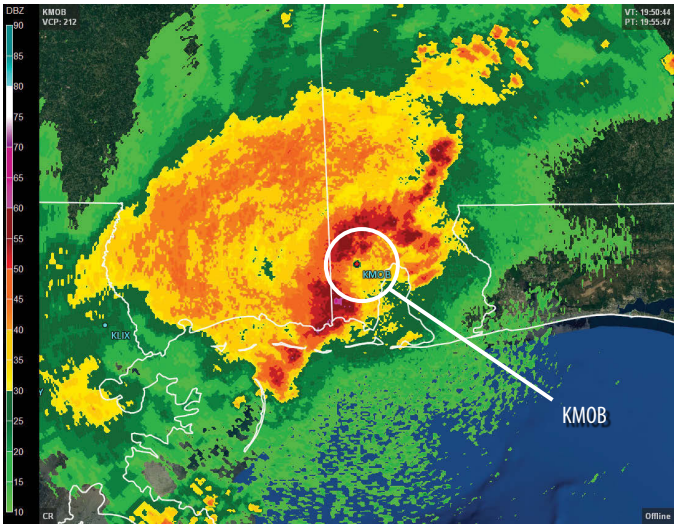
IMAGES COURTESY OF NOAA



This base reflectivity radar image shows precipitation detected in the lowest layer of the atmosphere by station KMOB. Colors from green to red indicate increasing intensity of the precipitation.

more data, composite reflectivity allows for a more complete analysis of a storm system's structure and evolution. Viewing a loop of reflectivity images is a very effective way of determining the direction a weather system is moving.

Color schemes vary based on the imagery source, but higher dBZ values are usually represented with brighter colors. On the composite reflectivity image (below), light rainfall (< 30 dBZ) is represented by shades of green. Yellow and gold show areas of moderate rainfall (30 to 40 dBZ). The most intense rainfall (and possibly hail) associated with the strongest thunderstorms appears as oranges and reds (≥ 40 dBZ). The small area of purple southwest of the station KMOB represents dBZ values greater than 60 and the presence of hail.



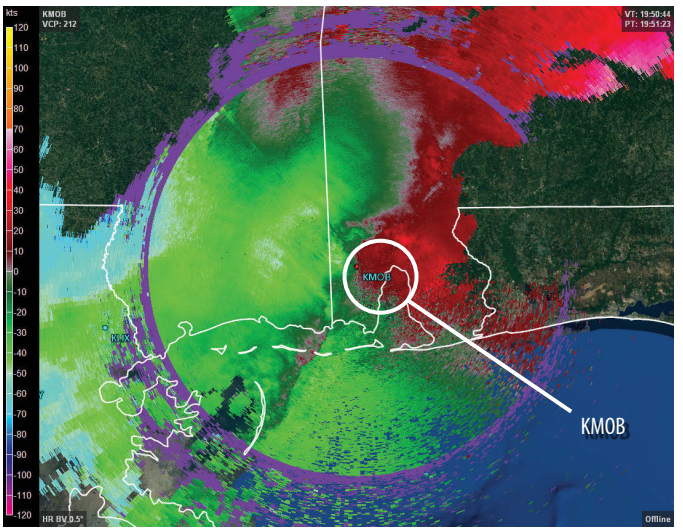
A composite reflectivity radar image from the same station combines data from multiple levels in the atmosphere to create a more complete picture of the storms or clouds encountered.

Doppler imagery: velocity

If you are ever in the path of an approaching squall line and wondering how much time you have to prepare for its arrival, velocity imagery can provide the answer by indicating the speed at which the line is traveling. Using data from the Doppler shift, velocity imagery displays the overall wind field relative to the station.

On the velocity image, the scale is in knots, with negative values indicating wind blowing toward the station (inbound) and positive values representing wind blowing away from the station (outbound). (Purple shading on velocity images indicates where the station was unable to determine the Doppler shift.) Due to the curvature of the Earth, the altitude of a radar beam steadily increases as distance from the station increases. Because of this behavior, except for areas near the station, the wind speed represented on velocity imagery is not the wind speed at the surface.

On the sample velocity image (below), the bright green shading west of the station KMOB indicates speeds of negative 30 to negative 40 knots (wind blowing toward the station) while the red shading east of the station indicates outbound winds of 20 to 40 knots. From this data, we can determine the wind is westerly. While assessing the overall wind field is useful, the true value of velocity imagery is that it enables us to monitor the speed and movement of storms. The velocity data tells us the thunderstorm cluster was approaching the station at approximately 40 knots.



This base velocity radar image displays the speed at which the storm's rain (and by extension, the storm) is moving relative to the radar station KMOB.

Mark Thornton has been sailing on the Great Lakes for more than 20 years and currently owns Osprey, *a C&C 35. His company, LakeErieWX, focuses on providing marine weather education seminars, case studies, and forecasting resources to recreational boaters. His website is www.LakeErieWX.com.*

In part two of this series, in the November issue, Mark will discuss the behavior of radar beams and radar anomalies, and offer a few guidelines for using radar imagery to help visualize the dynamics and movements of weather systems.

Slipper 17

BY ALLEN PENTICOFF

A daysailer with gunkholing aspirations

What better place to review a boat than in my own backyard? The Slipper 17 that is the subject of this article came into my care when a member of the Rockford (Illinois) Yacht Club, of which I am a member, passed away and left in his estate a small sailboat. When the estate sold the house, his widow had to move the boat. She had nowhere to take it, so I brought it to my home. And there, while I cleaned it and worked on it, I began to fall in love with my new lawn ornament with its pretty lines.

History as we know it

Nick Hake began building a line of four sailing dinghies in 1973. In about 1981, under the name Starboard Yacht Company, he began building the Slipper 17 to his own design.

In 1984, Nick moved the company from Miami to Stuart, Florida, and began using the name Seaward for his sailboats, including this 17-footer. The Slipper name is commonly applied also to the Seaward 17, so I will use Slipper 17 throughout this review. The Seaward 17 became the 1993 Seaward Fox. Although the LOA of the Fox is listed as19 feet 9 inches, the hull and layout are nearly identical to the Slipper 17.

Today, Nick is listed as the designer for Seaward Sailboats (Hake Marine LLC) which builds the Seaward 26, 32, and 46 retractable-keel cruising sailboats. In April 2016, Hake Marine acquired the assets of Island Packet Yachts and Blue Jacket Yachts and planned to continue producing all three brands in the former Island Packet facility in Largo, Florida.

Design

The high bow, swooping sheer, and slight tumblehome to the topsides were all part of Nick Hake's design philosophy of blending traditional looks above the waterline with modern underbodies. A high bow keeps her dry, a near-plumb stem gives her a long waterline, and broad beam ensures stiff resistance to heeling. The stainless-steel centerboard housed in a long ballasted fin keel is a common feature in other Seaward models. Draft is a mere 1 foot 7 inches with the centerboard raised and about 3 feet with it down.

Construction

Construction details indicate the hull is a single skin hand-laminated with fiberglass cloth only. The deck and interior liner are laminated with fiberglass mat. There appears to be coring in the

Under sail in the capable hands of Burnie Turner and Tim West, the Slipper 17 cuts a fine profile, top left. The transom shape is derived from traditional designs, top right.

> “Where the Sipper 17 shines is sailing.”

deck at the cabintop. If so, it's likely a synthetic core as Nick Hake is averse to wood cores. The hull-to-deck joint is formed by a molded bulwark at the deck edge that laps over an inverted “J” molded along the sheer of the hull. As well as being bonded, the joint is fastened with ⅛-inch machine screws on 6-inch centers through an aluminum strike rail. This joint is unlikely to leak, and it creates a standoff that protects the topsides against damage from lying against pilings.

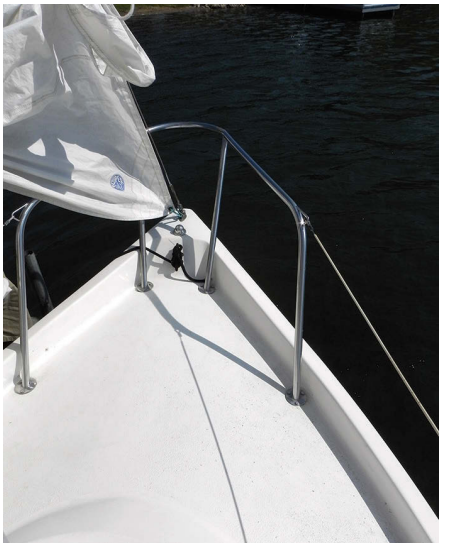
On examining the inside of the boat, I saw no backing plates where hardware is attached, just small washers. But it is a small boat that should see only small loads. A laminated-wood compression post supports the deck under the mast tabernacle. The balanced foil-shaped transom-hung rudder is short enough that it will remain free if the keel grounds.

Deck

Long, wide cockpit seats with high, nicely angled seatbacks can accommodate six people, though perhaps not when sailing. I found the handsome laminated tiller on the review boat inconveniently long and too high. With crew aboard, I had to maneuver under it to change sides when tacking. A shorter straight or downward-curving tiller would be more convenient.

The tiller passes from the rudder through a trapezoidal hole in the high, shapely transom. While the large (and heavy) balanced rudder provides plenty of helm authority, it should be unshipped for trailering. Bolts serve as pintles, and there is enough slop that I could feel some vibration in the rudder under sail.

A short section at the aft end of the port cockpit seat is teak. A hinged section in it opens to reveal a storage compartment for a 2½-gallon fuel tank. Otherwise, there are no lockers or cubbies in the cockpit.



A narrow bridge deck a little higher than the cockpit seats keeps cockpit water out of the cabin. A sliding hatch and a single plywood dropboard close the companionway.

Relatively wide sidedecks, secure footing provided by the bulwarks, and teak handrails on the cabintop make going forward relatively easy. The upper shrouds are mounted outboard; the lowers attach to the cabintop. There is no anchor locker, but the crowned foredeck is spacious enough for handling an anchor and working with the hanked-on jib. Three metal cleats are provided for docklines, but I'd prefer bigger cleats that could accommodate larger line. A single lifeline each side runs from the stainless-steel bow pulpit to a stanchion just forward of the cockpit, and thence to the deck forward of the transom.

Two opening portlights and two fixed portlights admit a little light and air to the cabin, but the sliding companionway hatch provides most of both. On the review boat, a homemade drop-in screen made to replace the dropboard keeps out bugs.

Rig

The Slipper 17 has a ¾ fractional sloop rig with no spreaders or backstay. The main shrouds attach quite far aft to chainplates that are bolted to the hull sides without benefit of backing plates.

The small cleat tucked up in the bow is not serious enough for anchoring, center above, but the bulwark provides good footing for sail-handling. Bench seats accommodate up to six in the cockpit, at left. The mainsheet and jibsheets are within reach of the helm, at right.

I had not rigged this boat before the day of the test sail and photo shoot, when I had fellow yacht club member Burnie Turner and his friend Tim West along to help. Although the mast is stepped in a tabernacle and light enough for two people to raise, we didn't find it easy. The step from the cockpit seats or footwell to the top of the cabin is too high to negotiate while lifting the mast. A fabricated step would be very beneficial, and a support strut in the stern would help to keep the mast off the companionway in the process. We managed by having the person on the bow pull hard on the forestay.

After raising the mast twice to get the halyards right, we discovered that we could not get the standing rigging taut. We adjusted it as best we could but found that, while sailing, the jib's luff boltrope was serving as the forestay. On getting back to shore, I noticed that the plywood block between the deckhead and the compression post under the mast was crushed.

Our test boat was not rigged with a boom vang and was also missing a topping lift. The mainsheet traveler is the full width of the cockpit aft of the companionway. It is of some help in holding the boom down but is not easy to use. A powerful purchase gives good control of the mid-boom mainsheet. Fortunately, the Slipper 17 doesn't need to be sailed as a dinghy with the sheets free.

With 150 square feet of sail and a displacement of 1,250 pounds, the Slipper has a sail area/displacement ratio of 21 — but that ratio becomes closer to 17 with two people and gear aboard. Jibsheets run through fixed fairleads mounted on the cabintop and are stopped with cam cleats. There are no winches. Halyards are made fast at the mast on horn cleats. After the mainsail has been hoisted, luff tension is adjusted by hauling down the gooseneck, as on a dinghy. The main has one reef point, but no jiffy reefing.

A weak point on the Slipper 17 is the compression post, at top. The wide-open interior is fitted with a rudimentary galley. The cushion above the portable toilet can be taken off to reveal a tabletop, which in turn can be removed when necessary. The quarter berths starboard and port are constricted by the cockpit seats and really only usable for seating and storage.

Belowdecks

While quite yachty in some respects for a 17-foot boat, with fiddled ledges outboard, a table, and a sink with a faucet that draws from a bladder tank, the interior is barely functional. At least the centerboard is housed in the keel, so there is no trunk dividing the cabin, but sitting headroom is marginal above thin seat cushions, the quarter berths are too cramped for adults, getting into the V-berth takes considerable agility, and the portable toilet is front and center when in use.

As well as the tiny sink that drains through a through-hull with no valve, there is a molded-in cavity under the starboard V-berth to hold a full-size 12-volt house battery to power the lights and a fuse/switch panel to control them. This is all part of the one-piece furniture liner. The underside of the deck is painted, and the atmosphere below is softened somewhat by gray fabric glued to the hull sides. No areas are unfinished, and I encountered no sharp edges when poking around.

Some storage is provided under the sink, and a long space under the cockpit footwell will accommodate necessary gear, such as a bagged anchor and rode. But, as on all small boats, the berths become the storage spaces. A DIY project could be to open up the furniture pan under the V-berth to provide more storage space.

Under way

In the photos, the Slipper 17's pretty lines are not marred by an outboard hanging from the bracket on the transom. That's because I laid the 2-horsepower 4-stroke Honda on the

wrong side while transporting it and oil fouled the cylinder — an easy mistake for a longtime owner of a 2-stroke to make. We used a paddle to propel the boat away from the dock.

Where the Slipper 17 shines is sailing. Oh, what a delight! It's very responsive to the helm and tacks in a blink. With the sails properly trimmed it has very little weather helm. Thanks in part to the long stub keel, a light touch on the tiller is all that's needed to keep it tracking straight.

This is a boat to spend a day on. The jibsheets are handy on the cabintop and, along with the centerboard (which is easily deployed and retracted), allow tight tacking angles. For our test sail, we had variable winds from light to gusty. When the gusts hit, the Slipper heeled a bit more and accelerated, and I felt no need to depower it by easing the mainsheet or pointing up. The boat took it as though it were a 30-footer, rather nonchalantly shedding the puffs with its generous 8-foot beam and 425 pounds of ballast. It accelerated quite briskly on reaches, which surprised me. I looked at the Slipper 17 as heavy and beamy, and expected somewhat lackadaisical performance. Far from it. Nick Hake knew what he was doing with this modern underbody design.

I did find the high bow limits the view forward, and the cockpit seats are too far apart for bracing while heeled, an unusual issue in a 17-foot boat. As for napping, seats that are long enough, wide enough forward, but too narrow aft to support a stretched-out nap earned a PNI (Penticoff Napability Index) of 3.5 out of 5. A little bench between the seats under the tiller would raise the rating. A bent-knee nap is OK, and the angled cabin bulkhead makes a fine backrest.

Conclusion

In my view, the Slipper 17 is really a comfy daysailer. At best, one adult and two children could sleep on board. Carrying a tent to pitch on a beach, or setting up the cockpit with a filler and a boom tent, could make it more of a pocket cruiser. It has shoal-enough draft to gunkhole anywhere filled with water, yet it is enough of a boat to stand up to a pounding. It is certainly trailerable and doesn't require a large tow vehicle. With a little work, the set-up time could be cut to under a half hour.

This could be a first boat for a keen daysailor, or a last boat for someone downsizing who has a home with a dock and wants to go out sailing and not have to worry about a capsize. It's a pleasure to handle, perfoms nicely, and onlookers will admire it as it sails by.

Overall, this is a well-built small boat. If anything, it seems over-capable, which may tempt some sailors to take it out in conditions it was never really intended for. Things to check for are softness in the wood at the top of the mast compression post and if the chainplates have backing plates.

Because the cockpit is not self-draining with people in it, the plug must be placed in the transom drain before launching. It should be removed, and the drain kept clear, when the boat is stored outside, as water will pour into the cabin if it tops the low bridge deck.

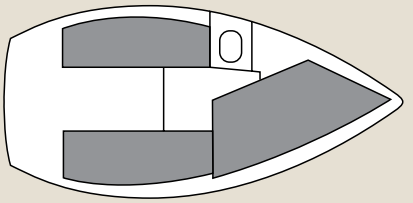
On the test boat, a PVC tube had been fitted around the centerboard control cable where it comes up through the cockpit sole, I suspect to keep water out. The cable needs to be secured when the centerboard is fully retracted. The cam cleat on this boat was not the right solution and the cable easily came loose, which was a problem when trailering and launching.

The Slipper 17 was built from about 1981 to 1986. Early ones were made by Starboard Yachts, but in reality are little different from the Seaward-branded boats. Including the Seaward Fox, approximately 800 boats were built. Prices range from $1,500 for those in sad shape to $5,500 for one in premium condition. A good Slipper 17 can be had for $2,500.

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."

Slipper 17

LOA:	16 feet 10 inches
LWL:	14 feet 10 inches
Beam:	8 feet 0 inches
Draft board up:	1 foot 7 inches
Draft board down:	3 feet 0 inches
Displacement:	1,250 pounds
Ballast:	425 pounds
Ballast/disp.ratio:	.34
Sail area:	150 square feet
Sail area/disp. ratio:	20.7
Disp./LWL ratio:	171



Resources

Seaward does not stock parts for the 17. A Seaward owners' forum is active at www.trailersailor.com

A winter cover for all seasons

Durable, reusable, inexpensive, and full of light

BY STEVE RUELL

Destiny **stayed cocooned inside her finished cover over a summer while Steve and Margi worked on her, above. Steve made the ladder too. Inside the cover, at left, it is plenty roomy and light enough for Steve to do his fussy work, like varnishing, no matter the weather outside.**

When we put our Hunter 30 up for sale, my wife, Margi, and I decided to cover it to protect it and keep it clean. Although we'd used a tarp-and-frame cover for 20 winters, we had also seen how shrink-wrap covers allowed lots of light to pass through, so we had her shrink wrapped, thinking that would make her more attractive to prospective buyers. In the two years that passed before the Hunter sold, I watched the shrink wrap deteriorate and eventually collapse under heavy snow.

In 2014, Margi and I purchased *Destiny*, a 1978 Morgan 382. We hauled her that fall and realized we needed a cover for the winter storage season. We weren't going to go with shrink wrap again, so I built an improved version of the cover that we'd used so successfully on the Hunter for all those years. It incorporates seven principles I believe essential in a winter cover. It should:

1. Protect the boat
2. Provide good working conditions inside
3. Be easy to enter and exit while carrying gear and tools
4. Be structurally self-supporting
5. Be built from readily available, low-cost, and durable materials
6. Be quick and easy to assemble and disassemble
7. Be reusable year after year

Protection

The purpose of any winter cover is to protect the boat. Boats left uncovered for the winter are exposed to snow, ice and, in many places, leaves. The cockpit drains become plugged with leaves or freeze up and the cockpit fills with rain, sometimes to the point of flooding the interior. It is a lot of work to clean up the boat in the spring if dirt and decomposing leaves have stained the fiberglass. A cover also protects the boat from many months of exposure to UV that degrades finished surfaces, whether gelcoat, paint, or varnished wood.

Shrink wrap seems durable but can collapse or tear. It usually makes use of a boat's lifelines and a light ridgepole, placing a big snow load on the stanchions and lifelines. In our experience, the plastic can stretch, allowing a depression to form above the lifelines. The weight of snow and ice that accumulates in this depression eventually causes the tops of the stanchions to pierce through the wrap, creating tears and leaks. The weight can also bend stanchions or collapse the ridgepole. All three of these events occurred on boats in our boatyard.

I wanted *Destiny*'s cover to shed snow. For this, I needed a slippery

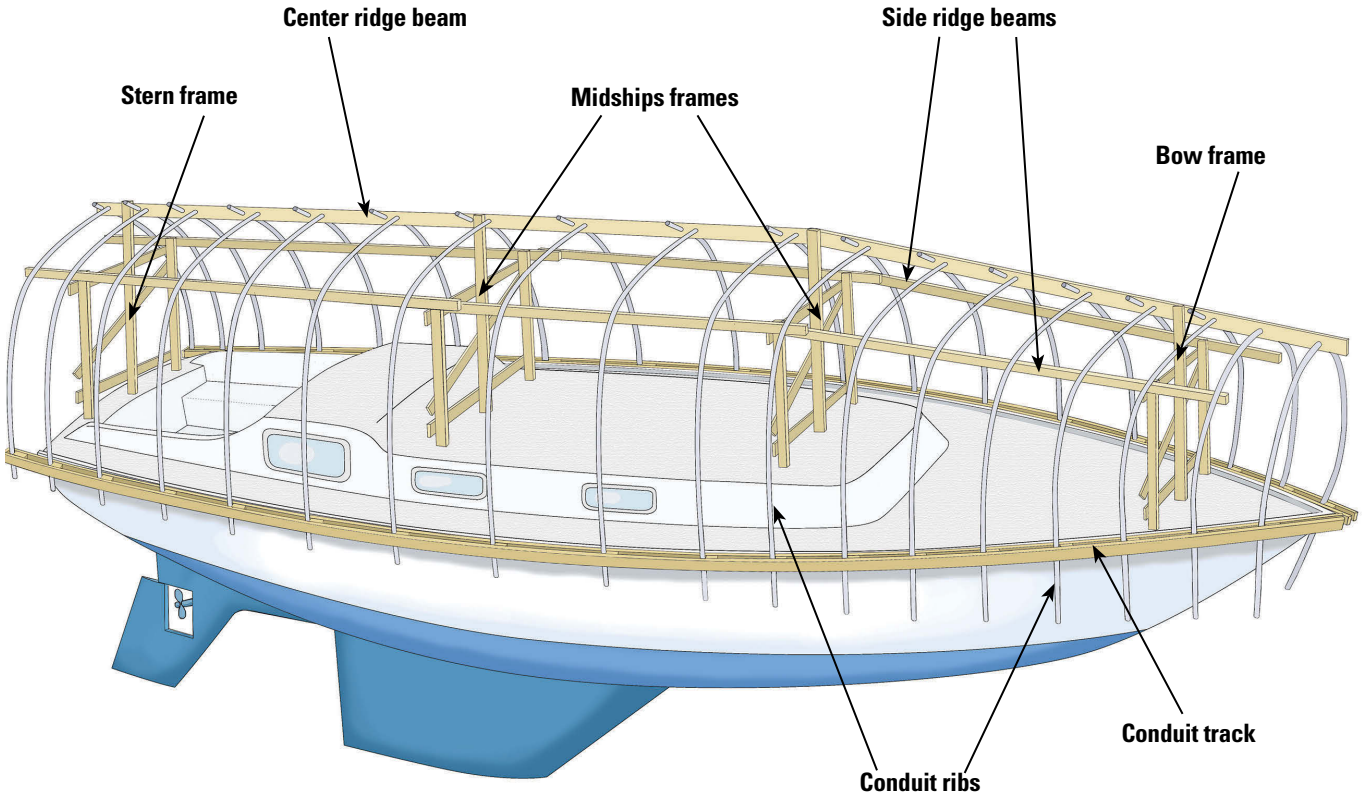


ILLUSTRATION BY FRITZ SEEGERS

Framework for a sturdy, reusable cover

fabric, a steep gable or arch, and no places to trap snow or ice.

