Good Old Boat

The sailing magazine for the rest of us!™

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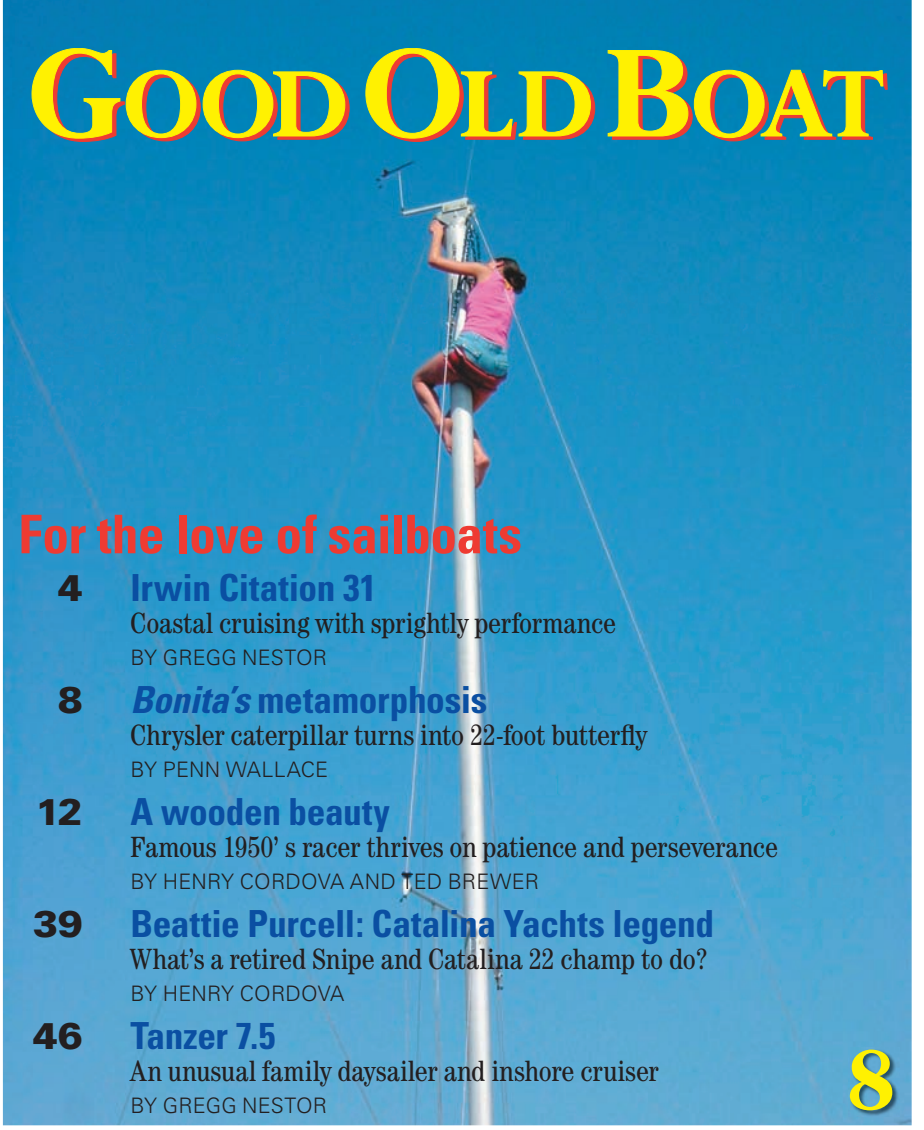
About the cover…
While cruising the Inside Passage, Lorne and Colleen Shantz witnessed this peaceful scene in Forward Harbor. They cruise the Pacific Northwest in *Shaunsea*, an LM 27. If you see them there, try to situate your boat so it can be featured in Colleen's next cover shot.



For the love of sailboats

Speaking seriously

Just for fun

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GOOD OLD BOAT

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Our contributors

Gregg Nestor (*Irwin Citation 31*, Page 4; *Tanzer 7.5*, Page 46; *Quick and easy: Rust-free tools*, Page 73; *Simple solutions: Restoring luster to your deck*, Page 77), a contributing editor with *Good Old Boat*, has had a lifelong interest in all things aquatic. He has just completed his second book: *Twenty Affordable Sailboats to Take You Anywhere*.

Penn Wallace (Bonita's *metamorphosis*, Page 8) first went to sea at age 8 with his father, a commercial fisherman. Among the boats he has owned, his favorite was a Cheoy Lee 32 sloop. After restoring *Bonita*, he was bitten by the cruising bug and sold her to buy into a four-way partnership in a C&C 40. He now cruises the waters of Puget Sound and the Inside Passage on *Audacious*.

Henry Cordova (*A wooden beauty*, Page 12; *Beattie Purcell: Catalina Yachts legend*, Page 39) is a geographer/cartographer who has been a sailor of the military persuasion (U.S. Navy Reserve on the USS *Dewey*) and of the recreational variety (a San Francisco Pelican and a MacGregor 22).

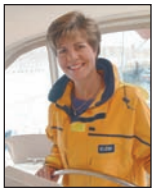
Ted Brewer (*Stephens, Mitchell, and* Finisterre, Page 15; *Sweet compromises*, Page 21) is a contributing editor with *Good Old Boat* and one of North America's best-known yacht designers. He also is the man who designed scores of good old boats … the ones still sailing after all these years.

Jerry Powlas (*Motoring in heavy weather*, Page 16; *Samson Ropes*, Page 36) brags that he has cruised halfway around the world twice (same half each time) courtesy of Uncle Sam's Navy. Later he discovered sailboat racing and got into Flying Scots in a big way. He didn't discover cruising sailboats until he met and married Karen Larson. Together, these two founded *Good Old Boat* magazine in 1997.

Gordon Torresen (*Another opinion*, Page 19) started Torresen Marine in his garage in Muskegon, Michigan. He built his first boat, a fiberglass Comet, at age 23. In 1965, as a member of the Muskegon Yacht Club, who had a natural affinity for sailboats and a mechanical aptitude, Gordon founded Torresen Marine, which has grown to become a full-service marina and brokerage.

Don Davies (*New stowage for* Affinity, Page 25), a freelance writer, sails a 1974 Grampian 30. He lives in Toronto, Ontario, and sails Lake Ontario with the North Channel and Georgian Bay as favorite destinations.

Lin Pardey (*On catching rain*, Page 29) and Larry spend the Northern Hemisphere summers exploring Puget Sound and the Gulf Islands on *Taleisin*. During the Southern Hemisphere summers they explore New Zealand waters on their 110-year-old sloop, *Thelma*. Lin has completed a revision of *The Care and Feeding of Sailing Crew*.



Suzanne Giesemann (*Why should men have all the fun?*, Page 33) USN (Ret) cruised full-time for three years with her husband, Ty, sailing the U.S. East Coast to Canada and the Bahamas and across the Atlantic Ocean to Turkey aboard their 1980 Morgan 46, *Liberty* <http://www.libertysails.com>. She's the author of four books including *Living a Dream* and *It's Your Boat Too*.

Karen Larson (*Samson Ropes*, Page 36; *The North Channel beckons*, Page 44) didn't become passionate about sailing until she met Jerry Powlas. They bought a C&C 30 soon after they were married and (within the limits of a sailboat and short vacations) have been sailing farther and farther afield ever since. They hope to increase their potential range with a trailerable C&C Mega 30, the infamous "project boat."

Don Launer (*Standing Rigging 101*, Page 42), a *Good Old Boat* contributing editor, has held a USCG captain's license for more than 20 years. He built his two-masted schooner, *Delphinus*, from a bare hull and sails her on Barnegat Bay in New Jersey.

John Danicic (*Rope-to-chain splices*, Page 50), a professional photographer, spends his time on the hard building furniture, cedar-strip nesting dinghies, bronze port screens, and other sailing gear. Along with his wife and two teenage children, he sails *Mariah*, a Cape Dory 36 cutter, in that brief period between winters amid Lake Superior's Apostle Islands.

Kim Efishoff (*Smart boat-buying*, Page 54) is a naval architect and marine engineer. He has been sailing since 1975 and has restored three sailboats ranging in length from 14 to 38 feet. His current project, the restoration of *Teal*, a 1977 Hans Christian 38 Traditional, will be completed in the spring of 2007.

Stan Sroga (Vespera's *star cracks*, Page 57) and his wife, Kathy, spent many enjoyable years family-sailing on a wooden King's Cruiser, a Columbia 32, and a Hunter 34. Throughout that time, boat restoration and cruising with the plan for a sailing school has been their goal. The restoration of *Vespera*, a 51-foot Jeanneau Trinidad, began five years ago. The school was established in the fall of 2006. For more information go to <http://www.sailtraininginc.com>.

Dave Aultfather (*Quick and easy: New quick-release stopper knot*, Page 71) lives in Sarasota, Florida, where he is a member of the Sarasota Sailing Squadron. He divides his "boating time" between restoring *Freya*, his Contessa 26, in his backyard and sailing *Coquina*, his Catalina 22, in Sarasota Bay.

Geoffrey Toye (*Quick and easy: Toofypegs*, Page 72) lives in a beach house near Cardigan on the west coast of Wales. He's been involved with small craft for more than 40 years. A writer and journalist, he has published several books.

Phillip Reid (*Simple solutions: Lifeline cushions*, Page 74), his wife, Andie, and certain other miscreants sail their 1977 Pearson 28, *Miss Bohicket*, out of Wilmington, North Carolina. They finished a five-year refit in the fall of 2005. When not sailing, writing, or boat-grubbing, Phillip teaches a college history course.

Warren Milberg (*Sailing really* is *magic*, Page 80) has been racing and sailing on the Chesapeake Bay for more than 30 years. He keeps his Hunter 28.5 at Herrington Harbour North, in Deale, Maryland. He invites comments and commentary with other magically inclined sailors at imcrewzen@yahoo.com.

Jim Daniels (*When the sun flashed green*, Page 89) grew up crewing on family boats in Seattle, and has been a freelance writer since beginning with a boating magazine in 1975. His latest book is *How To Become An Inventor*.

JIM LANT

A few of the good old boats tied up at Sailor's Wharf, at left, headquarters and party central for the Annapolis Good Old Boat Regatta.

Who cares?

Sailing is mostly not done for money anymore

by Jerry Powlas

In the fall of 2006 we drove the good old pickup, "Yeti," to the Annapolis Sailboat Show, where we had a booth for the first time. While we were there, we attended the GOBR party. That's the party held after the Good Old Boat Regatta, which is raced annually on Chesapeake Bay. High winds forced the race committee to cancel racing the first day but, typical of this group, they held the after-race party anyway.

It rained the second day of the boat show. Our booth was in a small tent. There were holes in the roof, so the carpeting got soaked, and there were puddles in front of the booths to dodge as the showgoers walked around the show in the cold wind and rain.

That was the interesting thing. They did, indeed, walk around the show in the rain. Furthermore, they came to visit us in our soggy booth. I didn't think show attendance would be all that good in the rain. But, all things considered, it was not bad.

The sailors who stopped by our booth on that rainy day were mostly very keen. Some had ideas for articles, some had pictures of their boats, some had questions. More than a few sea stories were told.

At the GOBR party, enthusiasm was pretty high, considering there hadn't even been a race. Some sailors had come from several states away to sail in the GOBR. Tom Wells, who had come from Missouri, had written some good old boat songs, which he sang while he played the guitar. He was accompanied by a mandolin, bass, banjo, and another guitar. It sounded pretty good for a group that plays together only once a year.

I had a wee dram from Don Frye's private stock, listened to the music, and began to get the message.

KAREN LARSON

The musicians play their own Good Old Boat song. From left, Alfred Poor, Geoff Swanhart, Jerry Powlas (playing a glass of wine only), and Tom Wells, the composer of good old tunes.

Flowing the other way

Not counting the charter business and the tourist rides for hire, the days of commercial sail are long gone. For most of us, sailing is not done for money. The flow of time and treasure goes the other way. We pay to sail. It is not transportation in the common sense of the word; instead, it is very uncommon transport from the ordinary to the otherwise. The people who know this will travel great distances to walk around boats in a cold rain, and they will sing their hearts out after a race that wasn't held. Then they will come back in the morning to see if the wind and the race committee will let them race and/or throw another party.

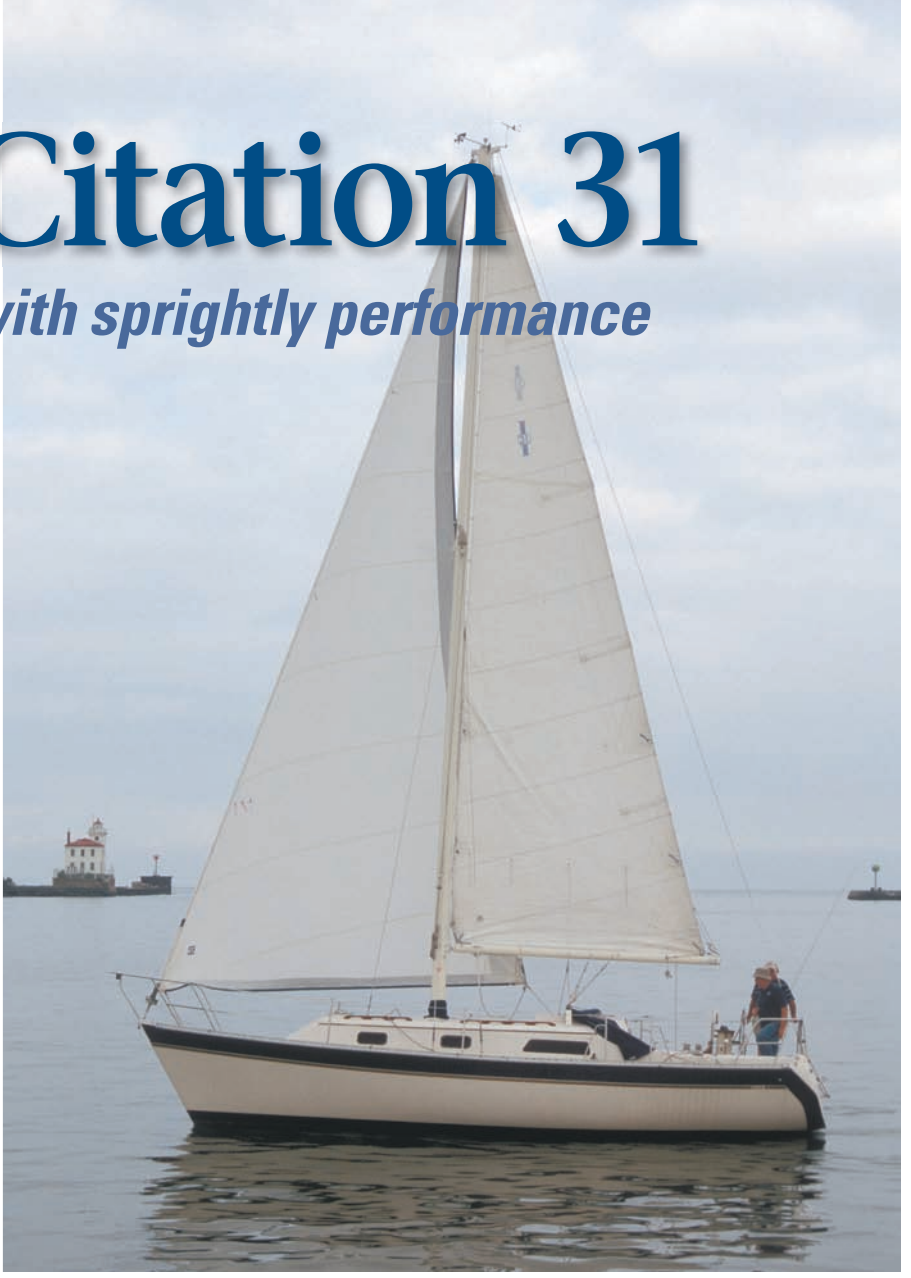
A man on crutches moves faster than a sailboat sailing against the wind and tide, so it is easy for the uninitiated to wonder who would care to do that. How could anything like that be considered some form of racing? Who would care to sail for pleasure? Who would care to go anywhere that slowly? Who would care to deal with the uncertainty of the wind? Who would care to walk about in the cold wind and rain just to look at sailboats?

Of course, I know who cares. I've met them on and off the water for 40 years. They are the best.

Irwin Citation 31

Coastal cruising with sprightly performance

by Gregg Nestor



Quest, the Irwin Citation 31 owned by Jim Chapman, above, has a distinctive wide cove stripe that swoops down at the transom. The T-shaped cockpit, on facing page top, allows the helmsman to move to port and starboard to check the set of the sails and watch for boat traffic. The rudderstock, second image, is easily reached to secure an emergency tiller that clears the pedestal. A view from the helmsman's position, showing the steering pedestal, third image. At the bow, bottom image, is an anchor well of sufficient size to hold one anchor and rode.

While Ted Irwin's stock-in-trade was the large center-cockpit cruiser, often for the Caribbean charter trade, he also dabbled with smaller boats, targeting the individual sailor/owner. In 1978, his Irwin Yacht and Marine Corporation began marketing a line of performance cruisers called the Citation series. Included in this initial offering were the Citations 30, 34, and 39. With these three boats selling reasonably well, Ted gradually began introducing other models into the line. Over its 11-year history, the number of Citation series models fluctuated between three and four, with their lengths ranging from 30 to 41 feet. The Citation 31 was introduced in 1982 at the height of the series and was in production through 1985.

The Citation 31 is a good example of a 1980's racer/cruiser. The boat is a fairly high-sided and short-ended yacht with a straight stem and a nearly flat sheer. The dark, wide cove stripe minimizes the topside's height, makes the sheerline appear higher at the bow, and takes a distinctive sharp downturn aft to follow the reverse transom.

The cabin trunk is traditional looking and quite low. The cockpit coamings gracefully taper aft from the dodger molding to the transom.

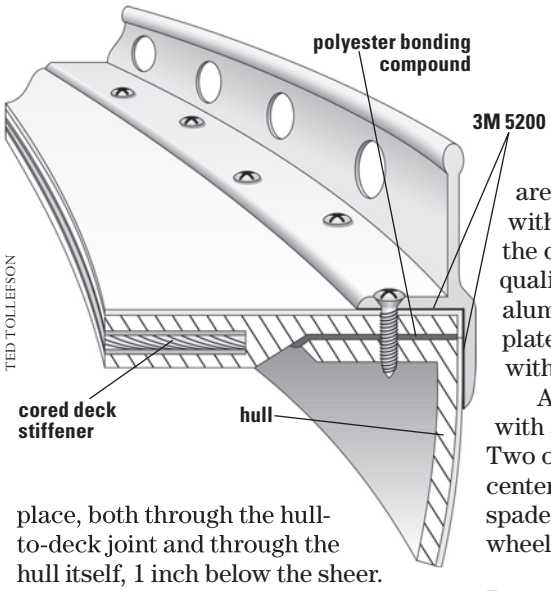
Three keel configurations were offered: shoal, stub keel with centerboard, and a deep fin keel. The latter offers the best upwind performance, as there's more foil to generate lift. The flip side, of course, is the inability to venture into shallow water. The rudder is mounted on a shallow skeg.

The displacement/waterline length ratio is 184, which is moderately light. Coupled with its generous 17.9 sail area/displacement ratio, the boat is a reasonably lively performer.

Construction

The Citation 31's hull is hand-laminated with polyester resin and alternating layers of glass mat and 24-ounce woven roving. Above the waterline, the hull is cored with Coremat. This stiffens the laminate and provides added insulation. Coremat consists of non-woven polyester fibers and microspheres held together by a styrene-soluble binder. It adds bulk and strength and weighs less than conventional fiberglass materials. It also saved the company a substantial amount of time in building the hull.

The horizontal deck surfaces are molded with a contrasting color non-skid pattern and are also cored with Coremat. In the areas beneath winches and major hardware, however, it was removed in favor of plywood, which has better compressive strength. The hull-to-deck joint is an inward-facing flange. The deck is set down on this flange, where it is chemically bonded with an adhesive and mechanically fastened with stainless-steel sheet metal screws on 6-inch centers (see sketch on facing page). The fact that these sheet metal screws are not secured with nuts should be a concern to owners of these boats. Completing the assembly, the slotted aluminum toerail is screwed into



TED TOLLEFSON

place, both through the hull-to-deck joint and through the hull itself, 1 inch below the sheer.

An interior fiberglass pan adds structural strength and stiffness. This fabricated grid not only forms the foundations of nearly all furniture, but also takes the place of stringers and some bulkheads, by supporting the hull in key areas. The main bulkheads are teak-veneered plywood, tabbed with fiberglass strips to the hull and the deck. Deck fittings are of average quality and are through-bolted with aluminum backing plates. The chainplates are laminated into the hull with unidirectional fiberglass.

As noted, the Citation 31 came with a shoal-draft keel as standard. Two options — a deep-fin keel or a centerboard — were available. The spade rudder is mounted well aft and wheel steering was standard.

Deck features

The stemhead fitting incorporates two anchor rollers. There's also an anchor locker in the foredeck with a deck pipe leading to a chain locker below. The sidedecks are reasonably wide, the headsail tracks are recessed, and all

Ted Irwin's career

Ted Irwin was just seven years old when his family moved to Florida's Tampa Bay area. This move kindled his interest in everything associated with sailboats: designing, building, and racing. At 15 he was building boats of his own design in his backyard, and at 21 he landed a job with builder and designer Charlie Morgan. At Morgan Yachts, Ted honed his skills as a draftsman, illustrator, and builder.

After a stint with the U.S. Coast Guard, Ted started his own boatbuilding business. In 1963, in a $75-a-month Quonset hut located on St. Petersburg Beach, he built his first boat, a 31-footer named *Voodoo*. Ted raced *Voodoo* from 1964 to 1966 and won 24 out of 28 races. This astounding record launched his career. Other successes, in the form of racing yachts, quickly followed: *Black Magic, La Pantera, Razzle Dazzle,* and *R2D2*.

Ted quickly took advantage of these successes as well as the knowledge he had gained in building high-tech racing yachts. In 1966 he incorporated as Irwin Yacht and Marine Corp. and moved to Clearwater, Florida. The original plant was 12,500 square feet. It soon grew to 75,000 square feet, employing more than 200 workers. Ted was a prolific designer and had as many as 15 models in production at one time. Irwin Yachts became one of the largest production sailboat companies.

In the beginning, Ted designed and marketed the Irwin 24, 27, 31, and 37. Gradually, the size of the boats increased and the plant began concentrating on center-cockpit models in the 50- to 60-foot range, designed and marketed for the crewed and bareboat charter business.

Despite numerous successes, Ted was forced to file for protection from his creditors under the federal bankruptcy code more than once. Each time he re-emerged with the company name slightly altered. Around 1991 money troubles closed the company's doors for good.

All through the years, the Irwin philosophy was simple: build a good boat for the money, one that is stylish, fast, stable, and comfortable. Even though his boats are generally regarded as lightly built and unsuitable for the rigors of offshore work — for which they were seemingly marketed — more than 6,000 were produced. It should also be noted that Irwin built more cruising sailboats measuring over 50 feet than any other builder in the world.

footing surfaces are patterned in nonskid. There are four sections of teak handrails, dual lifelines connected to stainless-steel bow and stern pulpits, and a slotted aluminum toerail. On the cabintop there's a large forward hatch, a smaller one aft of the mast, and a sea hood. Mounted on each side of the cabin trunk are two opening portlights forward and a single large fixed portlight or deadlight aft.

The cockpit is T-shaped and roomy. The coamings are properly sloped and average 12 inches high. Don't sit in front of the coaming cubbyholes, however, unless their covers are removed. The large knobs on the covers will line up with the small of your back. For additional stowage, there's a deep locker beneath the starboard seat and a pair of lockers flanking the helmsman's seat. The one to starboard is designed to house a propane tank. A portion of the cockpit sole is removable and allows access to the engine, the stuffing box and shaft, and the hot water tank. Beneath the helmsman's seat is the fitting for the emergency tiller. Completing the picture are the Irwin-designed/fabricated steering pedestal, a bridge deck, and a single 2-inch scupper.

All exterior wood is teak: handrails, accent strips above the portlights, and trim on the lockers and around the companionway.

Belowdecks

The interior is white and bright. The V-berth is an exception. All of its surroundings, except for the bureau to starboard and the aft bulkhead, are covered in teak. Even with the overhead hatch, an opening portlight to starboard, and a pair of reading lights, the forward cabin is cave-like.

The V-berth with insert measures 78 inches deep and 69 inches at its widest. Forward and above is a large shelf and beneath are six drawers and the polyethylene holding tank. A four-drawer bureau and a hanging locker offer additional stowage. The head compartment with its inboard-facing door is directly across from the bureau and hanging locker. This arrangement allows for standing headroom and space to change clothes. There's a solid wooden door separating the V-berth and head from the saloon.

The one-piece fiberglass head compartment offers hot and cold pressurized water and is set up for a handheld shower that drains into the bilge. Natural illumination and ventilation are provided by an opening portlight. While fully adequate, the compartment seems a bit small, given the size of the boat, even with its wooden bi-fold door open.

In the saloon are opposing settees and a folding table mounted to the port bulkhead. The 30-gallon aluminum fuel tank is situated beneath the starboard settee, while the potable water tank is housed under the port settee. The settees are 75 inches long and 26 inches deep. As berths, the starboard is fixed, while the port converts to a pullout double. Because the settee bases are used for tankage, stowage is limited to the areas behind the settees. Smoked acrylic or wooden louvered doors cover these lockers. An overhead hatch, a pair of opening portlights, and the large deadlights provide the saloon with light and ventilation. Two fluorescent fixtures provide the artificial light. Flanking the overhead hatch is a short pair of wooden grabrails. The vinyl headliner is zippered in strategic places and is trimmed and battened with teak. The sole is teak and holly.

By locating the companionway steps slightly off-center and to port, Irwin has provided the starboard U-shaped galley with valuable extra inches. As a result, there is plenty of room for a large, deep stainless-steel sink to be placed almost on the boat's centerline. Outboard is a gimbaled, two-burner Kenyon stove with oven, and aft of it a top-loading icebox. Hot and cold pressurized water, reasonable counter space, and numerous lockers, bins, and cubbies make for a usable galley.

Space given to the galley was taken away from the forward-facing navigation station on the port side. However, nothing seems to have been lost. The lift-top chart table is ample and the shelving and outboard bins are adequate. There seems to be plenty of foot room for those sitting at the chart table and for anyone getting into the quarter berth, which is located just aft of the navigation station. As is often the case, the head of the quarter berth functions as the chart table's seat. The quarter berth is 77 inches long and 36 inches wide. Beneath it is some stowage and the boat's batteries.

In addition to the companionway and the large deadlights, the galley and navigation station receive light from a pair of fluorescent fixtures.



On facing page, the head, top, is a molded fiberglass module with shower. The 15-hp Yanmar diesel, center, is easily accessed through a removable panel in the cockpit sole and from behind the companionway stairs. The saloon, bottom and in above photos, is straightforward with navigation station, opposing settees, fold-down table, and aft galley.

The rig

Like almost everything on an Irwin, the rig was made in-house and is considered to be adequately built. The mast has a single set of spreaders and is stepped on the keel. Both the mast and boom are aluminum extrusions painted white with Imron. Standing rigging is ¼-inch stainless-steel wire and consists of a headstay, baby stay, a pair of cap shrouds, a pair of lower shrouds, and a single backstay. Changing from a single to a split backstay would be a significant improvement. The single backstay not only causes problems when using the centerline swim ladder, but also is angled in such a way that it significantly interferes with the helmsman. A helmsman who approaches 6 feet or taller is particularly inconvenienced.

The Citation 31 is a masthead sloop with a total sail area of 495 square feet — a 222-square-foot mainsail and a 273-square foot foretriangle. The main and jib halyards, the topping lift, and the lines for jiffy reefing run inside their spars. The halyards, as well as the mainsheet, are led to a starboard Barlow #16 winch, mounted aft on the cabintop. A series of line stoppers allows this winch to serve them all. The mainsail is sheeted mid-boom to a traveler on the cabintop. The sheets for the headsail are led through cars and tracks on the side decks and run aft to two-speed Barlow #23 winches mounted on the port and starboard cockpit coamings.

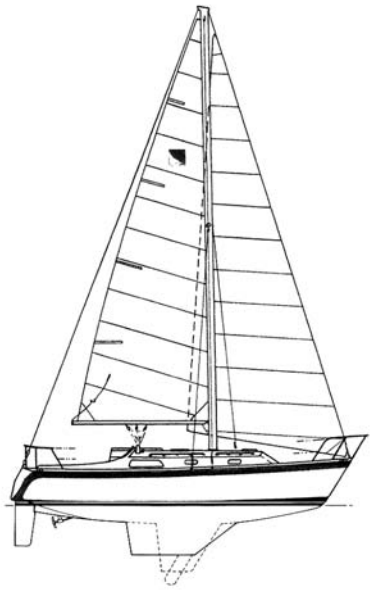
The Citation 31's auxiliary is a fresh-water-cooled 15-hp Yanmar diesel. The engine is coupled to a transmission with a 2.5:1 reduction ratio that turns a two-bladed propeller. Access to the engine is excellent from behind the companionway stairs and through a removable panel in the cockpit sole.

Under way

Generally, the Citation 31 performs up to the builder's claims and expectations. As far as speed is concerned, it falls right in with other racer/cruisers of that era. Typical PHRF numbers for the Citation 31 with standard keel are around 165 seconds per mile. A Pearson 31 rates about 180, and a Cal 31 about 162.

It's a reasonably comfortable and dry boat. The helm is responsive and easily balanced. While the shoal keel version doesn't point quite as high as the fin keel version or even the centerboarder, it will make good passages, especially off the wind.

Under power, the boat handles well when going forward. Reverse is another matter entirely. Significant prop walk to port makes it difficult to back down in a straight line. This condition can be minimized with experience. The 15-hp Yanmar, while adequate in most instances, is a bit undersized. A few more horses would help the boat punch through rough seas.



Irwin Citation 31

LOA: 31 feet 2½ inches
LWL: 28 feet 3 inches
Beam: 11 feet 0 inches
Draft (shoal): 4 feet 0 inches
Draft (centerboard): 4 feet 0 inches to 8 feet 1 inch
Draft (fin): 6 feet 0 inches
Displacement: 9,300 pounds
Ballast (standard): 3,400 pounds
Mast height above waterline: 46 feet 1 inch
Sail area: 495 square feet
Displacement/LWL ratio: 184
Sail area/Displacement ratio: 17.9
PHRF rating: 165

Things to check out

Several owners report leaks around portlights, the overhead hatches, the engine hatch in the cockpit, and the hull-to-deck joint.