Good working conditions

When there is good light and enough room to move around, it's nice to be able to varnish or do other fussy work under the cover. In my mind, the chief advantage of shrink wrap is the amazingly bright space you have for working on the boat, compared to the near total darkness under heavy, dark tarps. For this reason we used a white plastic tarp for the cover. The cover kept me dry and protected my projects in summer as well as winter.

Easy entry and exit

Boarding the boat when the cover is on should be safe and convenient, even when carrying tools or materials. I extended the cover frame past the transom so I could lean a ladder against the transom, climb up under the overhanging cover, and step through the stern railing. (I even built a simple ladder with 2 x 6 wooden side rails and ¾- x 6-inch treads spaced for comfortable climbing.)

Self-supporting

I did not want any of the boat's fittings, such as stanchions and pulpits, to bear the weight of the cover or of any snow or ice that might accumulate on it. We have seen the damage that can result.

Materials

I built the wooden frame of common construction-grade softwood 2 x 4s, wood strapping, drywall screws, plus a few other fasteners and clips. The ribs are inexpensive PVC electrical conduit.

We used white plastic tarps with great success on the Hunter's cover. They last about three years if taken care of. You can get another year or two by placing an older tarp over the new one in winter and at times when you don't need the light beneath it for working. (See "Materials and Tools," page 28, for a list of materials used for making *Destiny*'s cover.)

Assembly and disassembly

Margi and I spent one long weekend building the frame for the first season. One person can dismantle the whole affair in a few of hours. Reassembly at the end of the season takes a similar amount of time. I have managed it alone, but it helps to have another pair of hands, mostly for installing the tarp.

Reusable

The frame for our Hunter's winter cover served us for 20 years, and we bought new tarps as needed. To make reassembly every year as easy as possible, I made many components interchangeable. On others, I marked their specific locations (port, starboard) and orientation (facing bow, facing stern) with a permanent marker.

Concept for a cover

Destiny's cover has a backbone of four support frames that rest on the cabintop and the deck. The frames are connected with a ridge beam along the top and lower longitudinal beams on each side that create the desired pitch to the cover, which is supported by ribs made of PVC electrical conduit. The ribs are bent over the frame in a curve from the center ridge to the gunwales in such a way that they put no pressure on the lifelines or stanchions.

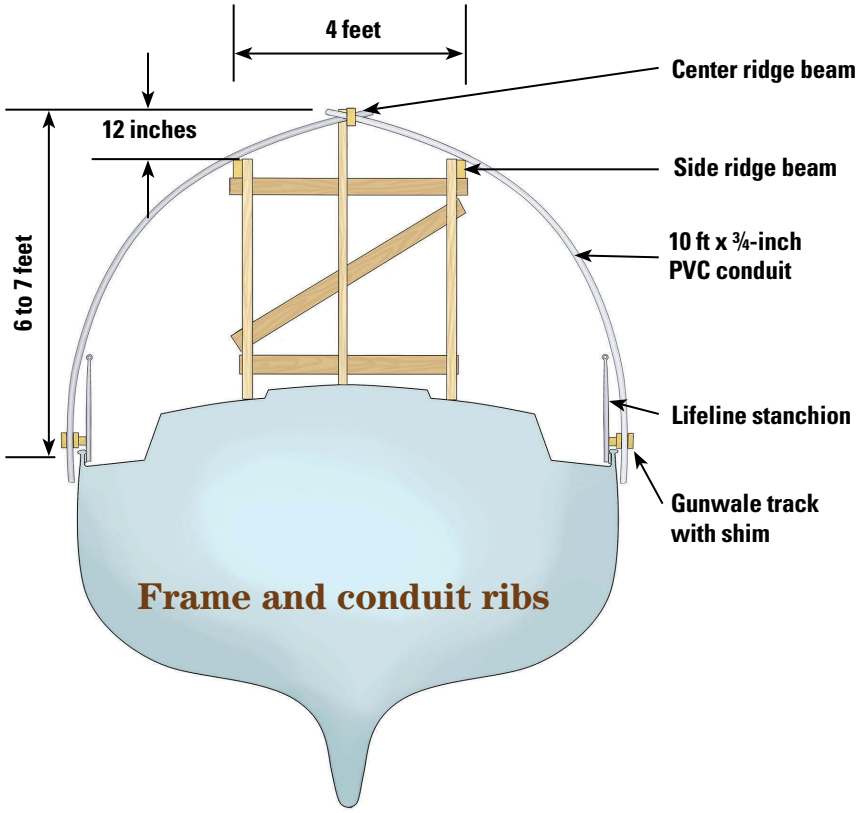


ILLUSTRATION BY FRITZ SEEGERS

Support frames

A cover for a 30- to 40-foot boat will need four support frames. Each frame (except for the one at the stern) is made with three vertical 2 x 4 posts tied together with horizontal 1 x 4 braces top and bottom and 1 x 2 diagonal braces. The exact dimensions will depend on the boat to be covered.

On *Destiny*, I began with a frame just forward of the companionway hatch, placing it where it wouldn't interfere with the hatch opening or with other hatches and hardware. I made the center post so its top was about 7 feet above the gunwales. This post might need to be taller on a beamier boat as its height determines the headroom under the cover.

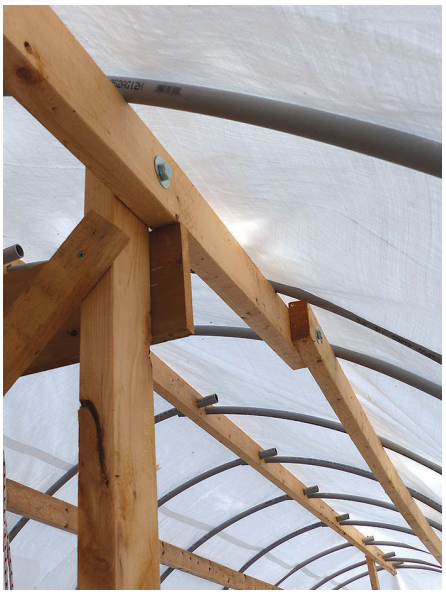
I placed the outboard posts 2 feet either side of the center post, making the frame 4 feet wide. The height of these posts determines the pitch of the cover at the center, so I cut them so their tops would be 12 inches below the top of the center post, creating the pitch I wanted without cutting into the headroom. Any less pitch might allow snow to collect between the ribs at the top. Remember to account for deck crown, and angle the bottoms of the posts to match the slope of the cabintop.

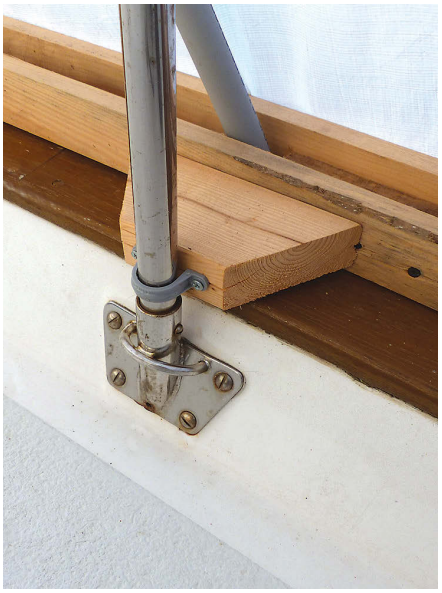
I assembled the braces to the posts with C-clamps, then fastened them together. The frames are not dismantled when the cover is taken down, so drywall screws, which do not need pre-drilling, and a battery-powered screwdriver made for quick work and easy adjustments.

The second frame is forward of the mast, about halfway between the first one and the bow frame. Again, it must be located where it doesn't interfere with hatches or fittings. It's the same height and general dimensions as the first frame.

Depending on the configuration of the foredeck, the bow frame might present some challenges. To avoid placing it on the anchor locker, I cut

The white tarp sheds a lot of light on the internal structure of the finished cover, upper left. Steve wanted to preserve access to the anchor locker, far left, so he built the bow frame to bridge it. To give himself a clear path after boarding via the transom ladder, he stiffened the stern frame with a larger header and footer instead of diagonal braces, at left.





The side ridge beams lodge on the frame headers, at left, and are bolted to the uprights. A track around the perimeter of the hull retains the lower ends of the conduit ribs, center. Shims at the stanchions hold the track so the conduit passes outboard of the gunwale, at right.

the center post short and joined it to the tops of the side posts with a wide board. This frame, which should be a few feet aft of the stem, can be shorter than the others but must be tall enough to carry the ridge pole well above the pulpit. I learned from experience that resting the ridge pole on the pulpit can result in a snow pocket forming.

Destiny's stern design allowed me to board via a ladder at the transom, and I built the stern cover frame without the diagonal braces so I could step through it. I joined the side posts with a 4 x 4 header and attached a short center post on top of the beam. Different sterns might require more imaginative solutions.

Ridge beams

Three 2 x 4 ridge beams form the shape of the cover. One beam joins the tops of the center posts to form the peak and the other two connect the tops of the side posts.

To determine the overall lengths of the ridge beams, I measured *Destiny* from the tip of the bow pulpit to the stern rail: 39 feet. To that I added 2 feet for the stern overhang and 1 foot for splices, giving me 42 feet. Conveniently, 2 x 4s come in 2-foot increments between 8 and 16 feet, so three 14-foot 2 x 4s were perfect for the ridge beam. I used shorter lengths (10 feet) at the forward ends of the side beams because of the shape of the bow.

To make up the lengths, I simply overlapped the ends of the 2 x 4s by 6 inches and bolted them together. By drilling ½-inch holes 3 inches in from the ends, square and on centerline, I made the 2 x 4 beam sections interchangeable. This makes reassembly a little faster.

Every 2 feet along the center ridge beam, I drilled pairs of 1⅛-inch holes 3 inches apart. These take the ¾-inch conduit that forms the ribs. The conduit slides through the 1⅛-inch holes until the enlarged bell end stops it.

The side beams do not need holes as the ribs rest on top of them.

Assembling the backbone

Erecting the frames and attaching the ridge beams for the first time involved some trial and error, several clamps, and Margi's help. First, we stood up the frames. I could lash the stern and bow frames to their respective pulpits and temporary bracing helped with the center frames.

We started by holding up the two middle frames and clamping the center section of the ridge beam to it. I then bolted the forward and aft lengths to the ridge beam and clamped them to the bow and stern frames. At this point, I was able to check the fit at the bow and stern frames and adjust the beam forward and aft as necessary.

This was also the time to fit a couple of the PVC ribs through the center beam at the widest part of the boat to make sure they would extend past the gunwale. If they hadn't, I would have had to reduce the height of the frame until they did.

Once I was satisfied with the setup, I drilled through the ridge beam and the frames and bolted them together. After adding a diagonal brace between the two midships frames, I had a stable structure and could proceed to fit the two side beams in the same way as we did the ridge beam.

Gunwale tracks

To retain the outboard ends of the ribs at the gunwales, I made what, for lack of a better term, I call tracks, because they resemble railroad tracks.

The tracks are held outboard of the stanchions by shim blocks that must be wide enough to ensure the tracks guide the ribs clear of the gunwale. Another reason to use shims is to ensure the PVC ribs will hold the cover clear of the lifelines and stanchions so the stanchions won't poke holes in the tarp.

I tested this by inserting a few ribs and bending them down to the gunwale. If a stanchion protruded above a rib, I needed a shim to push the track and

Building the gunwale track started with a shim block and conduit clamp attached to each stanchion. The inner rail could then be installed, far left, the lengths joined with 2 x 4 butt blocks. After fitting the outer rail, Steve fitted a bolt through one end of each butt block, at left, and removed the screws to create easy-to-assemble joints.

Materials and tools

Materials

Except for the tarps, which came from Hamilton Marine, all the materials for the winter cover are available at big box lumberyards. The quantities below are what Steve purchased for the cover for their Morgan 382.

- **2 x 4 construction-grade lumber, spruce or fir, No. 1 or 2 grade.**
  9 14-foot lengths for ridge beams and 10 8-foot lengths for the supports
- **1 x 4 pine**
  12 14-foot lengths for the gunwale tracks and frame bracing
- **¾-inch PVC electrical conduit (the type with a bell end)**
  30 10-foot lengths
- **½-inch PVC electrical conduit**
  8 10-foot lengths for the bow
- **¾-inch plastic conduit U-clamps (also called hold-down straps)**
  20 clamps (1 bag) plus 1-inch #10 panhead screws for attaching them
- **2½-inch drywall screws (they don't require pre-drilling)**
  One box (approximately 3 pounds weight)
  (Deck screws might be a better choice for a frame stored outdoors.)
- **4½- x ½-inch hex bolts, each with two washers and a nut**
  24 (for a four-frame assembly)
- **White polyethylene tarps**
  1 30- x 30-foot and 1 30- x 24-foot (we measured for size after the frame was up)
- **Cord**
  ⅜- or ¼-inch (4- to 6-mm) polyester or similar for tying down the tarps

Tools

Anyone with basic carpentry skills can build this winter cover with a few common tools.

- **Variable-speed drill (preferably cordless)**
- **Handsaw or power circular saw**
- **Screwdriver**
- **Tape measure**
- **Carpenter's level**
- **Clamps (C-clamps or bar clamps)**
- **Wrenches**
- **Hammer**

the rib farther outboard. Because of the wide caprails on *Destiny*, I used the entire width (3½ inches) of a 2 x 4 for shims. I attached shims to each lifeline stanchion with conduit clamps. The clamps for ¾-inch-conduit fit the 1-inch-diameter tubing used for stanchions, are easy to remove and, being plastic, will not mark stainless steel.

Inexpensive 1 x 3 or 1 x 4 lumber is fine for the tracks. Longer lengths are easier to bend to the shape of the boat, so I used three 14-foot lengths of 1 x 4, joining them together with 16-inch 2 x 4 butt blocks and drywall screws as I worked along the boat.

I marked the first length of the inside rail with the locations for the stanchion shims and fastened the rail to the shims with drywall screws. I then drove screws through the rail and into the first butt block, attached the second length of rail, then repeated the process for the third length.

The next step was to add the "ties" to the railroad to maintain a constant 1½-inch space between the rails for the conduit ribs. The ties are 4- to 6-inch-long blocks of 2 x 4 spaced about 24 inches apart and fastened in place with screws.

With the butt blocks and ties in place, I fitted the outer rail, screwing it from the outside into the butt blocks and spacers. This locked the curvature into the track.

We didn't want to be maneuvering 40-foot-long curved tracks when disassembling the cover so, with the tracks in place, I modified the butt joints. I drilled a ½-inch hole through the track

The bell ends of the conduit anchor the ribs at the center beam, at left. A typical rib starts at the center beam and bends over the top of the side beams, then passes down and through the gunwale track, below. The 2 x 4 spacer provides just the right clearance.

and butt block on one side of each joint, inserted a ½-inch hex bolt from the outside, and secured it with a nut and washer on the inside. I removed the screws from the bolted sides and the butt blocks then became tenon joints, easy to disconnect and reconnect.

Conduit ribs

For most of the length of the cover, the ¾-inch conduit is flexible enough to be bent from the ridge to the gunwale. Toward the bow, the required curve becomes too tight, so I used ½-inch conduit for the forward five ribs. At the very bow, a single 10-foot length would reach from one side to the other.

I used the conduit with the bell end that won't pull through the holes in the ridge beam, and left all the pieces the same 10-foot length so I wouldn't have to sort and number them. I pulled each length of conduit through the ridge beam, bent it over the side beam, and passed the end through the gap in the track. The conduit does not need fastening and the excess length extends over the hull's topsides.

Tarps

We have found that two smaller tarps are easier to manage than one large one. For *Destiny*, we bought a 30- x 30-foot tarp and a 30- x 24-foot tarp. They were easy to install and the overlap of about 4 feet amidships seems to seal well and has not created any problems. The tarps hang to below the boot stripe, protecting the topsides from exposure to the weather. The conduit ribs and wooden tracks keep

the tarp away from the topsides for the most part, allowing air to circulate and helping to prevent chafe.

A loose tarp can damage itself and the boat if the wind catches it, so the tarp must be tied securely. I start by tying a loop of light cord (¼-inch polyester or similar) through two grommets on one edge of the tarp, then run the line under the hull of the boat, pass it through the corresponding two grommets on the opposite side of the boat, and cinch it tight. I do not tie the tarp to the boat stands.

Where the tarp edges meet at the bow and sterm, I lace them together.

Not just for winter

The cost of materials for this frame would be about $220 at current prices. The white tarps were about $160 at Hamilton Marine, bringing the total to less than $400, or about $10 per foot for our 38-foot boat.

Shrink wrapping is thrown in the dumpster after one winter of service. I've seen rates range from $10 to $20 or more per linear foot of boat, not counting the extras like doors and vents. Shrink wrap for a 38-foot Morgan like ours cost $900 at a local boatyard last year.

Our previous frame lasted more than 20 years with only periodic replacement of the tarps. Any deterioration it suffered was a result of my leaving the wood outside on the ground over some summers. The wooden frame and plastic ribs will last indefinitely and can be used year after year.

Destiny's cover easily survived one of the harshest Maine cold seasons in our memories. We didn't launch her the following season, and in the summer we used the cover as a rain shelter while we worked on the bottom and the rudder. I untied the lacing and lines from under the hull and tied them to cinder blocks placed on the ground some distance away to create a tent for us to work under.

Steve Ruell is a marine/structural engineer in Maine. He and his wife, Margi, have been sailing out of Belfast, Maine, for more than 20 years, exploring the Maine coast first in a Hunter 30 and now aboard Destiny, *their Morgan 382. As retirement approaches, Steve and Margi are making plans for voyages to more distant destinations, starting with Nova Scotia and Newfoundland.*

Calming an eccentric prop shaft

A pillow block put its troubles to rest

BY CONNIE MCBRIDE

A disadvantage of owning a semi-custom boat is that there is no manufacturer to call on for help in resolving matters that are specific to that boat. With no owners' forum to bounce ideas around and few owners with whom we can discuss issues, we are often on our own when facing problems that arise from the design of *Eurisko*, our 34-foot Creekmore. Fortunately for us, one problem we had to solve recently — her cranky propeller shaft — is common among many types of boats.

Our attempts at appeasing our ill-tempered drivetrain led us down many wrong paths. Over the past 15 years we have unnecessarily changed countless Cutless bearings, bought a new shaft, and aligned the motor fastidiously to fix symptoms of a problem we could not identify. We talked to every person we could who had the least shred of mechanical knowledge. Finally, a theme emerged and several pieces of advice started to corroborate our own research: the unsupported section of our prop shaft was too long.

The placement of *Eurisko*'s motor makes it exceptionally easy to work on. The price we pay for this ease is a 5-foot-long prop shaft. When a shaft is unsupported along too great a distance, it sags. No amount of motor alignment can eliminate this bow, which causes the shaft to make circles, rather than simply spin. The consequences include strain on the rear seal of the transmission, wear on the Cutless bearing, and vibration. The eccentric rotation of the shaft eventually compacts the packing in the stuffing box, causing it to weep more. We could see the stuffing box jumping around as the shaft spun. Many scenarios can be behind the same list of symptoms, and over the years we'd tried many remedies. Now we knew what the problem was, we could apply the right solution: install a pillow block.

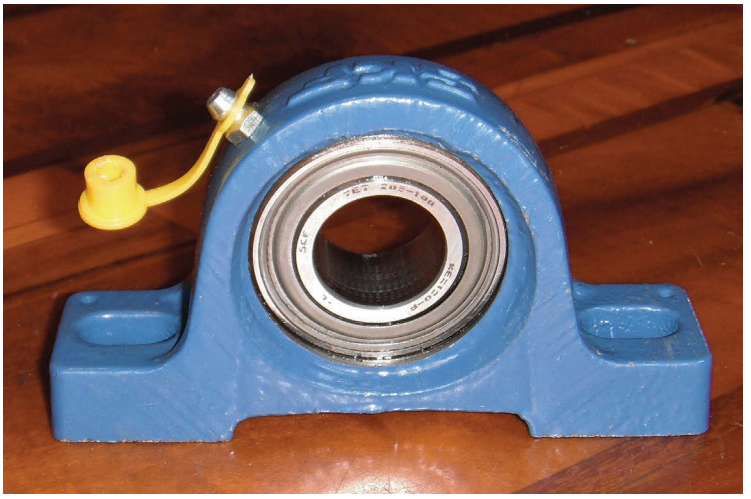
Location, location

Pillow block bearings are specifically designed to support a rotating shaft and prevent it from flexing. But before rushing out to purchase one, we first had to decide how and where we could mount it.

A rule of thumb for a boat propeller shaft like that on *Eurisko* says that supports, including the Cutless bearing and transmission, be no closer than 20 times the diameter of the shaft and no farther apart than 40 times. The length of the unsupported section of our 1-inch shaft, between the Cutless bearing and the coupling on the transmission, was 56 inches. (When measuring this, we did not treat the stuffing box as a support because it is a flexible hose.) According to the 20-40 rule, we had room for, and were in need of, a pillow block bearing.

My husband, Dave, thought he might have to fiberglass a mini-bulkhead in the bilge where the bearing should go. While trying to visualize how he might do this, he was pleasantly surprised to find that the bulkhead built to contain

With the extra support of a pillow block, *Eurisko*'s propeller shaft no longer vibrates.



Pillow block bearings are used in countless industrial applications — anywhere a long drive shaft needs support. Housings are made in a variety of materials and designs. A split housing, for example, facilitates replacing the bearing. Connie and Dave used a bearing with a cast-iron one-piece housing.

the seepage from the stuffing box was already within that range. If placed aft of that bulkhead, the pillow block would be between 20 and 40 inches from both the transmission and the Cutless bearing.

As important in deciding *where* to install the pillow block was figuring out *how* to install it. The block must be fitted on the shaft and supported from beneath the shaft, all while allowing room for working with hands and tools. Another factor was the footprint of the pillow block itself. A lack of space made it impossible for us to put the pillow block on the forward side of the bulkhead.

Once we'd determined we could overcome the installation hurdles, we purchased a 1-inch pillow block bearing for $39 at a local bearing retailer that carries no marine products. These bearings are available in a range of prices from numerous sources, but we were limited by what we could find locally using public transportation. We chose the type that does not lock to the shaft. A pillow block that is locked to the shaft, either with set screws or a collar, acts as a thrust bearing. We did not want to use the pillow block this way, preferring to let the transmission take the load as it is designed to do.

Assembly begins

Dave removed the forward end of the shaft from the coupling and pushed the shaft aft just far enough that he could fit the pillow block onto the shaft. He then slid the pillow block along the shaft. As easy as this sounds, it is extraordinarily difficult to get a bearing on a shaft of *exactly* the same size. To make it possible, Dave spent a considerable amount of time polishing the shaft and the bearing. Even then, any bit of dirt prevented him from pushing the block farther along the shaft. The fit is remarkably tight.

The fortuitous placement of the bulkhead and the shape of the hull at that location allowed us to fit a wooden block to support the bearing. We avoided another row to shore when we found on board a 1½- x 6- x 6-inch hunk of teak.

Upon close inspection, we noticed that the hull was not symmetrical. (This is not unusual in boats and must be allowed for in projects like this one.) To achieve the precise fit he needed, Dave had to cut the two sides of the block to accommodate differences in the hull shape. Once he'd cut, shaped, and dry-fitted the teak block, Dave ground it just a bit smaller so it could "float" on the epoxy he would be using to glue it in place. He didn't want to risk distorting the shaft by forcing the teak support into place. He wanted the fit loose, though not sloppy.

He clamped the pillow block to the wooden block and slid them along the shaft until the teak just touched the bulkhead. They actually only touched at one point because the two surfaces are not parallel. (Were we not careful here, it would have been easy to distort the shaft when installing the wooden block.) While holding the block level and barely contacting the bulkhead,

A small bulkhead in the bilge, far left, was in the right place for Dave to attach a wooden block to support the pillow block. He had just enough room to work in forward of the stuffing box, at left.

A teak block, teak shims, lag bolts, hex bolts, and epoxy were all the materials needed, at left. A crucial tool was the angle drill, at right.

Dave marked the centers of the elongated holes in the pillow block on the teak. (The holes in this model allow for side-to-side adjustments.) He drilled the teak, then used the same measurements when marking for holes to drill in shims to place on top of the teak block.

Dave used two ⅛-inch-thick teak strips as shims to set between the pillow block and the teak. If the pillow block was too low, he could raise it with additional shims. If it was too high, he could lower it by removing one or both of the shims. He over-sized the holes in the shims so they would not split when he installed the lag bolts.

Next, he drilled four holes in the teak for bolting it to the bulkhead, taking into consideration the positions of the two lag bolts for the pillow block and after verifying that the bolts would not interfere with anything in the bilge. He fastened the pillow block to the teak with two ⅜-inch stainless-steel lag bolts, slid the teak forward until it just touched the bulkhead again, and marked where the holes in the block would enter the bulkhead. After sliding the teak out of the way, he drilled through the bulkhead. Because space in the bilge was tight, he had to do much of the drilling with an angle drill bit.

Epoxy bedding

As well as bolts, Dave planned to use epoxy to make the wooden block and the bulkhead a solid unit. First, he ground the side of the bulkhead to ensure epoxy would adhere to it. He then taped over the holes in the bulkhead and in the teak on the surfaces to be epoxied, taped the shims so they could be removed later if necessary, and taped the pillow block to protect it from the inevitable epoxy mess.

With the pillow block (still attached to the teak block) slid aft, he buttered the bulkhead and the face of the teak. For this job he used West System Six10 thickened epoxy for its ease of application. He slid the teak forward until it just touched the bulkhead and squeezed out some of the Six10. He did not force the teak any tighter, or clamp it to the bulkhead, for fear of distorting the shaft.

After letting the epoxy cure overnight, Dave drilled through the epoxy and tape, bolted the teak to the bulkhead with four 5/16-inch bolts, and removed the tape from around the shims and the pillow block.

With the pillow block secured firmly in place, he was able to perform the test recommended by our most reliable mechanical advisor: spin the shaft by hand to find the sweet spot where it spins effortlessly. With his first try, Dave was not convinced the shaft was spinning as freely as it could. He unbolted the pillow block, installed a 0.5-millimeter shim trimmed from a

Dave taped everything he did not want to get epoxy on, top left. The marks on the hull indicate where the wooden block had to be to avoid distorting the shaft. The epoxy filled a wedge-shaped space, bottom left. A smear of grease helps keep salt water out, at left.

plastic cutting board, and tried again. This time, he felt no resistance in the shaft and was confident the pillow block was at the right height.

Using a grease gun, he greased the inside of the bearing through the grease fitting. Because the bearing is so close to the stuffing box, he also spread a layer of grease on the outside surfaces of the bearing to inhibit corrosion from contact with salt water. After checking the motor alignment, we were ready for the moment of truth.

Vibration free

When we started the motor and put it in gear, the bearing spun with the shaft, which showed no sign of its previous eccentric movement, and the stuffing box no longer bounced around. But the real proof of the new bearing's proper placement was that the bearing did not overheat when we ran it under load for an extended period. Only then were we convinced we had finally solved a problem that had been nagging us for 15 years. What's more, we had done it while *Eurisko* was in the water!

Not having a reliable drivetrain for all that time might have forced us to become better sailors, but I'm excited to know we can finally trust it, whether we need it or not.

Connie McBride and her husband, Dave, after raising three sons aboard their 34-foot Creekmore, Eurisko*, are now empty-boaters. They are currently embarked on a slow meander to elsewhere. You can follow their progress and read their other DIY projects at www.simplysailingonline.com.*

Singlehanding the mainsail

Traveler controls belong in the hands of the helmsman

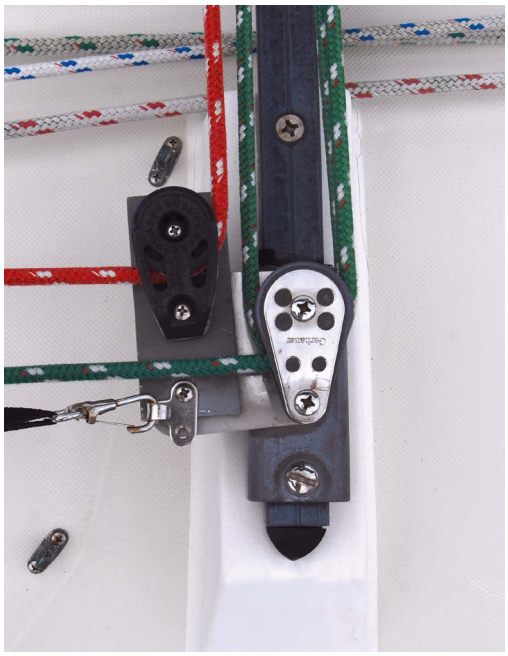
BY JOE CLOIDT

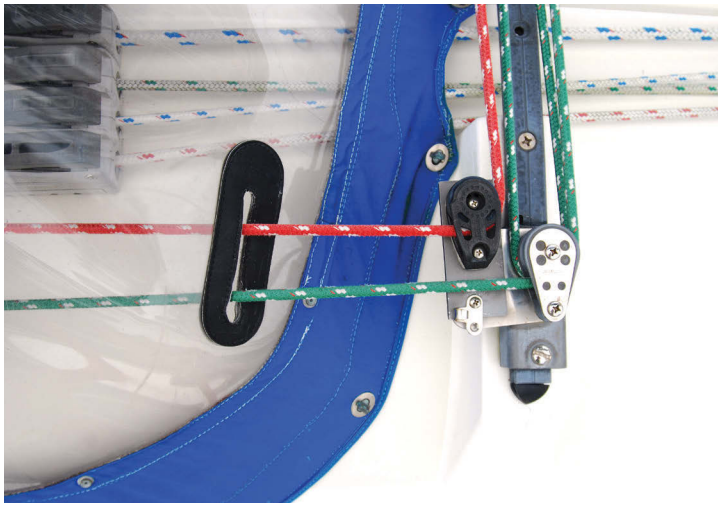
That's axiom, that there is nothing — absolutely nothing — half so much worth doing as simply messing about in boats, is especially true for those of us who own and sail good old boats. While the shiny gelcoat of a new boat is certainly eye-catching, the thought of 20 years of boat payments quickly dulls that gleam and a 20-year-old boat begins to look much more attractive. And if it needs some messing about with, that's an excuse to go down to the marina, putter around on a "mature" boat, and spin yarns with the folks in the next slip.

When I bought my 1988 Pearson 31-2 many years ago, she had been neglected by a previous owner who no longer had the energy or inclination to maintain her. *Desire* was sound but, along with much TLC, was due for many of the upgrades and rebuilds older boats commonly need. I rolled up my sleeves and got to work. Once I had her back in Bristol fashion, I was able to start on some projects that would make it easier for me to sail her singlehanded. Near the top of the list was the main-sheet traveler.

Pearson built the 31-2 with the standard center-boom mainsheet setup with the traveler on the cabintop just forward of the companionway hatch. The traveler control lines ran through cam cleats at each end of the traveler, through slots in the windows of the dodger, and into the cockpit on either side. To adjust the traveler, I had to leave the helm, go forward to ease the windward control line, then cross to the other side of the cockpit to take up the slack on the leeward side. To make matters worse, the worn-out cam cleats made it difficult to release the lines from behind the dodger. This often led to more excitement than I care for when tacking in stronger winds, as

Joe sails singlehanded much of the time, and with his new mainsheet traveler control lines he can easily make adjustments to mainsail trim without leaving the wheel.





The cam cleats for the traveler control lines were too far forward for Joe to easily release the lines, above. He removed the port-side cam cleat and led the line to the starboard side and through a cheek block, above right, so the port and starboard lines run side by side, at right.

I was no longer at the wheel to keep the boat pointed in the right direction. There had to a better way!

Rumspiration

I spent an afternoon aboard sipping Mount Gay rum and brainstorming ideas for a new traveler configuration. The solution was simple in principle but, as with most bright ideas, implementation was a different story. My idea was to remove the existing cam cleats, route the port-side control line across the cabintop to a turning block on the starboard side, and feed both lines aft through the dodger. I would secure them with new cam cleats mounted at the aft end of the cabintop where they would be within easy reach from the wheel. After considering the pros and cons of the new setup, I put my plan into action.

My local marine store had a disappointing selection of sailboat hardware but I was able to buy the line I needed: 5⁄16-inch Sta-Set double braid from New England Ropes. The new traveler lines would run side by side, so I selected red line for the port-side control line and green for starboard.

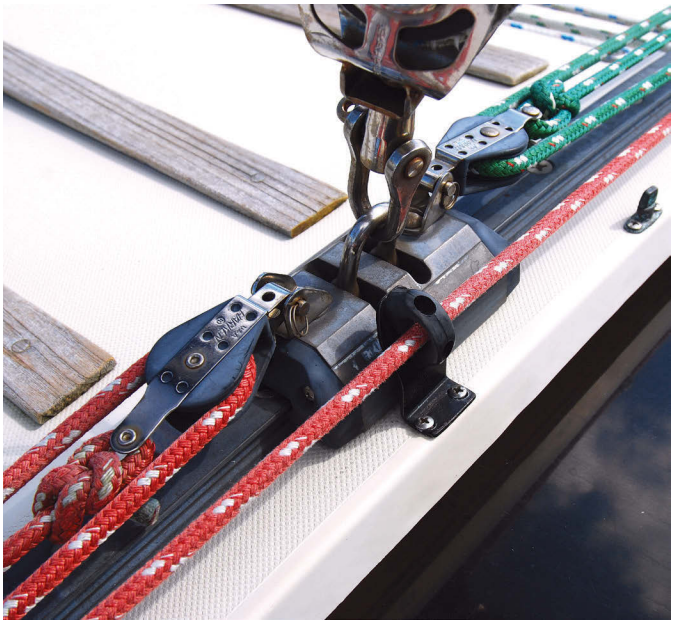
I went online to buy the block and cleats. Defender was having a sale on Harken hardware, and I selected a 29mm Carbo Air cheek block and a couple of Cam-Matic fairlead kits. In a few days, the Defender package was at my front door.

After removing the worn-out cam cleats and control lines, I rove the new control lines through the existing blocks at each end of the traveler and attached them to the traveler car. Splicing an eye in double-braid line has always reminded me of a snake eating itself and I have never mastered the technique. I tied the lines to the car with bowlines.

A plan

The old cam cleats had been mounted on stainless-steel plates attached to the traveler beneath the double cheek blocks. My plan was to mount a new turning block for the port-side line on the starboard plate, but when I placed the new block on the plate for fit, it was evident that it would interfere with leading the starboard line aft. The new block would have to be mounted inboard of the starboard block, but the plate wasn't wide enough for me to do that. I would have to fabricate another mounting plate that I could bolt on top of the stainless-steel plate as an extension.

I took some measurements back to my shop, where I cut a piece of ⅛-inch aluminum flat stock to make the second plate and drilled holes for mounting



A small bulls-eye fairlead solved the problem of the port-side control line's tendency to chafe on the sea hood.

the adapter plate and the new block. A quick check for fit showed the adapter plate was wide enough for the new block to clear the starboard line and that the holes lined up with those in the stainless-steel plate.

I cleaned up the new plate and sprayed it with outboard motor paint to protect it from the elements. Because the two plates are dissimilar metals and subject to potential galvanic corrosion, I stuck a layer of wide clear shipping tape to the bottom of the aluminum plate for additional isolation. Using #10 stainless-steel hardware and liberal amounts of anti-seize compound, I bolted the adapter plate to the stainless-steel plate at the outer hole where the old cam cleat had been located. I also added a tang at this point for attaching the Bimini cover strap.

I then mounted the outboard end of the new cheek block with a panhead machine screw, passing it through the inboard hole from the old cam cleat to capture the block, the adapter plate, and the stainless-steel plate. I bolted the inboard end of the new block to the adapter plate only, as the stainless-steel plate didn't extend that far.

When I led the port-side control line across the boat to the new cheek block and led both control lines aft, there was no interference between the two blocks and the lines.

A glitch

So far so good but, even when pulled taut, the port control line rubbed on the traveler car and the sea hood that covers the companionway hatch slide. I thought an easy solution would be to raise the new turning block so the line would clear the sea hood.

I worked a scrap piece of teak to make a shim that would fit under the block. This raised the line, but not enough to solve the problem. I knew I was on the right track and I had some ideas about possible solutions, but I decided to press on and come back to this later.

The next problem was the vertical slot in the dodger window. The dodger was originally designed so one line could pass through it, but now it had to allow two lines to pass through it side by side. As the clear vinyl wasn't very clear anymore, it was an easy decision to have the local canvas shop replace the window and, at the same time, change the slot to accommodate the two lines.

To mark the location for the new slot, I pulled the lines to the aft end of the cabintop to where the new cam cleats would be located and boxed out the new slot on the old window with blue painter's tape. While the dodger was at the canvas shop, I moved on to the next step of mounting the cam cleats on the cabintop.

A tight spot

Fortunately, Pearson provided removable panels in the cabin overhead to allow access to the bolts securing deck-mounted hardware. My initial plan was to mount the cam cleats as far aft on the cabintop as possible, but on removing the panel I saw the opening didn't extend aft far enough to allow easy access. The narrow space between the deck and the headliner made for a tight spot for hardware and tools. The backing plate for the cabintop winch and the curvature of the cabintop also limited the mounting options. As is often the case on a boat, a compromise was needed. I mounted the cam cleats farther forward than planned, but still within reach from the helm.

After marking the locations for the cleats on the cabintop, I checked from the inside to ensure the cleat hardware and backing plates would not interfere with other hardware or wiring. Satisfied, I drilled and countersunk the mounting holes in the coreless outer skin. I dry-mounted the cleats to make sure they fit and measured on the inside for backing plates. I made another trip to my shop to fabricate the plates from the ⅛-inch aluminum flat stock.

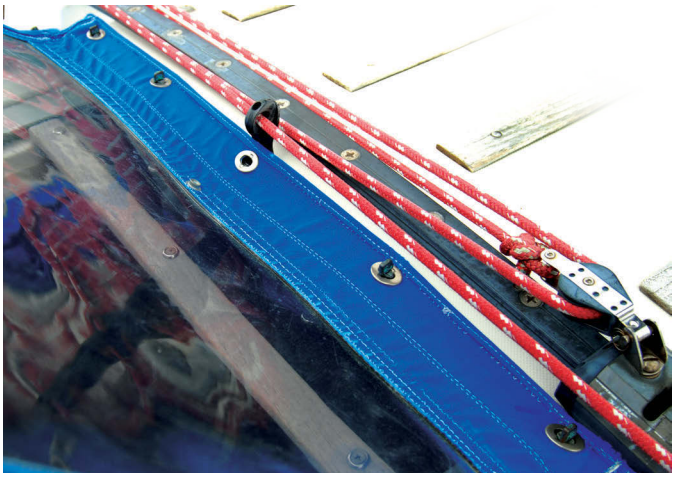
I installed the cleats using 3M Silicone Sealant on the stainless-steel hardware and the bases of the cleats. I've shied away from the more tenacious adhesive sealants because removing hardware bedded with these compounds usually involves much cussing and a pry bar.

With all the hardware mounted, it was time for a dockside test and — other than the line that still rubbed a bit — the new traveler setup operated perfectly. The canvas shop called later that day to say the dodger was done. Once I'd reinstalled that, I fed the control lines through the new slot in the window and into the cam cleats and tied stopper knots at the bitter ends. It was time for a test sail.

Resources

Harken deck hardware
3M sealants:
www.defender.com

Sta-Set double-braid rope:
www.newenglandropes.com



The bulls-eye obstructs the center twist-lock fastener on the front of the dodger but, to Joe, that's a fair compromise.

A success

I picked a day with light wind to get the feel of the new setup and to avoid any fire drills in case something went wrong. After several tacks, the ease with which I could adjust the traveler made it clear all my effort had been worthwhile. By draping the control lines back toward the helm on the starboard cockpit bench, I could keep one hand on the wheel and work both control lines while still keeping *Desire* on course. Another benefit was I no longer had to struggle to pop the lines up out of the cam cleats, which had often been a problem before.

At this point, other than the port traveler control line rubbing on the sea hood, I was very happy with the results and decided to put in some sea miles to work out any kinks. None appeared after a month of sailing, so it was time to pour some more rum and finally solve the matter of the rubbing line.

A bulls-eye

I'd already thought of using a taller wooden shim under the new cheek block, but it would have meant raising the block so high it would stick out like a sore thumb and the line led aft would rub on the block's side plates. It would also rub on the new slot in the dodger window. This was not a solution. I poured another glass of rum and gave it more thought.

My second idea was to mount a block in the middle of the cabintop for the line to ride on, but there wasn't much space between the front of the dodger and the traveler. Finding a block small enough and fashioning a bracket to hold it was a challenge. But I knew I was on the right track with this idea.

Digging into the parts box for inspiration, I spotted a plastic bull's-eye fairlead and knew this was the answer. Small and low-profile, it would be easy to mount on a bracket and, although not quite as friction-free as a block, should do the job. I took some measurements and, bending a piece of cardboard, made a prototype bracket. A twist-lock fastener for the dodger front window was in the spot where the new bracket would need to be located. I decided to mount the bracket under the twist lock using the existing screws.

I adjusted the angles on the prototype bracket to clear the traveler car and transferred the design to another piece of ⅛-inch aluminum flat stock. Then I installed the bracket under the twist-lock fastener and tweaked with the pliers to get the angles just right. I attached the fairlead to the bracket and ran the control line through it. With the new bracket, the line now cleared the seahood and the traveler car. I removed the bracket for cleaning and painting, then reinstalled it using silicone sealant on the mounting screws.

Joe can release and ease, or trim and lock, either control line without leaving the helm.

I finally considered the project to be done and I was very happy with the results. But since we don't live in a perfect world, one last gotcha showed up. When I closed the dodger front window, the new bracket interfered with the leading edge of the window, making it almost impossible to get the window panel eyelet over that middle twist-lock. Since I was now out of rum and good ideas, I removed the twist-lock and allowed the window edge to simply lie flat. It's not ideal, but it works.

My modified traveler-control setup has been in place for well over a year and has worked well. This was a low-cost weekend project and it has made my singlehanded sailing much easier. I spent a little time messing about on my boat to get it done, but I can't think of anything else half so much worth doing.

Joe Cloidt is a sailor, writer, film maker, tinkerer, and electrical engineer by trade. He has been messing about with sailboats for more than 30 years and has worked on every part of them, from the bottom of the keel to the top of the mast and all parts in between. His current boat is Desire, *a 1988 Pearson 31-2 that he sails on the Indian River Lagoon on the east central coast of Florida. Joe also enjoys charters in far off locations and the occasional cruise to the Bahamas when between jobs. Although mostly a cruising sailor, Joe crews on a J/30 at the local yacht club for the Friday night Rhum Races.*

Splash test dummy

BY DREW FRYE

A dry suit is put to the test on the Gumby immersion course

Most sailors who venture upon cold water have given considerable thought to the consequences of having to abandon ship, and some carry immersion suits against that rare but real possibility. I carry aboard a dry suit that I wear when kayaking and also as foul weather gear when sailing in cold and wet conditions, and I wondered if it was a practical alternative to an immersion suit.