Severe groundings can damage the fiberglass keel mold and allow water intrusion and delamination.

The single backstay interferes with the helmsman and hampers the use of the swim ladder.

Other items include: gate valves as seacocks, an undersized cockpit scupper, an Irwin-designed/fabricated steering pedestal, and a shower that drains to the bilge.

Conclusion

While not a bluewater cruiser or club racer, the Irwin Citation 31 makes a good coastal cruiser. Unfortunately, it suffers from some corner cutting. Its interior is above average for a production boat. A main drawback is that stowage is minimal, with tankage occupying the space below settees. Expect to pay $14,000 to $29,000, depending upon year, condition, and equipment.

Resources

<http://www.irwinyachts.com>
<http://www.angelfire.com/fl/irwinsailboats>

Bonita's meta

Chrysler caterpillar turns into

Sara was dangling from a bosun's chair high atop the mast. Last night, Sara had gone to the prom. This morning, still wearing her fancy fingernail polish, she was trying to free the jib halyard and attach the wind-direction indicator. Sara is the best friend of my daughter, Katie, and was carefully selected for the task because she is so tiny, knows no fear, and is game for anything.

It started two years earlier with an email message from my friend, Steve, who runs an RV storage lot. He wondered if I would be interested in a free boat. My immediate response was, "What kind of boat?"

"A 1978 Chrysler 22 sailboat," was his reply. "It's been in my lot for four and a half years without moving,"

It was in awful shape. It had been parked under a stand of firs. The fiberglass hull was dull and gray. Green algae stains were everywhere. The deck was covered by pine cones and needles; the trailer was covered in rust.

It was worse on deck. The wooden handrails and dropboards were dirty-gray. The hatch had been left open, and the boat was filled with 18 inches of green, slimy water. The interior woodwork was gray and weathered. The boom and other parts had been tossed randomly below. Everything was just plain dirty. She was a mess.

I thumped on the hull in several places; it seemed sound. "OK," I thought, "I can clean and fix this boat up. After all, the price is right."

Make an offer

Steve gave me the owner's phone number. The owner went through the features and said he'd tried to give it to the Sea Scouts, but they took one look at the boat and decided it needed too much work.

"Make me an offer," he said.

"I thought you were trying to give the boat away," I said, somewhat surprised.

"Well, I was going to at least get a tax deduction from the Sea Scouts. Go ahead, low-ball me. Make me an offer."

"How about $500?"

"Sold."

It looked like I had a project on my hands.

I returned to the living room and sheepishly confessed to my wife, Connie. "I think I just bought a boat." I expected an explosion.

"Good, you need something like that," she said. "You spend so much of your time taking care of us, it's about time you did something for yourself."

That weekend my 13-year-old daughter, Libby, and I drove over to the seller's house to give him a check and take care of the paperwork. We learned a bit about the history of the boat.

The seller had owned the boat for 21 years. He bought it when his daughter was 13. They had sailed it all over Puget Sound. Unfortunately, his marriage had dissolved. About 10 years ago he had remarried and his new wife hated sailing. The boat had become a bitter point of contention between them.

Monthly bill

In a fit of exasperation, he hooked his pickup to the boat trailer and towed it to Steve's lot. There it sat for four and a half years. Every month they got a bill for the storage. Every month the wife seethed at having to spend $50.

"I am so tired of paying every month to keep that boat," his wife had told Steve. "I would love to just give it away. Do you know anybody who wants a boat?"

The next day Libby and I piled into our Dodge minivan and drove over to Steve's lot to bring the boat home. I backed the van up to the boat trailer and lowered the trailer hitch onto the van's ball. I cranked down the trailer tongue. When I had cranked as far as I could, the front wheel on the boat trailer was still on the ground.

"Dad, look!" cried Libby.

The front wheels of the minivan were about 6 inches off the ground. This was obviously not going to work.

We unhooked the trailer and headed home. I needed to find someone with a big pickup. Peter, our neighbor across the street, volunteered the use of his truck. That worked just fine, and when we pulled up in front of my house with the boat in tow, I expertly backed (sometimes, you just get lucky) what seemed to us like a very big boat into the driveway. It filled the drive; it stood nearly as tall as our house. It is amazing how big a sailboat looks when it's out of the water.

As I got out of the truck, Peter's wife came to the door of their house. "Oh-my-god!" she exclaimed. "Does Connie know about this? When Peter said he was going to help you go get a boat, I thought it was, like, a little Boston Whaler."

A gawking crowd

By this time, many of our neighbors had gathered in the front yard. There must have been a crowd of 20 people gawking at the *Queen Mary* blocking half of our driveway. I would not be able to park my car in the garage for

Sara, the fearless and small friend of Penn's daughter, Katie, retrieves the jib halyard, above, which had been overlooked when the mast was raised on the Wallace family's new (used) Chrysler 22. On facing page, *Bonita* — large in some ways and small in others — awaits future adventures. A portion of the Wallace family, inset: Connie, Libby, and Penn.

by Penn Wallace

morphosis

22-foot butterfly

a long time. Fortunately, Connie would still be able to get to her side of the garage. All this occurred while she was at work. I wanted to have the boat already stationed when she arrived. That way she couldn't tell me not to park it next to her flower bed.

The real work began the following weekend. I started by scrubbing the boat. After years of neglect, just getting her clean enough to work on took an entire weekend. The following weekend I began removing what seemed like hundreds of gallons of water. At least I knew that her hull was watertight. I scooped bucket after bucket of slimy green water out and dumped it in the cockpit, which drained overboard. Then the real work began. Everything from the cabin sole up 18 inches was coated in slimy green algae. (*Note: It's far wiser to bail the boat* ***before*** *towing it.* ***–Ed.***)

I scrubbed and scrubbed. I borrowed all of Connie's household cleaning agents in search of something that would remove the algae. Windex worked well. Algae removal took a full day.

Next was the job of cleaning the cabin enough to move around in it without getting dirty. Years of dust and dirt had accumulated. The cushions were a total loss, so I tossed them. The Porta Potti had been put away five years ago without cleaning. I cleaned it out only to discover that it leaked. It had to go too. I was the only one on the block with a Porta Potti on his Christmas list.

Caught the bug

When the boat was clean enough to crawl around in, Libby climbed up to see what I was doing. Incredibly, she caught the boating bug. She became an integral part of the restoration. She scrubbed and cleaned. She did all the brightwork. I was amazed at her level of interest. This was *her* boat.

The woodwork, what there was of it, was gray and dirty with age and exposure. I removed what I could and bleached it with Te-Ka to restore it to its natural color. I've tried several other products but found that the Te-Ka works best.

Te-Ka comes in two parts. Formula A opens the pores of the wood and draws out the dirt and grit. It's amazing to see the grime come to the surface. Formula B neutralizes Formula A and restores the teak to its natural golden color. This took several applications. When we were done, the wood looked like new.

Once we had the teak restored, Libby took over and oiled all the woodwork with several coats of Deks Olje. The first part of the treatment restores the wood and preserves it; the second gives it a gloss finish that rivals varnish. The major benefit is that when it starts to show wear, you don't have to remove the old coat. You just add a new coat over the old one. I discovered Deks Olje when I owned a teak-drenched Cheoy Lee and swore I would never use varnish again.

Now came the hard part. The fiberglass was dull and gray. I spent several weekends buffing it out and waxing it, using 3M Marine Fiberglass Restorer and Wax. I used the 09012 version, which is the heavy-duty oxidation

Bonita's interior — once full of 18 inches of green, slimy water and the accumulated dirt of many years of neglect — was vastly improved with the help of Windex (removes algae), a thorough scrubbing, and new cushions.

remover. Rather than use a buffer, I rubbed it out by hand. I didn't know what kind of condition the gelcoat was in and didn't want to wear through it. That would have entailed an expensive refinishing project. The final result was that it looked like new. We were beginning to have a boat we could be proud of.

Presentable again

I'm sorry we didn't think to take any "before" photos, because she arrived as a wreck. When we dragged her home, no one could imagine that she would look so good again. After three months of hard work, she was presentable. She wasn't ready for sea yet, but the winter weather was setting in and I didn't intend to work out in the cold and rain. Connie didn't want the boat in the driveway all winter. She had been very patient with me so I relented and took her (the boat, not Connie) back over to Steve's storage lot for the winter.

I wasn't going to let the elements destroy our hard work. I bought a huge blue tarp and we covered her for the winter.

We had a boat-Christmas that year. On my list were a boathook, mooring lines, an air horn, a flare gun, and all sorts of other nautical paraphernalia. Santa was good to me. Everyone in the family got a life jacket too.

Late that winter, Libby and I went over to the RV lot to check on the boat. We were surprised to find the tarp full of water. The mast spanned the length of the boat and served as a center pole over which I had draped the tarp. As rain fell during the winter, it had accumulated in low spots on the tarp so I had two huge pockets of water on each side of the mast at the cockpit.

My first thought was to climb up the ladder and lift one edge of the tarp to let the water flow off. But there must have been a hundred gallons on each side of the mast. There was no way I could lift the edge. I needed a new strategy.

Untied the tarp

The next idea was to untie the tarp so it could move freely. Then maybe the water would shift and find a spot where it could flow off. As I walked around the boat untying the tarp, Libby climbed the ladder to check out the problem. As I untied the ropes holding the tarp down at the bow, the water shifted aft, the front of the trailer rose in the air, and the boat stood on her transom.

Libby was still standing on the ladder when this happened. A shift of 4,500 pounds of boat and trailer and several hundred pounds of water caused a violent alteration in the boat's position. Libby jumped to save her life. She hit her hand on the way down but luckily suffered no permanent harm.

> "We had a boat-Christmas that year. On my list were a boathook, mooring lines, an air horn, a flare gun, and all sorts of other nautical paraphernalia."

The final solution to the problem was to cut holes in the tarp where the water had accumulated. The water drained into the cockpit and overboard. This caused another violent reaction. As the water drained out, the stern lost all that weight. Finally, the trailer — boat and all — came crashing down. By some miracle, neither people nor boat suffered permanent damage.

When we got home and related the adventure to Connie, she told Libby, "If you are going to sail with your father, you are going to have to expect to get hurt." That was the voice of experience speaking.

In the spring I had a chance to secure a slip in the Everett (Washington) Marina, so I grabbed it. The boat was a long way from being ready to launch, but I didn't want to lose the chance to obtain dock space.

New cushions

We brought her back home in April. More hard work and expense was ahead of us. I had new cushions made for the cabin at a cost of $1,750. I checked out the mast, rigging, and sails. With the exception of a broken spreader, they all appeared to be in good condition. I was able to order a replacement spreader.

We still needed an outboard. I found an ad in the newspaper for a 20-year-old Mercury 10-hp motor for $500.

Libby and I painted and cleaned and scrubbed and prepped our boat all spring. In late May we were ready to launch her.

Our neighbor towed her down to the marina for me. Connie and Libby met us there. The yard hands picked her up with the lift and let us touch up the bottom where we had not been able to paint under the trailer's rollers. Then it was time to commit her to the sea.

I climbed aboard. As they lowered us down to the water, I was nervous. Would she float? Sure enough, she did. No leaks.

My next problem was to get the outboard motor started so I could move the boat out of the way to clear the launch area for the next boat. I pulled and pulled on the cord to no effect. Finally, they used the little harbor tug to tow me to the guest dock where a crane was waiting to step the mast.

We rigged a sling on the mast and the crane hauled away. While one of the yardhands held it in place, I scrambled around attaching stays and shrouds. But some of the turnbuckles

that attached the shrouds to the chainplates didn't have clevis pins in them. I asked Connie to run up to the marine hardware store and buy enough pins to secure the mast. The guy working at the marine store was not very helpful, and Connie couldn't find the pins.

Got it secured

Before it was over, I had to leave the yardhand holding the mast in place while I ran to the store. We finally got the mast secured and the yardman and crane left.

Now we were alone on our boat with a motor that wouldn't start. I went to work on the motor and finally got it going. We cast off our lines and headed toward our new slip. Then the engine died. We drifted in the marina while I tried to get it going again. I could get it to run for a minute or two at a time before it died again. We managed to get around the end float and start down our own row when the engine emitted a belch and a cloud of blue smoke, coughed a couple of times, then quit, never to run again.

Fortunately, there was a light breeze blowing us toward our slip, and we had steerageway. Connie took the bow line; Libby had the stern line. I managed to maneuver into the slip. Anyone watching would have thought we did this every day. Connie was an old pro from her sailing days early in our marriage, but Libby had never been on a sailboat before. It was all new to her. Just getting the boat safely moored was triumph enough for one day. I decided to tackle the engine problem later.

The next weekend was later. The engine was shot. It had virtually no compression in it. The repair shop said that they wouldn't even work on it. "I'm not going to take your money when I can't help you," the owner said.

Needing a new engine, I looked around and found a 9.9-hp Evinrude for $1,000. The Evinrude would take cockpit controls. Since the boat had cockpit controls, I was happy that I wouldn't be leaning over the sternrail working with the engine all the time.

Unfortunately, the cables from the cockpit controls had been cut. Of course, the outboard motor shop didn't stock those parts, so I had to order them and wait weeks for delivery.

It took me all summer to get the parts, figure out how to install them, and, finally, to get the controls working. When I first hooked them up, if you pushed the throttle forward, the engine would go into reverse; if you pushed it backward, the engine would go forward. It worked well but was counterintuitive. I got some help from Jeff at Olympic Marine and learned how to hook it up correctly. But now the motor wouldn't go into reverse. Finally, I had to buy a new control box designed to work with the Evinrude. Eventually, I got the whole thing working.

Final obstacle

We were almost ready to sail. The last obstacle was the jib halyard. After we had the mast up and the boom truck was gone, I discovered that the jib halyard was all the way at the top of the mast. Somebody was going to have to go up there and get it. That's where Sara came in.

When we were finally able to go sailing, we had a family meeting to choose a name for our boat. The previous owner had never named her. That left us free to name her without incurring any of the bad luck associated with changing a boat's name. She would be the *Bonita*.

In Spanish, bonita means pretty, and that she is. A bonita is also the smallest member of the tuna family. She was a small boat to us, particularly after having a 32-foot sloop as our previous boat.

Chryslers are not common boats in the Pacific Northwest. They were built in Texas for lake sailing. Instead of a trunk cabin, her cabin slopes into the foredeck. The *Bonita* has a white hull and light blue trim.

She is quite pretty under sail. She has a swing keel that I can't get used to. When we are beating to windward there is a constant clunk-clunk-clunk as the keel works against its pivot bolt. She is stiff and a good sailor but is slow in light air. I don't have a genny for her, but I think she would behave better with a genny when there is little wind.

A little cranky

With the swing keel and spade rudder, she is a little cranky to sail. She won't track on a straight course for very long. You need to pay constant attention to the helm. On the positive side, she is very responsive and will spin on her keel. We have never had any problems tacking. She has quite a bit of weather helm; it takes a strong hand to keep her on course in a stiff breeze.

The Chrysler 22 is roomy belowdecks for a 22-footer. Because she was designed as a family cruiser, she has a pop-top cabin. The roof lifts up about two feet to give standing headroom below. Side curtains seal the opening.

In the forepeak there is a V-berth with a Porta Potti beneath it. Coming aft, on the port side there is a dinette that makes into a berth. On the starboard side is a settee. An ingenious sliding galley with a sink and two-burner alcohol stove slides back under the cockpit when not in use and slides out over the settee for cooking. It diminishes the space in the starboard cockpit locker and we haven't used it yet, but somebody thought it was a good idea.

I am $3,500 and hundreds of hours of labor into my "free" boat, but she looks like a new boat and I'm sailing again. I wouldn't have considered buying a boat at this time in my life if Steve hadn't mentioned it. I wanted to get back into sailing but couldn't justify diverting the money from the family. With one daughter in college and the other going next, we need the money now more than ever. However, Connie has been wonderfully supportive. She knows what sailing means to me and has been very encouraging.

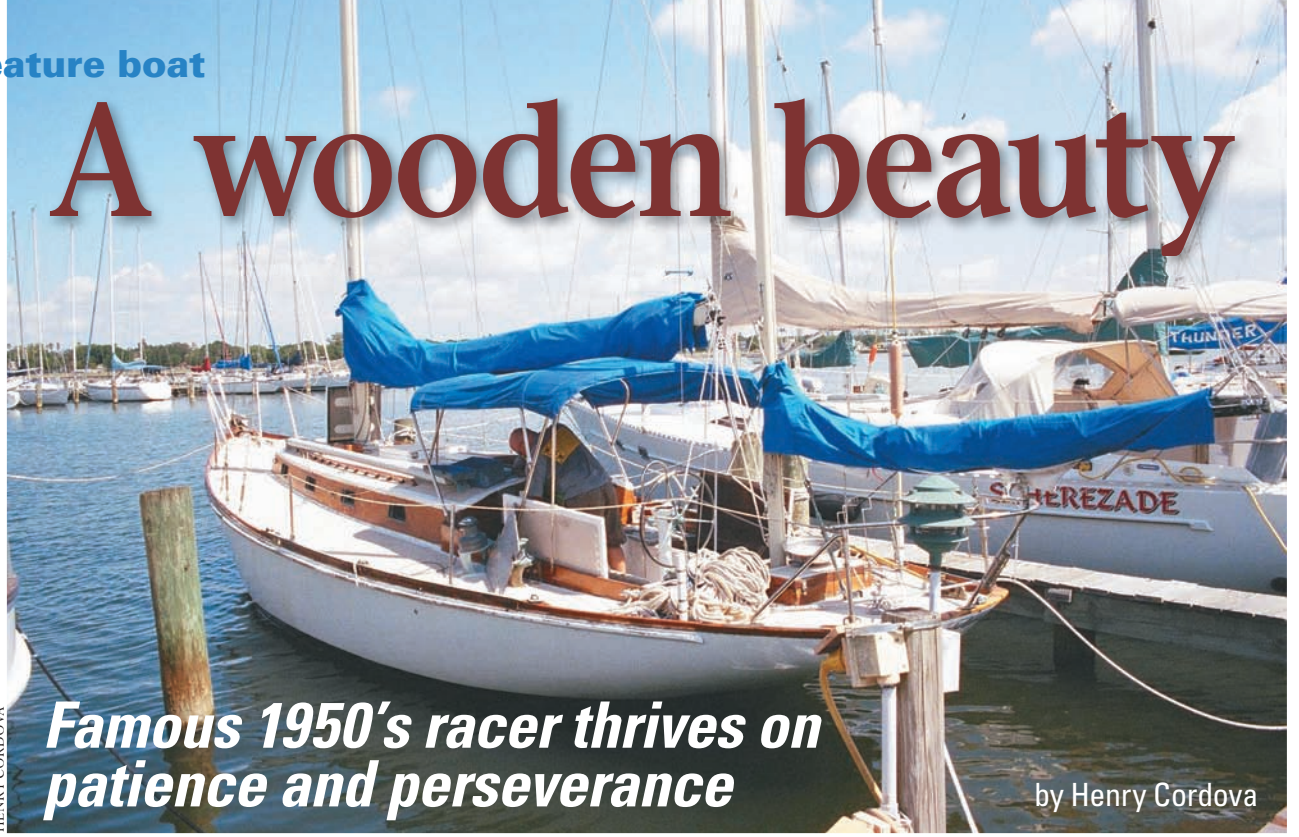
Resources

Te-Ka
ITW Philadelphia Resins; 215-855-8450; <http://www.marinetex.com>

Deks Olje
The Flood Company; 800-321-3444; <http://www.flood.com/Flood/>

3M Marine Fiberglass Restorer and Wax
888-364-3577; 877-366-2746; <http://www.3m.com/Product/information/Fiberglass-Restorer-Wax.html>

A wooden beauty



HENRY CORDOVA

Famous 1950's racer thrives on patience and perseverance

by Henry Cordova

Bill Tait saw *Sinisterre* for the first time in 1972. It was love at first sight. She was in Bristol condition. Bill asked her skipper on the spot if she was for sale. The answer was "No." Her new owner had just bought her from her original owner the previous day. The yacht — originally named *Mai Tai* — was designed by Sparkman & Stephens and constructed in 1957 in Miami by Warren Bailey. Olin Stephens and one of his apprentices, Charley Morgan, oversaw the construction. She was, in a word, beautiful. In time, Bill Tait would get to know her intimately.

The lovely yawl that had captured Bill's heart was a sister ship of the classic 40-foot Sparkman & Stephens-designed *Finisterre*, the wooden centerboarder that in the late 1950s and '60s had taken the sailing world by storm. Named after Cape Finisterre on the Iberian Peninsula, S&S design 1054 had been conceived as a cruiser by Carleton Mitchell, an American writer and sportsman. Although an accomplished racer, Carleton, a two-time Southern Ocean Racing Conference (SORC) winner, also was a capable and experienced cruising sailor who had been mentally designing his dreamboat — a fully equipped, comfortable, shoal-draft design that also would possess the necessary seakeeping ability for offshore work.

HENRY CORDOVA

Bill Tait first saw *Sinisterre* in 1972. It was 10 years before he was able to buy her from her reluctant owner. Today she resides in Tampa, Florida.

Racing was not part of her origins so no effort was made to gain an advantage through any rule, although she reflects the influences of the Cruising Club of America (CCA) rating rule that governed most races in post-war America. *Finisterre* was built in 1954 by Seth Persson at his yard in Old Saybrook, Connecticut, with Carleton Mitchell closely supervising the project. By the standards of her day, *Finisterre* was considered short-keeled and beamy, "remarkably like a watermelon," Carleton commented.

Elegantly balanced

By today's standards, her hull lines are simply breathtaking, with low freeboard, a graceful, sweeping sheer, and elegantly balanced overhangs. *Finisterre* caught everyone

at the SORC by surprise, perhaps even her owner, and went on to a brilliant racing career, including winning a transatlantic race and three consecutive victories in the Newport-Bermuda Race, the only boat to have won that event more than once.

Sinisterre, a play on her sister ship's name, was not an exact duplicate of *Finisterre*. There were some differences in construction methods, but the hull lines and interior layout were the same. Nor is *Sinisterre* the only S&S number 1054 still around. The Sparkman & Stephens Association Members' Yearbook for 2005/2006 lists four others, including the class prototype. *Finisterre* is proudly sailed these days under her original name by a new owner in the Adriatic. Another, *Querencia*, has been lovingly restored to mint condition by Tom and Myra Hudson in Washington state. At last report, *Winifred*, on which Bill Tait once crewed on a voyage to the Bahamas, is a working boat carrying charter customers in the U.S. Virgin Islands. There are reports that yet another 1054 is currently being built to the original specifications in South America.

BRUCE JOHNSON, SPARKMAN & STEPHENS, INC.

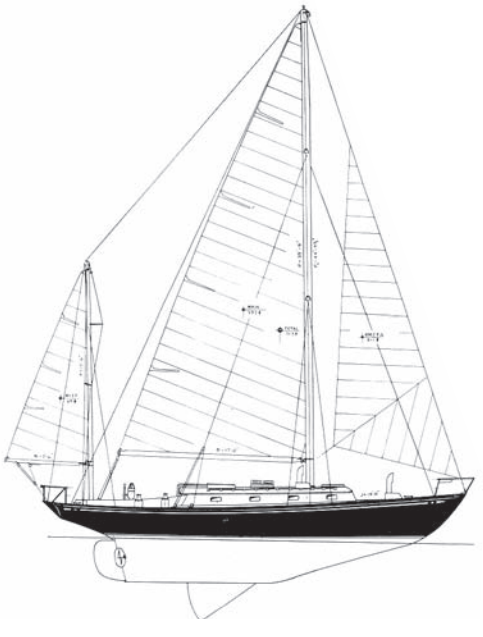
***Finisterre*, at right, first owned by Carleton Mitchell, has an impressive race record, including an unprecedented three wins in the Newport-Bermuda Race. Designed to the CCA rule by Sparkman & Stephens, number 1054 is a centerboard yawl because the rule favored shallow draft and did not penalize mizzen staysails. Sail plan at left below. Accommodation plan and profile drawing of the original *Finisterre*, Sparkman & Stephens design 1054, at right below.**

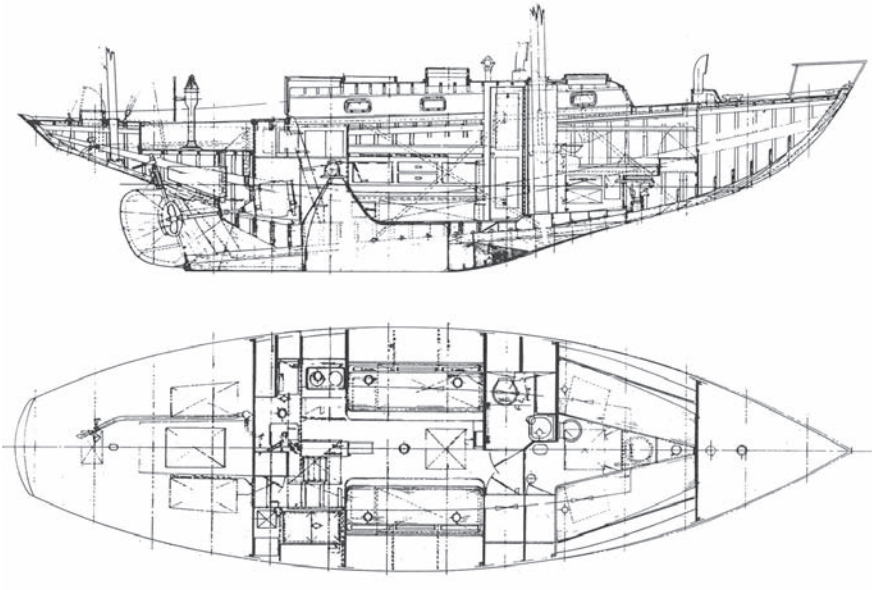
Introduction to sailing

While *Finisterre* was rampaging in the Atlantic, Bill Tait was growing up in a Quaker village of about 300 people in southern New Jersey. There was a wide stream behind his house and he caught the sailing fever early. He built his first boat, a 10-foot dinghy, at age 12 and began his sailing career in Lightnings and Thistles. As a young man, he answered an ad to help move a South American-built 42-foot ocean racing sloop from Painesville, Ohio, to Buffalo, New York, through the Erie Canal, and then through the New York state canal system to the Hudson River. He helped sail the boat to Stamford, Connecticut, where he lived aboard all summer. Bill has no idea why that South American-built sloop was in Ohio, but he's been involved in sailing ever since. In the early 1970s he competed in Midget Ocean Racing Conference (MORC) races in the Tampa Bay area and sailed in Long Island Sound and along the New England coast as far away as Nova Scotia.

After earning college degrees in chemistry and geography, he was employed in various capacities and industries, including hydrology and construction, before making a major career switch, apprenticing with naval architect Frank Hamlin in 1983 as a marine surveyor. Still practicing, he works on all types of vessels: sport fishermen, motor yachts, commercial vessels, and, of course, sailboats.

Shortly after his move to Florida,





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HENRY CORDOVA

Bill Tait bought *Sinisterre* in 1982 and has been restoring her ever since. When he began her second restoration in 2001, he built a workshop dedicated for this refit project.

Bill became an active member of the Davis Islands Yacht Club in Tampa. He worked with yacht designer Ron Holland to build two boats for the national Quarter Ton championships. One of them, *Eighteen* (pronounced aye-teen because Ron is an Aussie), was the first of Ron Holland's designs to be a winner. Both of the boats had been built to the International Offshore Rule (IOR), although they were not identical. The other, *Genesis*, ran aground and did not finish, but Bill found her five years later, neglected and falling apart. He rebuilt her from the sheer up. With Bill at the helm, she won 17 consecutive races, including the 1978 Kahlua Cup.

Slowly deteriorated

During all this time, Bill kept his eye on *Sinisterre* as she slowly deteriorated. Eventually she stopped sailing altogether as her owner didn't possess the specialized skills necessary to maintain a classic wooden boat. Bill frequently renewed his offers to buy her, but the owner continued to refuse. He finally recognized that he didn't know enough about wooden boats to keep her in repair and in 1983 the two worked out a deal in which *Sinisterre's* owner got *Genesis* and Bill got *Sinisterre*.

The task of repairing the neglected yacht was daunting. *Sinisterre* is constructed of 1¼-inch mahogany strip planking over 2-inch mahogany laminated frames spaced 3 feet apart. The hull was in fairly good shape, except for two planks in the hull forward, one rotted frame under the cockpit seat below the waterline, and a small area of rot on the hull adjacent to it. The damaged areas were small, but restoring *Sinisterre* authentically required extensive work to properly interleave the new planks with the existing planking.

The decks and deck beams also required major surgery. They were rotted, as was the entire port cabin side. The cockpit coamings were missing and half the coachroof and all the hatches needed to be replaced. Also requiring replacement were the mast, sails, and rigging. If that weren't enough, the engine was completely seized. The refit required nine months of hard work, most of it done with the boat still in the water, before *Sinisterre* was able to sail again. Another year went by before Bill got around to rebuilding the engine. In 1987, after 3,500 hours of work and living aboard for four years, Bill and *Sinisterre* placed second in the Florida Antique Boat Show.

Still without engine

Originally, Bill had no intention of racing her, but in 1985 he entered her in the first annual Bill Bogart Regatta, held in honor of a deceased former club commodore. At that time she was still without an engine. *Sinisterre* took first place overall. Since then, she has been a familiar competitor on racecourses on the Gulf Coast and beyond. Over the years she won the Kahlua Cup twice, the Amigos race in Mexico five times, and the St. Petersburg-Mexico race twice, the last time by a full 13 hours over the next boat in her class. Only three 70-foot racing sleds got there first.

In 1998 she was victorious in the St. Petersburg-Havana race, precisely 40 years after Carleton Mitchell won the same event in *Finisterre*. This grand old lady continues to strike the same fear into her rivals' hearts as her older sister did 50 years earlier.