Just the thought of abandoning ship is scary. The likely outcome of jumping into in icy waters is even more scary. Survival times are short. Some will go into shock on contact, gulping water, and the best will remain functional for only 15 minutes and perish within 1 to 2 hours, even when wearing a life jacket and foul weather gear. For this reason, commercial vessels that work cold waters (defined as 59°F or colder) are required to carry immersion suits (also called survival suits and, colloquially, Gumbys).

Although minimum function standards for immersion suits require a wearer be able to walk and swim, it's impossible to work a boat in one. These ungainly one-size-fits-most creations give the wearer the grace — and the look — of a B movie creature. They are carried as a last resort, to be

Determined to test his dry suit's insulation properties thoroughly, Drew spent 2 hours swimming and floating in ice-skimmed water, main photo. Isaac Asimov helped the time go by. The dry suit held Drew's shoulders nearly clear of the water but would not right him from a face-down position without the help of a life jacket.



As part of the testing process, an immersion suit must allow a wearer to swim a minimum distance of 25 meters and to climb into a life raft. Drew had no difficulty swimming the required distance to his inflatable dinghy and boarding it while wearing his dry suit.

donned only when the boat is heading down, which is perhaps too late if the sinking is sudden.

A dry suit, in contrast, is a multi-purpose garment, useful to the sailor for a variety of tasks. It can serve as foul weather gear in severe conditions, be worn when kayaking, or be donned prior to diving to inspect for underwater damage or to untangle a line.

Dry suits have long been the gear of choice for frostbite dinghy sailors, allowing them to compete safely and in relative comfort while being drenched by cold water. They have also become standard issue for sailors who race in the southern oceans where they must endure long shifts on decks swept by freezing water.

A dry suit can also be helpful when someone has to go into the water to assist in recovering a man overboard (MOB). And if that MOB happened to be wearing a dry suit because conditions were cold and wild that day, his prospects for survival would be that much greater.

In other words, a dry suit is versatile gear that every cold-water sailor might want to own and use. Furthermore, the cold-water protection seems comparable to that of an immersion suit — perhaps infinitely better because you are more likely to be wearing it.

Before sending anyone out to buy a dry suit, I decided to test my theory by comparing characteristics of dry suits line by line with the U.S. Coast Guard construction and function requirements for immersion suits as laid out in Title 46 of the *Code of Federal Regulations*, Part 160, Subpart 160.171 - Immersion Suits (67 CFR 160.171). Although I didn't have a bright orange, tricked-out ocean racing suit available to test, my very rugged Ocean Rodeo Soul was designed to withstand the rigors of windsurfing.

Testing protocol

When comparing how my dry suit is constructed against the specifications for immersion suits, it seems clear that some requirements deserve allowance. For example, immersion suits are intended for use by anyone who needs to grab one. An adult immersion suit must fit any fully clothed person from 110 pounds to 330 pounds in weight and 4 feet 11 inches to 6 feet 2 inches in height. Any sailor can purchase a dry suit of the appropriate type, size, and fit.

I skipped certain tests that were not applicable, such as resistance to fire and diesel fuel, but I added one of my own. On one occasion, I intentionally opened a zipper a few inches and flooded my suit in 50°F water just to see the effect. While quite unpleasant, it was certainly better than foul weather gear and more like a wet suit; the water was warmed within a few minutes. Swimming was more difficult, as the suit became progressively heavier and provided no place for water to exit. However, unless the neck seal fails, air is still retained in the upper portions of the suit and provides buoyancy.

For the tests that involved agility and in-water activities I added a 5/7-mm Neoprene dry suit hood and 5-mm Neoprene gloves, essential accessories for diving or cold-water survival. A lovely 35°F day with thin ice on the water provided the required test conditions, while my crew took refuge in the heated cabin.

Dry suit redux

Dry suits are made for a variety of users, from military special forces to divers to windsurfers, and are made from materials best suited to their purpose. Many diving suits, for example, are made of Neoprene. Dry suits for sailors and paddlers who spend most of their time out of the water are made from waterproof breathable materials (Gore-Tex is one) akin to those used for high-end foul weather gear.

Dry suits block all water entry by means of tight seals around the neck and wrists. These are always too tight, by design, but are designed so they can be trimmed (per the manufacturers' instructions) for a comfortable but watertight fit. While the neck seal may be slightly uncomfortable, there is zero chance of a cold dribble down the neck.

Most dry suits have attached waterproof socks over which you can wear wet-suit shoes, deck shoes (they need to be one size larger than street shoes), or Neoprene dinghy boots — eliminating the need for bulky seaboots when the suit is worn as foul weather gear. (You can also wear socks inside the suit for warmth.)

In a suit designed for sailing, internal suspenders keep everything in place. The suit is entered by means of a special waterproof zipper, which might be over the shoulders or across the chest.

Immersion suit construction standards

General
The regulation requires immersion suits to be made of closed-cell foam to provide insulation and flotation.

Impact resistance
A wearer must be able to jump into the water from 4.5 meters without injury and the immersion suit must not dislodge or suffer damage.

Seams
Stitched seams must meet a federal standard and glued seams must have a strength of at least 50 pounds.

Closures and seals
In the jump test, there should be no undue ingress of water.

Hardware and metal parts
Hardware must be easy to operate by the wearer and metals used must be galvanically compatible.

Suit exterior
The primary color must be a specific "vivid reddish orange" and reflective panels are required. The exterior surface must pass a tearing and abrasion test.

Buoyant materials
An immersion suit's buoyancy must not depend on inflated compartments.

Hand and arm construction
Immersion suits are required to have gloves integral with the sleeves.

Leg construction
Immersion suits must be designed to minimize air being trapped in the legs when the wearer enters the water headfirst (to prevent inversion).

Foot construction
The immersion suit must have integral (attached) feet with non-slip soles.

Size
An adult immersion suit must fit any fully clothed person from 110 pounds to 330 pounds in weight and 4 feet 11 inches to 6 feet 2 inches in height.

Immersion suit performance standards

Buoyancy
The regulation requires an immersion suit to have 22 pounds of buoyancy.

Righting
An immersion suit must self-right from a face-down position in 5 seconds.

Thermal protection
An immersion suit must not allow the body temperature to drop more than 3.6°F in 6 hours. Moderate activity with a pulse rate of up to 140 beats per minute (BPM) is permitted for the first hour, and a maximum of 120 BPM thereafter.

Water penetration
An immersion suit must not leak more than 100 milliliters during the first 2 minutes and 500 milliliters in an hour.

Donning time
An immersion suit must be capable of being donned within 2 minutes.

Swimming and water egress
A person wearing an immersion suit must be able to swim 25 meters and climb into a life raft.

Field of vision
Immersion suit standards allow for some restriction of vision.

Hand dexterity
A person wearing an immersion suit must be able to pick up and write with a pencil after 1 hour in 41°F water.

Walking and climbing
The walking and climbing tests are designed for shipboard use.

Immersion Suit

IMMERSION SUIT PHOTO COURTESY OF MUSTANG SURVIVAL
DRY SUIT PHOTO COURTESY OF KOKATAT

Immersion suits, like the Mustang Survival Neoprene Cold Water Immersion Suit with Harness, at right, serve a specific safety role. Dry suits are made for a range of activities. The Kokatat GFER Gore-Tex Front Entry Drysuit, upper right, is intended for recreational boating.

Dry Suit

Dry suit construction standards

General
My dry suit does not meet the flotation requirements because it lacks foam, but wearing a life jacket would supplement the flotation.

Impact resistance
I jumped from 3 meters three times wearing my dry suit. I observed no significant shifting of the suit and the suit and I survived unharmed.

Seams
I did not pull seams apart, but I did do a pull test equivalent to the standard without damaging the suit. I have been kayaking and sailing in this suit for two years during which time it has proven pretty rugged.

Closures and seals
My dry suit closures all remained intact.

Hardware and metal parts
My dry suit is made for windsurfing. I lube the zipper periodically to ensure it works smoothly and to help keep it watertight.

Suit exterior
My dry suit was available in red, but I bought a blue floor model on discount at a boat show (so I really should add reflective panels!). Dry suits are made of tough fabric but are vulnerable to catastrophic failure if torn. A dry suit would be a little cold if flooded — as would an immersion suit. However, the suit will still hold the water in place where it can be warmed by the wearer's body, providing some level of insulation.

Buoyant materials
Most dry suits do not provide buoyancy other than the air that is trapped inside. I was very comfortable wearing a life jacket over my suit.

Hand and arm construction
A sailor who intends to use a dry suit as a survival suit will need to buy separate warm gloves. I use 5-mm Neoprene gloves in the coldest weather.

Leg construction
Air does not become trapped in the legs of a well-fitting dry suit.

Foot construction
Dry suits are made with a variety of foot treatments according to their intended use. My suit has attached feet and during this test I wore two pair of fleece socks under it — nice and warm.

Size
Dry suits are made in many types and sizes, so any sailor can buy one that fits, and it's normal to wear clothing inside for warmth.

Dry suit performance standards

Buoyancy
I grabbed steel dumbbells off my boat's transom one at a time until I was floating as if in a swimsuit: water at my chin with my head tilted head back. I needed 40 pounds of weights if I made no special effort to burp air from the suit. Although this easily exceeded the standard for buoyancy, I could lose it all if the suit suffered a leak. I needed a life jacket anyway to match the requirements for head support and self-righting.

Righting
My dry suit would not self-right because the air moves around inside it, making me stable in any position. A life jacket of the right type quickly righted me.

Thermal protection
I spent a portion of my time in the water performing swimming and boarding tests, a portion enjoying a swim around the harbor, and a portion toward the end as quiet time, reading a book.

I eventually ended the test at 2 hours on account of boredom. By this time, my core body temperature had actually risen 0.4°F. My little fingers did get slightly cold, but were still warmer than the standard requirement of 50°F. They warmed up if I swam a few strokes to redistribute warm air (my palms read 65 to 70°F). My feet stayed comfortably warm (62°F at the toes, 80°F at the arch), and my legs and torso were very comfortable as long as I rolled over every 5 to 10 minutes to redistribute warm air within the suit (I managed to do this while reading my book and kept it dry!).

Under the suit, I was wearing long underwear, fleece top and bottom, and two pair of fleece socks — the clothes I typically wear in freezing conditions. To make the dry suit more like a survival suit, I also wore a 5/7-mm Neoprene diver's hood and 5-mm gloves during the test (these could be carried in a pocket while working on deck and donned in the water if suddenly needed in an overboard situation).

Water penetration
Reasoning that my clothes would absorb any water that leaked into my dry suit, I weighed them before and after my series of tests. The weight gain after 2 hours was .25 pounds, well below the 1.1-pound weight of the 500 mililiter limit for 1 hour, and this included the jump test, which would ordinarily be conducted separately. I believe that all of the gain was from perspiration and inadvertent drips while removing the dry suit. I was quite dry and not at all clammy.

Donning time
While it takes a little practice to put on a dry suit, anyone who does it regularly can probably do it in close to 2 minutes. I usually wear my suit as foul weather gear and for warmth as soon as the weather gets wild, so being able to don it quickly isn't such a big consideration.

Swimming and water egress
While the regulation allows these tests to be performed in a warm pool, I performed them in a 33°F harbor as part of the thermal protection test. I anchored the inflatable dinghy the required distance from the boat (25 meters) and easily performed the swimming test and boarded the dinghy in the required time (30 seconds).

Field of vision
Vision from a dry suit is restricted only by the hood, which can be lowered or removed (its only purpose in the water is to provide warmth).

Hand dexterity
My 5-mm Neoprene gloves easily pass the test for warmth and dexterity; I was able to turn the pages of a book, clip carabiners, operate plastic buckles, and untie knots after 2 hours in 33°F water. Depending on the suit, Neoprene gloves could be carried in a pocket.

Walking and climbing
A dry suit allows mobility by design, and typically does so better than most foul weather gear. Often after I've been kayaking I forget I have it on and continue to go about my business.

Strengths and weaknesses

Strengths

Immersion suit

- More robust
- No accessories required
- One size fits all
- Easy to don
- Less expensive ($300-$800)

Dry suit

- No water ingress
- Wearer's agility is much better
- Can be worn in all situations where high risk of MOB exists
- Can be worn as foul weather gear in cool or cold weather
- Very practical in situations that involve a life raft
- Sailor will be practiced in its use
- Multiple additional uses

Weaknesses

Immersion suit

- More potential for water leakage (no seal at the neck)
- Wearer cannot function as well when sailing or swimming
- Not helpful in the event of an unpremeditated MOB
- Time needed to locate and don during rapid sinking or capsize

Dry suit

- Failure due to tear is possible
- Must wear separate shoes, gloves, and hood
- Must wear life jacket to ensure full buoyancy and righting
- Must be fitted to individual
- Additional donning time required (should be worn in situations with a high risk of immersion)
- More expensive ($650-$1600)

Personal experience

My Ocean Rodeo Soul dry suit has a feature of special value to sailors: because the suit includes a built-in jacket and hood, and because the closure is by a zipper across the shoulders, it is practical to work in what Ocean Rodeo calls standby mode, with good ventilation through the shoulders and neck while maintaining the same protection as standard foul weather gear.

When I use my dry suit for hull cleaning or other diving under the boat, I use fins to help me get down and a weight belt to achieve neutral buoyancy. Because the entry zipper on the Ocean Rodeo Soul is across the back of the shoulders, the best way to minimize retained air in the suit is to descend the boarding ladder to mid-chest before pulling the zipper the last ¼ inch. For deck wear, and when thinking about survival in the water, I simply squat before pulling the zipper closed. This prevents the awkwardness caused by over-inflation while still providing considerable buoyancy.

I like a Neoprene beanie (made by Ocean Rodeo and others) when kayaking or sailing in the rain. It keeps my hair dry, like a swim cap, and will not blow off. For diving and severe cold-water protection, I switch to a 5/7mm dive hood. This is unpleasant on deck, but it keeps the critical neck area warm. It could be kept in a pocket.

A face mask adds considerable warmth by keeping the top half of the face warm, leaving only a small area around the lips exposed. It also gives a better view in spray and would be a survival asset in cold, stormy waters. I always take a mask when going in the water in sub-55°F temperatures, if only just in a parking position around my neck. A snorkel wouldn't hurt. There are good reasons Navy rescue swimmers wear these.

Immersion suits must meet a minimum standard for manual dexterity. The gloves Drew wears with his dry suit impair him very little. Here he is working carabiners on his dinghy davits, at left, and he also had to inflate the dinghy before launching it. While wearing his Neoprene gloves, Drew was able to don a life jacket for his testing and manipulate the plastic catches that secure the straps, below.

Conclusion

It is not my intent to persuade anyone that a dry suit can replace an immersion suit in all situations. However, after my immersion experiment, I feel that a good dry suit with the proper accessories comes very close to meeting all the requirements of an immersion suit while offering dramatic advantages in wearability and utility.

If the probable risks are sudden sinking, rollover, capsize, or MOB, a dry suit is the more practical choice. If you are sailing in cold waters, you really should have at least one dry suit on board anyway, if only for its usefulness in underwater maintenance and emergency repairs or MOB recovery. In my case, as a year-round sailor and frequent singlehander, a dry suit provides safety no other garment can. The real questions are whether you need something for every member of the crew and whether that something is a dry suit or an immersion suit.

A conventional immersion suit offers more robust protection and flotation in a commercial setting, where one-size-fits-all makes sense, where user familiarity may be less, and where a boat sinking over some time period is the greater risk. I just don't feel that is the real world of sailors, whether cruising or racing. I like my dry suit.

Drew Frye cruises Chesapeake Bay and the mid-Atlantic coast aboard his 34-foot catamaran Shoal Survivor, *searching for out-of-the-way corners known only by locals. A chemical engineer by training, 40-year climber and 30-year sailor by inclination, he brings a mix of experiences to solving and writing about boating problems.*

Resources

Dry suits vary in their suitability for sailing. Even dinghy sailing and cruising require different features. Dry suits designed for a variety of uses are available from a number of manufacturers.

Ocean Rodeo:
https://oceanrodeo.com
Musto
www.musto.com
Kokatat
https://kokatat.com

Immersion suits

Mustang Survival
www.mustangsurvival.com

Is that cable leaking amps?

Don't be shocked by aging insulation

BY DAVID LYNN

When we were in Patagonia a few years back, we tied up at a marina in Puerto Montt for several weeks. We dug out our power cables and the appropriate connectors and adapters and connected to shorepower at the nearest power box. All was good for a while, but every few hours the ground fault circuit interrupter (GFCI) tripped and *Nine of Cups*, as well as three other boats connected to the circuit, lost power. This was annoying. The marina manager called an electrician to investigate. We were embarrassed to learn that the cause of the problem was our 5-year-old power cable.

Insulation starts to deteriorate as soon as it's manufactured. Ultraviolet rays from the sun, harsh temperatures, and the marine environment's salt water hasten the process. Ultimately, deterioration can allow current to leak from the power conductors to the ground wire or, worse, to the surface of the insulation — a potentially dangerous situation.

A GFCI device detects leakage and interrupts the circuit, before anyone gets hurt (we hope). The insulation in our 5-year-old cable had apparently degraded to the point that the leakage current was right at the threshold required to trip the breaker.

Unless the insulation has completely broken down, the insulation resistance of a power cable cannot be checked with an ordinary multimeter. Most multimeters check resistance by applying only a few volts and a much higher voltage is necessary to see any measurable leakage. The instrument needed to measure the quality of the insulation in a cable is a megohmmeter.

A typical megohmmeter differs from a multimeter in the ohmmeter mode in three ways. First, a megohmmeter applies a much higher voltage — typically 500 to 1,000 DC volts (VDC). Second, a megohmmeter can typically measure resistance up to 2,000 megohms, whereas a multimeter measures up to about 1 megohm. Third, the output of the megohmmeter has a high internal resistance, making it less hazardous to use despite the high voltages present.

Not long ago, a megohmmeter was the size of toolbox and cost several hundred dollars. Today, a basic tester for checking insulation is the size of a handheld multimeter and can be purchased for less than $75. If the budget will allow, it is a handy device to have aboard.

Testing a power cable

The simplest way to check the insulation of a marine power cable is to conduct what is called a Proof Test.

1. Disconnect both ends of the cable to be tested.
2. Connect the black test lead between the common terminal on the meter and the ground wire of the cable.
3. Connect the red test lead between the Volts/Ohms terminal on the meter and one of the power conductors.
4. Select the 1,000-volt setting.

5. Press and hold the test button for several seconds. (It may take a second or two for the resistance reading to stabilize.)
6. Repeat the test between the second power conductor and ground and again between the two power conductors.

In all testing configurations, the resistance between any two conductors should be higher than 1 megohm. Older or more sophisticated megohmmeters may use a different procedure for checking cable insulation; refer to the owner's manual.

Tools and motors

Getting a little tingling feeling when using your power grinder? You might want to check its insulation before using it while standing in a puddle of water. Connect the megohmmeter between each power conductor and the ground conductor. The resistance between either of the power conductors and the ground should be at least 1 megohm. For double-insulated tools, which have only two prongs on the power cord plug, connect the tester between each of the power conductors and any exposed metal on the tool. Again, the resistance should be at least 1 megohm. (Note: the resistance between the two power conductors will be low — a few hundred ohms or less — which is normal).

The megohmmeter can also be used to check the insulation of the windings of motors and alternators. For an alternator or brushless DC motor, the stator windings should be disconnected from each other and the resistance checked between windings and between the windings and ground. For brush-type DC motors or generators, the brushes should be removed and the resistance checked between the coils separately. For a 12-volt motor or alternator, all resistances should be a minimum of 100,000 ohms.

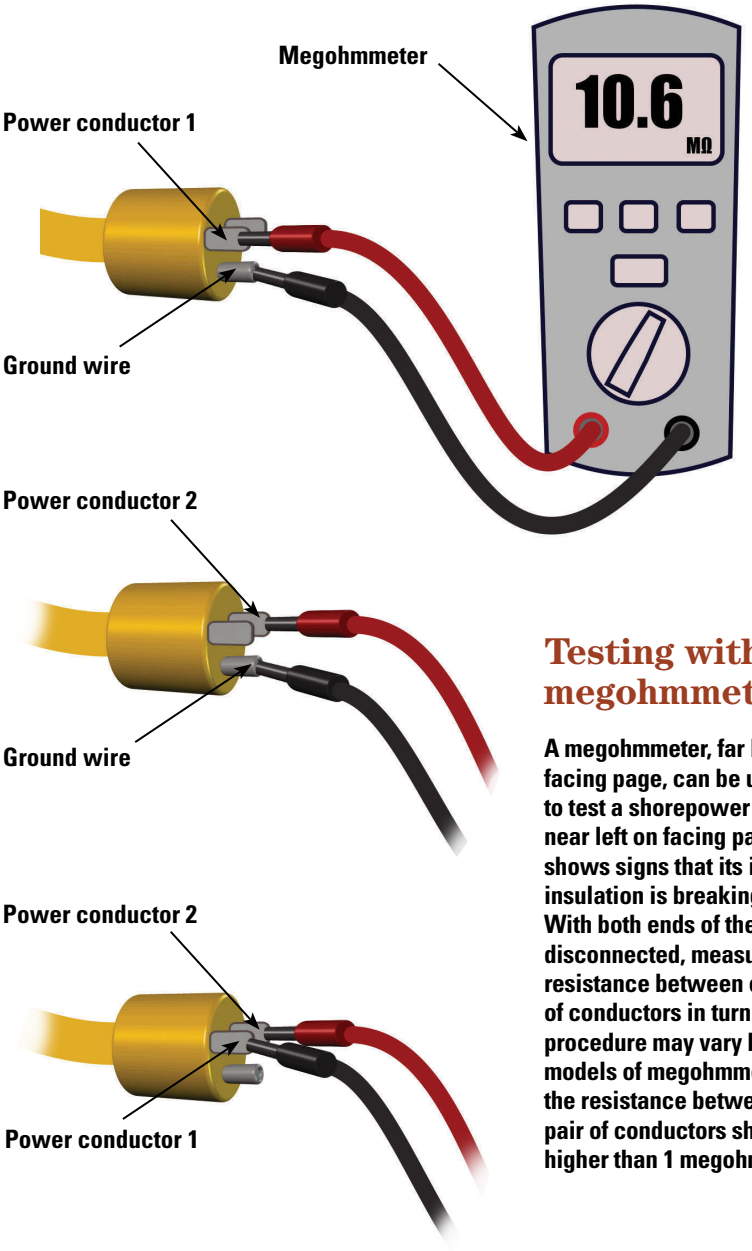
Transformers

Some boats incorporate transformers on the incoming AC shorepower circuit, either to provide isolation from shorepower or as a step-up or step-down transformer to convert 220 volts AC (VAC) to 120 VAC or vice versa. We have a 1-kilovolt-amp (kVA) step-down transformer aboard *Nine of Cups*. The megohmmeter can be used to check the insulation of the windings.