A wooden boat is never finished. In 1992 the original engine, a 37-hp Mercedes diesel, was replaced by a marinized 22-hp Kubota, and in 2001 it was time for *Sinisterre's* second major overhaul. This time, Bill was better prepared. He unstepped the yacht's masts and motored her up to the dock behind his house on the Hillsborough River, where he'd built a 20-foot by 40-foot woodworking shop. Now it was the starboard cabin side's turn to be replaced, as well as the companionway trim, cockpit coamings, and toerails. Exterior grabrails were replaced and additional interior grabrails were installed on the cabin overhead. The refit was completed in 2002.

Today, *Sinisterre* is seaworthy, although maintenance work continues: a new engine and batteries were recently installed, the steering gear replaced, and the topsides and trim painted and varnished.

Special award

In 2003 Bill joined the Sparkman & Stephens Association and attended its 10th anniversary meeting in Portsmouth, England. Olin Stephens awarded Bill the biannual World Challenge Mathiessen Cup for the S&S design winning a major ocean race by the greatest margin over the second-place boat.

Though the evolution of yacht design has moved far from the centerboard yawls of the 1950s and '60s, they still are excellent boats capable of fast passages. Number 1054 marked a watershed in yacht design and still fills a niche today, not just as a museum piece but standing up favorably to 50 years of mass production, modern materials, and computer-aided design. One need only look at the number of Block Island 40s, Bermuda 40s, and centerboard yawls still sailing to see that this type of yacht made a very successful transition into fiberglass.

After a half-century of dash and grace, *Finisterre* and her sisters still go to sea, thanks to sailors like Bill Tait, whose love and commitment keep their legacy alive.

Stephens, Mitchell, and *Finisterre*

Three of the most brilliant stars of 20th-century yachting

by Ted Brewer

What can anyone say about a legend? *Finisterre*: length overall: 38 feet 6 inches; length waterline: 27 feet 6 inches; beam: 11 feet 3 inches; draft, board up/down: 3 feet 11 inches/7 feet 4 inches; displacement: 18,640 pounds; ballast: 5,860 pounds outside, 300 pounds inside; sail area: 713 square feet.

Those are the figures. If you care to, you can work out the ratios and compare them with other yachts, but that will not tell you what made *Finisterre* such an indomitable and successful cruiser/racer in her day. Her secret was the combination of the design genius of Olin Stephens and the driving talent of her owner/skipper, Carleton Mitchell, and his top-notch crew.

Finisterre was not designed as a serious, all-out racing yacht. Rather, Carleton wanted a design that would be a "floating home for two people," definitely not an out-and-out racer. To many yachtsmen and designers, her 11-foot 3-inch beam was considered to be extremely wide and, although that beam would seem quite normal on a boat of her waterline length today, back in the 1950s she was usually described as fat. That did not seem to slow her down though; *Finisterre* was able to keep up with any boat her size and outsail a great many of them.

I never had the pleasure of sailing aboard her, but I vividly recall racing against a sister ship one day in Long Island Sound. That handsome little yawl was skippered by Arthur Knapp, a sailing legend of the time and the skipper of the 12-meter yacht, *Weatherly*, in the 1958 series for the America's Cup defense. I was aboard *Storm*, Bill Luders' powerful 39-foot sloop, an extreme racing machine, 1 foot 9 inches narrower than *Finisterre*, with 1,100 pounds less displacement and carrying over 2,000 pounds more ballast on a 2-foot deeper draft.

> **"She gave away little or nothing when it came to out-and-out performance, both on and off the wind."**

Two came together

It was a long-distance race and, nearing the end, the two yachts came together on a windward beat with *Storm* ahead by about a boatlength. And that's where we stayed for hour after hour, neither yacht gaining nor losing more than a few feet. Although we could not shake Arthur, we did maintain our lead, and *Storm* finished slightly ahead of the chunky centerboard yawl. But so she should have, because she was a stripped-out racing yacht with only bare sitting headroom below her flush deck. In comparison, *Finisterre's* sister was a comfortable cruiser/racer with full accommodations for her crew. Yet she gave away little or nothing when it came to out-and-out performance, both on and off the wind.

The Cruising Club of America (CCA) rule was the ocean-racing rule on this side of the pond at the time. The rule tended to favor short waterlines, wide beam, and light ballast, while the mizzen sail and mizzen staysail of the yawl rig were rated fairly lightly. This, along with her fine performance, made *Finisterre* a very competitive yacht indeed. Yachtsmen and designers opened their eyes after she won two Bermuda races in a row. The third win, the very next year, showed that it was no fluke. It was not long before beamy keel-centerboard yawls showed up in every distance race. Spinoffs include the Bermuda 40, the Block Island 40, and the Bristol 39 and 40 . . . all production yachts. There were numerous custom-built keel-centerboard yawls in smaller and larger sizes as well, ranging from 24-foot Midget Ocean Racers to 60-footers.

Olin Stephens definitely started a trend with the design of *Finisterre*, one that would last until the CCA rule was dumped in favor of the very different IOR rule. The perky little yawl and her designer will both be remembered as brilliant stars of 20th-century yachting as long as sailors race across the seven seas.

Motoring in heavy weather

Avoiding engine failures in rough seas

by Jerry Powlas

It usually takes a combination of failures, poor decisions, and bad luck to narrow down your options. We had been learning that our new cruising area was a very crowded place in the peak of summer season. It was hard to find an anchorage that was not jam-packed with boats when we got there. As we turned away from the second overcrowded anchorage of the day, continuing our pursuit of shelter for the evening, I said to Karen, "We are going to have to be aggressive about the next one or try to get to a marina for the night." That was Poor Decision Number One.

At the third anchorage we picked our way through an opening with unmarked submerged rocks and found a part of the otherwise crowded anchorage that nobody seemed to want. That was not simple good luck. After four attempts, we got the smaller hook to seem like it was set. I put the storm anchor down too. Then the expected blow arrived. Our little piece of mucky paradise was pretty exposed. We noticed a large deadhead protruding from the water's surface a bit out of reach of our swing. That was OK for the time being. We slept like that, but the smaller anchor slowly dragged, so that by morning the protruding end was a lot closer. We were out of options. Although it was still blowing strongly, with winds now coming right into the rocky inlet, it was time to go.

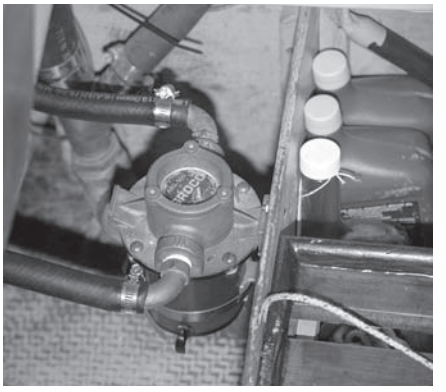
I tried to time it so we could haul the anchors in a lull, but the weather was building and I timed it wrong. It was blowing too hard to hold the bow upwind. The truth of our situation was beginning to sink in: we were going to have to do just about everything right for the next half-hour.

We *did* do everything right and to paraphrase my father, "I learned about sailing from that." A key element in our departure from that anchorage was that the engine had to keep running and had to produce full power for prolonged periods without overheating. Once out in the lake, it had to continue to buck large storm waves that piled up in the shallows near shore and it had to run at or near full power while the boat rolled her guts out just off a lee shore. How rough was it? The prop came out of the water several times, so the cooling water intake probably did too. But the rudder did not come all the way out, so we never lost steering.

The engine kept running, but it is not uncommon in our experience and the experience of others for marine auxiliary engines on sailboats to quit running, especially in heavy weather, and particularly at the crucial moments when they are most needed. That is not bad karma; there are reasons why the beast in the bilge goes on strike in heavy weather.

Bad fuel

Over the years we've had most engine shutdowns as a result of plugged fuel filters. This problem starts with water in the fuel. It can condense out of the air pocket above the fuel as the tank cools in the evening. It can come in through the tank vent as rain or spray, or it can leak through the deck-fill plug for the fuel tank. I have never seen a deck fuel-fill design that I thought was all that good. Most rely on the sealing of an O-ring against rain and spray that collects in a groove just above it. The O-ring gets old and leaks some water into the tank with every rain shower. Being an oil, diesel fuel floats on top of this water. There are microorganisms (bacteria, fungi, and yeast) that can

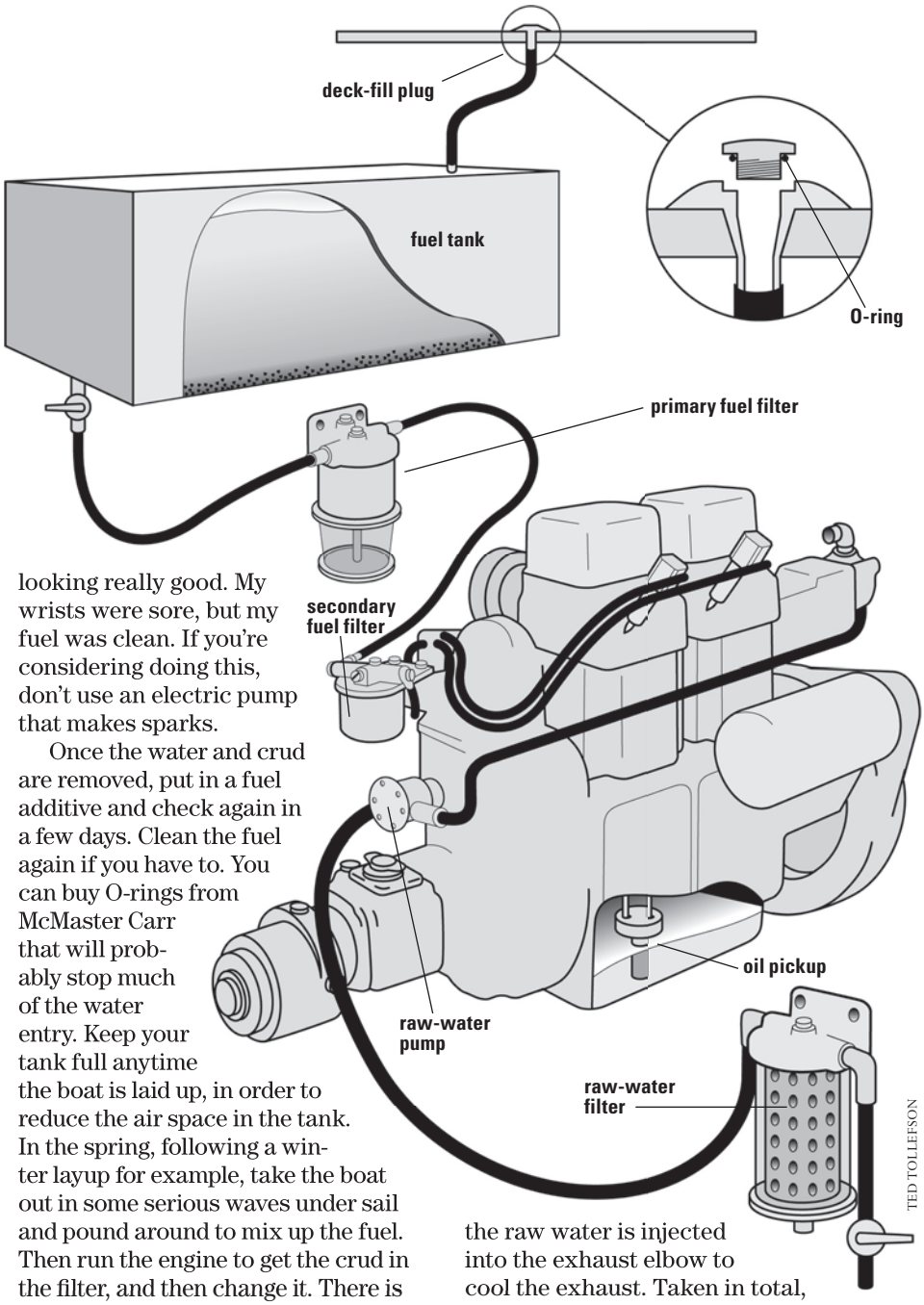


live at the interface of the water and oil. They eat the fuel and live in the water. As they grow and multiply, they produce a slimy film or "mat" made up of their cells. There can be a lot of that in the bottom of a fuel tank. This won't interfere with the fuel flow until the weather gets rough. Then the motion of the boat will mix the mat into the fuel, which then plugs the fuel filter and eventually shuts down the engine.

Complete prevention is probably not possible, but here some things you can do to minimize this problem. Every boat should have two fuel filters: one on the engine (secondary, or second in the line of flow) and one that feeds the one on the engine (primary, or first in the line of flow). Most engine manufacturers will supply the engine with a 2-micron filter as the secondary filter, but you may have to add a 10-micron for the primary. A slick system is to have two primary filters so you can valve one to supply the engine while the other is being changed. But many smaller boats don't have room for that. If you have only one primary filter, inspect and change it often. Carry many spares for the primary and even several for the secondary filter.

In addition, there are fuel additives that are compounded to kill the microorganisms. They have boron compounds that dissolve in fuel and seek out the water interface. There they turn into boric acid, which is a biocide. If you use these, follow the directions carefully. These kill the bugs, but they don't remove the crud or water (for another opinion on this, read the sidebar by Gordon Torresen on Page 19).

Every boat with a diesel engine should have a Baja fuel-filter funnel or something similar with a tight mesh that allows fuel to pass through while stopping water. When I had a pretty bad load of water in my tank I pushed an outboard motor fuel line to the bottom of the tank and pumped the fuel through the Baja filter and back into the tank with the primer bulb. I pumped until the fuel came back looking really good. My wrists were sore, but my fuel was clean. If you're considering doing this, don't use an electric pump that makes sparks.



TED TOLLEFSON

A Baja filter, facing page far left, will remove water and solids. Defective fuel-fill O-rings, center, cause many engine failures. A raw-water filter, facing page right, stops large solids from reaching the pump.

Once the water and crud are removed, put in a fuel additive and check again in a few days. Clean the fuel again if you have to. You can buy O-rings from McMaster Carr that will probably stop much of the water entry. Keep your tank full anytime the boat is laid up, in order to reduce the air space in the tank. In the spring, following a winter layup for example, take the boat out in some serious waves under sail and pound around to mix up the fuel. Then run the engine to get the crud in the filter, and then change it. There is no permanent fix for this. It will be a running fight for as long as you own a diesel engine. If you are not vigilant the crud will plug your filter and stop your engine when you need it most.

Lack of water intake

Next in line behind plugged fuel filters, the raw-water pump has caused the most serious engine shutdowns on our boat. Nigel Calder calls this type of pump a variable volume flexible impeller pump. I've called the one on our previous engine a lot of other things. Every liquid-cooled marine engine has one. It sucks sea water from outside the hull and pushes it through the engine or through the antifreeze-to-raw-water heat exchanger. After it leaves the block or heat exchanger, the raw water is injected into the exhaust elbow to cool the exhaust. Taken in total, there is no other system on a marine engine so fraught with the potential for failures.

The intake can plug with everything from bread wrappers to fish. The pump has several failure modes by itself. The water injection elbow can corrode to failure and, if the pump leaks, it can siphon water into the engine, fill, and lock it. With just a little more bad luck, it can sink the boat. Following another fault path, the pump can stop pumping, which will overheat the engine and exhaust system, potentially damaging both and filling your bilge with smoke. This is a system to understand, respect, and coddle.

Failures while motoring in extremely heavy weather can occur when the boat pitches violently enough for the

intake to get clear of the water so the pump sucks air. The odd gulp of air may be tolerated; regular repeated gulps may not. The pump needs water flowing through to lubricate it. Without water, the rubber impeller will overheat from friction and fail.

The failure mode in calmer operating conditions also involves the impeller. This part has a very limited life span under the best of conditions. Eventually, the impeller will crack and break up. It is not uncommon to find several missing lobes when the pump cover is removed. Where did they go? Into the heat exchanger where they are blocking the flow. Poetic. The impeller does not have to break up to fail. It can simply take a set so that when it is removed it still looks like it is scrunched into the pump. In this situation it will look right until you remove it, but the impeller will not have the elasticity to pump enough water. The rubber vanes can even lose their bond to the bronze driving ring and slip, instead of pumping. That problem is difficult to diagnose.

There are a number of things you can do to improve your odds with this system until some saint comes up with a better one. The kind of bronze intake screen that bulges out from the hull and adds drag will tend to keep the bread wrappers and fish out of the intake. I dislike things that add drag, but I believe this one is worth it. Add a raw-water filter before the pump. Clean it often. Regularly check the impeller by completely removing it. If your boat gets an annual lay-up, remove the impeller for that period. Some people simply toss the impeller after a year. I inspect mine, looking for cracks where the lobes join the center. I also look at the outer surfaces of the lobes for wear.

When your boat is recommissioned in spring, coat the pump housing with Vaseline before you install the impeller. The raw-water pump is self-priming, or should be self-priming if it is in good condition, but the Vaseline will give it some lubrication until the water reaches it. Inspect the pump body and side plate for wear and scoring. They may call it a water pump, but it also pumps its fair share of mud, which is very abrasive. Worst case, if the casing is badly worn you may have to replace the pump. They are normally easy to remove if you can get at them, but writing the check may choke you up a little.

If you find yourself trying to motor in extremely heavy seas and you think the raw-water intake may be pitching clear of the sea regularly, consider changing course or speed or whatever else you can do to keep the boat from pitching or rolling that badly.

Some engine builders put the raw-water pump where it is *difficult* to reach. Some boatbuilders finished the job by making the thing *impossible* to reach. If you are thinking, "I've never seen the pump and can't imagine how I'd fiddle with the impeller and all that to keep it from failing" this line of reasoning will not save you. If you neglect the raw-water pump, it will surely fail. Evaluate your problem and then cut access holes where you need them so you can reach that pump with both hands on a rainy night in high seas and be able to change the impeller. Naturally, you should carry a spare impeller and water-pump gasket. The impeller and other spares made of rubber, such as O-rings and belts, should be kept in freezer bags with the air sucked out to minimize ozone damage, which will cause premature aging.

Siphoning

Before leaving this seriously failure-prone engine system, it is worth not-

Impellers and winterizing

by Jerry Powlas

Engine manufacturers and aftermarket parts suppliers both offer impellers. I found Jabsco and Globe Rubber Works Inc. to be prominent manufacturers of these parts. Most impellers are made of neoprene, which is black. Globe offers impellers made from what they call an elastomer, with the combined properties of rubber, nitrile, and neoprene. These impellers are blue. Globe claims their impellers will run dry for 15 minutes. My experience is limited to the black neoprene impellers, but these have been such short-lived parts I am tempted to try the alternative made by Globe.

A common way to winterize a marine engine is to pull engine antifreeze in through the raw-water pickup and let it be pumped through the engine and exhaust system. I use ethylene glycol antifreeze for this, not the pink propylene glycol antifreeze intended for winterizing potable water systems. Normally, I remove the impeller after I pump the antifreeze through the engine, but on two occasions I did not do this immediately. On one occasion the impeller was left in the pump over the winter, and in the other it was left in for only a couple of weeks.

When the impeller is left in the pump it is forced into the shape of the pump cavity and immersed in the antifreeze. In both cases, the impellers took a set, and I deemed them unusable when I checked them in the spring. I saved one such "bad impeller" for photos and, over the course of about a year, it recovered its shape completely. I poured boiling water over the other one a few hours after I removed it and, as I watched, it also recovered its shape completely. I don't know how good either impeller would be if put back in service, but if I were caught in a situation where I did not have a new impeller available, I would certainly try the boiling water trick to put the engine back on line until I could get a more trustworthy part.

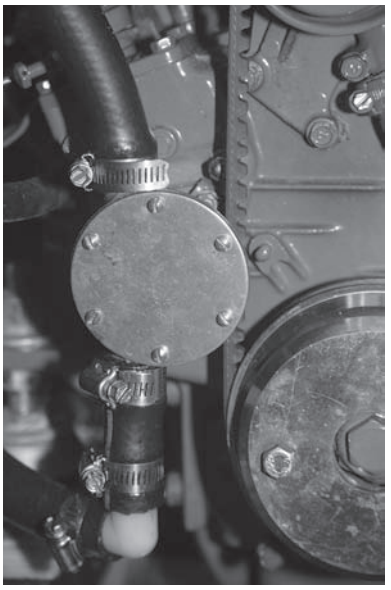
I have not been able to find any confirmation suggesting that there is an incompatibility between neoprene and ethylene glycol, but I no longer leave my raw-water pump impellers soaking in antifreeze.

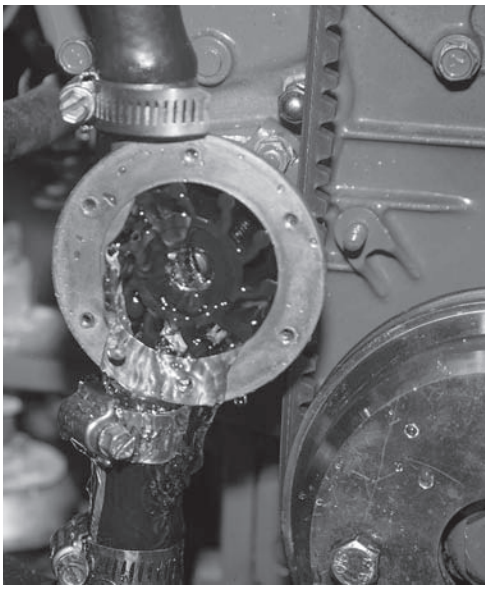
ing that if the entry point of the sea water into the exhaust elbow is below the waterline (which is normally the case in most boats), you need a vented loop with some sort of vacuum breaker at the top. Otherwise, when the impeller starts to leak in the pump casing, water will siphon into the exhaust elbow. Given time, it will fill the exhaust system and back up into the engine. Nothing good comes after that.

When boats sail in large following seas for long periods, it is possible for the seas to slam into the exhaust port and eventually pound their way into the exhaust system. After enough of this, the engine gets water in it and will lock up when you try to start it. The specific design of the exhaust system and muffler have a lot to do with the tendency of a boat to do this. A goose-neck loop near the exhaust exit point tends to prevent this, as do other exhaust system designs, such as the North Sea exhaust or an exhaust-riser loop at the engine. (See article in *Good Old Boat*, September 1998. Available on CD only). If you find yourself in extremely heavy following seas and you don't know if your boat has a tendency take water up the exhaust, a temporary precaution would be to start the engine and clear the exhaust at regular intervals. Another trick I've seen is to clamp a short piece of hose or inner tube to the exhaust port on the outside of a boat so a following sea will push it aside without entering.

Lack of oil pressure

When you are motoring in conditions were the boat is pitching or, even more importantly, rolling violently, it is possible for the oil-pump pickup to come clear of the oil sump. When this happens, the oil pump pushes air into the engine bearings. The crankshaft main bearings, rod bearings, wrist pins, and sometimes other parts, are designed to be fed oil under considerable pressure. This pressure keeps the parts from touching each other and prevents wear. It has been understood for a long time that engines that run continuously will run many more hours than engines that stop and start up many times. The starts are done without oil pressure. It is hard to say exactly how much of this kind of abuse a given engine will take. Under





You must have two-hand access to the raw-water pump, at left. Most raw-water pumps are below the waterline. If the impeller leaks, at right, it can flood the engine.

Another opinion

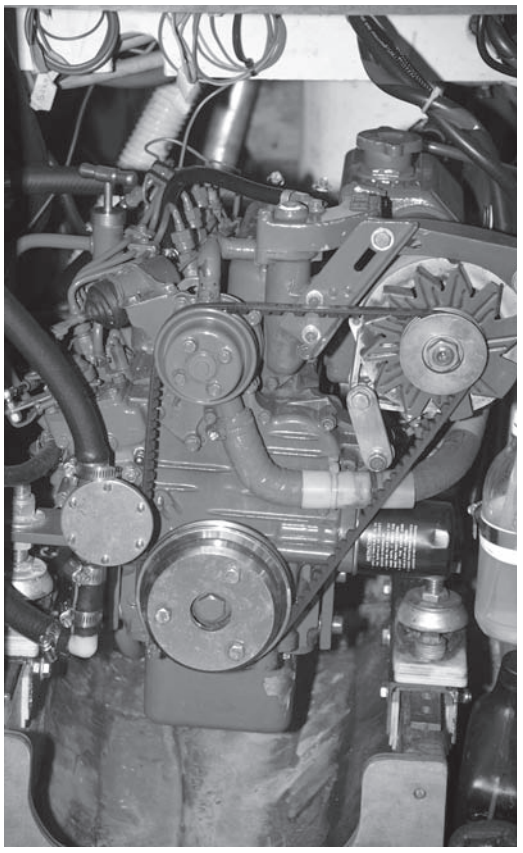
by Gordon Torresen

If the fuel in the tank is clean and water-free, the filters won't plug. I emphasize water removal and constant checks on that pesky O-ring at the fill cap. If any water is detected in a fuel filter, there is water in the tank. The water will be at the bottom of the tank and the related crud will be in the water. It is very important to pump from the lowest point in the tank. I recommend heeling the boat to assure a lowest point in the tank. Choose a calm day, take your main halyard over a few slips, and put the boat on its ear. Then, with a rigid tube so you can feel the absolute lowest point in the tank, go into the tank through a clean-out port or a fuel-gauge hole. The water will move quickly to that point. The sludge will move more slowly. The longer the heel, the more successful the cleaning.

I personally frown on additives of any sort. If you get a spec sheet from your fuel vendor, you will see that the necessary additives are already in the fuel. When you pour in an additive, you cannot be sure if whatever is in your bottle is compatible with what is already there. If you read the additive labels (or spec sheets) you will see that the benefits are vague and each brand is the best. Biocides kill the live stuff in the water but what happens to all those little corpses? Even dead, they are waiting for a rough-weather ride. I don't know what it will do, but I don't think I would want boric acid in my tank.

Getting a "pretty bad load of water" should never be allowed to happen. Failure of the O-ring on the fuel fill is the most common way to get contaminated fuel. The O-ring needs frequent inspections. We top off well over 100 tanks each fall (at Torresen Marine in Muskegon, Mich.) before putting boats up for the winter. Every O-ring is removed and inspected for cracking. I would guess that about 20 percent fail the visual inspection. For a buck, we'll install a new one. How long a new O-ring will last is anybody's guess. We once had a new batch develop cracks while sitting on the shelf.

Tanks that have a lot of air space above the fuel will accumulate water during periods of large temperature swings. If you add your fuel from a can, the condensation is forming while that can sits empty. A water-stopping funnel is an absolute requirement. Fuel docks in this country all have such a filter right at the outlet of the pump.



This is a good engine layout with excellent access to the raw-water pump as well as to the belt and filters.

light loads, such as startup, engines do take this abuse without catastrophic failures. It shortens their life, but they don't fly apart.

Loss of oil pressure when an engine is running at high speed under a nearly full load will be more serious. Some racing automobile engines have baffled sumps because they can pull about 1 *g* in a corner, which is enough to sling the oil away from the pump pickup. Combat fighter aircraft with piston engines had dry sumps with scavenger pumps so they could pull high g-loads and even fly upside down.

Unfortunately, marine engines don't have either of these features. What you can do is make sure your engine is not low on oil. (Don't overfill it, though.) And if you are motoring in very violent conditions where there is a lot of pitch or roll, consider slowing down and changing course. Often, if you tack upwind or downwind, you can ease the motion of the boat. Try to stay out of shallow water where waves build up. Have a care when motorsailing as well. The heel angle may exceed what the engine can tolerate.

Other factors

Finally, some boats can motor effectively under calm-water cruising conditions, but their engines will overheat when they are motoring in heavy weather. Certainly the engine must work harder to move a boat in large seas, so it will be more likely to overheat. There are several things you can do to keep your engine ready for the heavy loading that accompanies large seas. If you have had an impeller failure, you need to find all the parts of the impeller that may be causing partial blockage of your cooling system. Many heat exchangers are not too bad to take apart. You can clean them out, change the zincs, and look for chunks of impeller. If the chunks are in the block, as would be the case with a raw-water-cooled engine, they will be harder to find. Raw-water-cooled engines and some parts of fresh-water-cooled engines can cake up with mineral deposits. These can be flushed away with special cleaners. Make sure the chemicals and processes you use are known to be safe for your engine.

Don't assume that the diameter of the water and exhaust tubing on your engine is optimal. Back pressure makes an engine run hotter, as will a slightly smaller-than-ideal raw-water intake through-hull, seacock, and hose. When I changed engines in our boat I replaced a 20-hp raw-water-cooled engine with a 20-hp fresh-water-cooled engine. Both were metric engines. The old one was served by water and exhaust tubing made to Imperial measure.

The conversion was not exact from millimeters to inches in the new engine's manual, but I reasoned that if the old engine had the same horsepower as the new one, the existing tubing would be satisfactory. This was not the case. In fact, a fresh-water-cooled engine needs more seawater flow and a larger-diameter supply line than a raw-water-cooled engine of the same horsepower. The reason for this is fairly arcane, but I should have known better. When I later increased the diameter of the raw-water supply through-hull, seacock, and tubing, the engine ran cooler. The higher the exhaust back pressure, the less water the raw-water pump will deliver, since it ultimately has to discharge into that back pressure. I'm going to kick the exhaust tubing up one size too. I wish I'd done that to begin with.

Final chapter

Still, when we really needed it, the little red beast in the bilge put her heart into it. I held the boat's stern into the wind while Karen pulled up two anchors. Then we spun in a full-throttle, full-rudder turn and punched through that entrance with the hidden rocks. Karen ran from the foredeck to the navigation station below and guided us out and along the lee shore of the island. It must have been like navigating in a Maytag toploader down there. Large waves rose even larger in the shallow water as we ran the length of the island. All I could do was take them on the beam. The filters didn't plug, and the engine somehow got enough oil. We ran at full throttle for nearly half an hour before we could round the island and get in its lee.

It is good to have an engine that will keep running in heavy weather when it absolutely must keep running, but it is much better not to let matters come to that very often.

Sweet compromises

Four basic elements of yacht design

by Ted Brewer

We all have to face the fact that there is no such thing as the perfect sailing yacht, with the possible exception of the one you just bought, of course! Leaving out the professionally sailed IOR beasties, the ridiculously fragile America's Cup racers, the popular one-design classes, and the thousands of small open sailboats, we still have to consider the factors that go into the makeup of weekenders and trailersailers, coastal cruisers, bluewater cruisers, and performance cruisers. Every one of these is a compromise of various factors. The first compromise, the most important one for many of us, is cost… both first cost and maintenance.