The transformer should be disconnected from shorepower and onboard circuits, and the resistance of each winding checked against the other and to ground. For a typical 120 VAC isolation transformer, all resistances should be greater than 350 megohms. For a step-down, step-up, or 220 VAC isolation transformer, the resistance should be greater than 650 megohms.

While a megohmmeter may not be an essential tool to have aboard, it is certainly a useful one. Now that they are reasonably priced, it may make sense to buy one.

David Lynn and his wife, Marcie, have been living aboard Nine of Cups, *their 1986 Liberty 458 cutter, since purchasing her in Kemah, Texas, in 2000. In those 16 years, they have sailed her nearly 90,000 nautical miles and visited some of the more remote places in the world in their ever-so-slow circumnavigation.* Nine of Cups *and crew returned to U.S. waters in April of this year, making landfall in Culebra, Puerto Rico, before heading to St. Augustine, Florida. The Lynns are currently cruising the Chesapeake Bay. Find them on their website at www.nineofcups.com or their blog at www.justalittlefurther.com.*



Testing with a megohmmeter

A megohmmeter, far left on facing page, can be used to test a shorepower cable, near left on facing page, that shows signs that its internal insulation is breaking down. With both ends of the cable disconnected, measure the resistance between each pair of conductors in turn. The procedure may vary between models of megohmmeter, but the resistance between any pair of conductors should be higher than 1 megohm.

Deliverance from

The best decision was to call for help

BY MARK MYAARD

Cabaret in Charlevoix, with Mark standing at her stern, awaits her new adventure, main photo. Her new owner, Jim, and his son Nick made up the rest of the delivery crew, at left.

Having plied the Great Lakes on sailboats for more than 30 years, I was thrilled when my brother Jim informed me that he was getting his first boat. The thought of having his family at the yacht club, and of sharing my passion with them on their own starter boat, pleased me. I don't know which one of us was more excited about bringing a new boat into the family. I had sailed my old trusted friend, a 1981 Cape Dory 27, for 23 years and my head was spinning with anticipation at the prospect of sorting out and learning to sail a strange new craft.

I was ecstatic about my brother's choice, a 1977 Sabre 28. Even her name, *Cabaret* was acceptable. I knew this boat would serve him well and carry his family safely on the unpredictable Great Lakes.

In only a matter of days we would put that thought to the test. *Cabaret* was in Charlevoix, Michigan, and we had to bring her to her new home in Muskegon, almost 180 miles to the south on Lake Michigan's eastern shore.

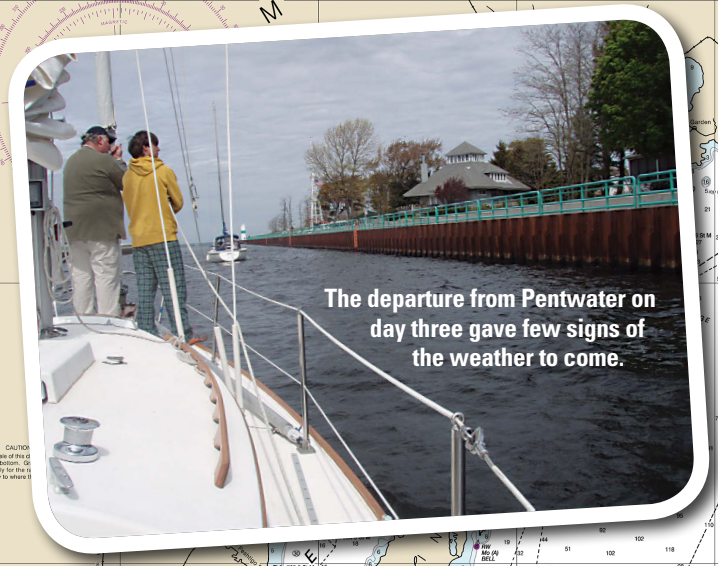
Our crew for the delivery was my brother, his son Nick, and me. Our plan for the trip was an aggressive one. We had three days over the Memorial Day weekend to hand steer *Cabaret* (she had no autopilot) 178 miles in three legs of up to 60 miles between ports. We would have to give up our normal sleep habits and use a navy-type watch schedule, but we were up to the task.

In our family, we call ourselves the Dilbert Navy. My experience and demeanor earned me the title of Admiral Smartmouth. My brother with the master's degree is Captain Brainiac. My nephew goes by Leftenant Bilgerat, and that name stuck around the club. This bright-eyed, capable, and eager 16-year-old is an accomplished foredeck man on a Tripp 33. His fellow racers affectionately address him as Bilge or The Rat.

A fair start

The first leg of the delivery was the longest, 60 miles from Charlevoix to Frankfort, passing by Little and Grand Traverse Bays with a night navigation through the treacherous Manitou Islands. We left port on a sunny but chilly afternoon. Daytime temperatures were in the 40s, dipping down into the 30s at night. Multi layers and ski clothing were the norm. The lake temperature was only 38 degrees; serious sailing on Lake Michigan in May and not for the faint of heart. If you fall in, it's simple: within 30 minutes, you'll be dead.

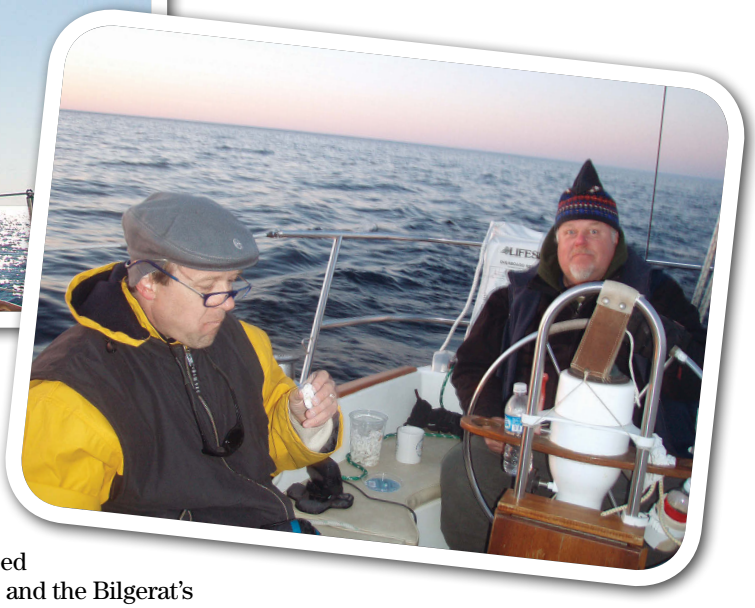
a doomed delivery



The departure from Pentwater on day three gave few signs of the weather to come.

Despite a couple of setbacks, *Cabaret*'s delivery cruise from Charlevoix to Muskegon progressed smoothly as far as Little Sable Point.

CHART COURTESY OF NOAA



Nick (Bilgerat) and Mark (Admiral Smartmouth) confer, at left. Bundled up, Jim (Captain Brainiac) and Mark sustain themselves on snacks, below.

The wind was right and we started our family adventure under full main and jib. *Cabaret* was a true gazelle of the sea and could point well with her crisp new jib and full-battened main. As with most Great Lakes cruises, the storybook sailing lasted only a short time before we had to fire up the iron genny. The two-cylinder Volvo Penta diesel purred like a sewing machine.

A damper

We'd been under way about an hour and were miles offshore when I looked below to see the bilge cover afloat, along with some of our gear. I told Captain Brainiac and his eyes grew as big as saucers.

"Let's not panic," I told the crew. "Let's pump her out and gauge the rate of flow. Most likely, the stuffing box needs an adjustment and we will be just fine. When we put in to Frankfort, we'll find the culprit and fix it."

We pumped the bilge dry every 30 minutes. As night fell, we settled into a routine of motorsailing and pumping with two crewmen on deck and one off watch resting for 2 hours. The outline of the Manitous looked menacing in the dark of night. While the cold seeped into our bones, a billion bright stars shone in high definition and warmed our spirits.

We made Frankfort at 4 a.m. without any further drama and slept for 3 hours, all we were allotted before the bilge cover was again afloat. Up at 7 a.m., we had a full breakfast ashore before commencing our attack on the pesky leak. It was indeed the stuffing box, and the Bilgerat's bean-pole frame made him the perfect candidate for worming around the diesel auxiliary to fix it — under Admiral Smartmouth's expert direction.

Back in our foul weather gear and multi- layered ski clothing, we left Frankfort midday to start leg two to Pentwater. Despite our heavy gloves, all of us complained of cold hands. If it weren't for the bite of the arctic chill in the air, it would have been a glorious day at sea.

Motorsailing all the way to make the best time, we arrived in Pentwater at 10 p.m., looking forward to a good night's sleep. Leg three would be the shortest and, if all went well, we'd arrive at our home port on Sunday . . . if all went well.

The gamble

Because Lake Michigan weather is so unpredictable, anyone who sails here long enough will eventually experience the fury of its storms. Aboard a C&C 40 in the 1985 Chicago-Mac race, we were surfing down 30-foot waves at 17 knots under spinaker when we broached. In the early '90s, seven boats from our club sailing in a group were caught in a blow north of Sturgeon Bay and I witnessed lightning strike three nearby boats. Two seasons ago, I was sailing my Cape Dory 27 from Port Sheldon to Muskegon when a squall line bore down toward us like a giant angry black rolling pin and hammered us with winds over 50 knots for 25 minutes. That line squall set my high-water mark for Great Lakes terror.

We left Pentwater Harbor at noon to find the wind in the high teens and on the nose. Seas were predicted to be 3 to 5 feet, promising a long, wet, and cold day. I interpreted a forecast for a 30 percent chance of scattered thundershowers at midnight or later as a 70 percent chance of *not* running into any thundershowers, a gamble we were willing to take. We figured we'd be home in Muskegon, about 40 miles away, in 6 or 7 hours, plenty early for a hot shower and dinner.

First, we had to round Little Sable Point, which forms the top shoulder of Michigan. The waves get real goofy here; I have seen them crashing into each other from all directions. Our plan was to punch our way out to sea to give

a wide berth to the shoals that extend from shore. After an hour at sea with the Little Sable Point Lighthouse in sight, our trusty diesel's rpm began to oscillate. Given the rough conditions, I figured this was a sign of an air bubble in the fuel line or tank sludge being sucked up and clogging the fuel filter. It could not have happened at a worse time. We had not yet clawed far enough offshore to give me peace of mind. I was nervous. Then the engine quit and would not restart.

A fateful decision

We had a decision to make. Do we play it safe and sail back to Pentwater, throwing off the schedule, or do we raise the sails and carry on? Like schoolboys on Tom Sawyer's river raft looking for adventure, we made the decision to sail on. After all, we were on a *sailboat* and could *sail* to White Lake, where friends at Crosswinds Marina could help us get in.

White Lake was 11 miles short of our Muskegon goal, but we estimated that we could reach it around midnight. We all knew we were committing to a very long day at sea, but we of Dilbert's Navy were special forces, not regular navy.

We had been beating to windward for 11 hours, the lights marking the entrance channel to White Lake were in view, and our last tack had put us on a course that would take us easily to the harbor when, without warning, the wind ramped up to 25 knots.

With every stitch of sail set, *Cabaret* was overpowered. We had to get that main down immediately. A glance to the west showed lightning in the darkening sky; our 70 percent gamble on the weather was not paying off. I carefully explained to Brainiac and Bilgerat the danger of what they had to do: go forward without missing a foot placement or handhold and pull down the main. With life jackets on, they scrambled forward and waited for me to shear the wind so they could grab 2 feet of the sail at a time. Without a motor, I had to steer carefully in these high winds so as not to backwind the jib and careen the boat in a wild carnival spin. I was proud of the crew for a perfect takedown in tough conditions and I said so when they arrived safely back in the cockpit. Then, before we had time to even rig a jackline or to jury-rig safety harnesses out of dock-lines, the wind ramped up to 35 knots.

> "A glance to the west showed lightning in the darkening sky; our 70 percent gamble on the weather was not paying off."

Round one

Thoughts of safe harbor left our minds. I informed the crew that we had to pull in the jib until it was the size of a postage stamp. I cautioned them to be careful not to jam the roller furler, but careful turned out to be no match for the wind. The jib jammed with a terrible overlap, leaving it at the mercy of the wind.

Then Thor's hammer dropped. The dark storm clouds were nearly on top of us. I urged the crew to stay calm and to stay with the boat under any circumstances. My brother looked at me, "What do we do now?" I responded with two choices, both of them bad.

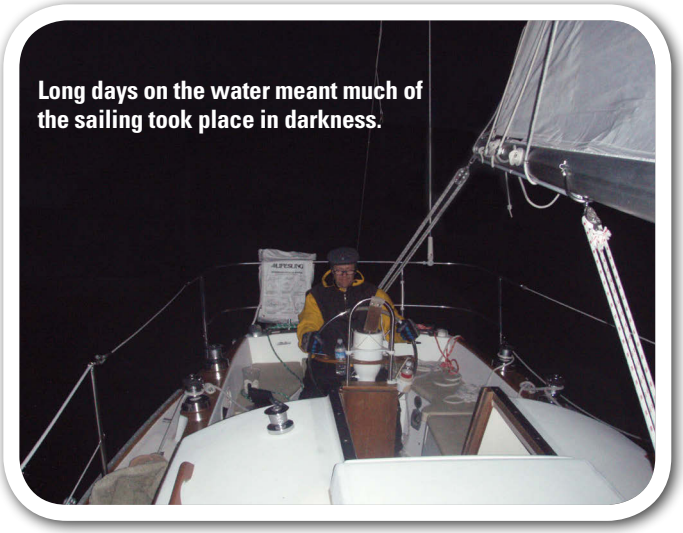
We could set *Cabaret* on starboard tack toward the beach and wreck her on the shore, or we could set her on port tack and sail into the mouth of the dragon. Jim said he really didn't want to wreck the boat. We turned to port tack. The wind speed had climbed, hovering somewhere over 50 knots.

I kept thinking how terrifying the experience must be for my crew, neither of whom had ever experienced anything like this. I again and again urged Jim and Nick to hang on at all costs. With the wheel locked to port and the exposed part of the wrapped jib driving us forward, *Cabaret* was, amazingly, mostly hove-to, which to me seemed like a blessing of sorts. All we could do was hang on. After about 30 minutes, the storm released its grip. I turned to Jim and said that we might just have beaten this thing. He said he didn't think so, that round two was coming.

Round two

No sooner were the words out of his mouth than all hell broke loose. We could not yell above the roar of the wind. Miraculously, the jammed jib kept us driving forward as I steered for our lives. The rain and spray stung the left side of my face like it was ripping flesh away. My windward eye was closed against the pain, my leeward eye was a mere slit. The scene was surreal. (We later learned that the wind during this time had blown more than 70 knots.)

Fighting this second phase for about 45 minutes we were blown onto our side twice. The whole time, the Bilgerat was wedged backside down in the cockpit as low as he could get. We



Long days on the water meant much of the sailing took place in darkness.

Steep cresting seas were a taste of things to come, at left. Nick, below, came out of the experience a grown man (and boat cook).

all had death grips on anything solid. Twice, the 38-degree water washed over us, completely submerging The Rat — the coldest Jacuzzi he had ever experienced.

My biggest fears were of a rollover or of all three of us being washed overboard. The main appeared to have been stripped of sail ties and ripped in half. The sails slatted so hard their edges began to fray. A batten took off like it was shot from a crossbow. The Windex was blown off the top of the mast. Bilge said he saw the mast bend like a pretzel. Whether or not we survived this, I imagined the stainless-steel rails we clung to would forever bear the impressions of our fingers.

During the final 15 minutes of the storm's second punch, I believed this blow was going to consume us. All I could do was steer and pray, steer and pray. I made peace with the thought of dying out here, but was saddened by the idea of friends and family losing all three of us at one time. Jim's and Nick's bodies would be recovered but my life jacket was at my side. From the moment the hammer dropped, I had feared relinquishing the wheel long enough to put it on.

After another full hour the wind and rain began to abate. The huge seas remained. At one point, I saw a dark line at least 12 feet above my head and knew it was a black wave about to slide under us. I remember saying to the guys that it was a damn good thing it was so dark out there, because seeing this in daylight would scare the crap out of them. They were not amused at my attempt at humor.

We were now rocketing due north at what must have been 8 knots, 9 when surfing. I steered like a madman, intent on avoiding a broach. To my amazement, the Little Sable Lighthouse was coming into view. A 90-minute storm had set us back the entire distance we'd covered during our 11-hour beat south. At this rate, we would blow into the teeth of the Manitous.

The towel

I decided it was time to call in the cavalry. In the decades I've been sailing, I have always been able to figure my way out of these terror-at-sea episodes, but with no motor and our sails blown out I had to admit this storm had beaten me. I asked Bilgerat to carefully make his way down below, to switch on a cabin light, and to hail the Coast Guard with a clear, "Mayday, mayday, mayday."

My nephew picked up the mic and got the first part of the call out clearly. The Coasties responded right away, but Nick politely excused himself, went to the sink where he was violently sick, then resumed his conversation. He had to break away two more times before he could transmit our full message. I had never witnessed anything like that. My teenage nephew grew from a boy to a man before my eyes. I promoted him to Tough Sea Monkey on the spot.

We were disappointed to learn that it would be an hour and a half before the Coast Guard could reach us. We were all wet and cold. My brother could not stop shaking, slurred his speech, and was now seasick. I realized he was pre-hypothermic and could go into shock. Bilge found a dry mummy bag in the mess below and the two of us worked to wrap it around his dad. Five minutes later, we were happy to hear Jim say he had stopped shaking. His condition hadn't stopped him from giving the Coast Guard periodic updates of our postion from the handheld GPS.

Our tremendous relief at finally seeing the Coasties' large orange RIB was shortlived — they told us the boat didn't have enough power to tow us in safely. Although they assured us they would stay with us until their big cruiser arrived from Grand Haven, that wouldn't be for another hour and a half. Our hearts sank.

An eternity later, at about 4 a.m., the big cruiser came out of the south, but bearing bad news: its draft was too deep for it to tow us through the shallow Pentwater Channel. Just when

I thought this nightmare was never going to end, the Coast Guard radioed to say they would make one attempt to tow us with the smaller craft. Their plan was to race up to our stern quarter and toss a line to *Cabaret*. But, they warned, given the conditions, if they missed or we failed to catch the line, we'd have to wait until they figured out how to get us to safety.

The tow

I couldn't leave the helm, so I turned to my nephew. "You know what to do," I said. " . . . and don't miss that line."

The rescue boat was soon off our quarter, first 2 feet away in the surging seas and then 15 feet. Suddenly, a heavy line struck midships and lay across the boom. What a beautiful sight! I watched Bilge choke down his fear as he set about dragging the heavy line aboard and securing it to the bow of our bucking seahorse.

Warning us for what would come next, the Coast Guard radioman advised us to hang on tight and try to keep the sailboat directly behind the RIB. Then, as soon as the 200-foot towline came taut, the coxwain hit the throttle. *Cabaret* surged out of the water like a breaching whale. We set off on a ride Disney would be proud of.

After about 12 miles, the towboat disappeared into a fog bank. A few minutes later we emerged from the fog — and there was Pentwater Harbor, waves crashing on the north pier and shooting water 30 feet into the air!

Mark Myaard has sailed the Great Lakes for over 45 years. He's enjoyed (and not enjoyed!) countless adventures sailing cross-lake and participating in long-distance races. Mark has owned and skippered a 1981 Cape Dory 27 for the last 31 years, and sails out of Muskegon, Michigan.

The takeaway

Only by the grace of God and the prayers of those on shore were we saved. Sailing on the Great Lakes is serious business and I made many mistakes on this delivery in terms of safety equipment, the weather, and poor decisionmaking. I allowed our pursuit of adventure to compromise our safety. These are hard lessons to swallow after decades of experience.

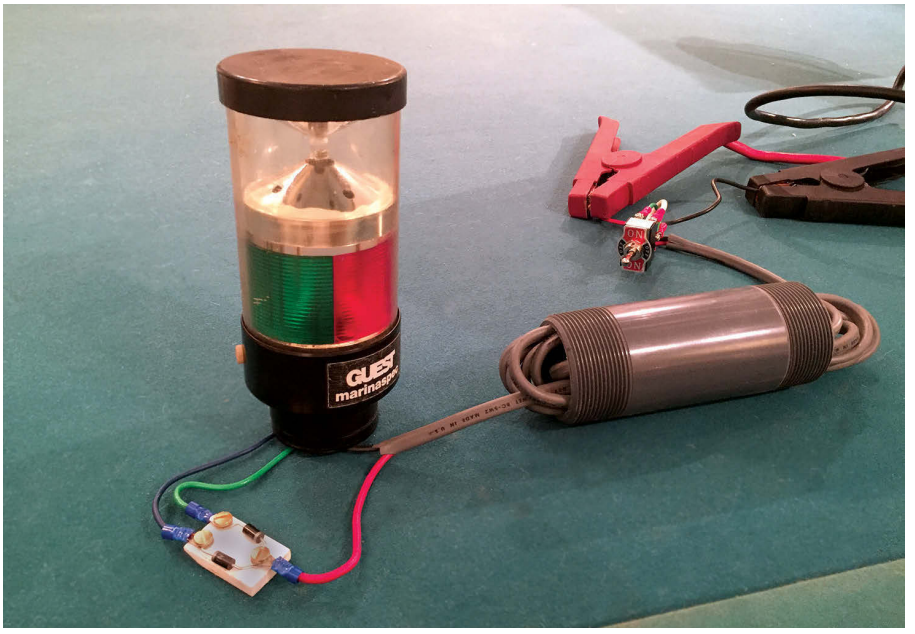
If I had taken all the precautions listed below before departure, the outcome would likely have been far less dramatic.