The four basic factors in the design of a yacht are seaworthiness, comfort, performance, and economy. Additional components include quality and versatility, which we'll discuss also. In any case, it is rarely possible to gain in any one of these factors without making a sacrifice in another. Certainly, you can find a vessel that will offer more comfort, more performance, and more seaworthiness than your present boat, but you would lose heavily in economy, as you would probably have to buy a much larger yacht to obtain it all. The table below is quite general but shows a rough breakdown of the part that the various elements might play in any one type of cruising yacht. Note that the greater the percentage of economy, the lower the cost of purchase and maintenance.

Obviously, not all the yachts in any one of the above categories can be broken down exactly as shown in the table. No two yachts are identical unless they were both popped from the same mold and similarly fitted out, equipped, and maintained. For certain, one bluewater cruiser will have a shade more performance and perhaps a bit less economy or seaworthiness than indicated in the table. Another may have less comfortable accommodations but be more seaworthy. The table is a guide, however, that you can use to assess the merits of any particular vessel, perhaps your own or a yacht you are considering buying on the day you develop three-foot-itis.

> **"The four basic factors in the design of a yacht are seaworthiness, comfort, performance, and economy."**

Quality equals cost

One other component, always, is quality, but it is one that is impossible to assess in any table. Regardless of the type of yacht, the higher the quality of construction and finish, the higher will be the initial cost. That is true whether the yacht is new or, as the used car salesmen say, "pre-owned." However, a boat or a car built to high standards of quality may prove more economical in the long run, due to increased durability, lower maintenance costs, and higher resale value. Truly cheap yachts are rarely a sound investment unless, like Captain Slocum, you have the ability to put your own sweat and skills into making a silk purse out of that sow's ear.

A sixth component, also difficult to assess, is versatility. A trailersailer is very versatile in its ability to cover long distances at highway speeds. If you have limited time, but yearn to cruise different waters, that may be the way to go. Friends of mine, owners of a 25-foot, keel/centerboard yawl, have managed to sample some of the finest cruising grounds in North America, including Lake Champlain, the Bras d'Or Lakes, Lake of the Woods, Chesapeake Bay, and the Pacific Northwest, to name but a few. However, the majority of trailer yachts do give up quite a bit in the way of seaworthiness and/or comfort due to limitations on size and displacement (trailer weight). Some compromise is almost inevitable for the extreme versatility that these little yachts can provide.

Shoal draft also assures versatility, whether obtained by the means of a keel/centerboard, twin fins, or a wing keel, but that versatility may not require any great sacrifice of the other major factors. I know of a 44-foot Dutch-built keel/centerboard motorsailer that was cruised in the Baltic after launching, then rambled through the many canals of Holland and France and down to the Med. From there, she was sailed across the pond to cruise the entire Atlantic coast from Florida to Maine. For further adventure she was taken up the Hudson River and canals to Lake Ontario and sailed the Great Lakes to Chicago.

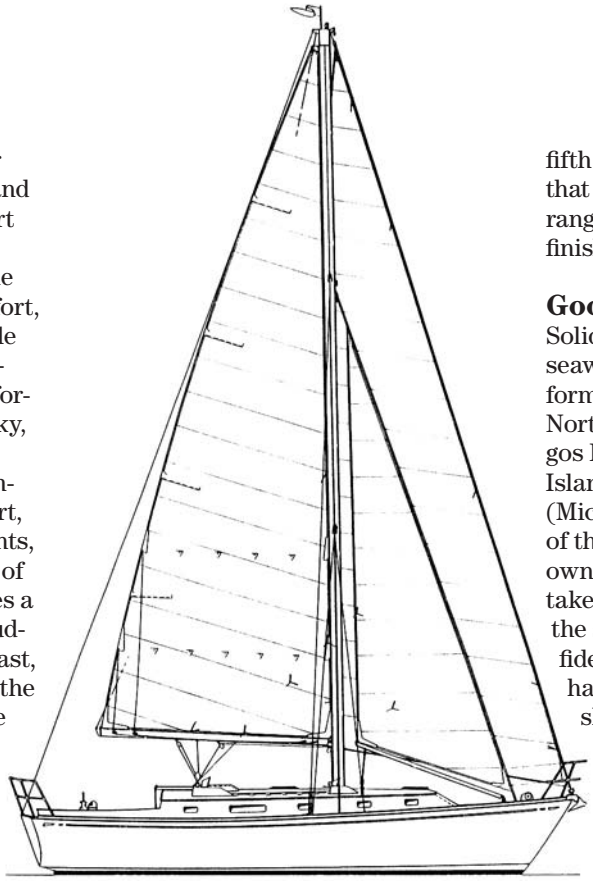
Then she made a leisurely voyage down the Mississippi to enjoy the warm waters of the Caribbean. Finally, after nine years

Basic design factors by boat type

	Seaworthiness	Comfort	Performance	Economy
Weekender	20%	15%	20%	45%
Coastal cruiser	25%	25%	25%	25%
Ocean cruiser	30%	30%	20%	20%
Performance cruiser	25%	30%	35%	10%

of cruising, her skipper headed her homeward via the Panama Canal and sailed up the coast to her home port in San Francisco. That wandering yacht was well named: *Zig Zag*. She certainly had versatility, plus comfort, seaworthiness, and even reasonable economy due to her steel construction. The big compromise was performance under sail as she was a husky, full-keel motorsailer.

Other shoal-draft craft may compromise seaworthiness and comfort, as in the case of many sharpie yachts, due to light displacement and lack of headroom. Still, such a yacht makes a fine coastal cruiser for a limited budget, as it can be very economical, fast, and great fun to cruise. It also has the advantage of being able to drop the hook in all those quiet coves and gunkholes forbidden to yachts of deeper draft. A few boats simply obtain their shoal draft by fitting a long shallow keel, instead of a keel-centerboard or wing keel, but that may sacrifice weatherliness, performance and, often, safety as well. It is rarely a sound compromise.



Smaller yachts compromise comfort for those who cannot live without all the modern conveniences. *Moca*, a 34-foot steel full-keel cutter, was built from Ted Brewer's Kailuani design.

Seaworthiness

Whether the vessel is sailing in the Great Lakes, our coastal waters, or making a passage around Cape Horn, seaworthiness is essential to cruising yachts. Of course, the Cape Horner needs seaworthiness in spades as there is no room for compromise in those turbulent and stormy waters. The more "inshore yachts," vessels that will never be more than a couple of days' sail from a safe harbor or snug cove, can afford to trade off a modicum of seaworthiness for comfort and, especially, for performance. Indeed, in many situations, the faster, more weatherly yacht may have a big edge in safety thanks to her ability to get to shelter quickly or even outrun the weather when caught at sea with a severe storm in the offing.

A gale well offshore can be miserably uncomfortable, to be sure, but is usually nothing that will endanger the well-found yacht and experienced crew. In truth, the biggest danger for the coastal cruiser is to be caught close to land on a lee shore in a gale. In that case, the only safe boat will be one that can beat to windward well enough to claw its way out of a rock-lined bay and make its way to the safety of open water. Many novice sailors think that a boat along the lines of the famous Tahiti ketch is the most seaworthy type, but that is not the case. Anchors can drag, engines can fail, and the long shoal-keel hull and under-canvassed ketch rig of that type of vessel will rarely provide the speed or weatherliness that can be so essential to safety in the precarious situations and extreme conditions that can develop along our coasts.

Obviously, good performance is essential to seaworthiness, but that does not necessarily imply a beamy, light displacement, fin-keel sloop. Recently I had an interesting email message from a couple in the third year of a world cruise aboard *Moca*, a 34-foot steel, full-keel cutter with a husky displacement/length ratio of about 330. They entered a regatta in Borneo and, in a fleet of 16 cruising yachts, were the second smallest vessel in C class, the smallest class. Nevertheless, despite the lack of a cruising spinnaker, they were first to finish in C class in the two around-the-buoys races and fifth across the line. The four boats that managed to cross ahead of them ranged from 43 to 50 feet, so *Moca* also finished first overall on corrected time.

Good performer

Solid proof that their little craft was seaworthy, as well as a good performer, is her course from the Pacific Northwest to Borneo, via the Galapagos Islands, Easter Islands, Pitcairn Islands, Tahiti, New Zealand, and Yap (Micronesia), to mention but a few of the many places they visited. Her owners certainly did not hesitate to take *Moca* where the winds blew and the seas rolled high. That kind of confidence in your boat is what you must have if you plan to venture far offshore. Economy was a high point also, since they made a superb job of building her themselves. Perhaps their one compromise was in comfort, due to the limited accommodations and stowage aboard a 34-footer for such a lengthy voyage.

I believe that seaworthiness comes from moderation in many aspects of the design: moderate beam, displacement, draft, and overhangs. Deep draft has been said to create problems in extreme conditions, as the vessel may be rolled by a steep beam sea. In theory, the deep keel prevents her from sliding down the face of the wave and the result can be a capsize. While that may be true, I was involved as a witness in a lawsuit where the capsized yacht was a Tahiti type, one that should have slid down the face of the sea rather than be rolled over, but capsized she was, with loss of life.

We will never know if there were other contributing factors that added to that disaster, as the boat itself was lost. Still, my own opinion is that the contemporary light, beamy yacht with its wide, powerful stern and deep keel is most likely to be rolled in such seas. The great form stability of that hull shape fights to keep the yacht upright on the surface of the water at all times. That is fine, until the surface of the water is the face of a great wave at a steep angle. Then the vessel may be tripped by her deep keel and rolled over. Once capsized, her wide beam may make her slow to right herself. So moderation, including beam and draft, is the mark of the bluewater cruiser.

However, moderation in sail area is not necessarily good. Rather, generous sail area, combined with a reliable reefing system and a workable rig, is desirable for performance in all weather, both in coastal and ocean waters. When it comes to a workable rig, my own preference lies toward the sloop or yawl for coastal cruising, the cutter, yawl or ketch for blue water, and the schooner simply because that rig is the prettiest of all and can be versatile if properly designed.

The two-masted rigs do have some advantages in heavy weather. I have owned a ketch and two yawls and found that we could drop the mainsail in a squall, and the vessel would still balance nicely and beat to windward under working jib and mizzen. Also, one owner of a 33-foot schooner told me that he and his wife were caught in a gale in the Gulf Stream while sailing offshore from Florida to New York. They took in the jib, dropped the mainsail and had no problem jogging to windward at 3 to 4 knots with the foresail alone. This is a case where versatility in the rig can add to seaworthiness.

Comfort

By comfort, I am concerned more with the motion of the yacht than with all the gewgaws of modern plumbing, electrics, electronics, and galley fixtures. The latter can add greatly to creature comfort, of course, but they can also detract greatly from economy and are not essential for living aboard. Still, I have to chuckle when I think of one couple, two wonderful clients of mine. They had one of the best yards in Britain build *Julie*, a 52-foot yawl, with all the mod cons, all except for the stove, that is. The owner's wife was a very experienced sailor with several decades of cruising both in America and abroad, but she was terrified of fire at sea. I'll never know how she did it, but they cruised extensively in British and European waters, crossed the Atlantic and sailed from Maine to the Caribbean for years, with only a two-burner Sterno stove to cook up a feast for a ravenous crew. That is a compromise in convenience that few would accept on a yacht of that caliber.

Julie, by the way, was definitely moderate in displacement, beam, and overhangs. That generally results in no-compromise motion comfort. Obviously, there are circumstances where no yacht is comfortable, such as when you're rolling in a leftover sea on a windless, sunny, hot day, or pounding into heavy seas in gale conditions. Even then, the greater the displacement and the narrower the beam, the slower will be the motion and the less the yacht will scend (heave upward) in heavy seas. It can be carried too far, of course, and then you have a very narrow, very heavy yacht, akin to the old British six-beam cutters, that will be swept by the seas like a half-tide rock in any kind of a seaway.

It is the very beamy, very light-displacement yacht with great form stability that will bounce around the most when the seas become high. Such a hull fights to remain upright on the water's surface and, when that surface is suddenly tilted to 35 or 40 degrees, the powerful hull will try to conform to that angle, slowed only by the keel and the wind pressure on the sails. Then, as the sea passes beneath it, the hull will snap back quickly to another angle and that is felt as acceleration, or g-force, by the crew. Up to 0.09 *g* is tolerable while 0.09 to 0.18 *g* is the threshold of malaise for some people. Above 0.18 *g* is intolerable

Large yachts compromise economy… and sometimes the cooking facilities. When she was built, *Julie*, a 52-foot yawl, had all the conveniences, except for one. Frightened of most cooking fuels, her owner insisted on a simple two-burner Sterno stove.

motion and, for many, upchuck time.

The shape of the pointy end also has much to do with comfort. Very fine bows work well on a racing yacht where the weights can be concentrated amidships and the ends kept as light as possible. The bow can then lift with the seas instead of driving through them and slowing the yacht. However, such a fine entry does not work well on a cruising yacht that has the forepeak loaded with spare anchors, chain and bosun's stores, plus a heavy windlass on deck and a crew member catching forty winks in one of the V-berths. The cruiser needs sufficient fullness forward for buoyancy, so the bow will lift with the seas. Otherwise, she will be slowed by them and the spray will be flying high on any windward course, making life miserable for anyone on deck.

"Still, on a long ocean passage, does a day or two, or even a few days, really make all that much difference?"

Performance

The essentials of performance are a powerful, easily driven hull and a tall, efficient rig. The contemporary performance cruiser usually obtains its power or stability by means of wide beam and deep ballast, while the easily driven hull is derived from light displacement, a fine entry, and the longest-possible waterline. The tall, efficient rig is almost always a sloop or cutter and is controlled by a wide array of costly equipment: powerful multi-speed winches, backstay adjusters, bendy rigs, rod rigging, carbon-fiber spars, and all the other expensive refinements that modern technology can devise. Thus the compromise for her high performance is a very low economy factor.

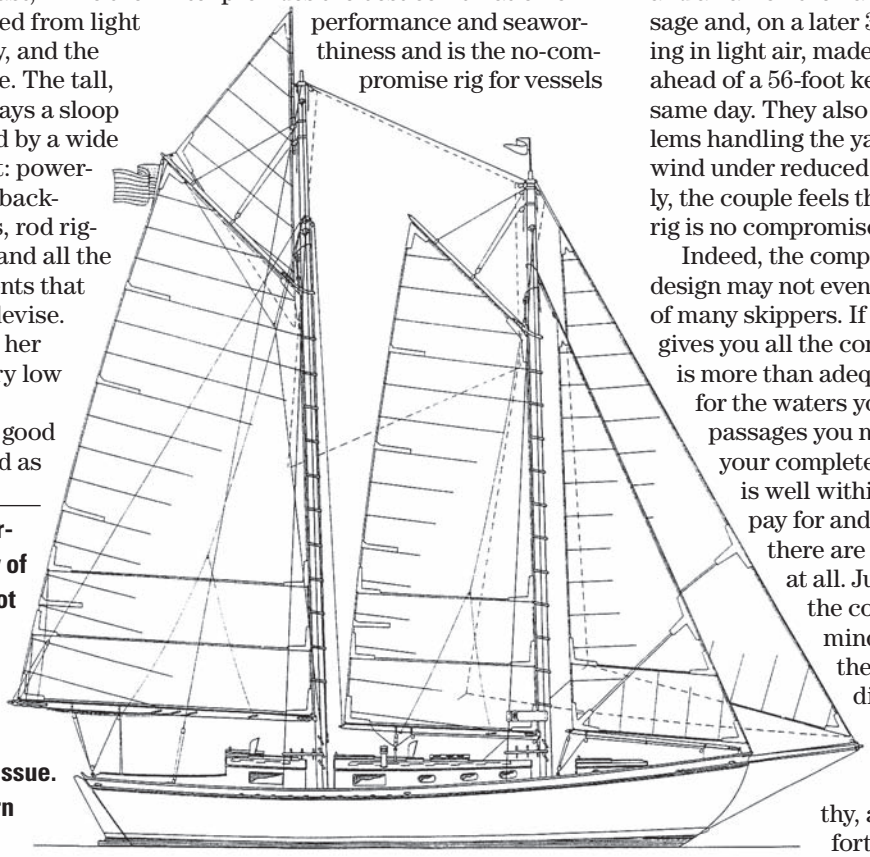
In any case, few of our good old boats would be classed as performance cruisers. Some can be defined as cruiser/racers, perhaps, but many of the older cruiser/racers are not terribly extreme and can make fine coastal cruisers and even ocean passagemakers. The rigs of these yachts are invariably sloop with the exception of a few yawls left over from the CCA racing days of the 1950s and '60s. The sloop rig is fine for the average coastal cruiser, but I would suggest adding an inner headstay and running backstays to convert such a yacht into a double-headsail sloop if extensive bluewater voyages are contemplated. Little, if any, performance will be lost and the stronger rig, with the ability to set a staysail, will definitely add to safety and peace of mind in heavy weather.

The cutter and ketch are the offshore rigs preferred by most sailors; both have made successful circumnavigations. The cutter can provide performance equal to a sloop and, with its smaller mainsail, can be more manageable in heavy weather. The cutter provides the best combination of performance and seaworthiness and is the no-compromise rig for vessels to 50 feet or so.

However, the double-headsail ketch or yawl has the ability to set the widest variety of reduced sail combinations when the wind pipes up. The individual sails are smaller than those of a cutter and so I still feel it is the rig of choice in the larger boat sizes, say much over 45 to 47 feet. It can be effective in smaller craft as well but the compromise will be reduced performance. Still, on a long ocean passage, does a day or two, or even a few days, really make all that much difference? It's purely a personal decision.

The schooner rig is another cup of tea altogether. It cannot compete with the single-masted rigs or the yawl in weatherliness but was rated faster than the ketch by the Royal Ocean Racing Club. Indeed, the *Ingenue*, a 33-foot Bermudan schooner, won more than her share of silver in distance races and could keep up with 40-footers when the wind came aft a bit. More recently I had a report from *Southpaw*, a 40-foot gaff-rigged schooner in the Pacific, saying they had outsailed three modern cruising yachts by a day and a half on the Fanning-Apia passage and, on a later 3,600-mile crossing in light air, made landfall 12 days ahead of a 56-foot ketch that left the same day. They also reported no problems handling the yacht in 45 knots of wind under reduced canvas. Obviously, the couple feels that their schooner rig is no compromise at all.

Indeed, the compromises in yacht design may not even exist in the minds of many skippers. If your present boat gives you all the comfort you need, is more than adequately seaworthy for the waters you sail and the passages you make, performs to your complete satisfaction, and is well within your ability to pay for and maintain, then there are no compromises at all. Just be sure to keep the compromises in mind when you get the itch to head for different waters or start looking for that bigger, faster, more seaworthy, and more comfortable yacht.



Some rigs compromise performance but never the joy of sailing. *Southpaw*, a 40-foot gaff-rigged schooner was built from Ted Brewer's Corten Schooner plans. Even performance may not have been much of an issue. She outsailed some modern cruising yachts.

GARY JOHNSON PHOTOS

New stowage for *Affinity*

A wee dram and a little ingenuity create twice the storage space

***Affinity's* starboard side in the main saloon, at left, as she was originally built in 1973. The shelf is 6 inches wide. The spindle rail is unable to hold things in place when heeling to port in a strong wind. Don Davies and shipwright Bert MacKay, below, draw up plans for *Affinity's* renovation.**

by Don Davies

It started innocently enough last year. Bert MacKay, a sprightly Scot of indeterminable age, had found his way aboard *Affinity* for a wee dram of the Highland nectar. Sitting in the cockpit with glass poised, he glanced below and remarked, "Aye, Grampian 30s … great boats, but there's too much wasted space. I can show you how to double the space with just a few hours' work and less than a $100 in materials."

Bert had been a shipwright in Scotland and worked at cabinetry and home renovations among other businesses in Canada, but I could see that his love was renovating boat interiors to make them more comfortable and practical. He pointed to the 6-inch-deep shelf along the starboard side and said we could extend it at least another 6 inches or more to create cupboards big enough for dishes, books, and even a bar.

Then he noted that the same wasted space existed behind the back of the settee, and pointed out that we could build lockers that could be easily reached by a hinged back on the settee.

My only objection was that I'd be narrowing my favorite sleeping berth: the starboard settee. But Bert had an answer for that as well. With a plywood support, he pointed out, the cushion could be pulled out about 12 inches into the aisle for use when sleeping and then slipped back into position as a settee cushion the rest of the time.

"An' we'll put sliding doors across the cupboards so that your books and stuff don't come tumbling out every time the boat heels over a bit," enthused Bert. "An' we'll make one of the cupboards a fancy bar, which you can keep stocked with more of this fine Scotch."

A few hours work and less than a hundred bucks? Hey, I'll drink to that!

Buying materials

Step One was to buy the materials. In all, it required a 4- x 8-foot sheet of ¾-inch plywood, two planks of 1-inch x 6-inch by 6-foot mahogany, a few lengths of ½- x ½-inch scrap wood for securing the shelves, some burgundy-colored felt cloth, some caning bamboo material for the door inserts, two boxes of screws, some sandpaper, and some stain and varnish. This came to just a bit over our hundred-dollar budget, as it turned out, but not by much.

Step Two was to take the starboard side down to bare fiberglass by removing the decorative railing, the settee back, and the ugly blue burlap that had been glued to the fiberglass at the factory more than 30 years ago. The 6-inch shelf was well attached; it

The starboard side with the spindle railing, settee back, and cushions removed, at left. The 6-inch rail is fiberglassed into the hull and will provide a foundation for the new cupboards. The cupboard's upper shelf is screwed to the original 6-inch shelf. The bottom shelf, at right, is secured by ½- x ½-inch inserts at both ends and supported in the middle. The mahogany facings are in place. The insets in the bar hold bottles in place under sail.

had been glassed in, so we decided to use it as the foundation for our cupboards. As one might expect, chainplate fittings run through the area.

Step Three was measuring the wood pieces that would form the plywood shelves, the top and bottom mahogany facings of the cupboards, and the sliding mahogany cupboard doors. Because the sides of the boat and the running edge of the cabin were irregular shapes, I thought measuring would be a painstaking task. Our goal was to create cupboards that formed a straight line top and bottom so the sliding cupboard doors would ride along the grooved tracks smoothly.

Bert solved the measuring problem by having me hold the upper mahogany board in place while he ran a scribe with a pencil attached down the length of the cabin under the windows. In less than a minute, we had the line for our upper facing, which would follow the cabin liner on top and be straight on the bottom.

Trickier measuring

Measuring the two 6-foot-long lateral shelving sections was a bit trickier because the shelves would follow the line of the hull and narrow as we got closer to the bow. I watched in amazement as Bert took four measurements at various places along the shelving line and then drew the line on the sheet of plywood. The four upright plywood boards that would divide the cupboard sections were measured to have a flush front and the back part following the slope of the hull. Measuring the cupboard doors was much easier. The entire length of the shelf would be 6 feet. That meant each of the two sliding doors would be 2 feet long by the height of the top shelf, which was 14 inches.

Step Four consisted of watching Bert use a table saw the way Picasso used a paintbrush. First he cut 2 feet off the end of the 4- x 8-foot plywood to give us enough for the two 6-foot shelves and the upright panels. Then he placed the 6-foot length on the table and guided it through the blade, following the curved line we'd drawn, to give us the two 6-foot shelves. Next

The finished project, with the two sliding doors enclosing the bar and the cupboard and the open bookshelf in the middle, at left. A great deal of easy access storage space has been gained behind the settee back, at right. The sleeping berth can be pulled out 12 inches when needed to more than compensate for giving up 6 inches to storage shelves and lockers.

he cut the mahogany for the sliding cupboard door frames and even used the table saw to create the tongue-and-groove edges that would keep them on the track.

Finally, it was the mahogany boards for the upper facing and the lower rail that succumbed to his table-saw artistry, including the thin grooves that would become the sliding tracks for the doors. As he did this with masterful precision, Bert pointed out that the younger generation usually uses a router for such work these days.

Step Five involved putting it all together. The top shelf was supported by the original 6-inch shelf fiberglassed in at the factory. The bottom shelf was supported by our ½- x ½-inch pieces at each end and a support in the middle. The top and bottom mahogany rails were secured to the shelving with ½- x ½-inch pieces.

Hiding screw heads

The cabinet doors were assembled using small dowels and glue to avoid

Sliding panels make it easy to get to each cupboard.

showing unsightly screw heads. The bamboo caning inserts were installed in the sliding doors. The upright panels were fitted in, screwed in top and bottom, and given a small bead of silicone at the back to prevent any water from migrating from one section to another.

To prevent a marine tragedy — such as a bottle of Scotch tumbling out of the bar while at sea — a second shelf, with round holes sized to fit the bottles of our favorite refreshments, was put into the bar section. Then the bar and middle sections were covered with the burgundy felt. The settee back was hinged from the bottom to enclose the lower compartments, and a snap clasp was installed to keep it closed while under way. A final touch was the rubbing of candle wax along the bottom grooved board to help the cabinet doors slide easily.

The pictures tell the before and after story. About 20 hours' work and just a bit more than $100 turned what was a relatively useless 6-inch shelf along the starboard side into three large cupboards for dishes and cups, books, and the bar. The lower section access is much more convenient. I no longer have to lift seat cushions, slide locker hatches to one side, peer in, and remove the article I need. Now I just lower the settee back, and it's all open and easy to get at. In addition, both the upper and lower compartments are secure while under way.

Bert's improvements to my Grampian 30 will work with any boat with a high cabin. It sure makes my cabin a lot more comfortable. From Bert's viewpoint there's yet another benefit: he now knows where the bar on *Affinity* is located . . . because he built it.

If we get enough requests from good old boaters, we'll draw up the plans for this renovation and make them available as a downloadable PDF. Contact Don Davies at <dbdavies@sympatico.ca> or Bert MacKay at <bcmackay@rogers.com>.

Cheers from *Affinity's* new bar!

Larry Pardey secures hoses to the small through-hull fittings he and Lin have inserted into the four low points of their sun cover. He leads these to their water tank fill ports. At sea, they invert their mainsail cover under the boom and use it to collect rainwater as it runs down the mainsail.

On catching rain

Fill your water tanks the natural way

by Lin Pardey

Larry woke me during the morning off-watch with a shout: "It's raining!" He struggled into his foulweather gear, and I soon heard the sounds of the raincatcher being tied in place. I looked out the companionway and saw only a slight drizzle. But when I awoke three hours later, Larry told me he'd caught 3 to 4 gallons of fresh water. Once again we laughed about the eight years we'd spent experimenting with all sorts of ideas for raincatchers, until the day Larry came up with the obvious solution.

He tied our mainsail boom cover under the main boom where it acted like a rain gutter, catching almost every drop that ran off the mainsail. Larry sewed a rope grommet into the part nearest the mast, and we insert a short hose into the grommet (see Figure 1 on Page 31). During a tropical squall lasting 15 minutes we've caught more than 35 gallons of water. The raincatcher is also handy because it can be left in place on any point of sail, as long as the winds don't surpass 25 or 30 knots.

It has been almost 26 years since I wrote the above paragraphs as we reached along between Japan and Canada on board 24-foot 4-inch *Seraffyn*. I had spent many pleasant hours during that often-stormy passage keeping a log that eventually turned into the first edition of *The Care and Feeding of Sailing Crew*. The same raincatcher system now works for us on board 29-foot *Taleisin*. We've seen several others that could work for your boat.

During our cruising years we've seen and tried several different raincatchers and found they all fall into three categories: deck collection systems, sun-cover systems, and sail or mast systems. As you look over your boat for potential rain collection ideas, keep the following ideas in mind. First, a well-thought-out system can augment your regular tankage. If you have a watermaker, it can help conserve fuel and engine running time. It can cut down on the number of trips you need to take to the fuel dock for fresh water. It can let your crew shower more often, wash clothes on board, and generally be more relaxed about one of the irksome aspects of life afloat: control of water usage.

> "During a tropical squall lasting 15 minutes we've caught more than 35 gallons of water."

Since the system will only be used when there is a chance of rain, it should be unobtrusive, yet easy to set up quickly. At sea, an efficient raincatcher should work while the boat is heeling, tossing spray. If the sails can be incorporated into the at-sea system, even the condensation of fog or mist can add a bit to your water supply.

In port, any system you design should be workable in fresh winds. Rainsqualls around tropical islands are often preceded by Force 8 or 9 gusts. If you have to lower and reset your collection system for each squall, chances are you'll say, "The heck with it." So the best solution would be a catcher that can be set in place and left unattended for much of the time or a combination of systems which work in varying conditions.

Finally, only if I were on board and able to *taste* the water running out of the collection hoses, would I feel good about letting it drain directly into our main water tanks.

Cabintop collector

One of the simplest systems we've seen is a cabintop collector (see Figure 2 on Page 31). On some English

Water jugs afloat

It is difficult to imagine the importance that water jugs assume in a cruising life. If you have spent the majority of your sailing life along the coast of Europe or the United States, chances are you have rarely had to cart every gallon of water you use from shore to ship in a dinghy. But once you set off for long-distance exploring, there will be few dock hoses accessible to deep-draft vessels, and fuel docks where you can lie alongside for top-ups will be rare except for major charterboat areas. So a careful look at jugs before you set sail will have more beneficial effects than you'd first imagine.

For years we used clear hard plastic jugs; we secured them on deck near the shrouds when they were full and under the dinghy once they were empty. Full or empty, they always seemed to be underfoot, taking up far too much deck space, scratching the paintwork if they slid across it, stubbing toes at night, and breaking open if one of us accidentally dropped a full one against something hard.

All the solid jugs we tried, both the cheapest and most expensive varieties, began to crack and deteriorate after a year in the tropics, and no matter how securely we tied them, one always seemed to slip loose of its lashings during a rough beat to windward to bang against the bulwark and drag one of us forward into the leeward scuppers just when we didn't particularly want to be there.

Next we tried the clear soft plastic folding jugs we found in a fishing shop. These had definite advantages. We could carry half a dozen folded away in a locker until we needed them. Since they took up little space, we could leave two in the dinghy and grab a bit of water each time we went ashore instead of making a major foray of topping up our tanks.

Additional tankage

The soft jugs conformed to the shape of the bilges and so gave us instant additional internal water tankage separate from our main tanks for passagemaking.

Their ability to conform to different shapes meant we could fill and secure one inside the dinghy where it is stored at sea, so if ever we had to abandon ship in a hurry, we'd have an extra water supply to augment that provided by our reverse-osmosis, hand-pump watermaker. Though these soft jugs didn't burst or crack if they accidentally hit a cleat or metal fitting, they were susceptible to chafe and cuts where they lay against hose clamps or threaded bolt ends in the bilge. So we took care to store them clear of sharp objects. As with the solid jugs, the ultraviolet rays of the sun turned these jugs brittle if we left them on deck for more than two months in the tropics. But as they folded and stowed below, we could cut sun exposure to a minimum.

We finally found a way to improve on this aspect of jug performance after a chat with a plastics engineer. In his words, "Carbon black inhibits the transmission of UV rays into plastics and slows the breakdown of the plastic molecules." He recommended black plastic jugs such as those used by photochemical companies. We used hard, black plastic chemical jugs for water storage during our last three years of voyaging on *Seraffyn*. Not one broke down due to UV exposure.

Then, during a shopping trip to a camper-supply store in California, we found a fine compromise solution that has made our tussle with water jugs a far fairer one. Reliance Products Ltd., of Winnipeg, Canada, produces tough black plastic folding jugs, which they fit out to be used as solar showers for backpackers and campers. They are available in two sizes: 5 gallons and 2½ gallons. We carry both sizes on board. The smaller one is easy for a lightweight crewmember to carry, so we can both transport water. This smaller size also takes less space on deck, so we don't mind leaving one under a rain collection hose even if there is no immediate sign of rain. These jugs seem impervious to the sun and have lasted six years at a time, in spite of hard use both on deck and below as we cruised on *Taleisin*. And as a bonus, we find we often used them as they were originally intended, for on-deck solar-heated showers after a day of skin diving near the coral reefs of tropical cruising grounds.

cruising boats, the grabrails or cabin trim are modified to act as a rain gutter along the whole length of the cabin. At the lowest point on port and starboard sides, a hose is jammed or screwed tightly into the wood. At sea, a length of hose can then be led from either side to a plastic jug to collect water on calmer sailing days.

In port, hoses can be inserted in both sides and, once the water is tasted, it can be safely fed directly into your water tanks during heavier rainfalls. A few cruisers we've met propound what sounds like an even simpler system, blocking off the scuppers in the boats' toerails or bulwarks and letting the water that gathers on deck flow directly into the open deck fill plates. With this system, there is a real risk of contaminating your water supply with bacteria and dirt carried on board by guests and crew. The thought of the bacteria that cause athlete's foot, plus the shore dirt carried on by even bare feet, makes this system seem less than tasty.

Mast funnel

Another very simple, easy-to-construct system is a mast funnel (see Figure 3 on Page 31). As the funnel skirt can be unobtrusive and not affected by wind, it can be left in place whenever you wish. To collect the amazingly strong stream of water that runs down your mast once the rain sets in, you need only a semicircular skirt of stiff canvas and a piece of shock cord plus hose to reach either a jug or your water tanks. As a temporary or trial mast collector, you can wrap a short piece of half-inch-diameter line around the mast just above the gooseneck, secure it together lightly with a lashing of twine, and then let the end dangle into a funnel. The funnel will guide enough water into your waiting jug to encourage you to build a more efficient mast catchment system.

Sail-based systems

Sail-based water collection systems can be the most efficient choice at sea. But they only work in port if there is little wind or if the sail used is a riding sail. We've seen several different methods of catching the water that runs down a mainsail. Pete Sutter, a veteran San Francisco racer/sailmaker turned offshore cruiser, showed us the sim-

plest sail-based system we've seen, one he used on his Wylie 37, *Wild Spirit* (see Figure 4 below). He stitched a double layer of fabric along both sides of a mainsail seam, just above the first reef. The flap was tacked in place along the upper edge to produce a water trap that funneled rainwater forward to a small, half-inch inside-diameter, plastic, through-hull fitting. This system worked well even during fairly brisk sailing conditions as salt spray rarely reached the area above the first reef. For boats with high booms, it might be best to secure the flap below the reef points to take advantage of as much area of the sail as possible.

Sailcover works too

Only slightly less simple is the system Larry invented during our 49-day voyage from Japan to Canada on board *Seraffyn*. He turned our mainsail cover upside down and secured it to form a trough under the boom. His trough caught almost every bit of water that rolled down the sail and then funneled it forward to a reservoir area he created by lacing the head of the mainsail cover securely.

As we sailed closer to Canada, he added one simple modification that helped us arrive in port with full water tanks. He stitched a grommet to act as a hose holder at the low point of the reservoir (see Figure 5 on Page 32). What amazed us most was that during days when fog obscured the horizon, we caught up to 3 gallons of condensation during each 24-hour period. We liked this system and had the people who made our new mainsail cover for *Taleisin* sew a fabric udder into the head area. The udder folds out of sight inside the cover, except when we need it as part of the rain catchment system. Then a hose slips inside and is held by a lashing (see Figure 6 on Page 32).

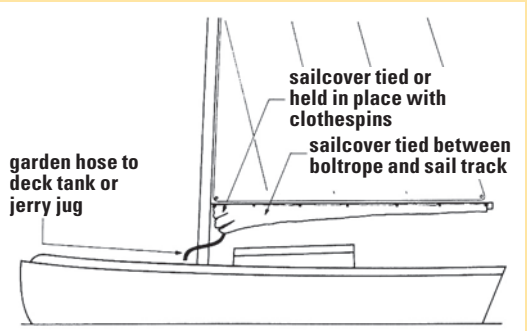
Andy Peterson, a Chicago sailmaker who is now cruising on his floating sail loft, a 57-foot ex-offshore racer, *Jakaranda*, originally showed us the cloth rain-funneling udders on his sun covers. We had him sew similar udders in four places near the edge of our sun cover, once we determined the best collection spots. We found they contributed to an excellent in-port rain collection system. But for any sun cover to be part of a collection system, it must be strong enough to hold up in winds of up to 25 knots. We had to reinforce our cover battens and batten pockets to make this workable. In stronger winds, the cover must be taken down and a smaller cover set in place.

For those with a soft-top Bimini, either udders or a cloth gutter similar to the one Pete sewed onto his mainsail can be secured along the outer edges of the top. This will work in port or at sea.

Spare jugs

Whatever rain collection system you try, it pays to have spare jugs to hold the water you catch. Even though the first runoff from a rain shower will

Figure 1. Passagemaking raincatcher



The Pardeys' "Unpatented Nearly Perfect Passagemaking Raincatcher," at left. Since it's unpatented, you're welcome to use Lin and Larry's big idea. In fact, that's what's so special about this cruising couple: they are always willing to share what they've learned during 40 years at sea.

Figure 2. Cabintop water collector

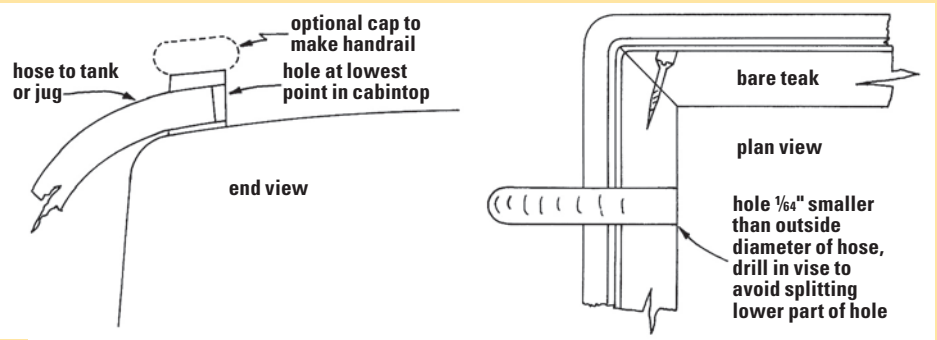


Figure 3. Mast funnel

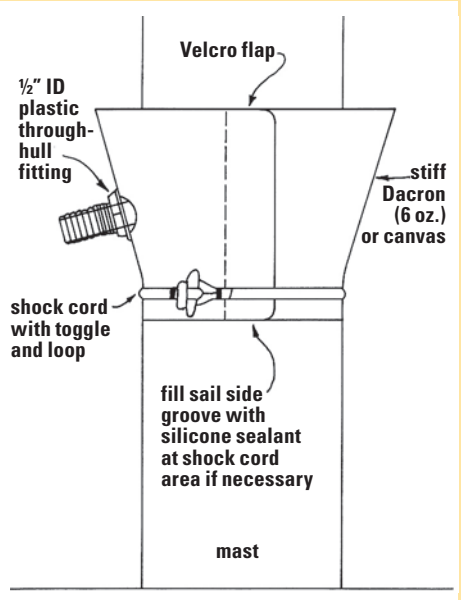


Figure 4. Pete Sutter's "Super Gutter"

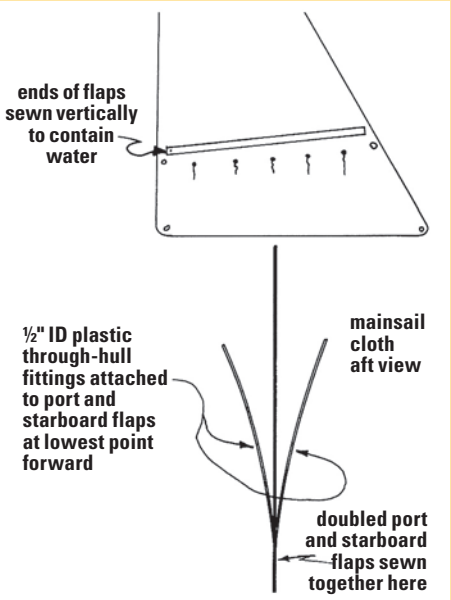


Figure 5. Larry's passagemaker's raincatcher

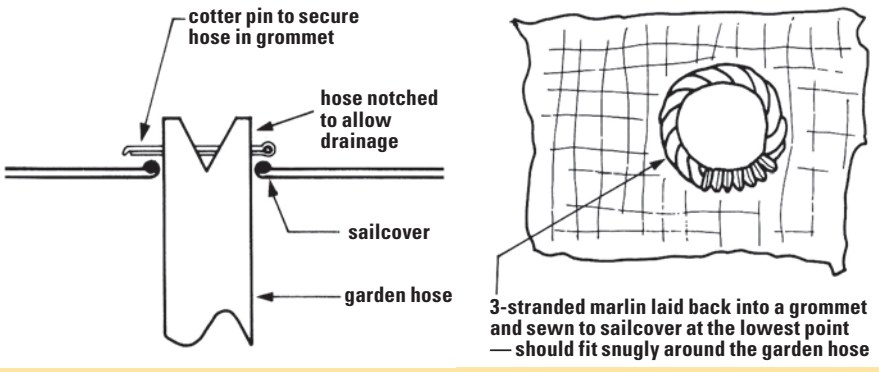
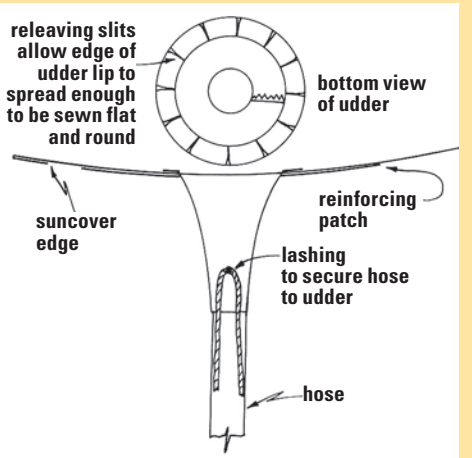


Figure 6. Rain-funneling udder



Details for Larry's passagemaker's raincatcher, above at left and center, and his "New Improved Super-Duper Rain-Funneling System with Udder," at right.

probably produce water that is slightly brackish as accumulated dust and salt is flushed off sails and rigging, in areas where rain is in short supply, this could still be useful for bathing and rinsing clothes. Without spare jugs you'd have to let it run off into the sea.

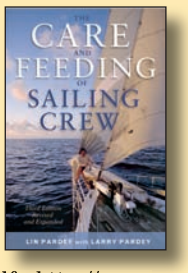
As you enjoy your first months of cruising, look around and consider these raincatcher ideas. Put on your foulweather gear and spend some time watching the rain flow off your boat the next time a shower or squall comes by. Follow the track of the heaviest flows and think of ways to form a dam or entrapment area. Try rigging a small cover to see how much extra water this will catch. We were amazed to find a 4- x 6-foot sun cover caught 5 gallons of rainwater for us during a 15-minute squall, so the catchment area need not cover your whole boat to be a helpful addition to your supply.

Some people will say, "Why not just add a mechanical watermaker?" But those on small budgets will find a water-augmenting system that works at almost no cost, uses no electricity, and requires little maintenance, means that your budget can be stretched to cover a few more months of cruising. Even those who do have watermakers on board should consider collecting the free rain that falls on board, especially in a tranquil harbor.

These simple devices could take the concern out of any electrical or mechanical failure that shuts down your watermaker. According to the Seven Seas Cruising Association equipment survey done in 2005, of the 156 sailors who had watermakers on board, 16 percent said they had required repairs during the preceding year.

Rainwater catchers could also give your generator a break. This will mean you are doing your small bit for the environment by using less fossil fuel and minimizing noise pollution.

For further reading . . .



This article was excerpted from Lin Pardey's book, *The Care and Feeding of Sailing Crew*, which has just been updated and released as a third edition. It is available from the Good Old Bookshelf <http://www.goodoldboat.com/bookshelf.html> or by calling 763-420-8923.

Why should men have all the fun?

And why shouldn't women share the stress of docking?

by Suzanne Giesemann

MARY FITZGERALD

Is sailing fun? Can there be any *doubt?* Mary Fitzgerald took this photo of an absolutely delighted crewmember while racing one blustery New Year's Day in Budd Inlet on Southern Puget Sound.

The National Marine Manufacturers Association recently released a survey stating that boaters, by a whopping margin, are healthier and happier than non-boaters. That's pretty encouraging for those of us who like to get out on the water. Unfortunately, not everyone is as happy about being a boatowner as the survey suggests. I don't know if they polled mostly men, or if it was equally divided between the sexes. I do know that there are a lot of women out there who don't enjoy boating nearly as much as their partners do.

I can state this from experience, having spoken on the topic of women in boating at a number of boat shows. That's when women tell me, "Sailing is *his* thing. I'm just here to keep him company."

So I ask, "But isn't it *your* boat too?" and they invariably respond, "Well, yeah, but I just handle the lines."

Now, there's nothing wrong with being the line handler. And I'm well aware that in an emergency there can only be one captain. But in all other circumstances, the "little lady" shouldn't be relegated to the foredeck or the galley simply because tradition dictates it.

Sure, lots of women do the navigating, some make the radio calls, and most will take the helm when they get out in open water, but could they handle the boat completely on their own, including getting it safely back into the slip, if they had to?

Safety is the number one reason that women boaters should be as competent as men. But they also limit their enjoyment and satisfaction when they play a lesser role. Why? Because it's only fun for a while to just go along for the ride.

Taking up golf

To illustrate my point, imagine a couple who decide to take up golf together but the woman only carries the clubs and fetches drinks. How long do you think she'll want to keep going out to the golf course? It's the same with boating: it's far better to be a partner than a passenger.

Boating is an exciting and rewarding sport that offers you as much in return as you put into it. I won't lie and say it's nothing but wonderful and idyllic moments. There are those, to be sure. But like everything else, there are times on a boat when you wish you'd taken up horticulture instead.

Yes, sailing is challenging. Yes, there's a lot to learn to do it well. Yes, it has its uncomfortable moments. But when you set yourself up for success and approach boating with the right attitude, there's no reason a woman can't enjoy it as much as a man.

Like falling in love all over again, you should focus on the positives, because the secret is out: boating is fun. It's relaxing. It offers independence, freedom, and endless opportunities for travel and adventure. It gives you a chance to interact with nature, reconnect with your family, and make new friends. You can't say the same about horticulture.

Beyond attitude — whether their own attitudes or their partners' — one of the biggest factors that keeps women from getting fully involved on their boats is fear. Because fear feels so unpleasant, we often avoid potentially scary situations. This would include times when we're not in control, when we don't understand how everything around us works, and when we're not totally comfortable in our surroundings. Like on a boat, maybe?

Ever-changing conditions

Sailing exposes us to a unique environment. On the water we face ever-changing conditions and experiences that landlubbers never have to deal

Photographer Mary Fitzgerald occasionally becomes the "photographee." She was caught untying the docklines below. She captured this image of her friend Nora Golubic, below, and an all-female crew racing on Theresa Connor's *Nemesis*, at right.

CAROLYN MCINTYRE

with. These include a host of things which some may find frightening, such as heeling, big waves, being out of sight of land, and having someone fall overboard.

Come to think of it, who wouldn't be scared in those situations?

Luckily, scary things aren't nearly so intimidating when you understand why they happen, how they work, and what you can do to take control of a situation. When it comes to fear, education and experience are the cure.

So figure out what it is about sailing that makes you afraid, then learn all you can about it. Take heeling, for example. When you're a novice sailor, it can be pretty disconcerting to find yourself and the platform on which you're riding leaning over at a precarious angle. It's unnatural. If your car did that when rounding a curve, it could tip over, right? Well, unless you know something about sailboat design and the way sails work, you could easily assume that your boat might do the same.

A little education, however, will teach you that a boat's keel and ballast work to overcome the pressure put on the sails by the wind. As the boat heels further, some of the wind will actually spill out the top of the sail. Then the keel takes over and brings the boat back upright. Little Sunfish and sailing dinghies do tip over because they have neither ballast nor fixed keels. Their crews expect to go swimming. Larger keelboats are designed to return to an upright position, even if the boat rolls 90 degrees or more.

MARY FITZGERALD

MARY FITZGERALD

Knowing that makes a huge difference. That knowledge helps ease the fear while you get out there on the water and repeatedly experience your boat heeling over. When it leans so far that the toerail is in the water, you'll see that it's not tipping over. That's what sailboats do. In fact, heeling is kind of fun. It's what makes sailing so exhilarating once you get over your fears. It's just a matter of getting used to the feeling and understanding the forces at work.

No mystery

Once you've taken the mystery out of scary things by learning as much as you can, you're more able to face them. Then experience kicks in. The more you experience something that once scared you, the more you realize just how much you and your boat are capable of.

One aspect of boating that separates the men from the women is docking. When it comes to equality afloat, docking is the Great Divide. It's so unusual to see a woman take a boat in or out of a slip, that it turns heads, doesn't it? Why is that?

Part of the problem is that men don't seem to want to give up the wheel. Maybe they're worried that their partner will damage the boat, but a man has just as much potential for screwing up a docking evolution as a woman. It's all a matter of experience and training, and we all have to learn somehow.

If you or your partner are nervous about bumping into something, remember: that's what fenders are for. Don't deprive yourself of the satisfac-

tion and pride of taking the wheel when docking. Nothing feels better than when you bring your boat into the slip just right. Yes, people will be watching. We all watch. But we all know that we could be in your position. You'll find that your fellow sailors are a pretty helpful bunch. They'll be more than pleased to cheer you on if you'll only make the effort.

Take a deep breath and practice. Start with easy landings and move up to the trickier ones. Make it your goal to get your boat-handling skills to the point where you can share docking duties with your partner fifty-fifty. Whoever takes the boat in or out of the slip one time, handles lines the next, and vice versa. That way, both of your skills stay sharp.

There is *one* thing

If this thought scares you, keep in mind that with training and experience there is absolutely nothing aboard a boat a man can do that a woman can't do just as well.

Actually, I'm wrong. There is one thing. We can't pee over the rail. But considering that doing so can easily lead to a man-overboard situation, I don't recommend it for men, either. All other boating activities, however, are gender-neutral. Driving, docking, navigating . . . even maintenance and repairs.

Yes, maintenance. It's not that women aren't mechanically inclined. It's just that few of us have ever been encouraged to work with tools or been taught how to do mechanical things. Actually it's fun to fix things. There's instant gratification when you take something that's broken and make it whole again. There's tremendous satisfaction in doing things that you never before thought you could.

You may find that you're simply not interested in sharing in the maintenance or tinkering with your engine. That's OK. But you should at least understand how all the systems aboard your boat serve you and what you need to do to keep them working efficiently.

Take a few minutes to make your engine's acquaintance. Find out what those hoses running back and forth are for and how the thing runs. Learn what it needs to operate well and what can cause its early demise. Do the same with your plumbing system, electrical panel, and anything else your partner may have always taken care of.

Engines, electrical panels, docking . . . you can do it all. You can be an equal partner aboard your vessel.

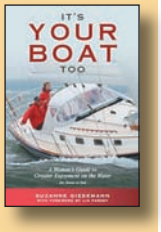
Don't limit yourself because of your fears, your attitude, or your partner's attitude. Aim to have skills and knowledge on par with your partner's. If you catch yourself thinking, "I couldn't do *that*," make it a point to find out how.

While you may never take your boat out without your partner, you should be able to do so should anything ever happen to him while you're under way. You want to be prepared for that one-in-something chance that things will go wrong.

Decide to get out there and try new things, to learn about those areas in which your nautical knowledge is lacking, and to practice those skills that are shaky.

Do these things and you'll be a safer and more competent mariner. Do them, and you'll be tremendously proud of yourself. Do them, and you'll have a heck of a lot more fun. But mostly, do them because it's your boat, too.

For further reading . . .

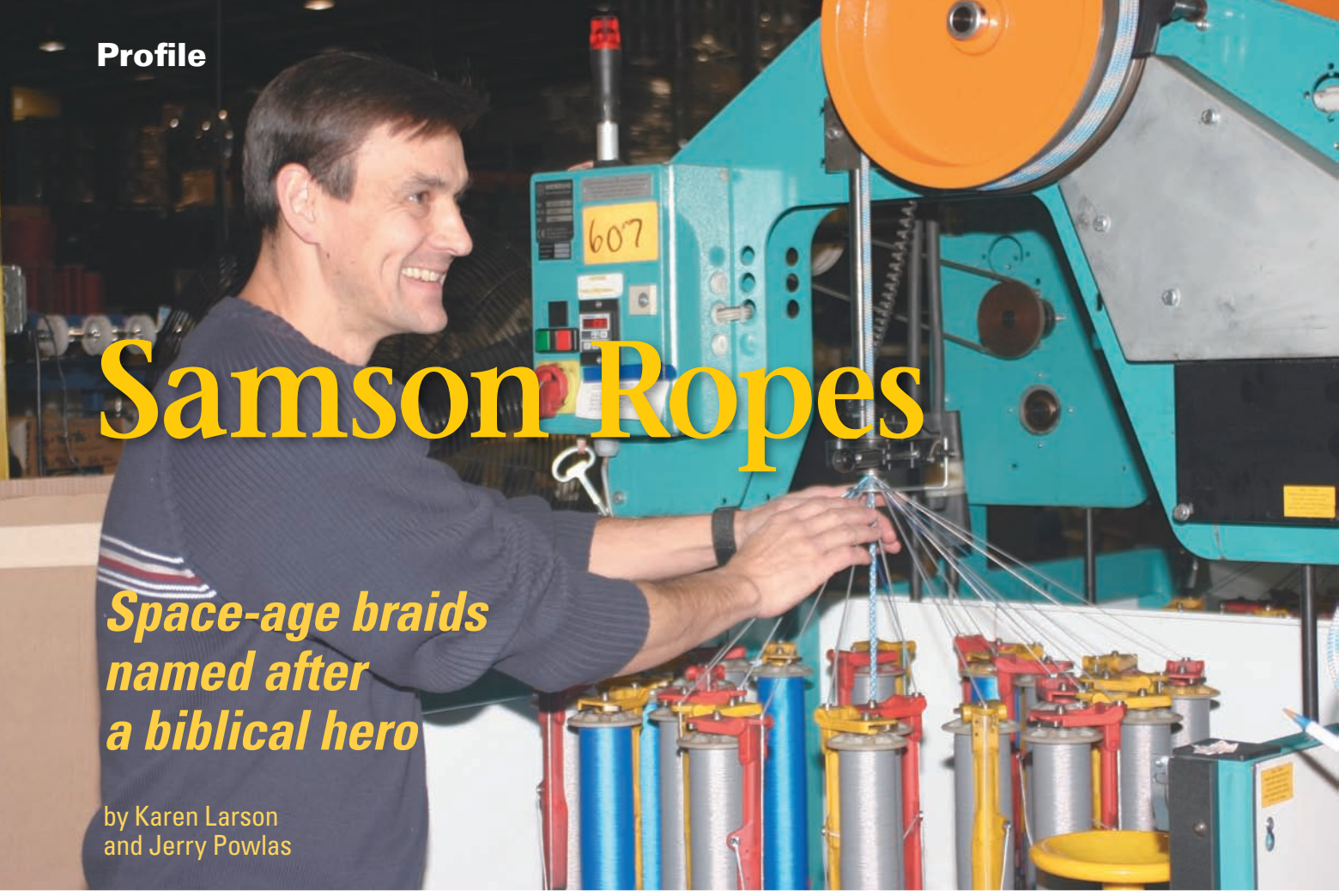


It's Your Boat Too: A Woman's Guide to Greater Enjoyment on the Water, by Suzanne Giesemann, encourages women to get out on the water and to become full partners in their boating experience. This book is available at <http://www.goodoldboat.com/bookshelf.html> or by calling 763-420-8923.

Author Suzanne Giesemann, below, teaches her friend, Dahleen, a few sailing tricks. Sheryl Shard, at bottom, shows a few children in Rhodes a few things about flag etiquette after clearing into Greece.

SUZANNE GIESEMANN

PAUL SHARD



Samson Ropes

Space-age braids named after a biblical hero

by Karen Larson
and Jerry Powlas

Anyone who ever braided hair or made lanyards in craft class knows the intricacy of the braiding process. Consider automating that process. Now consider a factory full of rope-making equipment. Spools of yarns and strands and finished ropes of all colors . . . fast-moving machinery . . . forklifts . . . bustle. Welcome to the Samson Ropes plant in Ferndale, Washington, just north of Bellingham. This is the company headquarters. In addition to this manufacturing plant there are two others: in Lafayette, Louisiana, and in Merida, Mexico. There are 170 employees in all.

At the Ferndale plant, Samson produces only braided ropes (three-strand and eight-strand are made in Lafayette and general cordage is manufactured in Merida). The machinery is ingenious. Anyone, even a young child, can braid a plait of hair. But the high-speed manufacture of braided rope takes your breath away. It requires extremely sophisticated manufacturing equipment and experienced employees to set it up and run it.

Imagine children rotating in two groups turning in opposite directions around a maypole. They weave in and out with each other as they braid the ribbons down the pole. The right-hand/left-hand passing movements in square dancing also come to mind as two groups, moving in opposite directions, weave past each other.

Now imagine bobbins of yarns weaving around each other according to patterns that vary from rope to rope. The machine rotates so quickly that the human eye can't resolve the pattern of motion. The variations are nearly endless. The yarns are selected for their mechanical properties while their color helps the user identify the finished product.

Complex formula

Braided rope is "designed" for a variety of tasks. The formula for a given rope is a complex thing — so many strands of this, so many strands of that, cores of this, cores of that. The dance around the maypole varies with the design. Characteristics vary according to the buyer, the intended use, and the pocketbook. The engineers at Samson must consider all these characteristics as they create the next product: strength, weight, stretch, elongation, heat-resistance, abrasion-resistance, ability to grip hardware such as winches and rope clutches, cost, ease of splicing, service life, and more.

The building blocks, we were told, are the threads. These are graded using an international system (denier) for numbering of silk and man-made filament yarns. Some are solution-dyed, some are natural. The recipe for their use in the creation of a specific rope calls for a specific number of plies, a specific number of turns per inch, a specific number of pics (or strands) per inch.

As the building blocks are created, some threads are twisted in one direction, making what is called an "S-twist" (left-hand). An equal number must be twisted in the opposite direction to result in what is called a "Z-twist" (right-hand). These opposing twists lock together to form a yarn. Large braids may even use a second tier of S- and Z-twisted yarns, but let's stick to everyday yacht braid.

The machines that do the braiding have large bobbin-like structures called carriers. Depending upon the product to be produced, they may have 12, 16, 20, 24, or 32 of these carriers. Half of these will zigzag in and

out in a clockwise pattern while the other half will zigzag in a counter-clockwise pattern faster than you can say, "Turn toward your partner, promenade right and left grand."

Where did it all begin?

It wasn't always this way. The way we imagine it, there must have been a time in the misty past, not long after our ancestors crawled out of the sea, that one of them used a strand of human or animal hair or, more likely, a fiber from a tree or plant. Generations passed. Then some revolutionary twisted several strands together and pronounced it "rope." A mariner nearby immediately corrected him, calling it "line." And so began one of the first chasms in history. Religious differences could not be far behind.

No doubt, the early ropes were, in concept, much like the early yarns that were created on spinning wheels. Twist strands together for strength. Twist those together with twists of opposite directions so the finished product won't unlay. The three-stranded rope traces back to those early days, but braided rope is a somewhat newer idea that makes an arguably superior rope to three-strand.

Samson Rope Technologies was originally founded by J. P. Tolman in 1878 as Samson Cordage Works. The company was incorporated in 1888. The most remarkable thing about this long-ago past is that the company's trademark of Samson slaying the lion is currently the oldest active trademark in the United States.

But there's another thing worthy of historical note. The braided rope that we consider to be "modern" was developed more than a century ago. As the Samson literature tells it, "It was during the 1800s that Samson developed the unique concept of incorporating reinforcement cores within braids to significantly enhance product performance." Braids may have been there, but Samson added the true strength of the braided rope: the core.

The company also claims the 1957 development and patent of synthetic double-braid. Double-braids are two ropes in one: a braided core covered by a braided sheath. "Utilizing the new, high-strength nylon, polyester, and polypropylene fibers in this patented construction allowed Samson to manufacture ropes that were far stronger and more durable than the three-stranded twisted ropes that had been the standard since biblical times," the company history notes. It seems fitting somehow that this modern manufacturer of rope should be named after a biblical hero.