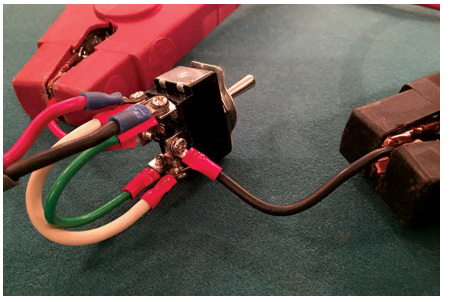
- Inspect all through-hull fittings and the stuffing box.
- Change all fuel filters and carry spares on board.
- Test run the motor for at least 30 minutes after changing the fuel filter.
- Inspect the fuel tank for sludge and debris that could be sucked up by the fuel pump.
- Install jacklines prior to leaving the dock and stow safety harnesses and safety gear where they can be quickly accessed by the crew.
- Establish rules for wearing life jackets and safety harnesses, such as after dark and at all times in heavy weather.
- Take aboard extra batteries for all electronics, especially for a handheld GPS or a cellphone.
- Test or inspect all safety equipment, such as radios and flares.
- When sailing in an area where the weather can be severe, unpredictable, and fast-changing (such as Lake Michigan), pay attention to forecasts and always be prepared for the worst—even if that means cancelling a trip.
- Make sure people ashore know your route and schedule. Inform them of any changes to either.

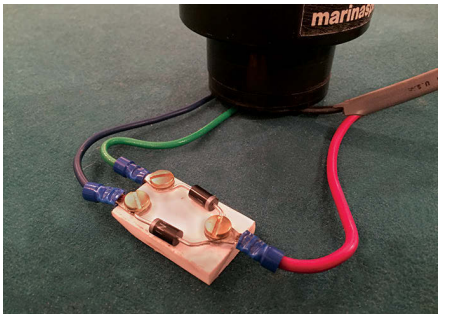
Masthead enlightenment

Making two wires do the work of three

BY JOHN CHURCHILL







John made this model of his two-wires-into-three trick for demonstration purposes — he happened to have the Guest combination light lying around. The PVC tube represents the mast with the wires running through it, above left. One wire leads from the switch to the diodes, the other to the common return in the fixture. For this demo, John used colored wires for clarity, not to meet any code. The power supply is connected to the center tabs on the DPDT switch, upper right. The end tabs are cross-connected so the polarity is opposite in the two "on" positions. Again, the wire colors are for clarity. The gray ends of the diodes point in opposite directions. The polarity of the wire at the common connection determines through which circuit electricity will flow. (The diodes could be arranged to fit inside some light fixtures.)

While I have never seen it in a physics textbook, I think there is an electrical law particular to good old boats. I call it Churchill's Law and, in short, it states that the number of wires led to any sailboat masthead will always be one fewer than needed.

$$Cp = Cn - 1$$

(*where Cp = conductors present and Cn = conductors needed)*

I first encountered this problem when outfitting a boat for offshore sailing. She had only an anchor light at the masthead and I wanted to add a tricolor navigation light that would be more visible at sea and draw less current than three separate deck-level lights. The only conductors in the mast, of course, were the two used to connect the anchor light. While adding a third conductor was an option, the mast was stepped and I had no plans to pull it in the foreseeable future. I've seen it suggested that the mast can be used as a ground, but this is a poor practice as it promotes corrosion. Fortunately, for just a few dollars and some simple electrical parts available locally, I was able to run the two lights in the combination fixture independently using the two existing wires.

Part of the trick is a double-pole, double-throw, center-off switch (available from RadioShack) wired so it can be used to selectively reverse the polarity of the wires. The other part is a pair of diodes (also available from RadioShack) connected to the masthead fixture to allow current to flow to the selected bulb while blocking it from the other.

The diodes are small enough to be mounted inside the common AquaSignal lamp fixture without soldering. If necessary, or for a different make of lamp, it's possible to fabricate a small plastic mounting board and pot it in epoxy so it can be installed externally.

I mounted the switch by the breaker panel, which is the source of its power. Turning on either light is as easy as flipping the switch to select the one I want illuminated. (A side bonus of this arrangement is that I can't operate the anchor light and the tricolor light simultaneously.)

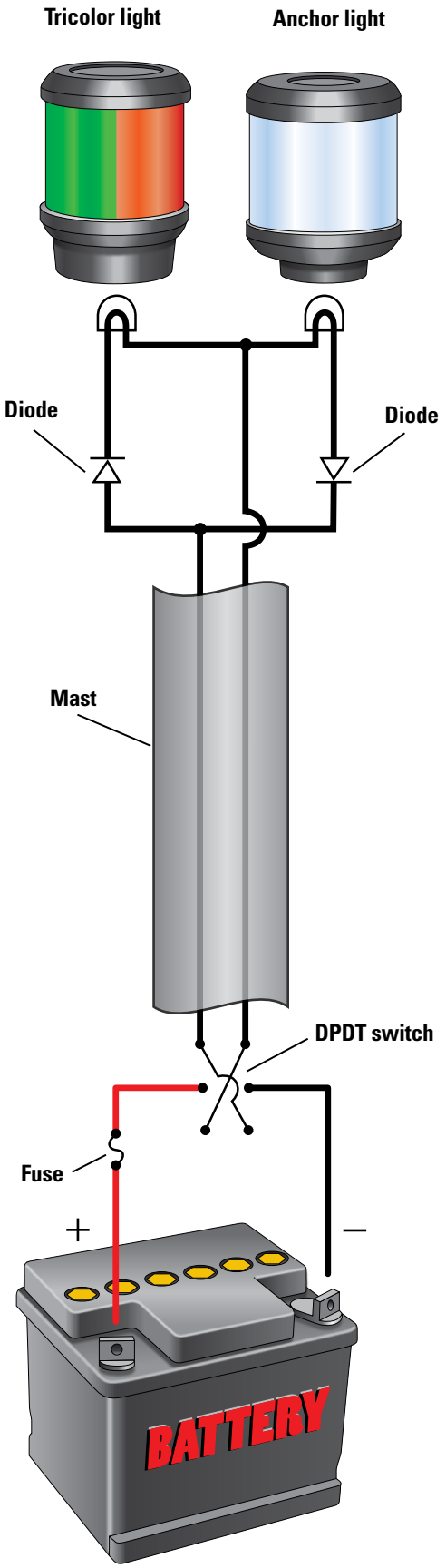
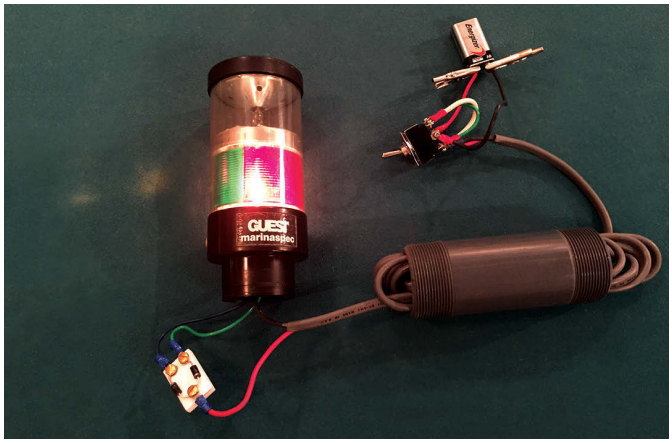
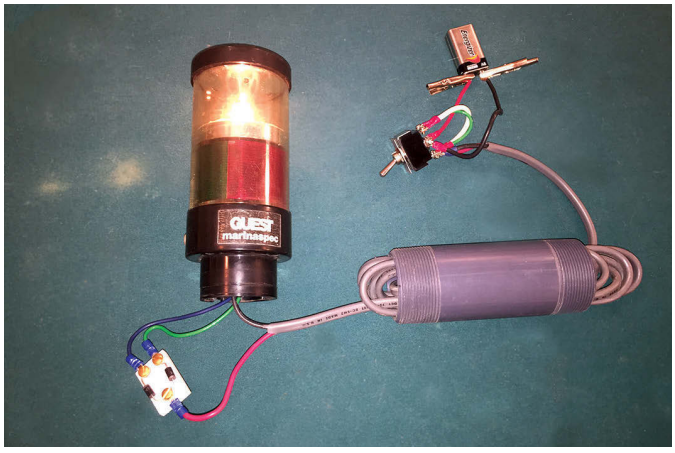


ILLUSTRATION BY TED TOLLEFSON



With the switch flipped in one direction, the tricolor is illuminated, above. Flipping it the other way turns on the anchor light, below. Using this wiring system it's not possible to have both on at the same time, which is a good thing.



Proof of the law

When the mast on my current boat, *Nurdle*, was last down, I had the foresight to replace the existing in-mast cable with a 3-conductor cable in anticipation of adding a tricolor. I later came across a too-good-to-pass-up deal on a combination anchor/tricolor that also included a strobe. I am back in the same boat. QED: Churchill's Law holds true.

John Churchill grew up a boat-crazy kid in Indiana. He built a raft at age 6, sailed Snipes as a teenager, and worked his way toward salt water and bigger boats as an adult. He has sailed a Cape Dory 26 singlehanded to Bermuda and back, and a Bristol Channel Cutter transatlantic with his father. Now in Florida, John races and daysails Nurdle, *a Bristol 35.5 (and former repo) that he's rehabbing for extended post-retirement cruising.*

Resources

RadioShack
www.radioshack.com

DPDT 10-amp toggle switch, catalog #: 2750038 – $4
3-amp 200V barrel diode (2) catalog #: 2761144 – $2 each

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Clip-on table

Instant desk space: a liveaboard writer's muse

BY CONNIE MCBRIDE

The dinette table didn't meet Connie's needs as a desk for a liveaboard writer, so Dave, her handy husband, fashioned a small extension that can be quickly attached or removed.

Living on a 34-foot cruising boat requires being flexible, comfortable with small spaces, and doing a lot with a little. Being a professional writer on a small boat adds to the pressure. Though all the tools of my trade fit in a briefcase, I tend to spread out when I work, as I haven't yet mastered the "do a lot with a little" part. Papers, reference books, highlighters, and spreadsheets surround my laptop like battlements, covering every horizontal surface within arm's reach: the dinette table, the cushion next to me, my lap, and sometimes spilling onto the cabin sole.

One day, watching me struggle to keep all my materials organized, my husband, Dave, said, "What if I made you a little extension for the dinette table, right next to your laptop? Would that help?" Neither of us had any idea how much I would appreciate and use the mini-table or how easy it would be to design and build.

Criteria

This mini-table, if it was to be worth the effort of making it, had to meet a few requirements. I wanted it to be easy to install and remove. If, every time I worked, I had to untangle and hook up lines or flip and spin supports while juggling the mini-table, I knew I'd never bother to set it up. Secondly, I had to be able to get in and out of my seat at the dinette table easily, to make another pot of coffee, go to the bathroom, or just take a stretch break. I didn't want to feel penned in by the mini-table. Finally, it had to be sturdy enough to hold a heavy book or for me to rest my arm on it as I jotted down notes.

Design

Easy to set up, not trapping me in my seat, and sturdy. Dave had his criteria. Now he had to figure out how to fulfill them. He decided that, without strings or other supports, the only way to make a small table that met my requirement for sturdiness was to cantilever an extension from under the tabletop. At first, the fiddles, which on our dinette table extend below the tabletop, presented a design challenge, but Dave found a way to use them to his advantage. His carpentry background comes in handy at times like this.

Dave's design will work on any surface that has a sturdy fiddle around the edge and space beneath the table for the cantilever's support. That the fiddles on *Eurisko*'s dinette table extend below the table added one step in making the mini-table.

Construction

For materials, we spent $11 at Home Depot on a 2- x 2-foot piece of ¼-inch oak plywood and a length of 1- x 4-inch clear white pine lumber. We figured we could scrounge the hardware from what we had on board.

Our dinette table is a parallelogram in shape — the forward and aft ends are square to the boat's centerline and the other two sides follow the hull. Dave designed the mini-table so the side that faces me extends in a straight line from the dinette table. The inboard side of the mini-table is parallel with the boat's centerline and Dave made the inboard corners square. The result is a trapezoidal work surface 16 inches deep, 12½ inches wide along the side that faces me, and 11 inches wide on the far side. To provide sufficient support for a cantilevered surface of that size, Dave extended the mini-table 6 inches under the dinette table.

Dave cut the trapezoid for the mini-table surface from the oak plywood and rounded the inboard corners. He then cut the pine 1 x 4 in two lengthwise, making the width of one piece equal to the full height of the fiddle. This piece would be fastened upright to the top of the mini-table's surface and clamped to the fiddle. (In cases where a table's fiddle does not extend below the bottom surface of the table, this width

extension

would be the height to the top of the fiddle from the underside of the table.)

To compensate for the extension of the fiddle below the table, Dave cut another piece from the 1 x 4 with its thickness equal to the depth the fiddle extends below the underside of the dinette table. He attached this strip to the top surface of the mini-table along the edge that would rest against the underside of the dinette table. Its function is to keep the top of the mini-table level and parallel to the surface of the dinette table. (This step is not necessary in cases where a table's fiddle does not extend below the bottom surface of the table and the underside of the table is flat.)

Dave attached both pieces of pine with screws from underneath (through the bottom of the plywood). For the smaller piece he used flathead screws. He fastened the larger piece (the one that butts up against the fiddle on the dinette table) with panhead screws and large washers, as countersunk screws would have pulled through the ¼-inch plywood once any weight was placed on the mini-table.

Dave designed the mini-table to hang from the fiddle. He accomplished this with a pair of right-angle brackets he made from stainless-steel stock he had left over from another project.

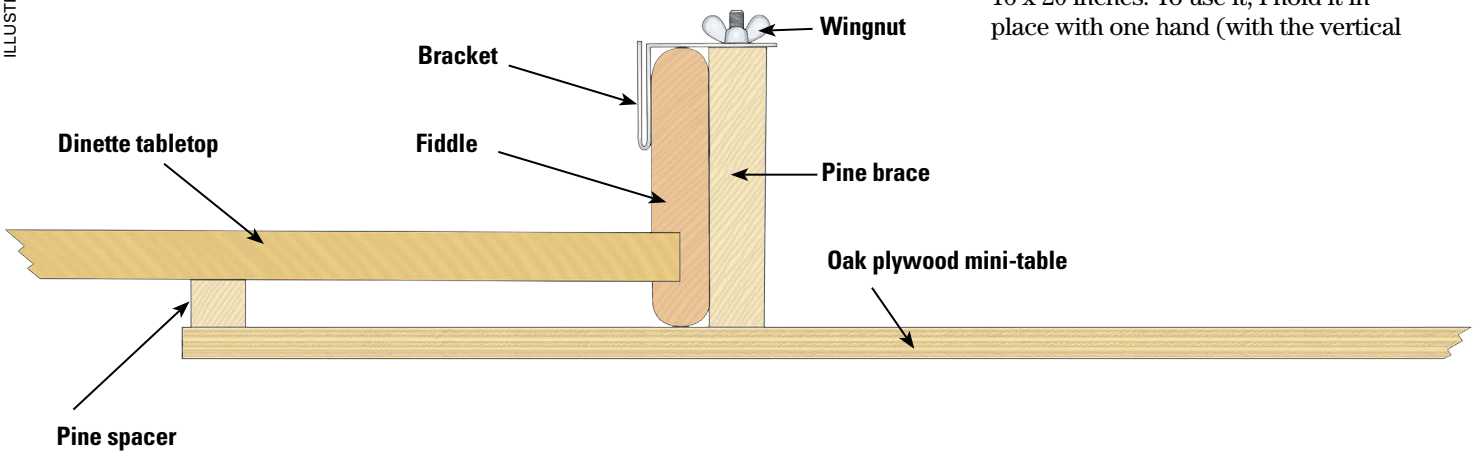
He screwed two hanger bolts into the top of the larger piece of pine. The bolts engage holes Dave drilled in the brackets, which sit flat across the top of the pine and extend over the top of the fiddle and down to the surface of the dinette table. Wingnuts on the bolts secure the brackets in place.

To protect the table from scratches, Dave rounded and smoothed the ends of the brackets, making an attractive curve that does not mar the table. When we realized the face of our fiddle is slightly rounded, we thought we would have a problem, but the straight pine sits firmly against it anyway.

A cinch to install

The overall size of the mini-table, which must be stored somewhere aboard when I'm not using it, is about 16 x 20 inches. To use it, I hold it in place with one hand (with the vertical

ILLUSTRATION BY FRITZ SEEGERS



Cantilevered table extension

Connie requested that her extra work surface be easy to attach and detach. Dave fulfilled that by hanging it off the dinette table's fiddle with a pair of brackets, at left. Connie slides the extension (that anchors the cantilevered surface) under the dinette table, spins down a couple of wingnuts, above right, and puts on a big smile, at right.

pine piece sitting flush against the fiddle) while I rotate the brackets over the fiddle and spin the wingnuts tight. This 10-second procedure meets my easy-to-install requirement.

I find it no harder to slip around the mini-table than around the dinette table. Because I like to spread out, I asked Dave not to put fiddles on the mini-table, and there are times that this little added-on table is hard to identify under the layers of tools it accumulates. It is so strong that I sometimes I find I'm writing on papers stacked on top of books piled on it, usually next to a coffee cup that should not be knocked over in the process.

A piece of plywood, a short board, a couple of pieces of hardware, some stainless-steel stock, two wingnuts, a few hand tools . . . and in half a day, Dave built the perfect small addition to my "desk." I suppose, at some point, my new work area should be graced with a few coats of varnish, except I've grown so accustomed to using it that I'm not willing to give it up for that long. I like not being buried in a sea of papers while I work more than I would like for this helpful new addition to be varnished. Life as a writer on our little boat is a little easier now, even if I do still have to find a way to meet deadlines between passages.

Connie McBride's bio can be found on page 33.

Starwind 27

A smart weatherly sailer and able cruiser

BY TOM WELLS

A small cruiser that has good accommodations, pleasing lines, and offers exhilarating sailing is worth a second look. Such is the case with the Jim Taylor-designed Starwind 27, so when Bruce and Sarah Miller invited my wife, Sandy, and me aboard their Starwind 27, *Polaris*, on Missouri's Mark Twain Lake, we did not hesitate to accept.

Bruce was raised by his father, a Navy man, on a diet of boating. As a young man, he bought a part ownership in an Ericson 27 on the Columbia River, but when he met Sarah they decided a bigger boat was in order. The same partners purchased a Jason 35, *Dromen*, and sailed her out of Friday Harbor in the San Juan Islands. Bruce sold his share when he was transferred inland.

Years living away from the water, and the birth of their son Charlie, made sailing less of a priority, but when the family relocated to Missouri they bought a Catalina 22, *Kenai*, to sail on Mark Twain Lake. While that boat was fun to sail, it was a little small for their family, so they began to search for something with more accommodations. In late 2015, they found *Polaris*, and now Bruce, Sarah, and Charlie have plenty of space and a boat that likes to show her stuff.

History

Jim Taylor is noted for the fast and attractive designs that have come out of his office in Marblehead, Massachusetts, including the Taylor 42 *Drumbeat*, a veteran campaigner that is still winning races. Jim's long association with Sabre Yachts resulted in a series of popular high-quality cruisers with pleasing lines and good performance. He has designed smaller boats as well, including several for Precision Boat Works. Jim designed the Starwind 27 in 1983 for Wellcraft, when the well-known powerboat builder made a brief foray into sailboat production.

In 1981, the Sarasota-based company began producing the Mutineer 15 and Buccaneer 18 designs at its Avon Park, Florida, facility, and planned to move into the larger boat market by introducing a line named Starwind. The Starwind 27 sold well in 1984 and into 1985. That's when Wellcraft decided to end its sailboat experiment by selling the line to Rebel Industries. Production continued until Rebel closed its doors in 1987. It's not easy to establish how many Starwind 27 hulls were produced but, judging from the number on the market at any time, it's likely that it's 300 or so.

Construction

Starwind 27 hulls are solid fiberglass. Decks are cored with balsa except in high-load areas such as attachment points for fittings. The hull-to-deck joint is shoebox-style, with the overlapping

Like all of Jim Taylor's designs, the Starwind 27 is a quick and nimble sailer. Bruce and Sarah Miller sail *Polaris* on Missouri's Mark Twain Lake.

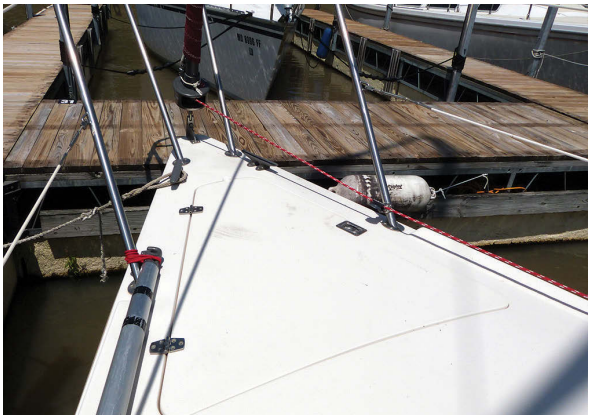
The faceted lines of the Starwind 27's cockpit are distinctive, and the raised helm seat improves the view over the cabintop, at left. The tall companionway hatch slide, at right, creates 6-foot headroom in the galley. There is no bow roller or chocks for leading an anchor rode to the mooring cleats, below, but there is a locker in the foredeck for stowing ground tackle.

deck flange fastened to the hull with stainless-steel screws at approximately 3- to 4-inch centers. The adhesive used to seal the joint has proved to be generally durable and tight. A black neoprene band with a contrasting brown rub strip covers the joint on the exterior and protects the hull.