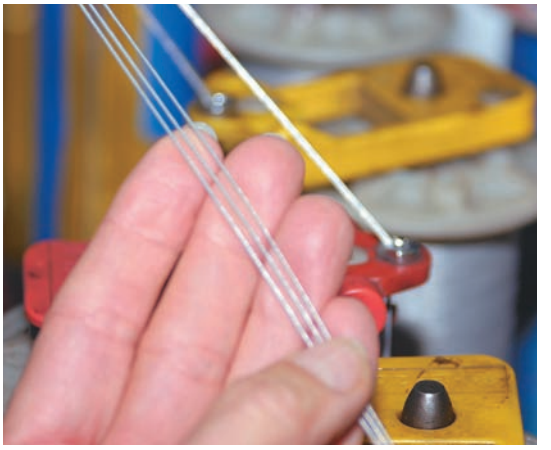
Rope technology today

These days, newer fibers have overshadowed the innovative nylon, polyester, and polypropylene fibers of the 1950s. Today's developments include fiber technology such as Kevlar, HMPE (high molecular weight polyethylene such as Spectra and Dyneema), Technora, Vectran, and PBO (Zylon).

One of the most amazing parts of a visit to the Ferndale plant is the cordage testing equipment: there's an abrasion tester, a puller tester, and a drop tester. Speaking of the largest of these machines, Dr. Rafael Chou, vice-president of R&D says, "Not only can this machine test strengths up to 1.1 million pounds, but it also provides a wide range of other relevant data including auto-cyclic loading, automatic elongation measurement, and much more." This equipment also allows Samson to measure samples up to 50 feet in length.

Each of the complex products is "designed" for specific markets and specific uses. Samson produces ropes for recreational and commercial boating, to be sure. But they also create specialty ropes for use by arborists and industrial engineers of all kinds (think of theater sets, NFL camera setups, safety and rescue, utility companies,

Mike Edwards, Samson Rope manufacturing engineer, facing page, stops a machine and explains the process for dizzy observers. Faster than the eye can see, half of the carriers go clockwise and the other half go counter-clockwise. A completed core is fed through the middle of this braiding process. This page: spools await their turn in the assembly process, below, and close-up views, at right.



Eye splices come in all sizes. While touring the Samson plant in Ferndale, Washington, Karen Larson observed that her C&C 30 could use some new docklines. Manufacturing engineer, Mike Edwards suggested "a little something in yellow and pink."

and the space program). Sailors do not make up the largest segment of the Samson market, but they benefit from proximity to Samson's larger markets. Just as we all benefited when the high-tech space program developments trickled down to life in the suburbs, so it is that sailors are on the receiving end of the developments in fiber technology. Better, stronger, longer-lasting line is the ultimate outcome.

Lighter weight, lower stretch

In fact, it works both ways according to David Krupka, sales manager for the Recreation Marine Division, who says, "We're always looking for lighter weight, lower stretch, on the recreational side and some breakthroughs apply to the commercial side as well."

Today's ropes come in a wide array of colors, but David points out that this isn't about fashion. The colors help indicate what the rope is made of and, therefore, what its intended purpose is. "We're not trying to be like an apparel company, in which we come up with something new every year," he says. Instead, the company is focused much more on customer education. The Samson website <http://www.samsonrope.com> and product brochures (available for download on the website) are loaded with information about line selection, care of line, types of rope, the building blocks of rope, splicing, rigging, glossary terms, when to retire rope, standards for strength and usage, and so on. "Our mission," David says, "is not just building rope but, instead, providing high-performance cordage solutions to critical customer problems."

Beattie Purcell: Catalina Yachts legend

What's a retired Snipe and Catalina 22 champ to do?

by Henry Cordova

When it comes to sailing, Beattie Purcell has done it all. He was a major figure in the early days of Catalina Yachts and has a long record as a fearsome competitor on the racecourse on both sides of the Atlantic Ocean. At an age when most ancient mariners are taking in sail and seeking out a quiet anchorage, this remarkable Florida sailor is just getting under way.

Beattie was born in Ireland. Since no point in the Emerald Isle is far from the sea, salt water was a neighbor and a constant presence. He was born in 1925 in Belfast, a great port city and shipbuilding center, and grew up in the Belfast Lough town of Carrickfergus in County Antrim. His grandfather was a mariner and, as a 12-year-old, Beattie watched him almost drown after a capsize at nearby Whitehead on the coast.

Beattie's father was a yardbird, having worked throughout the British Isles, including the great Harland and Wollf yards in Belfast where the *Titanic* was built. It was Beattie's father who built him his first boat, a 9-foot dinghy, and later, his first sailboat, a 16-foot sharpie designed for construction in Masonite, but which was executed in wood.

Growing up on the water, Beattie also built his own boats and became a figure in club racing in Northern Ireland, sailing 505s, Hornets, and Merlin Rockets, and going on to win national sailing championships in GP 14s he had built himself, and several Lipton Cups in Snipes. Later, in the United States, he won championships again with the Super Satellite and the Catalina 22.

Coming of age in the 1940s, Beattie has vivid memories of World War II. The U.S. Army Rangers were founded at Sunnylands Camp, in Carrickfergus, and he remembers a Luftwaffe raid on the Belfast yards, the crash of bombs, and the rattle of anti-aircraft fire from warships in the harbor.

He also recalls fondly sailing his Snipe out to the American invasion fleet, at anchor awaiting D-Day in the Irish Sea, to barter sailboat rides for rationed fruit and chocolate. Beattie expressed the hope that perhaps some of those brave young men who survived that terrible time will read this story today and remember him.

After the war, he continued his sailing and boatbuilding activities and he learned the fundamentals of the up-and-coming technology of fiberglass boat construction.

Move to North America

Beattie had a cousin in California, who came to visit him in Ireland. Beattie took him sailing, which gave his cousin a bad case of the bug. When he returned to the States, Beattie's cousin purchased a boat from Frank Butler, then owner of Wesco Marine and Wesco Tool and later founder of Catalina Yachts, the largest sailboat builder in North America.

Not long afterward, at the age of 30, Beattie and his wife, Maire, moved to Canada where he worked at a Toronto auto dealership and later as a machinist for Northland Navigation in Vancouver. Meanwhile, the cousin, knowing how much Beattie loved sailing, brought Beattie's name to Frank Butler's attention. Frank was a businessman, boatbuilder, and recreational sailor. He needed an accomplished sailor, so he contacted Beattie and offered him a job at Wesco, later to be known as Coronado Yachts, in Burbank, California. It was the start of a lifelong mutually productive and rewarding professional collaboration — as well as a deep personal friendship.

Beattie's experience at Wesco began in 1962 with small-boat (14- and

For the past 20 years, Beattie Purcell has built Shamrock-class radio-controlled boats, which he and others race. The design is based on the R-boats of the 1930s.

21-foot) fiberglass hull construction, a relatively new technology at the time, and then he moved into rigging. He also successfully promoted Wesco's boats by campaigning vigorously in various regattas. The business grew rapidly and he was deeply involved in every aspect of it, designing company artwork, traveling as far as Hawaii to troubleshoot rigging problems, and even managing an Oxnard, California, marina owned by Frank Butler. In an amazing coincidence while at that marina, he met once again the young nurse who had helped revive his grandfather 27 years earlier at Whitehead.

Full hull liner

In 1964 the firm began marketing the Coronado 25, a design that introduced the full-pan hull liner to the U.S. boatbuilding industry, a construction technique Frank had adapted from the aircraft industry.

In 1968 Frank sold Wesco Marine to Whittaker Corporation and soon afterward parted with them altogether. However, he retained the rights to build the smaller boats, the Coronado 15, the Omega, and the Super Satellite. The Purcells briefly moved back to Ireland to start a family. But Frank called Beattie in Ireland to say he was forming Catalina Yachts and wanted him back.

Beattie jumped at the chance, arriving in time to take part in the design, development, and marketing of one of the most popular boat designs of all time, the Catalina 22, a 1995 inductee into the Sailboat Hall of Fame.

The Catalina 22 was one of the first reasonably priced, mass-produced, trailerable, swing-keel weekenders that opened the sailing lifestyle to American working families in the late 1960s and early '70s. It was by far the most successful of the lot; thousands were built and, unlike most of its contemporaries and imitators, it is still in production.

> "Beattie was…transferring his uncanny skills as a dinghy sailor to skipper Catalinas to victory after victory."

Catalina Yachts became, and remains to this day, a runaway success. Other models followed, with Beattie always there at their birth. He was the first person to sail both the Catalina 22 and the Catalina 27, and he helped with the development of the Capri 25. In 1973, as demand for the new boats soared, Frank sent him to South Carolina to start up and manage an eastern U.S. production facility built to meet the increasing demand for Catalina sailboats across the country.

In 1977 he was again dispatched, this time to Fort Walton Beach, Florida, to do the same with another plant. After seven years, Beattie moved again, to Largo, Florida, to work in purchasing for Catalina after the firm bought out the Morgan Yachts yard there.

Many victories

During this time, Beattie was still sailing, transferring his uncanny skills as a dinghy sailor to skipper Catalinas to victory after victory, culminating in the National Catalina Association Championships in 1979, over a field of 40 other boats. In 1998, at the age of 72, he crewed on his son, Brent's, Catalina 22 to a sixth place in the National Championships. Today, he is still a formidable competitor, racing frequently and successfully in club races, skippering his Catalina 22, *Tango*, very effectively in the Fort Walton Beach Yacht Club Catalina Fleet 77 he founded and in which he is still active.

He also was honored with the Catalina 22 Sailing Association's Racing Family of the Year Award for 2000. (The Purcell boys — Gary, Brent, and Glenn — are accomplished sailors.) Other honors include election in 2000 as vice-commodore of the Catalina 22 National Sailing Association and helping to organize the FWYC hosting of the Catalina 22 National Championship Regatta in 2001.

In 1995 Beattie retired from his long association with Frank Butler and the Catalina organization, though

Beattie Purcell has built more than 80 model RC boats for customers as far away as the Caribbean. Each measures about 5 feet and is beautifully finished.

he maintains close contact with his old friend and colleagues.

Now 81, Beattie still lives in Fort Walton Beach, a town and seascape he came to love when he founded and managed the Catalina facility there. He keeps busy sailing and working on boats, organizing cruises, and working part-time at the local West Marine store where he serves as advisor and consultant to the local sailing community. And he remains active in the Fort Walton Yacht Club. He also is a marine artist, working in watercolors and sculpting wooden hull models. And he's still designing and building racing yachts…but of a different nature.

R-boat model racers

About 20 years ago, one of the craftsmen at Catalina made him a mold of a model sailboat hull, based on the sensuous lines of a 1930's R-boat. Using the mold, he has been able to make identical hulls about 5 feet long, which he meticulously fits out and finishes to create lovely model yachts equipped with fully functional sloop rigs (sails built by a local sailmaker), and remote-controlled rudder and sheets.

The Shamrock-class model yachts, as he calls them, have become popular; more than 80 have been built and sold across the country, even as far away as Culebra in the Caribbean. They are raced in regattas (which he organizes) by enthusiasts who control the vessels with hand-held transmitters. For more information, contact Beattie: 850-243-2790, BeattiePur@aol.com.

A radio receiver and servos inside the hull operate the controls. Although perfectly operational RC models, these are not mass-produced or home kits; the boats are lovingly crafted, beautifully realized, handmade miniatures with glossy painted hulls, ballasted lead keels and exquisitely varnished wooden decks. Removing a deck hatch reveals the interior mechanism and a signed and dated certificate identifying the owner and shipwright. The Shamrocks may be legitimate racing machines, but they are works of art too. Fully rigged, their classic lines form a striking decoration for many an elegant drawing room. They are made to survive their builder and owners and to be treasured by generations to come.

After a long life on the water, Beattie is a remarkably active man and a terrific resource for Florida Panhandle sailors. He has seen everything, been everywhere, and knows everyone. Meeting Beattie makes it easy to understand the affection and loyalty directed toward him by his friends in Fort Walton Beach.

Even after a lifetime on this side of the pond, he still speaks with a delightful Irish accent that — coupled with a fit physique, good tan, and alert, sparkling eyes — gives one the impression of a much younger man. He is cheerful, yet quiet, hesitant to speak of his own accomplishments, but his authority and experience are unquestioned.

In 1944, Beattie and his bride-to-be, Maire.

What it's made of and how to check it

by Don Launer

Standing rigging is the term given to the cables that support a sailboat's mast(s): the forestay, backstay, and shrouds, as well as specialized cables such as the bobstay and triatic stay. *Standing* indicates a fixed cable that stands in place and does not move, as opposed to *running* rigging, which is used for sheets and halyards and often runs over sheaves.

In the early days of the square-riggers, masts were held up with tarred hemp, one of the earliest types of standing rigging. Later, galvanized multi-strand iron cable was used. The next refinement was *wire rope* made of steel. Much later, stainless-steel wire became the standing rigging of choice.

The fittings at each end of a piece of standing rigging attach the standing rigging to the mast and hull and are known as terminals, end terminals, or end-fittings (see *Good Old Boat*, May 2004).

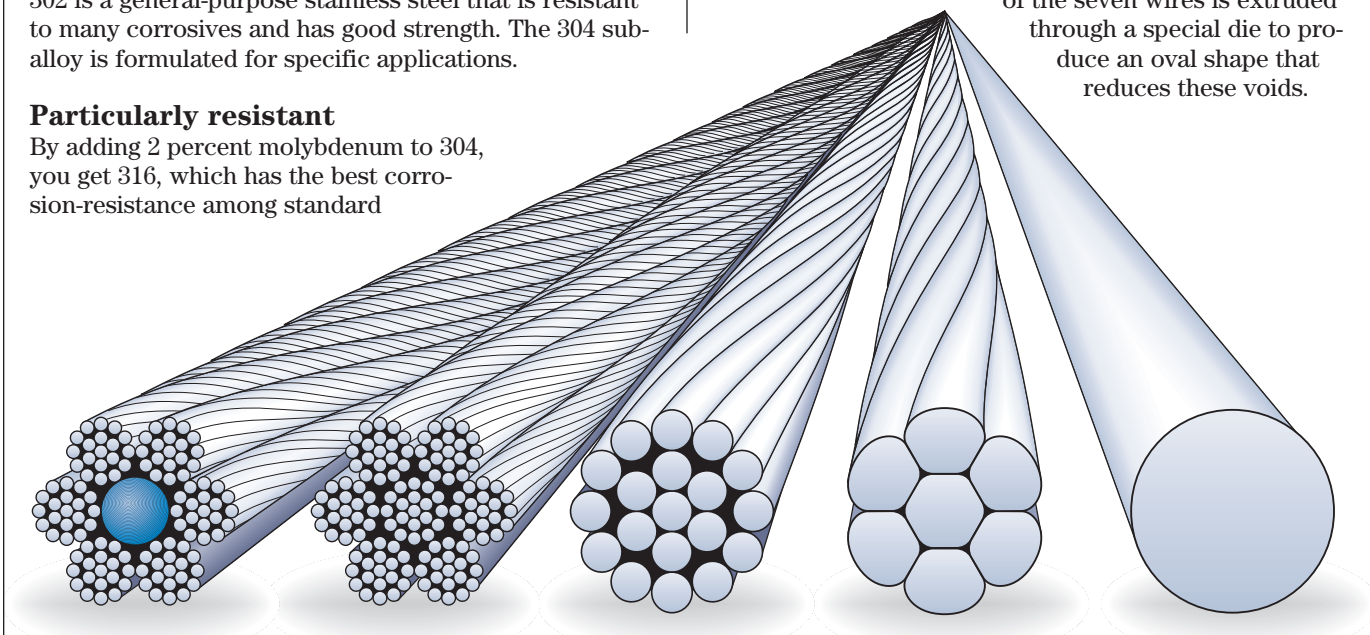
The requirements for standing rigging are strength, minimal stretch, and corrosion resistance. Flexibility is not the major factor, as it is with running rigging. In marine applications the stainless steel is an alloy of steel, chromium, and nickel and is identified with a 300-series designation. Types 302 and 304 are the most common and are widely used for rigging and fasteners. Type 302 is a general-purpose stainless steel that is resistant to many corrosives and has good strength. The 304 sub-alloy is formulated for specific applications.

Particularly resistant

By adding 2 percent molybdenum to 304, you get 316, which has the best corrosion-resistance among standard stainless steels and is particularly resistant to saltwater corrosion. However, 316 is only about 85 percent as strong as 302 and 304. Standing rigging of type 316 will generally outlive 302 and 304, especially in tropical climates, but the wire size may have to be increased, which also results in larger turnbuckles, jaws, eyes, and clevis pins, as well as higher windage and weight aloft.

Wire rope is identified by the diameter of the cable, the number of strands (bundles) of wire, and the number of individual wires in each bundle; the type of wire material; and the core. This core can be either wire or fiber. A fiber-cored wire rope is often used in running rigging on larger vessels, rather than on pleasure craft. The core is saturated with oil, which helps to lubricate the individual wires as they slide against each other while making their turns around sheaves. Wire-core cable is primarily used for standing rigging.

The typical wire rope for standing rigging is 1 x 19, which indicates one bundle of 19 wires. Because the cross-section of a wire rope should have as much metal and as few voids as possible, racing sailboats often use rod rigging. It is solid and has no voids but is expensive and more vulnerable to damage. Another choice is Dyform 1 x 7 wire, where each of the seven wires is extruded through a special die to produce an oval shape that reduces these voids.



A fiber-cored wire rope used for running rigging on larger vessels. It is seldom seen on pleasure craft.

The 7 x 19 is the most commonly used wire rope for running rigging.

The less flexible 1 x 19 is the most commonly used wire rope for standing rigging.

The Dynaform wire rope, used for standing rigging, increases the amount of steel in a given cross-section.

Rod rigging is the strongest standing rigging for a given diameter but has some drawbacks.

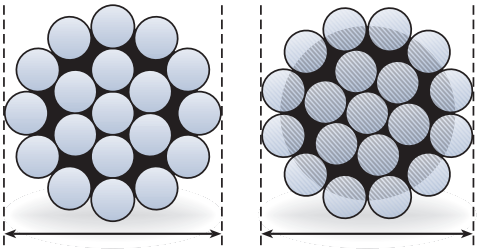
Layout and illustrations by Ted Tollefson

Increased windage

From a safety point of view, it would seem that standing rigging should have the greatest diameter possible, but increasing the diameter of the wire rope beyond the designer's specifications leads to increased windage and weight aloft as well as increased size of all associated fittings.

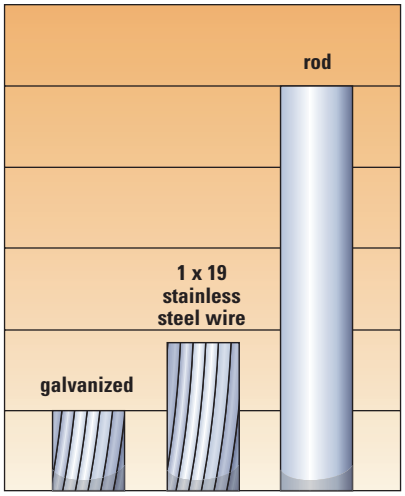
Standing rigging rarely fails in the middle of its span. About 99 percent of standing rigging failures occur close to the terminal fittings, with the bottom fitting being the major culprit, since it is exposed to spray. The first indication will usually be a broken strand. Toggles should be used at the terminal fittings to correct for misalignment and to prevent metal fatigue caused by frequent bending.

You can inspect your wire rope standing rigging by running a rag or cotton ball down the cable and feeling for snags caused by the ends of broken wires, known as meat hooks. Don't use your fingers because you'll find that these meat hooks cut like razor blades. If you find a broken wire, replace that cable immediately. And remember that it's a very likely indication that other cables of the same age are in similar condition. A cruising sailboat should carry a coil of 1 x 19 wire and some swageless fittings. These make replacing a failed piece of standing rigging an easy job with just the use of simple hand tools.



The correct way to measure wire rope.

The incorrect way to measure wire rope.



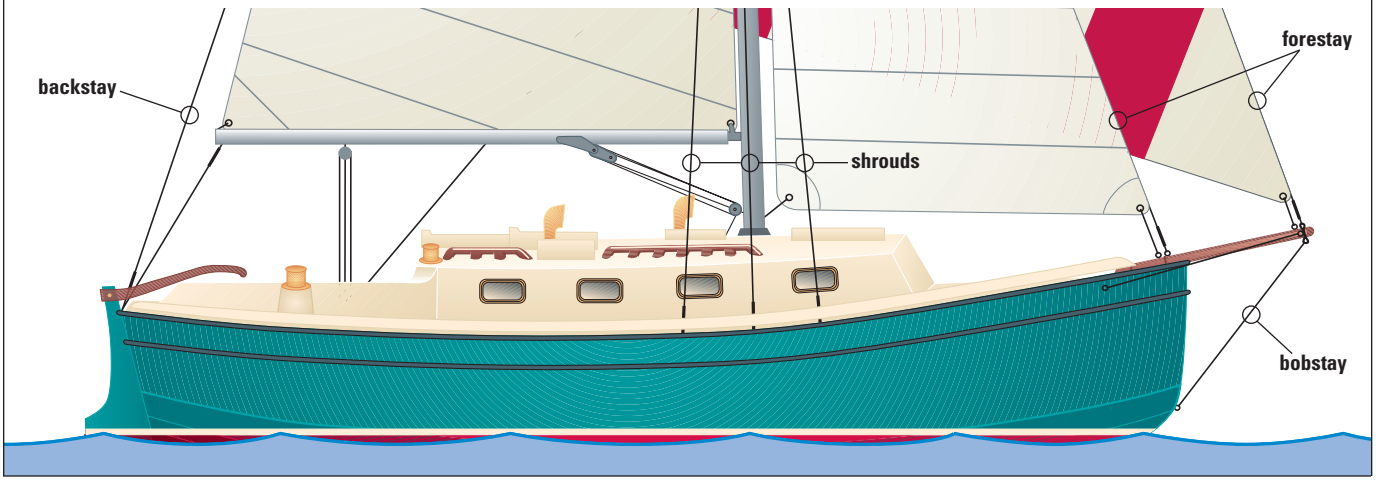
Comparative costs of standing rigging.

Rod rigging, though, does not develop meat hooks and gives few advance signs of failure, so there is little that can be done by the boatowner to determine the rod's condition, short of an X-ray. Also, one good snag on a piling while docking can mean the end of that rod.

One location that should be checked regularly is where the upper shrouds bend around the tips of the spreaders. In addition to the bend, there is another problem at this location, since this is usually also the meeting point of two dissimilar metals, the tip of the spreader and the standing rigging. With rod rigging, this bend around the spreader needs special fittings and should be done by a professional rigger.

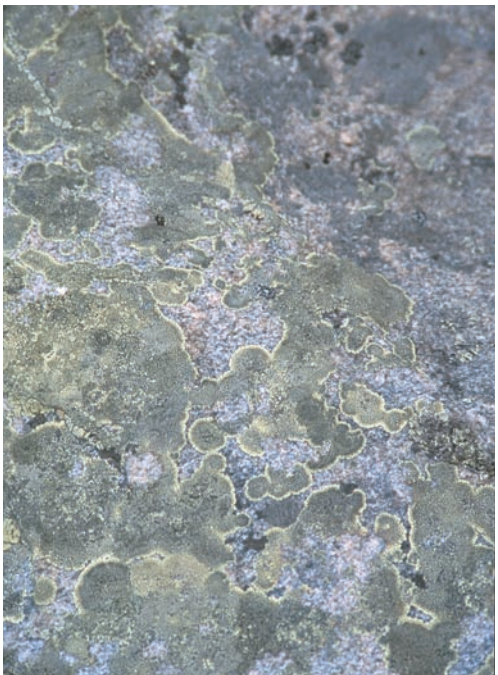
There is no rule as to when standing rigging has to be replaced. The standing rigging on boats used in fresh water will last longer than on boats used in salt water. In the salt waters of the semi-tropics, many riggers suggest replacing the standing rigging every 10 years.

For preventive maintenance the standing rigging should be rinsed off at the end of the day or as often as possible, especially after sailing with salt spray coming over the deck.



THE NORTH CHANNEL

BECKONS...



BY KAREN LARSON

Tanzer 7.5

An unusual family daysailer and inshore cruiser

by Gregg Nestor

Johann "Hans" Tanzer was an Austrian, who designed, built, and raced small sailboats in Switzerland. In 1956 he emigrated to Canada with $5 in his pocket, a tool chest, and a "head full of designs." He settled in Dorion, Québec, where he went into business under the name Tanzercraft. It was here that Hans built Flying Scots, Lightnings, International 14s, and Y-Flyers.

Recognizing the need for a boat that was more "family friendly" than his current offerings, around 1963 he designed and built the Constellation. The boat was well received and sales were strong. In 1968, Hans expanded and changed the name of his company to Tanzer Industries Ltd., and the name Constellation to Tanzer 16. Production of the Tanzer 16 continued until 1985, with a total of nearly 1,900 units having been built.

In 1970, Hans launched his most successful model, the Tanzer 22. Like its predecessor, the Tanzer 22 continued in production until 1985 and accounted for 2,270 units. Buoyed by these numbers, in 1975 Hans introduced the Tanzer 26 and in 1977 our review boat, the Tanzer 7.5 (24 feet 6 inches). These boats were similar in design and targeted sailors who wanted to move up in size from Tanzer's smaller models. About 790 Tanzer 7.5s were built during its production run, which also lasted until 1985.

Tanzer Industries Ltd. continued its strong presence in the Canadian sailboat industry with a steady supply of orders and several new models. To meet demands, the company further expanded to include production facilities on both U.S. coasts as well as in Canada.

In 1986, however, there was a general slump in the sailboat industry. In May of that year, just one month after C&C Yachts went into receivership, Tanzer Industries Ltd. declared bankruptcy. The company's assets were sold to an auction firm, and Tanzer Industries was no more.

Design and construction

The Tanzer 7.5 has neither a traditional profile nor a contemporary go-fast appearance. While many sailors find the look of the Tanzer 7.5 not to their liking, others firmly believe that its lines were about 10 years ahead of their time in terms of shape and performance. Whatever the case, one can only surmise that Johann Tanzer drew the lines to a shape he felt was practical. Like the Tanzer 22, the deck of the 7.5 is raised, with its sides forming additional freeboard above the hull-to-deck joint. It has a small cabin, bold waterline and sheer stripes, an outboard spade rudder, and a swept fin keel.

You'll find nothing out of the ordinary when it comes to the basic construction of the Tanzer 7.5. The hull is a solid, hand-laid laminate of fiberglass and polyester resin. The deck is also a hand-laid laminate, cored with balsa. This reduces weight, while providing structural stiffness. The hull-to-deck joint is a matching pair of outward-turning flanges that are bonded with adhesive, riveted together, and covered with a "clip-on" extruded PVC rubrail. Because of the boat's raised-deck design, the finished hull-to-deck joint is a foot below the actual deck surface.

As is quite common in boats of this size, the Tanzer 7.5's interior incorporates a molded fiberglass pan and headliner. When properly bonded in place, these two components

enhance the structural integrity of boat; make up interior features, such as berth foundations; and impart a finished look. The flip side is the tendency to cause condensation and the inhibition of customization. Early models had their bulkheads veneered with a wood-grained laminate, while later versions were covered with real teak veneer. Both are over marine-grade plywood.

Underwater, the Tanzer 7.5 is fitted with either a 4-foot fin or a 2-foot 8-inch shoal-draft keel. Both are cast iron and externally fastened. While the fin keel weighs in at 1,600 pounds, the shoal-draft keel weighs 1,950 pounds. This difference in ballast is designed to impart the same degree of stability, no matter which keel configuration is chosen.

The deck hardware is of average quality. However, some of the through-bolted fittings lack proper backing plates. This was the case with the review boat's bow pulpit.

Deck features

The design of the boat makes for a very narrow and pointy foredeck that is taken up almost entirely by the large forward hatch. Situated in the center of the remaining foredeck space is a single mooring cleat. The small cabin structure is cambered and narrow, leaving little room for walking on its top. Fortunately, there are 14-inch-wide sidedecks on which to move fore and aft. These are reasonably wide for a boat of less than 25 feet. To aid in moving about the deck, there's a pair of cabintop teak handrails and molded-in non-skid.

The boat features six non-opening portlights, three per side. Rather than being situated in the cabin trunk, these elongated oval ports are mounted in the raised portion of the deck just above the hull-to-deck joint.

One of the boat's best features is its 6-foot long cockpit surrounded by reasonably high coamings. Coupled with tiller steering, the cockpit is obstruction-free, spacious, and can comfortably accommodate six people. For stowage, there's a pair of deep cockpit-seat lockers that connect with each other beneath the cabin sole. This creates a cavern-

Tanzer sailboats, including *Liebelle*, the 7.5, on facing page, are distinctive because of the raised deck into which the portlights are set. This gives the appearance of reverse sheer, despite the conventional line of the gunwale/hull-to-deck joint. Because the bow is narrow there's not a lot of space on the foredeck to move about while changing headsails or handling ground tackle, at right. The cockpit has comfortable backrests. Under the teak helmsman's seat is the best location for the portable fuel tank, at bottom. *Liebelle* is owned and sailed by Jim Bridgens.

The small galley is aft, at left, under the bridge deck. The dinette table folds down from the main bulkhead, center left, to seat four persons. The short V-berth forward, center right, is best suited for children. Opposing settes can function as single berths or, very clever, as a large double with the addition of a plywood insert.

ous space in which to stow sails and other bulky items. Small items can be conveniently stowed within easy reach in a pair of port and starboard coaming cubbyholes. Surprisingly, with all the available space, there's no dedicated fuel tank locker. When a remote tank is used, as is most commonly the case, it is stowed in the aft portion of the footwell, beneath a slatted teak seat.

At the threshold of the companionway is a token bridge deck — token in that it is only wide enough to provide a mounting place for the traveler.

Other deck features include a bow pulpit and single lifelines, a transom-mounted swim ladder to starboard, and an engine bracket to port.

Belowdecks

Below, it becomes immediately clear that the Tanzer 7.5 is laid out for a crew of two or possibly a couple with two small children. This arrangement is predictable and straightforward.

The forward cabin houses a kid-sized V-berth with filler and stowage beneath, a pair of outboard shelves, a hanging locker to starboard, and a portable toilet to port. A few boats were fitted with the optional marine head. Jim Bridgens, the owner of our review boat, has relocated the portable toilet to the floor space beneath the V-berth filler, and converted the area vacated by the portable toilet on the port side to shelving. The result of this is a very workable arrangement that considerably increases the amount of easy-access stowage.

The forward cabin is separated from the saloon by a bulkhead and a saloon-type door. When closed, the door offers privacy to each compartment. When open, it functions as the door to the hanging locker. Because the door neither reaches all the way

> **While the Tanzer 7.5 is a trailerable pocket cruiser and not a racer, it is a steady performer.**

to the sole nor extends to the overhead, it does not impede air circulation when closed.