A fiberglass liner forms the interior, and substantial bulkheads are bonded to the liner and to the underside of the deck to produce a stiff overall structure. That's important, because there is no compression post under the deck-stepped mast. Removable teak panels to port and starboard in the fiberglass headliner allow access to wiring and through-bolted hardware.

The boat was offered with a fin keel drawing 4 feet 11 inches or a shoal-draft keel drawing 3 feet 7 inches. The fin is a cast-lead foil, trapezoidal in shape with a swept-back leading edge and a swept-forward trailing edge. The shoal keel is likewise lead but with an end plate at the base to help with lift. Both versions are attached with stainless-steel keel bolts, washers, and nuts. The hull-to-keel joint is a common maintenance issue on keelboats and should be inspected at every haulout.

The partially balanced rudder is made of fiberglass over a stainless-steel armature. The rudder stock extends through the deck beneath the helm seat. The boat was offered with a choice of tiller or wheel steering.



Rig

The Starwind 27 has a deck-stepped black-finished aluminum mast with. single spreaders that are swept slightly aft. Single upper and single lower shrouds are secured to chainplates that are through-bolted to the same bulkhead that supports the mast and are fully visible for inspection. The split backstay is attached to chainplates port and starboard at the aft ends of the cockpit coamings.

As noted, there is no compression post. The stiff bulkhead structure located strategically below the mast step at the forward end of the saloon provides the needed support.

Lever-action cam stops at the forward end of the boom secure the lines for the mainsail jiffy reefing, which are rigged inside the boom, as is the outhaul. The Starwind 27 was originally fitted with a recessed traveler across the forward end of the cockpit seating at the bridge deck.

Polaris has been modified and her traveler is mounted over the companionway. It no longer interferes with seating but is less convenient for a singlehander.

Lewmar #16 primary winches are mounted on the coamings adjacent to the helm where they are accessible for singlehanding. Halyards, the boom vang, and the mainsheet lead to Lewmar #6 winches on the cabintop. The winches on *Polaris* are not self-tailing, but they are fitted with Winchers (inexpensive rubber add-ons) that work well.

Stepping aboard

An effective non-skid finish and chainplates mounted inboard next to the cabin trunk allow crew to move with ease along the wide sidedecks, but the boat has no toerails. A T-shaped stainless-steel stem fitting is through-bolted on the bow. It does not incorporate an anchor roller, although a shallow anchor locker in the foredeck will hold a Danforth-type anchor and rode.

Mooring cleats are mounted just aft of the forward legs of the stainless-steel bow pulpit, but there are no chocks to provide leads for either docklines or a mooring line. This makes chafe protection for the lines doubly important — for the lines and for the deck edge.

Double lifelines attach to the aft legs of the bow pulpit and run aft to a pulpit on each quarter. A stainless-steel boarding ladder fills the gap between the pulpits when in its stowed position.

Pelican hooks aft and retainers at the aft-most stanchions allow the lifelines to be dropped for boarding at the dock.

A tinted-Lexan hatch is mounted on the forward end of the cabin trunk where it slopes to meet the foredeck. Teak grabrails are fitted along the sides of the cabintop but do not extend as far forward as the mast step. Crew working at the mast cannot brace their feet against them, and the footing can be precarious on the slightly rounded cabintop. A single solar vent is centered just forward of the mast.

The fiberglass companionway hatch slides in teak rails. The forward end of the hatch is sloped for drainage but there is no sea hood. Pie-pan vents are fitted between the hatch slides and grabrails on both sides.

Deck organizers route lines aft from the mast through rope clutches to the cabintop winches. *Polaris* has line-adjustable lead cars on the jibsheet T-tracks, but that was likely not standard when the boats were made.

The cockpit is 7 feet long, but the footwell is foreshortened by the wide bridge deck. On the wheel-steered model, the T-shaped footwell makes the side benches too short for stretching out and napping at anchor. Tiller-steered boats had teak fillers to cap the openings and lengthen the seats. The coamings provide some back support but would be more comfortable if a bit higher. Sloping sides on the contoured helm seat provide support when the boat is heeled.

There is a deep cockpit locker beneath the port seat and a shallow but functional locker under the starboard seat. A small icebox is located to starboard of the helm seat. The engine controls are in a covered panel to port of the helm.

The hatch on the sloping forward end of the coachroof is well placed to catch the breeze. The sidedecks are wide, the foredeck is uncluttered, but the boat lacks toerails.

Accommodations

The Starwind 27's 9-foot 8-inch beam assures fairly generous interior volume. The V-berth is 6 feet 6 inches long and it can serve as a double berth despite rather cramped toe room. Teak shelves along both sides provide modest storage for small items, and there is locker storage under the berth. The small drop in the fiberglass headliner beneath the anchor well does not intrude into the space. The forward hatch provides light and ventilation, and 12-volt reading lamps to port and starboard create a cozy glow after dark.

The head compartment spans the width of the boat between the V-berth and the saloon — the vanity sink and cabinet to port, the marine toilet to starboard. Folding teak doors close off the starboard compartment for privacy while allowing passage to the V-berth. Ventilation comes from a very small opening port on each side and the solar vent forward of the mast.

The saloon has a warm appearance due to the teak bulkhead forward, teak backs and shelving above both settees,

Comments from owners of the Starwind 27

I owned my Starwind twice. I bought her new in 1983, sold her in 1990, and bought her again in 2010. That's how much I liked her. I found her to be very stable in a blow, fast for racing, and comfortable below with good headroom. She was strongly rigged and I particularly liked the wide sidedecks. I had the shoal keel, which I liked. She was comfortable overnight and the cockpit was large enough for entertaining friends. I also liked the fact that she could turn on a dime.

–**Bill Flandermeyer**, Pueblo, Colorado

I have owned two Starwind 27s. Both were the Rebel Industries version and both were equipped with 9.9-horsepower outboard motors and were steered with tillers. The non-cored hull and deck is lightweight, yielding excellent performance. Much of our sailing is in light air, and *Turtlebug II* is a demon in those conditions, moving well in the zephyrs of Greers Ferry Lake in north central Arkansas. *Turtlebug II* is a very weatherly boat and upwind can outpoint some of her more serious racer competitors. Off the wind, she is fast as well, but it helps tremendously to get weight moved forward and keep the transom out of the water. She is relatively stiff up to about 25 knots. At higher wind speeds she can still be on her ear with one reef and a 110 percent jib. She is not an offshore boat.

Turtlebug II is easily handled by two people, and the smaller cockpit does limit passengers, who must either sit somewhat forward or move to give the helmsman room to use the tiller.

The interior is quite comfortable for a 27-footer, with about 5 feet 8 inches of headroom, a little more under the sliding hatch.

–**Mark Johnson**, Greers Ferry Lake, Arkansas

With the removable insert in place, the V-berth makes an adequate double, at left. The head compartment spans the hull aft of the forward cabin. A molded vanity with stowage outboard is fitted to port, above, and the marine toilet is to starboard, at right. It's tight quarters, but it's private.

and teak battens applied to the liner above the settees. A large folding table stows vertically against the forward bulkhead to starboard. When it's deployed and fully opened, supported on three folding legs that snap solidly into place, it accommodates four diners comfortably. The sole is a flat teak-and-holly insert in the fiberglass pan.

While two fixed portlights on each side provide good light in the saloon, there is little provision for ventilation other than the vents alongside the companionway hatch. When that hatch and the head compartment door are closed, airflow will be minimal.

The galley is aft in an L shape that begins at the base of the companionway and wraps around to port. A two-burner alcohol cooktop with a cutting board cover is fitted on the outboard leg and an icebox and sink are in the small counter on the aft leg. A hand pump at the sink draws from a 14-gallon freshwater tank. Headroom in the galley under the companionway hatch slide is about 6 feet. Elsewhere it's a good 4 inches less.

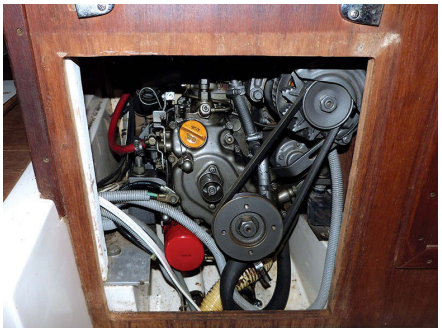
A 6-foot 6-inch quarter berth is situated to starboard, aft of the saloon. It can serve as a cramped double if necessary, but it has no ventilation. Many owners use this space for storage.

Under power

The Starwind 27 has a Yanmar 1GM10 single-cylinder diesel engine rated at 8 horsepower. Like many one-lung diesels, it can be started with a hand crank if battery power fails. Service access is reasonable. Panels at the companionway ladder and at both sides can be removed by turning retaining toggles with a screwdriver. The fuel tank holds 10 gallons.

The engine does vibrate, as do most one-cylinder engines, but it is fairly quiet. It will drive the boat at hull speed in flat water but may be a bit challenged when the wind is up. No noticeable correction is needed on the helm in forward gear. Shifting into reverse produced a slight but noticeable lag before the folding prop on *Polaris* engaged, but that is to be expected. There is mild but controllable prop walk to port in reverse.

A louvered folding door leads to the head and forward cabin, far left. When lowered from the bulkhead and opened, the saloon table can seat four diners, at left. The compact galley wraps from the port side of the saloon to the companionway, above.



On inboard-powered boats, the Yanmar diesel is accessible through a removable panel under the companionway, at left. Under sail, below left, the Starwind 27 leans eagerly into the business at hand.

The inboard engine was an option on Starwinds and many on the market today are powered by outboards.

Under sail

Our chase boat for the under-sail photography session was Kevin Ballard's Newport 28, *Desiree*, which was a review boat in the May 2009 issue. A wind of 10-12 knots was creating a slight chop on Mark Twain Lake when Bruce took off sailing *Polaris* singlehanded. As he put the boat through her paces on all points of sail to give us the best photo opportunity, she seemed to be very quick and responsive. When we finally stepped aboard for our test sail, I was eager to confirm that impression.

I have sailed quite a few boats in this size range and have seen varying degrees of performance. *Polaris* is among the fastest I've seen. As soon as we trimmed in the sails she romped off on a reach, accelerating quickly and tracking nicely with just the right amount of weather helm. The low drag of the folding prop likely helped the acceleration.

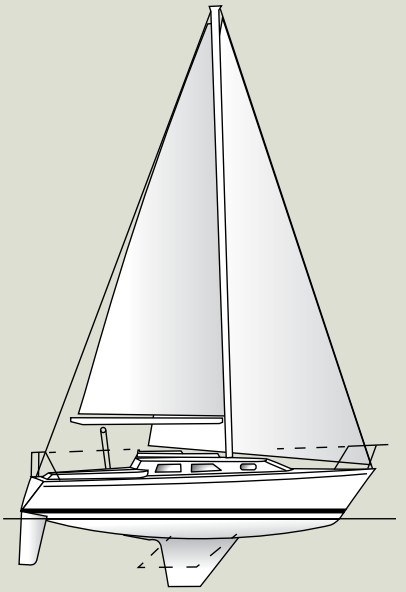
When we brought her up to close-hauled, she would point very easily to 30 degrees apparent with no perceptible drop in speed. We took her through a series of tacks and the helm response was quick and precise. *Polaris* is the fin-keel model, and she pivoted on her axis with little hesitation.

After we bore away to a reach and then to a broad reach, the boat powered up and built up speed. We were using a GPS to judge speed over the ground and we registered over 6 knots most of the time, with occasional readings of 6.7 to 6.8 knots. I could sense the rudder well with just a light touch on the wheel, and it made me wonder how the tiller version would feel.

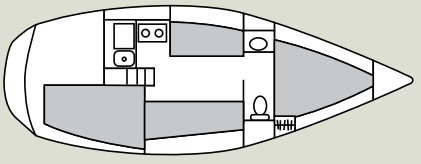
Singlehanding the jib was fairly easy, as the primary winches are alongside the helm. On *Polaris*, because the traveler has been moved to the cabintop, the help of a second crew is needed to manage the mainsail properly.

This boat should do well in a PHRF fleet. The base rating of 184 for the inboard-engine model is much lower than the O'Day 27 at 204 and the Cal 27-2 at 207, and very close to the inboard C&C 27 at 180. *Polaris* will rate somewhat lower with her folding prop. The Starwind 27 will give many larger boats a run for their money.

Starwind 27



Designer	Jim Taylor
LOA:	26 feet 8 inches
LWL:	22 feet 6 inches
Beam:	9 feet 8 inches
Draft:	
shoal keel:	3 feet 7 inches
fin keel:	4 feet 11 inches
Displacement:	
shoal keel:	5,500 pounds
fin keel	5,200 pounds
Ballast:	
shoal keel	2,300 pounds
fin keel	2,000 pounds
Sail area:	346 square feet
Sail area/disp. ratio:	17.8/18.4
Disp./LWL ratio:	216/204
Fuel: diesel	10 gallons
Water:	14 gallons
Holding:	8 gallons



Prices and availability

A search online found six Starwind 27s currently on the market. The average price was $12,200 over a range from $8,000 to $18,500 — one of the higher-priced boats came with its own over-the-road trailer. Some of the variation is no doubt due to lower asking prices for outboard-powered boats.

Tom Wells is a contributing editor with Good Old Boat. He and his wife, Sandy, have been sailing together since the 1970s. They recently retired and have cast off the docklines to embark on full-time adventures aboard their 1979 Tartan 37, Higher Porpoise, *starting in Florida this winter.*

Spaces between deck beams beg to be filled

On vessels with well-defined deck beams, the spaces between the beams can be ideal sites for hinge-down storage lockers. And when spacing and location come together in the most perfect way, an overhead space can be a great place to stow a coffee table that slides up and down a pole, which itself perhaps doubles as a handy grabrail and/or an engine room air vent.

Also, with a few well-placed small stainless-steel eye straps and a little shock cord, the spaces between beams can be used for stowing life jackets where they are visible and readily accessible.

Overhead storage

BY ALAN LUCAS

Hinged lockers for charts or other light items, top left, a coffee table that disappears when not in use, lower left, or life jackets to be grabbed in an instant, above, all fit between the deck beams.

Alan Lucas, an Australian from New South Wales, has been living aboard and cruising for 55 years. He has built three yachts and restored seven others. In addition to writing nine cruising guides and numerous magazine articles, Alan has written 17 books on cruising and practical boating. His latest, Simple Solutions, *is filled with practical tips and great illustrations that any reader of this magazine would find useful.*

Snare dock fittings from a distance

The humble boathook performs a clever rope trick

BY JIM SHELL

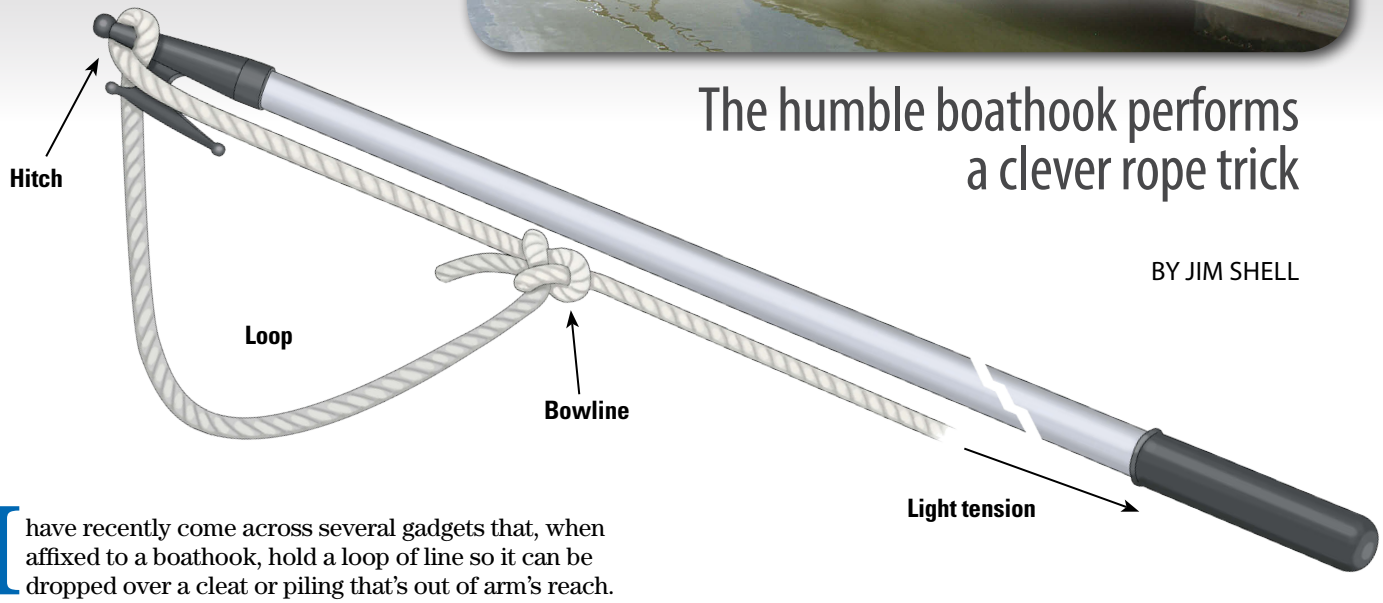


ILLUSTRATION BY FRITZ SEEGERS

I have recently come across several gadgets that, when affixed to a boathook, hold a loop of line so it can be dropped over a cleat or piling that's out of arm's reach. This is a really handy thing to be able to do. I was using Velcro to create my own device when my son showed me a technique he learned as a seaman apprentice aboard the USCGC *Eagle*, the Coast Guard's 295-foot training barque. Standard boathooks are designed for this technique.

First, tie a loop in the line using a bowline. About one third of the loop circumference from the bowline, hitch the loop around the pike of the boathook and back on itself to jam the line against the hook. Keep a grip on the boat end of the line and the boathook, applying light tension on the jamming hitch to keep it secure and the loop open. You can now drape the loop over any cleat or piling within reach. To extract the boathook, simply ease the tension on the line and pull the boathook away. It's amazing how quick and easy this is to set up and deploy.

Jim Shell is a father, retired dentist, and owner of a Pearson 365 ketch. His son John is a schoolteacher and Baba 30 owner. It is becoming less clear who is "Master" and who is "Grasshopper."

Boat locker boot camp

A car trunk organizer brings order to misfit stowages

BY CHRIS FARANETTA

Aboard *Stingray*, I use a padded car trunk organizer to keep gear organized, secure, and accessible in deep lockers or in oddly shaped spaces belowdecks. Organizers come in many shapes, sizes, and materials, but the one I use is made from heavy-duty 1680D polyester fabric that doesn't absorb water readily. Because it's flexible, it can fit in a wide range of spaces. When not in use, it collapses into a smaller configuration we can easily stow. Car trunk organizers are also useful for transporting provisions from town, to dink, to boat.

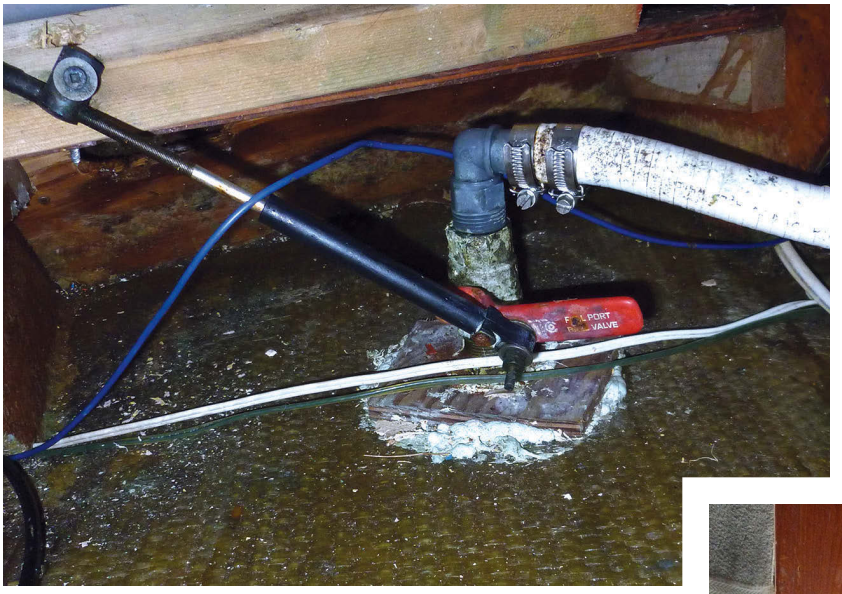
Chris Faranetta has been racing dinghies and cruising larger boats since the early 1970s. In the early '80s he tormented his parents by twice sail-touring the U.S. Atlantic Coast, first on an AMF Sunfish and then on a Mistral Maui sailboard. Today he's exploring Chesapeake Bay with his own family, one weekend at a time, from Tilghman Island, Maryland, aboard Stingray, *their weathered 1970 Westerly Cirrus 22.*

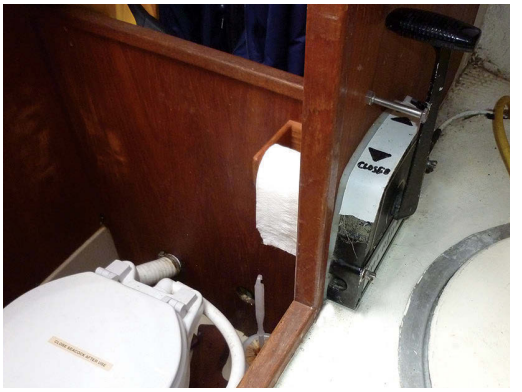
Collapsible and flexible, a car trunk organizer can turn hard-to-reach or awkwardly shaped spaces into orderly stowage for . . . most anything.

Remote-controlled seacock

It opens and closes with a throttle lever

BY ANDY VINE





To enable him to operate the hard-to-reach inlet valve from within the head compartment, Andy attached a throttle cable to the handle, top left. It's connected to an outboard motor control unit, at left, mounted close to the marine toilet where it's visible and easily operable, above.

I'm one of those sailors who likes to keep seacocks closed when they're not in use. My problem was that the inlet valve for the head in my Crown 28 is buried deep in the forepeak locker. This made it nigh impossible to expect anyone other than myself to close it after using the head.

My solution? A remote push-pull throttle-cable assembly designed for an outboard motor.

I mounted the throttle-lever housing on the bulkhead next to the head and routed the cable through the forepeak locker to the seacock handle. It was pretty simple to attach the end of the cable to the handle so the seacock could be opened and closed from the bulkhead mounted lever. Voilá! Now there's no excuse for leaving the seacock open.

Once a year or so I dab a bit of grease on the assembly to keep things moving smoothly. It's been working well for 10 years.

Andy Vine learned to sail in his native UK and is still hooked on sailboats more than half a century later. He now lives on Cortes Island, British Columbia, where he keeps his 1974 Crown 28, Gwyneth, *on a mooring within minutes of Desolation Sound.*

continued from page 9

Hats off to Ruth

I thought you might enjoy this photo of my wife, Ruth, wearing her "My Boat Was Featured in *Good Old Boat*" hat as she climbed toward the cliff dwelling Balcony House in Mesa Verde National Park.

–Allen Penticoff, Rockford, Ill

A burpless fuel tank

I'm writing in response to the article about the air dryer for the diesel tank vent ("Diesel-Vent Burp Suppressor," July 2016). Over 20 years ago I discarded the old steel rigid fuel tank in my 1972 Westerly Chieftain and replaced it with a simple and effective solution to the filter-clogging microbe problem: a high-quality bladder tank (made by Nauta). Gone was the moisture-collecting air pocket above the fuel. My bladder tank occupies less space, is secure and still unscathed, does not corrode, shows how much fuel is left, is easy to remove if need be — and does not burp. My boat is happier with a bladder tank, and so am I.

–Roger Martin, Urbanna, Va.

Don't be knockin' my yawl

I'm responding to the Mail Buoy letters about yawls by Peter Jones and Rob Mazza in the March 2016 issue.

I have owned a yawl for a lot of years. I once owned a 42-foot wooden yawl named *Partner's Choice* designed by Carl Alberg for John Alden back in the late 1930s. This boat supposedly was the first boat to race to Bermuda with a roller fuller.

I disagree with the writers about the handkerchief mizzen. Sure, it looked absurd, but it was a wonderful sail in its own right. The mizzen stays'l, on the other hand, was a different story. I flew it when conditions suggested it but never felt that it was worth the bother. I never found a course where there was any speed benefit and I always wondered if it took power from the mainsail.

The mizzen, however, was one of the strong points in the boat. It added a lot of balance to the rig, which I'm sure gave a speed advantage. More important, it allowed me to adjust the rig to the weather conditions — to keep the bow into the wind at anchor or to shorten sail with ease when necessary, which was very important since I was almost always shorthanded. I rarely reefed.

There was one famous day when we got hit by a northeast gale and the Coast Guard station 20 miles from us was reporting 75 knots steady all day. If this had been forecast, we never would've been out. But with a barber-poled main, no genny, and only the forestays'l and mizzen flying we were having a delightful sail, 7½ to 9½ knots beating toward home. The boat felt like a dinghy. It was so comfortable in the way it handled the conditions, it was only 45 years later that I wondered why we didn't consider turning back. With two passengers and only two skilled sailors aboard, we would have been hard-pressed to handle a big sloop in those conditions. Reefing certainly wouldn't have been an option.

Bottom line, there are reasons other than rule-beating for owning yawls. I'm now age challenged but still sailing. I sometimes wish our T-33 had a mizzen.

Don't knock it if you haven't tried it.

–Richard S. Usen, Lexington, Mass.

Photo correction

After checking my log and local charts again, I realized the photo I sent you (below) of the *J. & E. Riggin* (Mail Buoy, July 2016) was actually taken off the north end of North Haven Island, Maine, not Islesboro Island, which is a few miles away. Sorry for the error.

–Hal Wells, Houston, Texas

Send questions and comments to *Good Old Boat*, 7340 Niagara Lane North, Maple Grove, MN 55311-2655, or by email to jerry@goodoldboat.com.

What happens when longtime friends sail side-by-side, cameras in hand, just south of the Goslings, in Casco Bay, Maine? Do I have to tell you? We're sending Elizabeth Patten and Carey Hotaling each a *Good Old Boat* T-shirt or cap for their photos. We selected them from the submissions this month that appear on the GoodOldBoat.com website. Just click Reader Services and check out these and hundreds more on the Boat Photos page.

Michael Boucher is at the helm of *Velella*, above, on his birthday, just a month after he and his wife, Elizabeth Patten, bought the 1979 Bristol 29.9. We think she looks pretty good in Carey Hotaling's photo, but Michael reports that *Velella* has since been painted and tuned up and is even more gorgeous. *Avelinda*, at left, is a pretty Ericson 32 owned by husband and wife Peter Milholland and Carey Hotaling. Sailing buddy Elizabeth Patten caught *Avelinda* reaching nicely under genoa alone on what looks like a perfect day for photography as well as for sailing.

Boat minder

When your boat is in her slip, unattended and perhaps far away from you, wouldn't it be nice to see from a glance at your smartphone the voltage of the batteries? Want to be alerted if someone opens a hatch or triggers a motion sensor? Ever arrive home and wonder whether you remembered to plug in the shorepower cord? Boat Command from Viatrax Automation lets you monitor, via your smartphone or computer, all this information about your boat and a lot more.

Chuck, my husband, was on board our boat and wasn't aware that the bilge pump had been turning on frequently — but Boat Command noticed it and sent him a text message. He found the cause (the stuffing box) and was able to fix it before it became critical.

As well as monitoring bilge pumps and other onboard systems, Boat Command uses geo-fencing, so it can be used as an anchor alarm. I have the app set up on my devices as well, and I use the tracking feature to see Chuck's location when he's been offshore for a few days.

A Boat Command control module costs $299 and some sensors are optional. The control module transmits data via 3G and users pay an $8.99 monthly cell service fee. For more information and additional prices, go to www.boatcommand.com

– by Nancy Koucky

iNavX is significantly improved

For those who aren't familiar with it, iNavX is a powerful app that can be used on any Apple device to render chart data for planning and real-time navigation. iNavX recently updated its app (version 4.7.4) and reports the new interface is streamlined and more user-friendly and the software operation is more fluid than in previous versions. While iNavX can be used with many different types of chart data (including Navionics, CHS, NV Charts, Soltenick, and free NOAA high-resolution raster charts), a new feature is the automatic, real-time updates of X-Traverse chart lists.

Current users of iNavX can update their apps at no cost. New users get a promotional price of $24.99. For *Good Old Boat* readers, this reduced price is good for as long as this issue is current (through October 31, 2016). Of course, chart data prices are set separately by vendors and range widely, from free on up. For more information about the app and upgrade, contact press@inavx.com or visit www.inavx.com.

– *Good Old Boat* editors

To be featured on this page, items must be new products. If you would like your product featured here, please send an email to Michael Facius, michael@goodoldboat.com, or call him at 612-605-8319. By the way, readers, if you contact a marine supplier mentioned here or elsewhere in our magazine, please remember to tell them that *Good Old Boat* sent you.

Boats for Sale

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

Sea Sprite 23
1980. Fine example of this classic full-keel daysailer or weekender. Fiberglass hull in exc cond. New sails, rigging, motor, and cushions in last 5 years. Teak recently stripped and varnished with care. Lazy-jacks and RF for easy handling. Old Lyme, CT. $8,500.
Thomas Gworek
860-529-7104
tjgworek@snet.net

Cheoy Lee Luders 36
1970. One owner. Spent most of her life cruising Chesapeake Bay. Teak decks replaced '92. New fuel tanks, 40-hp Yanmar '02, 3 coats Awlgrip, RF jib and genoa, rarely used spinnaker. On the hard and under cover outside Chestertown, MD. More info on YachtWorld.com. $42,500.
John Menocal
john@annapolisyachtsales.com

Cherubini Raider 33
1985. Great cruising boat in exc cond. New paint, new main, new halyards, asym. spinnaker, new cushions, Kevlar racing genoa, additional sails included, all documentation. Dyer sailing dinghy available. Solomons, MD. $32,000.
Dale Tagg
301-752-2261, 301-932-5326
ksraider33@verizon.net

Columbia 10.7
1979, *Dahlfin II*. One owner. 35' Lake Superior sloop w/considerable Bahamas and Caribbean cruising. Exc cond w/extensive upgrades for long-term cruising: extra tanks (fuel & water), solar panels, great galley, fridge/freezer, forced-air heating, davits, inner forestay w/furler, double headstay w/2 furlers, and much more. Ready to cruise immediately almost anywhere: coastal waters and beyond. Bayfield, WI.
Ron & Bonnie Dahl
www.superiorboatsales.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 bowthruster. Manitowoc/Kenosha, WI. Minimum bid $125,000.
Richard Charette
847-867-8296
richchar96@gmail.com
www.panachesailboat.com

Catalina 25, Interlake 18
1985 Catalina 25, $6,500; 1957 Interlake 18, $950. Or trade for something interesting (Trailer? Property? Another boat?). Both boats are fiberglass w/swing keels. Freshwater boats. Good trailers, good tires. V-10 tow truck available. Southwest MI.
Michael Murphy
269-624-6583
modalservi@aol.com

S2/Becker 30
1977 center cockpit. Originally an S2/8.0C. Boat was completely rebuilt by Becker Enterprises of St. Helens, OR, in '04-'08 w/ new Beta diesel, lengthened hull providing queen-size berth aft, stern boarding access, new propane system, new RF genoa, etc. A fantastic pocket cruiser with all the equipment a sailor could ever want. Portland, OR. $39,900.
Marge Welling, Broker
503-289-6306
marge@passion-yachts.com
www.yachtworld.com/passion-yachts

Gulfstar Custom 40
1977 sloop. Designed by Ted Hood and built by Gulfstar. Classic lines and good looks. A comfortable cruiser/racer w/strong performance in light and heavy air. In exc cond. Ready to take you anywhere from bay to ocean w/ CB shoal draft, Leisure Furl main, good complement of electronics, years of consistent and professional maintenance. An excellent value. Rock Hall, MD. $59,000.
Connie Ranney
610-247-1645
Connie@saltyachts.com
https://plus.google.com/+ConnieRanneySaltYachts/posts

Baybird Sloop 18
1997. Classic gaff-rigged sailboat designed by Starling Burgess and later built in glass at Compass on Cape Cod. Varnished oak coamings and trim. Varnished spruce spars. New jib, good main. Very classic looking boat. A real head turner. Buzzards Bay. $10,500.
Jono Billings
401-965-3480
jono@cuttyhunkferryco.com

Boats for Sale, cont

Herreshoff 18
1975 cat ketch. Built by Nowak & Williams, Bristol, RI. Completely updated since being stored in my warehouse after my father's death. New complete cover plus new sailcovers. 9.9-hp Mercury electric start in a well. Battery and charger, lights, bilge pump, blue seat cushions, and a trailer. Rocky River, OH. $12,000 OBO.
Alfred Kappus
fredk@kappuscompany.com

Westerly Pageant 23
1971. Beautiful one-of-a-kind Mk II. Featured in May, 2016, *Good Old Boat*. *Ladyship* is a well-appointed and spacious trailer-sailer with custom bowsprit, aluminum stern arch, reshaped keels, an innovative OB motor well, custom trailer, and air conditioning. Located in Paris Landing, TN. $49,950
Robert Wright
888.270.8823, 206-356-8698
Rob@WrightYachtSales.com
http://bit.ly/29bEKnZ

Niagara 35
1981. Volvo 35-hp diesel. 6' draft. In great cond. Ready to go. Bluewater boat but has never seen salt. Full back enclosure, davits, new Harken furler, new fridge and electrical systems, gennaker, cradle and new custom winter cover. Beautiful teak and mahogany interior, furnace, hot water. Photos, full inventory and copy of recent survey available. Penetang (Georgian Bay), ON. $42,500 USD.
Stephen Bryan
705-326-1608
sbryan.steve@gmail.com

Southern Cross 35
1983-1988 Airex-cored. New '04 40-hp Yanmar, 5⁄16" wire, Sta-Lok terminals, Merriman ½" turnbuckles (like new), bronze Bomar ports and Barient ST winches, Force 10 propane stove. Strong, great sailing, bluewater boat, daysailed on fresh water all its life. Lovely wooden interior needs a little finishing. North sails: main, staysail, and Yankee, all original, in OK cond. 135 genoa (like new). Running rigging, original, in OK cond. Marlboro, NY. $48,000
John Milici
845-255-8123, 845-417-6044
clairemilici@yahoo.com

Cal 46
1972 ketch. Lapworth design. Awesome liveaboard/cruiser. 2 staterooms, 2 heads, big saloon w/lots of light. Engine/workroom w/standing headroom. Perkins Sabre 80-hp diesel w/low hrs. Furling sails and rigging in good cond. Fridge, A/C/heater, 170-gal water, 270-gal fuel tanks. Luke feathering prop, dinghy davits, and much more. Monterey City Marina, CA. $55,000.
Kathy Morrison Conner
831-254-0948
sail2boat@icloud.com

S2 9.2A 30
1978 sloop. Sails well. Diesel, large sail inventory, well equipped. Bimini and cockpit enclosure. Exc cond. Cambridge, MD. $16,000.
James Harvey
607-760-6655
harveynl@hotmail.com
http://sailingtexas.com/201601/ss292118.html

Tartan T34C
1978. Hull #498. Sensibly equipped for comfortable cruising. Fast and seakindly. Westerbeke, WS, inner forestay. Beautiful original cond. Always well cared for. Bristol. On Loadmaster trailer. The world's oceans are within your reach; brilliant concept. Bozeman, MT. Boat: $35,000. Trailer: $8,500. Both: $39,900.
George Renner
406-599-9607
sherilyn.renner@gmail.com
http://tartan34classic.org

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
819-847-0608
Solutions5@hotmail.com

Westerly Pentland 32
1976 ketch w/twin keels. Exc cond. Solid, seakindly, built in England for the North Sea. 3'7" draft, LOA 32'6" plus swim platform. Center cockpit, WS, RF jib, 2 biminis, Adler Barbour 12V fridge, Volvo MD[illegible] Perigged, reupho[illegible]d. Many t[illegible]des. Sleeps [illegible] child. T[illegible] il-able[illegible]N.

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carjm[illegible]il.com

Sand Hen/Bahama Sandpiper 24
1986 cat ketch. Chuck Paine design. Draft 2'/4', disp. 5,000 lb. Sail Area/Disp. 20. Freestanding masts on tabernacles. Old sails, but serviceable. New sailcovers. Lines from mainmast lead aft. Honda 4-stroke w/alternator, low hours. Two 50 AH AGMs. Simrad

AP. Solar panels. Sleeps 4. Galley w/sink, counter, storage. 100 liter flexible freshwater tank. Porta Potti. Danforth anchor w/200' rode, 25' chain. 2-axle galvanized trailer. Castine, ME. $10,500.

Silas Yates
207-326-0663
greendolphinsby@roadrunner.com

Quickstep 24
1985. Classic pocket cruiser designed by Ted Brewer, built by Shannon Yachts. Reconditioned to beautiful cond. Sailaway cond w/complete inventory. Great daysailer, overnighter and/or weekender. Owner getting too old to enjoy. Located on small lake in Southern Illinois. No trailer. Priced for quick sale $7,500.

Robert Defilippis
618-942-4039
bdefilippis@gmail.com

Pearson 365
1976 ketch. Hull #23. Well-loved and maintained ketch. 2nd owner. Always fresh water. Long distance cruising plans never materialized; looking to downsize. Most recent upgrades/improvements include: asym. spinnaker, main, mizzen, Harken RF, repower w/Beta 38 diesel and Velvet Drive, Max-Prop, dodger, bimini, epoxy barrier coat bottom, Cutless bearing. All new in past 5 yrs. N. Lake Michigan. Heavy-duty trailer available. $32,000.

Bill McKinley
231-228-4655
mckinleyhill377@yahoo.com

O'Day 31
1986. This isn't just a boat, she's the newest member of your family! Over the last 5 years, *Ruff Life* has taught her current owners how to be sailors. Her cabin is nicely arranged, very large, and welcoming. Maintained and upgraded with a new dodger, lifelines, headstay and jib reefing, LED lights throughout, and port-lights. Coles Point, VA. $24,900.

David Jeffcoat
571-723-9481
david.jeffcoat@gmail.com
www.facebook.com/hashtag/rufflife31

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. $10,000.

Ford Brockman
fsbrockman@hotmail.com

Alberg 35
1965. Better than new cond! $52,000 in improvements. New: Awlgrip, 3YM30 Yanmar, standing rigging, spreaders, Isotherm reefer, Espar furnace, tan Sensuede interior, 5 batteries June '16, Lofrans windlass, 35lb CQR, 100A Balmar, Raymarine C120 plotter/pilot, ICOM. Edson wheel, Nova Lift, dodger, Barient 27s, Lewmar 40s. Asym., Furlex RF, 170 genoa, triple-stitched offshore main, varnished boom, tricolor masthead light and strobe, multiple Datamarine instruments, bottom paint May '16. Finest afloat. Seattle, WA. $50,000.

Jon Troxel
360-317-7003

Hunter 27
2009 Edge. Spacious cabin, 5'11" headroom, stove, Jabsco head, holding tank, macerator, 30A shorepower connection. Water heater, bimini, bilge alarm, Dutchman mainsail system. 75-hp Evinrude Etec 4-stroke OB, very low hours. 19 mph capable. 12-gal. tank. Stored on Road King Trailer, towing weight 4,900 lb. Stamford, CT. $35,900.

Harry Christensen
203-329-9128
farmor2004_1@hotmail.com

Ericson 31
1979 Independence designed by Bruce King. 2-owner boat. Large curved cockpit w/custom coated-foam cushions and helm seat. Yanmar 3GM30. HW maker, Force 10 galley stove and cabin heater. Lectrasan (upgraded but needs troubleshooting). Interior white walls and ceilings w/woodwork in good cond. Beautiful paisley interior upholstery. Mast and sails in good working cond. Windlass not working. Sedgwick, ME. $30,000.

Mary Offutt
207-348-2483
mar52yo@gmail.com

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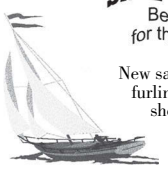

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Nov/Dec	Sept 2
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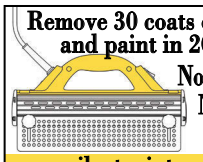

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- Total word limit: 75 words. Web ads remain posted for approximately 90 days.
- Send email text to: classifieds@goodoldboat.com • Payment is made in advance by check or credit card.
- Or by post to: Good Old Boat, 300 Evergreen Dr. NW, Jamestown, ND 58401-2204
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SPIDER WARS

Eradication attempts wither to a ritual cleansing

BY DEAN RAFFAELLI

One of Dean's morning rituals is removing the spiderwebs that festoon the boat inside and out, above. Dean pinched his Swiffer Duster from Charlotte, his wife. The design has since changed but he manages to force the new refills onto his old handle.

I have morning rituals when cruising. Though I try to sleep late, I usually rise with the sun, but with deliberate care so as not to wake my spouse. After a little yoga in the pilothouse, I can delay the inevitable no longer. I make my way down the stairs into the saloon, up the back stairs, and out onto the rear deck. By the time I get there, I have run the gauntlet of several interior spiderwebs.

I've tried to disrupt these denizens of every inside crevice since 2004 — our first season on *Carrie Rose*, our 32-foot Nordic Tug — with limited success. Like Darwin's finches isolated on the Galapagos Islands, my spiders must by now be their own genus and species. I reach the rear deck with these thoughts in mind. This is a lot of mental baggage to carry around just to go look out back.

Carrie Rose has been on the move for the last four summers, so every day brings a new vista. If we're anchored, I do a position check. If we're in a marina or tied to a wall, I look at the fenders and lines. Either way, I find I am looking through a fine mesh of spiderwebs.

I feel like Gulliver tied down by the Lilliputians. These determined little beggars spend dusk to dawn encasing the boat in a silken cage. By this time in the morning, they have descended into their lairs. Rarely do I see a spider, just their handiwork.

Morning is the time to rid the boat of the fibrous remnants of a night spent gorging on the insect prey *du jour*. I open the rear deck box and grab my tools.

In search of a tool

Each season, my quest for the proper way to clear the boat of spiders began anew, the way our humanoid ancestors must have first developed tools. I started by using my hands, moved on to boathooks and sail battens, and from there to brooms, brushes, and mops.

Then came the chemical warfare stage. From well-known but ineffectual shelf brands, the products I used quickly progressed in their lethality. This approach ended with a spray bottle that had a name like a Kung Fu movie sequel. I could spray it at any random spot on the boat and several spiders would instantly drop dead onto the deck. This substance was eventually banned by our local marine store due to its devastating effect on gelcoat. But if you looked like you could be trusted not to squeal, the store manager would quietly sell you a bottle from his stash. It worked, but I had to make sure I was standing upwind of the spray. Eventually its toxicity (never mind the gelcoat damage) made me cease and desist.

The search for the proper tool for eradicating arachnids has taken up much of my boating career, but I finally discovered an efficient and non-toxic solution.

I was back to square one when I noticed my wife's new cleaning device. If memory serves, Charlotte bought it to address another futile task: cleaning window blinds. It has a translucent baby-blue handle with a central hinge that sounds as if it might break each time it's unfolded. The working end is a fuzzy variegated fibrous sheath about 8 inches long. It looks electrostatic and seems like it should be sticky to the touch but is not. The contraption weighs about an ounce and is surprisingly durable. It is a Swiffer Duster.

I no longer search for webs to eradicate. I simply use this duster to outline the borders and crevices of the entire boat. I start in the stern, move up to the deckhouse roof, and work my way forward. The fibers grab every gossamer thread. Along the way, I do not hesitate to squash any errant spider I dislodge from its hiding place. My other tool is an artificial chamois I use to clean the deck of spider remnants and poop.

I complete this ritual daily. I have learned not to let the spiders get the better of me. Given half a chance, they multiply in droves while growing to intimidating sizes. The de-webbing takes about 15 minutes with the added benefit that I get to inspect the entire boat. I can't think of a more satisfying way to watch the sunrise.

Dean Raffaelli started sailing on Lake Michigan at age 11. He previously owned a Halberg-Rassy Monsun 31, and had thoughts of doing the Great Loop. He now owns a 1990 32-foot Nordic Tug. Carrie Rose *wintered at Kent Island, Maryland, prior to a summer cruise on Chesapeake Bay.*

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