There are opposing settees in the saloon and a folding table that is mounted on the port bulkhead. When in use, the table reaches both settees and can comfortably accommodate four people. The settees are 6 feet long and can function either as single berths or, by inserting a plywood base and rearranging the cushion backs, can be converted into a large double berth or playpen. For stowage there's a pair of outboard shelves and bins beneath the settees.

The galley is simple and functional, spanning the aft portion of the cabin. It features a single stainless-steel sink with pressurized cold water, a top-loading icebox that drains into its own holding tank underneath the starboard settee, and plenty of counter space, including an area for a countertop stove.

There's stowage beneath for galleyware and cooking utensils. The 10-gallon freshwater tank is located in the forward portion of the port cockpit locker and is filled from the deck.

With the exception of the bulkheads and trim, all the boat's interior surfaces are the same smooth gelcoat as the fiberglass pan and overhead liner. The raised deck contributes significantly to the boat's 5-foot 8-inch headroom.

The rig

The Tanzer 7.5 is a masthead sloop. Its mast, which reaches a height of 32 feet above the water, is stepped on deck in a hinged tabernacle. This is supported belowdecks by a teak compression post. The mast features a single pair of spreaders and is held in place by a pair of cap shrouds, dual lower shrouds, a headstay, and a single backstay that's significantly offset to starboard.

The mainsail came standard with a single set of reef points and jiffy reefing. The original halyards were external wire/rope and are good candidates for an upgrade to today's low-stretch ropes. A pair of single-speed Barlow #15 halyard winches is situated on the aft edge of the cabintop.

Tracks and cars for the headsail are on the sidedecks and lead to a pair of single-speed Barlow #16 primary winches mounted on the port and starboard cockpit coamings. The mainsail has end-boom sheeting led to a traveler on the bridge deck.

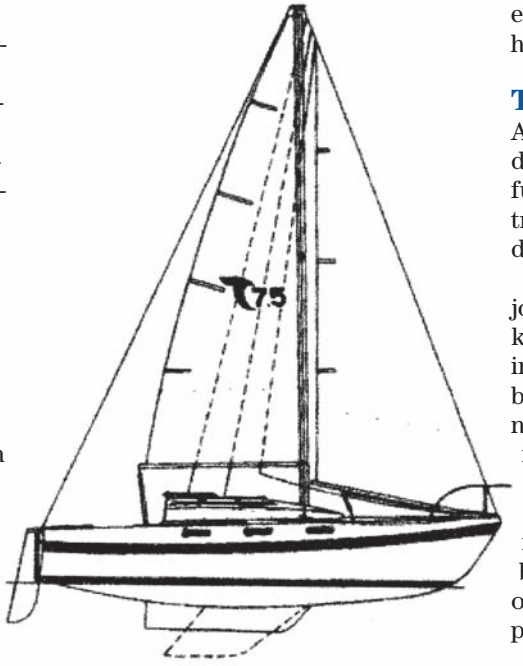
Under way

While the Tanzer 7.5 is a trailerable pocket cruiser and not a racer, it is a steady performer. On a broad reach, the boat is fast, balances easily, and exhibits little pressure on the helm. Approaching 45 degrees apparent wind, the boat's speed drops off. Backing off about 5 degrees will increase boat speed.

The Tanzer 7.5 handles the wind quite well, especially the fin-keel model. At about 18 knots of windspeed, however, it would be prudent to shorten sail. This will allow the boat to straighten up, sail on its feet, and reduce any developing weather helm.

The boat is a coastal cruiser, however it has made a few notable passages. One owner sailed his Tanzer 7.5 single-handed from Canada to France and back.

When considering the addition of an outboard motor, a 9.9-hp is sufficient and will easily move the boat along at hull speed at two-thirds throttle. It also will have enough power to enable the boat to punch through head seas.



Tanzer 7.5

Designer: Johann "Hans" Tanzer
LOA: 24 feet 7 inches
LWL: 21 feet 10 inches
Beam: 8 feet 0 inches
Draft (fin): 4 feet 0 inches
Draft (shoal): 2 feet 8 inches
Displacement (fin): 3,800 pounds
Displacement: 4,150 pounds
Sail area: 225 square feet
Displacement/LWL ratio: 163
Sail area/Displ. ratio: 14.8
PHRF rating: 231

Things to check out

As is the case with any boat that has a deck cored with balsa, sound it carefully to determine if water has penetrated the core and caused any skin delamination.

The outward-facing hull-to-deck joint is prone to damage and has been known to leak. If the rubrail covering the joint is damaged, wavy, or has been replaced, slide it off and scrutinize the joint below. Also, water stains in the cabin are a dead giveaway.

Some through-bolted deck fittings were installed without backing plates. In some cases this will be obvious and easily remedied. In others, the overhead liner may pose a problem.

There have been several reports of leaks at the seam joining together the two halves of the fiberglass rudder. Since the rudder is transom-mounted, it's a simple matter to remove it for inspection and to check its weight.

Conclusion

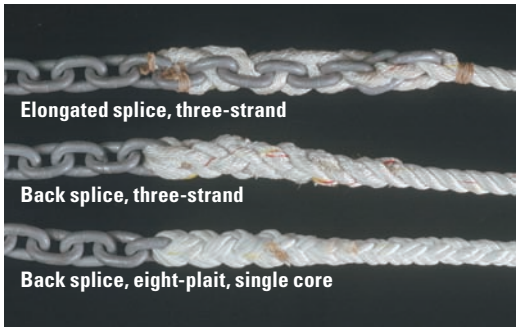
The Tanzer 7.5 is neither trendy nor flashy. Its overall construction is sound, and there are no major flaws or problem areas common to this model. It makes an acceptable first sailboat and represents a good value. Expect to spend between $6,000 and $9,000 for a reasonably cared for and outfitted Tanzer 7.5.

Rope-to-chain splices

Solving the problem of joining one to the other

by John Danicic

In the November 2006 issue, John Danicic wrote about installing an anchor windlass. One remaining issue is the creation of a strong rope-to-clain splice.



IF YOU ARE USING A ROPE-AND-CHAIN combination windlass to deploy and retrieve your anchor, you might wonder about the connection between soft flexible rope and hard chain. While deploying, you will hear the windlass change from a clanking racket, as the chain runs through, to a quiet hum, as the rope snakes out. That change in sound is a change in strength. An interface.

You are likely to have three-stranded anchor rode in your chain locker. It's stiff to handle and tends to kink after the windlass stows it below a few times. It's useable, if not the best, with most windlasses. Suitable splices for three-stranded rope include the back splice and the elongated splice (see Pages 51 and 52).

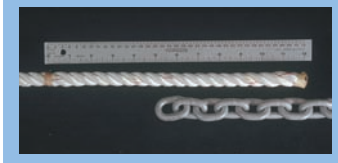
Square line, also known as eight-stranded plaited rope, is a single-core, extremely flexible and soft rope that resists kinking and coils neatly into the anchor locker with little or no tending. Because of its flexibility, the same length of eight-stranded plaited takes up less stowage space than the same length of three-strand. If you are installing a new windlass and need a new line and chain, go the extra mile and purchase single-braid eight-plait. This is the line recommended by many windlass manufacturers. Suitable splices for this one include the back splice to one link and a version of the elongated splice for square rope (Just the first of these is illustrated here, on Page 53).

When you're gathering your splicing tools, shown above, be sure to include a hot knife. An old solder gun serves this purpose for me. A hot knife will sever and melt nylon fibers together leaving a relatively clean cut that won't unravel.

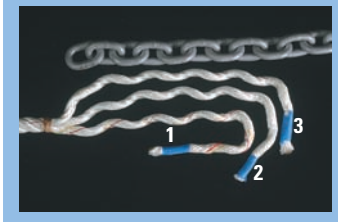
Three-stranded back splice to a single link

This one is called a back splice to a single link because it is inserted through a link and then turned 180 degrees back and threaded against the twist of the line. When this splice is under load, the rope's twist tightens to lock the backed strands.

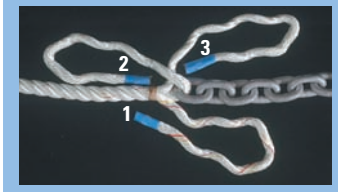
The key to this splice for rope-to-chain windlasses is to keep it loose. Don't snug it up on the chain too tightly. Remember, the splice will need to make a 180-degree turn on some windlasses.



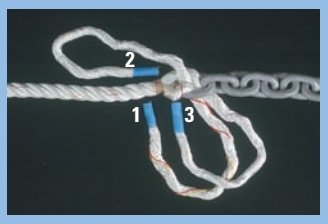
Measure and wrap. Measure off a foot of rope and tightly tie a constrictor knot with strong twine.



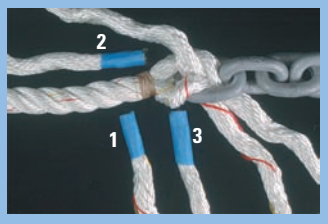
Decisions, decisions. Unravel the strands. Use a hot knife to seal the ends. Tape them tightly. From the constrictor knot, flatten the strands and decide on a middle strand. I like to mark this middle strand "2" and the outside strands "1" and "3." Number it any way you want, but the strand you determine to be the middle is the starting strand.



To begin. Start with this middle strand, Number 2, and insert this into the link.



Both ways. Insert the other two strands into the link in the opposite direction from Number 2.

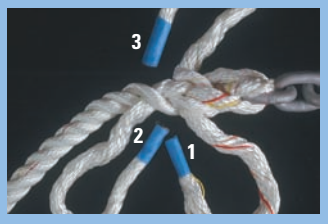


Do the twist. The strands tend to unravel a bit at this point so it is important, for neatness, to keep them tightly twisted.

First tuck. Take Number 2 and go over a strand and then under the next strand. Always thread the strand against the twist. This is called a "tuck."

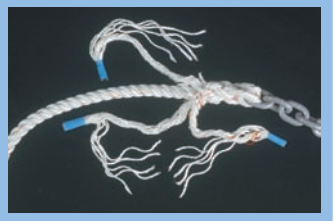
Over under. Take the Number 1 strand and go over one strand and then under the next strand. Do the same with Number 3. If you did it right, all three strands should appear to come out of the twisted rope at the same level but from between different strands. This is the most critical part of the splice. If you get this right, you are home free.

Pull all the strands tight against the link and the constrictor knot but not so tight that the link can't move freely on the line. Yes, this is a potential source of chafe. If you make it too tight, the chain link and rope will form a hard spot and could bind or run roughly through the windlass.



Tuck away. Do two complete tucks with all three strands, threading through against the wrap. Keep everything flowing in a counter twist pattern. Weave each over the next strand then under the one after that.

Taper down. After two tucks for each strand, take your hot knife and — from where the strand emerges from under a strand — cut off one third of the threads of each strand. Leave ½ inch or a bit more sticking out. You can clean these ends off later.



Slim and trim. Complete two more tucks with your now thinner strands.

Taper to the finish. Cut off another third of the threads. Finish tucking the remains of the strands until there are no more to tuck. Pull firmly on the splice to smooth it out. Clean up the protruding threads, leaving about ¼ inch sticking out.

All done. This splice is not as flexible as the elongated splice and may jam up in windlasses if you weave your strands too tightly.

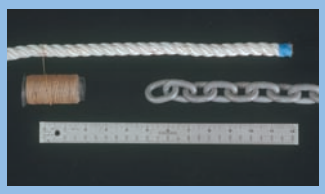
The elongated splice

This is a splice that I have not seen very often. It's easy to make, flexible, and seems to be very firm and strong. This splice runs quietly through my windlass and into the chain locker below. It lacks that lump of stiff material common to other splices that tends to make a loud, sickening "clunk" no matter how loose you make it.

Alain Hylas is the inventor of the Spade anchor and of the elongated splice. He calls this splice "the only safe way to connect anchor warp to anchor chain."

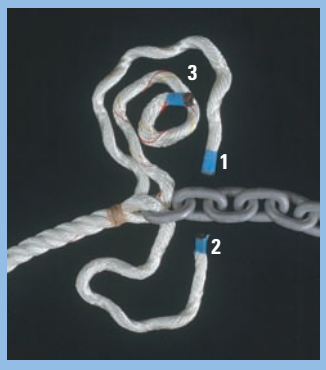
He explains, "You can also connect it with an eye-splice over a thimble and a shackle. It will be absolutely safe but has difficulty going through the bow roller, windlass, and then into the chain locker. The other way is the back splice, passing the strands through the last chain link. Although there are publications that prove that the loss of strength is negligible, I don't like it, as every time a rope is sharply bent, it will lose about half its strength."

Alain doesn't remember where he learned this splice. "I've been sailing for about 45 years now, including 13 years of full-time cruising . . . during this time, I learned quite a lot." (A square-line version of the elongated splice also exists.)

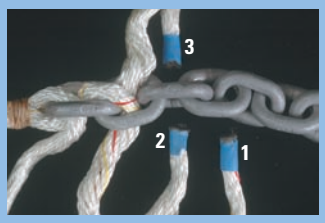


On your mark. Start with 12 to 14 inches of line. Make a substantial constrictor knot with waxed sail twine.

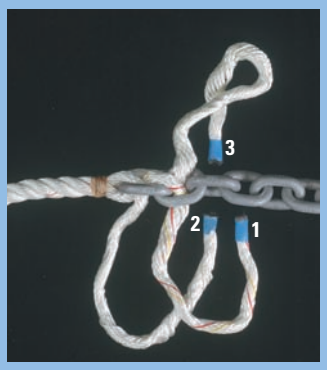
Ventilation. Unravel the strands after hot cutting and taping the strand ends. Number or mark each stand to differentiate one from another.

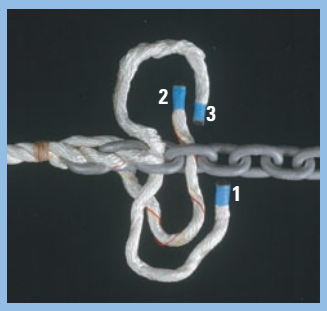


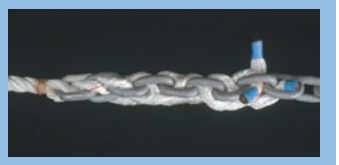
In and out. Insert Number 1 and Number 2 through the first link from opposite sides. Draw it up tight to the constrictor knot. Insert Number 3 in the second link. Keep the strands rolled tightly so they don't begin to unravel.



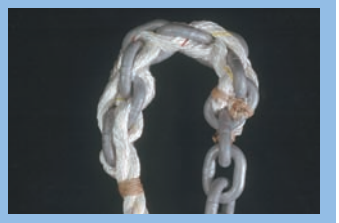
Repeat. After you have the first two links done, the rest is just a repeat. Two in from opposite directions, the third skips up to the next link. Do this until you run out of line.







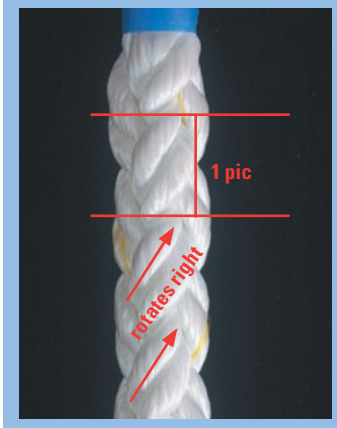
Tie it off. Using heavy waxed twine and a sail needle, tightly bind the ends to the chain links and then use the hot knife to cut off the excess. Keep the melted plastic ends as small as possible.



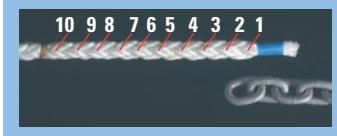
Around the bend. This elongated chain-to-warp splice is very flexible and goes though my chain-to-rope windlass with little or no trouble.

Back splice for square line

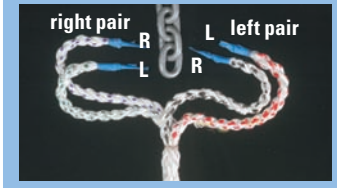
Square line, also known as eight-plait, is the line recommended by windlass manufacturers. Brait, by Yale Cordage is shown in the illustrations. If you're in the lucky (or unlucky) position of needing new anchor rode, this is the way to go.



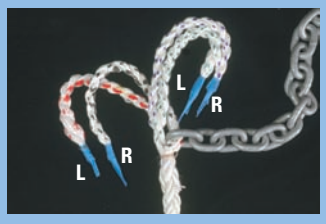
Learn right and left. Eight plait, sometimes called square line, has four distinct surfaces or sides. When you turn the rope 90 degrees, its top strands appear to rotate as a pair to the right; turn it another 90 degrees, and the top strands or pairs will rotate to the left. On each of the four sides there is a pair of strands rotating together in the same direction. Study the rope before you begin and learn the left and the right.



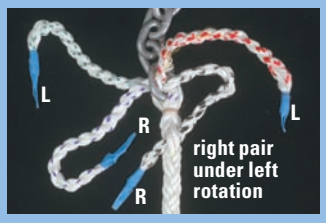
Count pics. Count 10 pics (or paired strands of yarn) back from the end and tie a constrictor knot tightly with waxed twine.



Unnerving unraveling. Unravel the rope to the knot and separate the strands into four pairs. Each pair has two strands of material traveling in the same direction. Mark each pair "R" for right-rotating and "L" for left-rotating. I marked each pair with different colors to help with the photos. Tape each pair's ends, to form a point. This will help speed the tucking process.



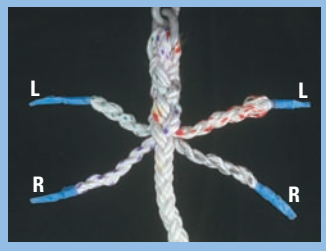
In, then out. Take a left pair and a right pair and thread it through the link. Then take the other left and right pairs and thread them through the link from the opposite direction over the top of the other two pairs.



Tunnel tricks. Here's where it gets tricky. Turn the line so you can clearly see "the rotates to the left" weave on the body of the line. Take a right pair and slip it under the closest left-rotating pair. You may need to use a fid or a pencil to create this tunnel. Remember, right pairs slip under left pairs from right to left. You will notice that your tucked pair will have a partner weave that it travels along with.

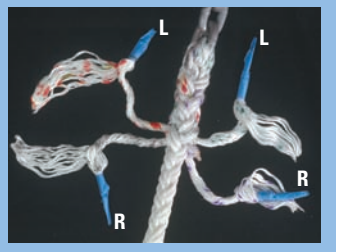
Still tricky. After you tuck both right pairs, turn the line so you can see the "rotates to the right" weave. Left pairs tuck under right rotating weave from left to right.

Confused yet? At this point you have done four tucks. Examine your work. Are both right pairs running from right to left under a left rotating pair? Do they have a partner weave under them running in the same direction? Are both left pairs running from left to right under a right rotating pair? Do they have a partner weave running in the same direction under them? If you answered yes to each question, good job.

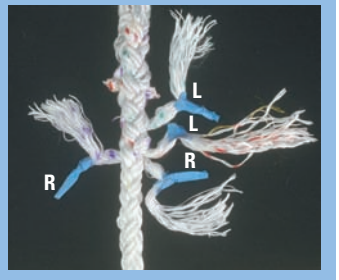


Tuck, tuck. Now, do two more complete tucks. Right under left, left under right, with all four pairs. The splice is taking on the look of the original rope weave, though a bit bulked up.

Thinning down. After making three complete tucks, cut one strand from each pair about ½ inch from where it exits from under the weave. Use a hot knife.



Twist and shout. You're almost there. Tuck the remains of each pair in the same pattern as before until there is only about an inch or so of strand poking out. Keep a twist on the remains of the strands.



Pull tight. Once you have tucked as far as you can, pull the splice tight and then cut off the strands, leaving ¼ to ½ inch sticking out.

All done. Now go and anchor out someplace nice.

One thing more. No splice should be trusted to hold your baby safely through the night without testing, right? Author John Danicic and *Good Old Boat* technical editor Jerry Powlas devised a test which surely will determine whether your carefully completed rope-to-chain splice is capable of holding a large boat in a heavy surge. We had fun with this concept and offer it in jest. Don't try this at home, kids. For more, please turn to Page 86.

Smart boat-buying

Don't forget — the advantage always goes to the buyer

by Kim Efishoff

It was in 1995 that I started looking for my first big sailboat. I had previously owned a 14-foot Flying Junior and a 20-foot O'Day pocket cruiser, but this would be my first real "bay boat."

As I was somewhat naive about the boat-buying process, I jumped at the chance when a friend, familiar with the art of buying and selling boats, volunteered to help. My first lesson under his tutelage was one that has served me well ever since.

One of the first boats we looked at was a 1980 Hunter 30. The boat had been well used and had received little in the way of maintenance or care. In a word, it was "trashed." While it appeared structurally sound, it needed a lot of cosmetic work that I was willing to do if the price was right. The asking price of $20,000 was average for the market at that time.

We asked the broker for a private moment while we discussed the possible purchase of the boat. Though this was one of the first boats we had seen, I had boat-buying fever and was chomping at the bit to make the purchase. "Slow down, slow down," my friend counseled. "There are a million boats out there, and we've just *started* to look." My friend was a little amused by my over-anxious attitude and said, "Let me handle this. Don't say anything. Just listen. We'll have some fun with this."

Low-ball offer

When the broker returned, my friend looked him straight in the eye and said, "We've estimated what it will take to get this boat back in shape. We figure it will cost around $13,000. We'd like to offer $7,000 for the boat. The offer is good for 24 hours. After that, we'll be moving on to bigger and better things and will no longer be interested."

I thought to myself, "$7,000? Is this guy *nuts?* And why give him a 24-hour deadline?" The broker said he would take the offer to the owner but wasn't optimistic. I handed over a good-faith check for $500, and we left.

I was pretty disappointed. I wanted the boat and figured there was no way I would get it, considering the way my

> **“Used boats cost less to buy, …have all the seaworthiness of a new boat, and come with loads of equipment…”**

friend had handled the deal. However, bright and early the next morning, I received a call from the broker. The owner had accepted the offer. The 24-hour time constraint had intimidated him out of even coming back with a counter-offer.

In spite of this, I didn't buy the Hunter. My friend wisely insisted I keep looking until I'd had a chance to see more boats. I told the broker I had changed my mind, and he destroyed my check for $500. A good faith deposit is generally required with any offer, but one should always get a confirmation from the broker that the check will be returned or destroyed if the offer falls through.

No reputable broker would keep a good faith deposit, regardless of the reason for not consummating an offer by buying the boat. There is no legal obligation to buy a boat once an offer has been made and accepted. There are simply too many contingencies in the contract one signs when an offer is made, the most outstanding being the results of the survey.

I eventually bought a 1990 Ericson 32 and was grateful that my friend had reined me in. The Ericson was a great boat, was more seaworthy than the Hunter, and needed little work. The icing on the cake was that three years later I sold the Ericson for $10,000 more than I had originally paid.

Lessons learned

Making a profit on a used boat is not the norm. However, I had purchased my boat at a good price and in the process had learned a couple of very valuable lessons from my friend.

First, I learned to take my time and look at many boats before making a purchase. In this way, I was able to learn what was available, what the market was like, what I liked, and what truly suited my needs, rather than letting the excitement of fulfilling my dream cause me to act hastily.

Second, I began to realize that there were a whole lot more boats out there for sale than there were buyers; and that in the world of used-boat buying, the advantage always goes to the buyer.

Buyer's market

We often hear the terms “buyer's market” and “seller's market.” It's a seller's market when there are fewer boats available on the market for sale than there are buyers, requiring buyers to compete. It's a buyer's market when there are more boats available for sale than there are buyers, in which case buyers can expect the advantage.

It's always a buyer's market in the used-boat world, regardless of what the broker may tell you.

Used vs. new

If you think a new boat is the way to go, consider this: a new boat loses 30 percent of its value in the first year of ownership. Sales tax and annual property taxes can be double (and even triple) the costs compared with buying an older used boat, and new boats require wheelbarrows full of money to outfit them with required electronics and safety gear.

Used boats cost less to buy, have higher resale value (the resale value for a 20-year-old boat is pretty much constant from year to year), have all the seaworthiness of a new boat, and generally come with loads of equipment, like extra sails, electronics, tools, tenders and life rafts, life jackets, and so on.

Of course, a used boat may require some work. A familiar bit of wisdom recited in the boating industry says, “There is nothing that time and money cannot fix.” This is true. If an owner is willing to do most of this work, however, his time will require no capital outlay. Most of the skills required to do what needs to be done on a used boat are well within the ability of most boatowners. The rest can be learned by actually performing the work.

What a boat should cost

The average sale price for a boat manufactured 20 or more years ago has pretty much stabilized. A boat's fair market value is available to boat buyers from several sources. One source is the BUC book, which is like a boat bluebook. The pricing information found in the BUC book is provided by boat brokers nationwide and reflects retail, or broker-listed, prices. In this sense, the brokers somewhat artificially set the prices found in the BUC book. Several Internet sources are available that can help determine used boat pricing. Some of these include Yacht World, NADA Appraisal Guides, and the BoatU.S. Boat Value Check.

The offer

Before an offer is made, review one or more of these sources to determine the current fair market value for the boat under consideration. On a first offer, prior to completion of a survey by a professional surveyor, the general rule of thumb is to offer two-thirds of the boat's fair market value. Of course, this will depend on the condition of the boat and what you, as the buyer, are willing to pay.

But don't hesitate to make what might be considered a “ridiculous offer.” An offer of this type is never ridiculous to the buyer who gets the boat at his price. It's all a matter of perspective.

A buyer should never feel intimidated (particularly by the broker whose job is to talk a buyer into paying more) for making an offer

Secrets for used boat buyers

- Know the fair market value of your purchase.
- Before making an offer, carefully analyze what repairs and improvements are required to make the boat meet your needs.
- Avoid exceeding fair market value with the combined cost of the boat and the needed repairs and improvements.
- Invest your labor freely and enjoy the sense of pride and accomplishment you experience as a consequence.
- Slow down, take your time. Remember not to rush, because there are a million boats out there and the advantage always goes to the buyer.

> **"Of course, it isn't necessary to restore a used boat to Bristol condition to sail her and enjoy her."**

that is "too low." No offer is too low.

Don't let the broker (or owner/seller) see that you have any doubts about your offer. If you don't believe your offer, no one else will. Be firm and confident. You can always change your number after hearing the counter-offer. There is no loss-of-face in raising your offer after the counter-offer is made (and there's also no disrespect associated with sticking to your guns — remember, there are a million boats out there for sale).

Surveys, loans, insurance

If you plan to borrow money to purchase a boat, your lending bank will require a survey by a licensed surveyor before lending money. An insurance provider will also require a survey to establish a baseline for the boat's worth and condition and to verify that it is a seaworthy craft.

When a bank grants you a mortgage loan on a boat, the bank will require that you purchase insurance for the boat in order to protect the bank's investment from loss. If you do not obtain insurance when the purchase is made, the bank will buy insurance through its own provider and bill you. It is for this reason and, more importantly, to protect you, as the buyer, from the possibility of loss, that insurance should be lined up and ready at the time of purchase.

Even if you pay cash for a boat, liability is still an issue. Most marinas require proof of liability insurance coverage (a minimum of $300,000), with the marina named as "additional insured" before allowing your boat to stay in a slip there. A better idea is to protect your investment by purchasing comprehensive coverage for your boat, unless you can afford to bear the financial burden of a total loss.

After the survey has been completed, it's time to revise your offer… down. No surveyor worth his fee has ever performed a survey on a used boat without finding something that needed repair or replacement.

This occurs for three reasons: first, the surveyor wants to maintain his professional credibility (and job security). Second, the surveyor is likely to be an honest, competent individual who wants to give customers the best possible service (the surveyor's next job may depend on it). Third, finding a used boat that does not require at least some small amount of repair is highly unlikely.

The net result is that your final offer is generally less than the first offer due to the cost of needed repairs discovered by the surveyor. This happens in 99 percent of used boat purchases. The broker presents the buyer's final offer to the seller. The seller either accepts this offer, or negotiations continue until an agreement is reached.

Upgrades, improvements

If a seller has added lots of expensive gadgets and "go-fast rigging," these upgrades do not necessarily increase the value of the boat. (From an owner's perspective, the general rule of thumb is that total investment should not exceed fair market value). This does not mean that you should not consider investing your own labor into the repair and renovation of a used boat. This work is, after all, a labor of love.

The bottom line is that you can purchase an older boat, enjoy it for many years, treat the work that goes into maintaining and improving your boat as an avocation or hobby, and resell it without taking a beating. However, expecting to make a profit from your labor is not realistic in the world of used boats.

Consider my most recent project as an example. I have more than 2,000 hours of my own labor invested into the restoration of my 1977 Hans Christian 38T. Boatyards charge $50 to $70 an hour for labor. Therefore, the labor I have performed on my boat would cost at least $100,000 if done by a boatyard. At the time of this writing, the fair market value for a 1977 HC38T in excellent condition was around $100,000. If I had paid fair market value for my boat and had then hired a boatyard to make the repairs and upgrades, my total cost would have been $200,000. This is double what I can realize from the sale of my boat.

However, I didn't pay fair market value for my boat. I purchased my boat at two-thirds its fair market value, or $65,000. This allowed me to plow another $35,000 hard cash into this project without losing money. Performing my own labor allowed me to use the money saved for the purchase of hardware and equipment. How else could an average guy like me get the equivalent of a brand-new boat (costing $200,000 to $300,000) finished and ready to sail anywhere in the world for $100,000?

The added benefit is that I have had the opportunity to get to know my boat and its systems inside and out. In the process, I've gained the confidence and knowledge needed to perform my own repairs. I have educated myself through firsthand experience gained by working on my boat.

Bottom line

Of course, it isn't necessary to restore a used boat to Bristol condition to sail her and enjoy her. Boatowners are at liberty to put more or less effort into their projects, depending on their desire, expectation, and ability.

I required a sailboat that was structurally superior, safe, seaworthy, and capable of open-ocean passagemaking. I chose a cost and labor effort that matched my resources and abilities. Someone else with different needs and abilities might choose to pay a great deal less for a good used boat, add a few hundred dollars in repairs and amenities, and have many years of boating pleasure.

Resources

BUC books

BUC International Corp.
1314 NE 17 Court
Ft. Lauderdale, FL 33305
<http://www.buc.com>

Internet sources

These are just a few of the many online sources:

- **Yacht World**
  <http://www.yachtworld.com>
- **NADA Appraisal Guides**
  <http://www.nadaguides.com>
- **Boat Value Check**
  <http://www.boatus.com/buyer/valueform.htm>

Vespera's star cracks

An inspired solution to an intimidating problem

by Stan Sroga

A section of cracked gelcoat that was scraped off the hull, above, shows the white fiberglass mat with little resin, probably poorly wetted out in the manufacturing process. The gelcoat thickness is also a factor. Here, the thickness is about ⅛ inch. *Vespera's* 51-foot hull was ground down to the first layer of roving and the hull was then faired, below. The gelcoat and mat had to be removed because the gelcoat was cracked and the mat was hydrolyzed.

Below the waterline of *Vespera*, the 51-foot cutter I had chosen as a refit project, the entire gelcoat surface was star-cracked. The gelcoat cracks resembled a shattered car windshield or spider web. Pieces of gelcoat between the cracks ranged in size from ½ inch to a few square inches.

I had discounted the star cracks as a mere coating issue. But the estimate I received to cure the problem was more than $30,000. Naturally, I found this out *after* I bought the boat. On the other hand, no blisters were present. Perhaps because no blisters were visible and moisture meter readings of the hull showed low moisture levels, previous surveys had overlooked this problem with the gelcoat.

But how could I have disregarded such a visible problem? Before I bought *Vespera*, the boat had been surveyed and I had contacted two boatyards as well as the original manufacturer about the star cracks in the hull. In addition, I had years of boat restoration experience.

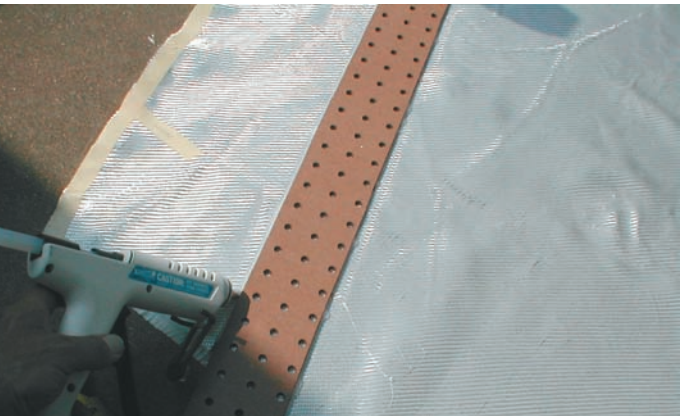
Because star cracks are unusual, no one could offer much helpful advice or a strong warning. The boat manufacturer listened a little but did not say much. One of the yards told me to test the gelcoat to see how thick it was. They had experience with older boats having gelcoat thicker than ⅛ inch that had cracked. They suggested that polyester resin by itself, without structural fibers, lacked strength and was likely to crack.

The second yard had past experience with European boats similar to *Vespera*. They had worked with the star-crack problems. They thought I could cover the existing gelcoat with a good barrier coat. Another expert told me that many boat manufacturers used bad resin in the 1970s and '80s because of soaring resin costs. Now, as a result, all sorts of problems were showing up. However, he could not suggest a cure without first seeing the boat. Other than the initial surveyor, none of the professionals I asked for opinions actually *saw* my boat. That was probably a mistake. Later, when presented with a suggested $30,000 cure, I was completely unprepared.

Fundamental lesson

I dug further into the problem before I started applying a barrier coat. I was reluctant to cover the cracks with a thick barrier coat because of the most fundamental lesson learned from marine surveyor and author, Allan Vaitses: when two materials are bonded together that contract and expand at different rates, the bond will eventually shear or the stronger material will break the weaker. Common sense told me that unless the barrier coating was stronger than the underlying cracked gelcoat, the gelcoat cracks would come through the barrier coat. The question was how deep did these cracks go? Were they tectonic plates moving around or superficial crazing?

To determine their depth, I ground off the gelcoat in several test areas. To my dismay, I found that the cracks went through the gelcoat and had left stain lines through the first



Each section of fiberglass cloth was cut to the correct length and Stan glued Masonite strips to the edges to attach the bungees. Before wetting anything out, he and his wife, Kathy, test-hung both layers of cloth to make sure they fit. They offset each 4-foot wide layer of cloth with a 6-inch overlap so there would be no gaps between sections. The cloth wrapped around most parts of the boat was more than 15 feet long. It would be impossible to work with pieces of cloth this large without a system to hold it in place.

two layers of mat. In other words, the cracks affected the hull up to the first layer of structural roving. Under the gelcoat some of the mat looked snowy white as if it had just come off the roll. It had barely been wetted out. Had the resin been dissolved from hydrolysis or had the resin been poorly applied at the factory? We'll never know.

What I did know was that I had a 51-foot boat that had to have all the gelcoat and first two layers of mat removed then rebuilt, refaired, and recoated. The only yard in my area that did restoration work on this scale said the repair cost would start at about $30,000 and could cost much more if the problems ran into deeper laminate layers.

Incidentally, I learned that Alan Vaitses was right: the hull had already received an epoxy barrier coat. The cracks had reappeared, coming through the barrier coat.

Life-long solution

What I wanted was a solution that would last the life of the boat. I decided to grind off the bad laminate and build a new thin epoxy hull over the original polyester hull. This new skin would consist of two layers of 10-ounce glass cloth and epoxy. This would be covered with six coats of Interprotect 3000 and one coat of InterProtect 2000E.

To research the problem, I went to boat repair manuals, a surveyor, and two yards with solid experience in hydrolysis restoration projects. I learned there is a big difference between the people who have book learning and the people who have hands-on experience. A textbook authority will tell you to remove 100 percent of the milky-looking (hydrolyzed) fiberglass down to the dark (un-hydrolyzed) layer below. This may require cutting large holes in the hull. The big problem with this "ideal solution" is that you might not have much of a boat left when the excavation is done. Hull construction is not uniform and hydrolysis is not uniform. Some layers are wetted out well and free of hydrolysis while other layers are delaminated in pockets. With spot grinding and a saw, you could remove every sliver of poorly wetted laminate, but the hull may need to be rebuilt in many places where the hydrolysis was not too bad. In other words, the cure might be far more destructive than the disease.

As I explored the problem, fairing the hull became a large issue. Fairing is your enemy since it accounts for about a half of the cost of the repair. The more fairing material you use, the less likely it is that the repair will last. The more cavities you grind out, the more filler material and fairing time will be required. Likewise, the more lumpy fiberglass you add to the hull, the more fairing will be required. Fairing is both destructive and expensive. You put on a bunch of expensive waterproof material that you then grind off. It results in thickness variations in the laminate repair and a mixture of dissimilar materials. Fairing compounds have fillers that enable sanding, but they are therefore more porous, with less structural strength than laminate.

Competing goals

Ideally, you want to do the least amount of fairing and use the smallest amount of fairing material. But also ideally, you should gouge out the hull down to sound laminate before restoring it. These are

competing goals. One is to grind out the suspicious laminate, but the more you grind, the more you will need to rebuild and re-fair. So what is a healthy balance between excavating down to sound laminate and saving laminate? I needed a definition of "sound laminate." I wondered, "Does the laminate need to look uniformly dark?"

After collecting opinions and weighing arguments, I now believe that sound laminate is simply laminate that does not retain moisture. Forget about how the laminate looks. If the laminate can be dried out and does not absorb water from the air after the drying process is complete, then it can be successfully covered. Conversely, if the laminate absorbs moisture from the air, it is bad laminate, no matter how good it looks. I won't bore you with all the arguments that brought me to this conclusion, but bear in mind that not all authorities agree.

To determine if the hull is dry enough, check the moisture reading difference above and below the waterline. A 2-percent difference is acceptable. Some hulls absorb moisture from the air after they are tent-dried. If your laminate stays dry, you're good to go. If it absorbs a lot of moisture from the air, you may have to start cutting holes in the hull with a Sawzall.

Not traditional

Because fairing is destructive to new laminate, I chose to fair out the original hull before covering it with new laminate. I realize this is the opposite of the traditional restoration method. Traditionally, the hull would be covered with new fiberglass layers and then faired because it is very difficult to add new laminate and maintain the smoothness. For light fairing I used epoxy mixed with micro-balloons designed for 100-percent submersion. For the spots where I had to gouge the hull, I used Awlfair. No roving had to be destroyed. The structural strength of the hull was not affected because only the outer layers of mat had to be removed. In *Vespera's* case, the roving is bright yellow Kevlar so it was very easy to see if I ground into the roving fibers.

Before I started grinding off the gelcoat and mat, I had the bottom sandblasted to remove several layers of bottom paint. This got the hull stripped down to the gelcoat. I hoped the sandblaster would be able to remove the gelcoat also, but this was not possible since the gelcoat was unusually hard and thick. Because the gelcoat resin was harder than the laminate underneath, the sandblaster needed to use a very aggressive pressure setting to bite through it. This proved too destructive to the underlying laminate. I wound up grinding off the gelcoat the hard way, using 24-grit, 8-inch grinding disks on a 2,000-rpm automotive body grinder. This is a long, hard, messy job. It also requires the correct hand motion. A 2,000-rpm grinder can do a lot of damage in a hurry. The trick was to keep the grinder moving constantly with a wide, sweeping motion.

Next I covered the hull with two layers of 10-ounce cloth and epoxy resin. Why should the hull be covered with any additional fiberglass, since no structural fiberglass was destroyed? It seemed like good insurance — rather than just adding a coating — to add laminate layers that had better water barrier properties (epoxy) and structural strength.

As for why I chose fiberglass cloth instead of mat, I felt that fiber-

The goal was to avoid the use of fairing compounds (and the time-consuming sanding which accompanies their use) on top of the new epoxy laminate. The bottom is shown after the initial removal of the gelcoat and mat, faired and ready for glass replacement, following the replacement of cloth, and repainted.

There were many jobs to do on this project boat. But none was as difficult, Stan says, as this bottom job which consumed eight long days of Stan and Kathy's time. When the bottom project was completed, Stan moved his project indoors. He built a tarp which allowed him to continue his boatwork through a Minnesota winter.

glass cloth would be the easiest material to keep fair. It can conform to compound curves and works well with epoxy resin. Fiberglass cloth has no binders that require solvents in the resin to dissolve them.

Why epoxy resin instead of vinylester resin? Some (but not all) of the hands-on experts say the best bond to an existing polyester laminate is made using epoxy resin and that epoxy is the best water barrier.

After I faired the hull and chose to cover it with new laminate, the next problem was how to cover the hull and keep it fair. Anyone who works with fiberglass knows this is a very difficult proposition. I chose to stretch each layer of cloth over the hull using bungees. In this way, the cloth could be wetted out after it was hung. The largest piece of cloth was 15 feet long and 4 feet wide. Working above my head with material this large would be impossible without a method to stretch the material and hold it in place. Also, as the cloth is wetted out it stretches. I left an extra foot of cloth above the waterline on each strip of fiberglass cloth for the bungee attachment. The elastic bungees would take up the stretch as it occurred. I cut strips of Masonite and hot glued these to the extra foot of cloth for each section. This could be done with the cloth laid out in strips on a clean driveway. The Masonite had pre-drilled holes for tool hangers. I used these holes when attaching the bungee hooks.

> "Setting the fiberglass cloth using bungees was not a quick solution. But it was a solution that allowed me to cover the hull and avoid fairing afterward."

Avoiding fairing

Setting the fiberglass cloth using bungees was not a quick solution. But it was a solution that allowed me to cover the hull and avoid fairing afterward. Because I would be laying up two layers of cloth, wet on wet, I needed to be set up for two sets of bungees. I also needed to test hang all of the pieces of cloth (both layers) before I wet any of them out. Any adjustments had to be made before I started working with mixed resin. Once the resin is mixed, as you know, you are starting a continuous process that has no time for errors.

Working with epoxy takes practice. Too much resin in the laminate will cause it to curdle as it cures, creating a maze of grooves and mounds in the laminate that will result in a nasty fairing problem. Too much heat (sun), and you will run out of time to work your mix. Too cool, and you will get a bad cure. The first piece of cloth I applied was a mess. We did not roll enough resin out of the laminate, and it curdled. It looked beautiful one minute and like a mouse maze the next. After the resin began to set up, no amount of rolling would keep it flat. I had to grind it off and re-cover that area.

My wife, Kathy, and I applied the cloth in four steps over a period of four days. Eight days were required in total because each layup day was preceded by a setup day. The four hull sections were completed from the forward edge of the keel to the bow (both port and starboard), then the aft end of the keel to the stern (both port and starboard), then the port side of the keel and finally the starboard side of the keel. Two layers of cloth were applied on the same day to each section. The first layer of cloth was butted together, not overlapped. The second layer was staggered 6 inches forward and butted as well. The second layer was applied while the first layer was still wet. Peel Ply was put over the second layer before the laminate was rolled out using a ½-inch resin roller. Peel Ply is wonderful stuff. It allows you to roll the heck out of the laminate so you can attain a very fair surface if you have a fair surface to begin with. As an added bonus, you can remove the Peel Ply after the resin cures and you do not have to sand the surface or wash off an amine blush. To be safe, we washed it anyway.

The separate steps

In summary, the steps went as follows: start with a clean, washed, sanded, fair surface. Mix enough resin for the first layer of cloth, use a foam roller to roll the resin onto the hull, hang the first layer of cloth and stretch it, and roll more resin onto the first layer of cloth. Your helper is now mixing resin for the next layer. Hang the second layer, stretch it, and roll on more resin. Then (very important) use a serrated resin roller to remove the excess resin and put on the Peel Ply. Finally, use the serrated resin roller to remove the remaining excess resin.

All this must be done before the resin begins to kick. Before starting a section, measure and cut the cloth, glue on the Masonite ends, cut your bungees and test-hang both layers of cloth to make sure you've got it right before mixing the resin. In many ways working with epoxy resin is like pouring concrete. Once you start, you shouldn't stop.

Next came limited finish-fairing. My goal was to do as little fairing as possible and to avoid using any fairing materi-

als. But no laminate can be laid up perfectly. I filled the butt joints with epoxy mixed with micro balloons. This required only a very small amount of fairing material. Next I washed the entire hull with water and solvent, gave it a dual-action sanding with 40-grit, washed it with water and solvent again, and gave it three heavy coats of InterProtect 3000. InterProtect 3000 is normally sprayed on, but it can be rolled on.

Because 3000 is almost 100-percent solids, it works well for fairing. But use it only for light fairing because it is so hard. The whole boat was then lightly faired with an air file using 40-grit and rewashed. This took about eight hours of fairing time. Compared to a traditional fairing process, which will require two full-time workers for several weeks, this was nothing. Finally, three more coats of InterProtect 3000 were rolled on, followed by a coat of InterProtect 2000E and bottom paint. The bottom paint was applied before the 2000E cured so that a chemical bond was made.

Saved $25,000

The good news is that the total cost of this cure was about $5,000 in materials and a lot of labor. This was way below the yard estimate of $30,000 at a minimum, plus transportation costs. Before you start such a project, consider the following.

- When you work with epoxies you need to follow the manufacturer's application instructions very carefully. This is especially true for overcoat times (minimum and maximum) and for washes. Both water washes and solvent washes are required. Also, as little as a 10-degree difference in temperature can make a big difference in the time you have to work with. Be especially aware of direct sunlight. If you do not have experience laying up epoxy laminates, cover a rowboat first and keep track of temperatures and cure times. Practice on something you can throw away. You will be spending thousands of dollars on materials, and you can create a bigger problem than you started with if your work is not done correctly.
- Grinding the gelcoat and mat off of a hull creates far more dust than most boatyards would ever put up with. A handheld peeler can be purchased that uses a suction bag for dust, but at some point you will probably have to do some serious grinding and have a lot of dust to deal with. You will probably need to be at a marina that can place your boat far away from any other boats. Or you may be able to work on your boat at your home. Sandblasting is even messier than grinding and will not be tolerated unless you know your neighbors very well.
- Do not buy a hull that has moisture readings that are abnormal. A hull that does not stay dry after it has been dried out could be a total loss. A bad hull will absorb water from the air after it is dried. There is no way for you to know if a hull will stay dry until it has been dried, so don't take a chance.
- Finally, this is not the kind of project that is good for someone who has only a few hours on a weekend to spend, preceded by a two-hour drive. You need to be at the boat a solid 16 hours a week for this type of project to work. And you need a very willing helper for a fourth of that time. On the plus side, if you have the time, most of the work is fun and you can end up with a valuable boat that will give you a long ride. The more you document your work, the more your finished product will be worth when it comes to selling it someday.

Possible cracking causes

What caused the star cracks in the hull? Here are some experts' best guesses:

- There probably was a problem with the gelcoat resin. The same star cracks occurred on the inside of the hull in the bilge where water collected, but only where gelcoat was used. The interior gelcoat chipped off in pieces that were up to 4 square inches. But unlike the exterior coating, when the gelcoat in the bilge was removed, very solid, unhydrolyzed, laminate was exposed. This indicates there was probably also a problem with the mat layup outside the hull.
- The gelcoat was too thick: ⅛ inch and thicker.
- The first layer of mat was poorly wetted out, trapping a lot of air in the laminate.
- The first layer of mat was not laid up until the gelcoat had cured too long, creating a poor bond.
- Particles that attract moisture and trigger the destructive hydrolysis process were present in the mat laminate when it was laid up.
- Poor resin was often used in the 1980s and is having repercussions now.

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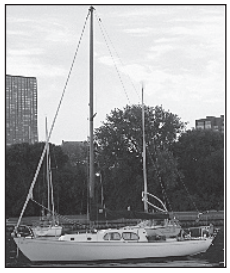

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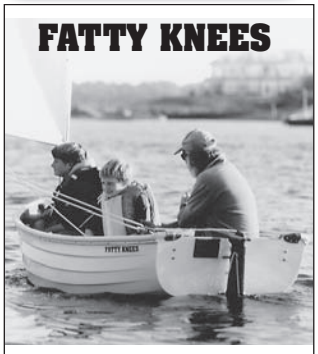

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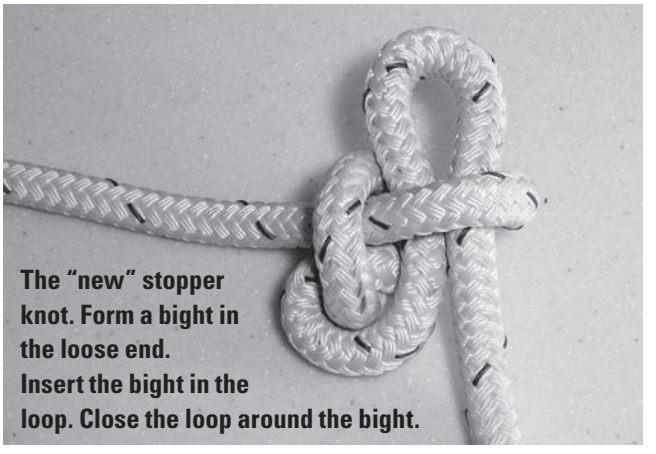
New quick-release stopper knot

This nice fat one won't jam in a block

by Dave Aultfather

A figure-eight knot.

A figure-eight knot jammed in a block.



The "new" stopper knot. Form a bight in the loose end. Insert the bight in the loop. Close the loop around the bight.

The "new" stopper knot can't jam in the block.

HAVE YOU EVER HAD A JIB SHEET RUN OUT OF ITS BLOCK AND blow overboard on the leeward side? The consequence of this temporary loss of jib control is usually limited to a little embarrassment and the need to collect the loose jib sheet and reroute it through its block.

However, if the mainsheet accidentally runs free out of its block, the resulting loss of boom control could be deadly. Most sailors have recognized and solved these problems by tying figure-eight knots in the ends of their sheets.

The figure-eight knot is less effective on the jib sheet. Especially if you use twin-sheet jib-sheet cars, it might not do the job. These cars have the advantage of allowing two sheets be led through the block at the same time, but a figure-eight stopper knot can sometimes pass through the car or, worse yet, jam partway through the car.

Brion Toss' excellent book, *The Rigger's Apprentice*, has a section on stopper knots. It includes a delightful story of the invention of the oysterman's stopper by Clifford Ashley. Brion included the story "to illustrate that there is still room for innovation, even in the simplest forms of knotting." He then explained his invention of a variation on the stevedore's knot that he called the sink stopper. The sink stopper is less prone to jam than either a figure-eight knot or a stevedore's knot and it is big.

After reading *The Rigger's Apprentice*, I began to view knots differently. I began to experiment too. Most of my experiments were total failures. But one of them, a stopper knot, shows promise. Like the sink stopper, it is based on a simple slipknot. Further like the sink stopper, it is easy to tie, has bulk, and seems secure. Best of all, it can be untied in a jiffy. It may not be a new knot at all, but I have not seen it before.

To tie this stop knot, make a simple slipknot. Then make a bight in the loose end and insert the bight into the loop. Pull the slipknot tight to close the loop around the bight.

To untie it, jerk the loose end to pull the bight out of the loop, and the knot will untie itself. Even when pulled really tight, it can be easily "broken" like a bowline and then untied instantly by pulling on the loose end.

Give it a try and let me know what you think. You can send an email message to aultfather@man.com.

Toofypegs

A DIY kit to soothe those aching teeth

by Geoffrey Toye

Two weeks away from any chance of help, there was a blinding pain. I found myself staring down at a chunk of metal in my hand. The hole it had left in my molar felt like a crater. Bluewater cruising and a lost filling are a really bad combination.

In truth, I wasn't on a bluewater cruise — but my dentist was. When I pulled over beside the highway in a great deal of pain and called the receptionist on my cell phone, I was informed that he was not expected back for two weeks.

With that bad news, I headed for the nearest pharmacy. The pharmacist nodded sympathetically and asked if I had ever tried Toofypegs.

Toofypegs? I handed over the cash, bubbled my thanks, and limped across the street to a café. There was nothing wrong with my leg, but I was in pain and not afraid to let the world know about it. I sat down and studied the Toofypeg instructions. Part of the kit was intended for fixing caps or crowns. I needed the filling replacement, which consisted of some blue tablets and what looked like a short length of white plastic rod about 3/16 inch in diameter. I asked for a cup containing a dash of boiling water and a glass of warm water at body temperature.

Two blue tablets went into the tumbler to create an antiseptic mouthwash. I had no toothbrush along, but I had not eaten anything since the filling had dropped out. The instructions required me to break off ¼ inch of rod, but I broke off a little more and dropped it into the boiling water in the cup, just before reading that I now had 30 seconds to rinse my mouth and get that piece of the rod into the cavity.

Gritting my remaining teeth, I rinsed as thoroughly as I could while removing from the cup the fragment of filling-rod, which had become slightly malleable but still rod-shaped. Open wide and feed it into the orifice. Quite easy. Then clamp teeth together. That more or less riveted the job, and I was reassured by the white-hot flash that traveled from toe to toupee that the rivet had bottomed out. Deliverance. The pain stopped. I ate a very pleasant late lunch … very carefully. All seemed secure.

It was a couple of months before I could schedule a dental appointment. My dentist complimented me on the neatness of the job. Then he removed the Toofypeg filling. He examined the inside of my tooth, found there was no infection nor trace of food contaminant. My temporary filling had worked well.

I was so impressed with this product and its obvious implications for sailors, I tracked down the pharmaceutical company that markets Toofypegs in Britain to learn whether it is easily available in the United States and other countries.

While Toofypegs are not marketed in the United States, similar dental repair products are available in pharmacies. In addition, the Toofypegs product can be purchased on eBay and in lots of three online from Westons Internet <http://www.westons.com>. (*Note: The Westons product code is 005-0500. The* Good Old Boat *editors spent $27.11 for three packages, or $9 each including shipping.* ***–Ed.***) For this, you get enough material for a few dressings and to re-attach a couple of crowns.

The company representative mentioned comments from other customers. One had made perhaps a neater job than I managed: her dentist simply examined it and advised her to leave well enough alone. Apparently tales abound of these repairs lasting way beyond the expected period, although the manufacturer recommends that professional intervention be sought as soon as possible. It seems this extremely practical product has been around for a while. I was not surprised to learn that it was developed by a dentist.

Nobody is likely to give an absolute guarantee that such a repair will work or that it would be anything but temporary, but this is definitely the best I have ever tried. These days I have a kit in the medical chest aboard *Gwendoline* and another in the glove compartment of my car.

Rust-free tools

Barbecue charcoal does the trick

by Gregg Nestor

A small bag holding charcoal briquettes and placed in a tool box works wonders in the battle against moisture and the corrosion it creates.

Since I perform the bulk of the maintenance on my sailboat, not to mention on my cars, pickup, tractor, and house, it's only reasonable that I would have a pretty hefty selection of hand tools. While the majority of my tools are housed in the tool chest in the workshop, I do have several small satellite tool boxes. I keep these toolboxes where they are most often needed.

One of these satellite toolboxes is on my sailboat. Since the boat's moisture-laden environment is apt to cause corrosion, I've tried all sorts of things to protect my tools from rusting. This has included purchasing pricey stainless-steel tools, coating the tools with a light film of oil, wrapping them in oily rags, and even sealing them in plastic bags. While all of these techniques work to some degree, I discovered a much simpler way to battle rust-causing moisture: charcoal briquettes.

This barbecue necessity absorbs moisture and keeps the toolbox's inner environment dry. Since the briquettes tend to create dust, I place them in a small cloth bag before putting them in the toolbox. The cloth bag helps contain the dust. About three or four briquettes per toolbox protect my tools from corrosion for one season. In the fall I replace the tired ones with fresh briquettes. I toss the used ones into the last barbecue fire of the season.

Lifeline cushions

Make them yourself this easy way

by Phillip Reid

A LIFELINE CUSHION IS SOMETHING YOU CAN THROW TOGETHER from materials intended for other projects, and you can save a nice wad of cash while you're at it. A good lifeline cushion has a flexible, hard-walled tube inside against the lifeline. This is stored inside a cylindrical foam cushion. The outside layer is a UV-resistant cover. Sunbrella or a similar boat-canvas fabric makes an ideal covering. The hard tube keeps the line from cutting into the cushion and makes the cushion more comfortable to lean against.

First, measure for the length of your cushions. Exclude turnbuckles, pelican hooks, and other hardware thicker than the lifeline, as these won't fit through the cushion tube. Don't assume that upper and lower lifelines, port and starboard, are exactly the same length. Buy some PEX (cross-linked polyethylene) tubing in the plumbing section at your local hardware store. This is the flexible white plastic tubing used for hot and cold potable water. If you live somewhere cold — where PEX may be banned by your plumbing code — you may have to look for another type of semi-rigid plumbing material.

Select an inside diameter that will fit around your lifeline loosely so the lifelines have some ventilation (½-inch should be fine for almost any application). While you're there, get some pieces of foam pipe insulation with an inside diameter the same as the outside diameter of your PEX, also pick up a roll of electrical tape.

Lifeline cushions are an easy do-it-yourself project, even for someone with minimal sewing skills. The raw materials in Phillip's version are lengths of PEX tubing, above; foam pipe insulation, inset above; electrical tape; and Sunbrella cloth.

The only other thing you need now is Sunbrella for the covers. You won't need much; long scraps of material work great if you've got or can get them.

Sand inside edges

Cut the foam piece to the correct length with scissors. If your lifelines are vinyl-covered, file or sand the inside edge of each end of the PEX to keep it from cutting into the vinyl. Slide the PEX into the foam and cut to match. PEX can be cut in a snap with sharp pruning shears. Since the foam pipe insulation is pre-slit, wrap it in a spiral pattern with electrical tape, snug but not tight enough to deform the foam. The cushion is done.

Now it's time to make the Sunbrella cover. You need enough fabric to make a fold around the foam with just enough overlap to stitch through and enough excess at the ends to stitch in a hem. If you don't have scraps of your boat's canvas from a previous project, the Sunbrella is the only thing that'll cost you much of anything, unless you have to pay someone to sew it for you. In that case, go somewhere where they'll only charge you for the exact time it'll take to do it — which should be about 15 minutes.

To make the covers, cut the cloth so it's 2½ inches longer than the cushion. Fold it over the cushion and mark where it forms a ½-inch overlap. Take the slack out but don't draw it up tight, or it'll be a pain to get the cushion in it. Mark and cut for the lengthwise overlap. Take the cloth off the cushion. At each end, fold back ½ inch of material to form a ½-inch wide hem. (Remember that you're making the cover inside out, so the hem should be facing up as you make it.) Once it's stitched up, turn the cover right-side out and slip a nylon cord through each hem as a drawstring. Re-insert the cushions, draw up the strings, tie them, and slip them over the stud end of your lifelines. If you don't want to mess with the drawstrings — which allow you to take the covers off to clean them separately — just sew the ends most of the way up, leaving just enough of a hole for the lifeline to pass through.

What it costs

PEX tubing (24 feet @ 55¢/foot)	**$**13.20
Foam pipe insulation (4- x 6-foot pieces @ $1.39 each)	**$**5.56
Roll of electrical tape	**$**2.75
Sunbrella (I used scraps)	**$**0.00
Sewing labor (some Bohemia beer for friend with Sailrite machine)	**$**0.00
Total cash outlay for four cushions	**$21.51**
Price for similar cushions from marine catalog	**$92.00**

Restoring luster to your deck

This tough, flexible, shiny oil penetrates old gelcoat

by Gregg Nestor

Penetrol, a petroleum-based additive, penetrates the porous fiberglass of an aging deck. The coating also impedes moisture penetration.

Over the years, I've owned several "experienced" fiberglass sailboats. These are boats that have already had at least one or two owners. By the time I got my hands on a boat, the cosmetic condition of the fiberglass laminate was usually fair to poor. I'm not speaking of scratches, scrapes, and collision damage or even age-related gelcoat crazing. I'm talking about fading and chalking due to the boat's routine exposure to the elements, especially the harsh rays of the sun. Without exception, I've found it necessary to buff, polish, glaze, and finally wax the topsides. This technique restores the majority, if not all, of the boat's original gloss. While this four-step procedure has served me on the boat's hull, it doesn't lend itself to the horizontal deck surfaces, especially the molded-in non-skid areas.

Having worked for many years in the specialty chemical business, I have contacts in the coatings, adhesives, and paint industries. Periodically, I glean a gem of an idea from my sources and successfully apply it to the upkeep and maintenance of my boat. I queried my friends with my dull-deck dilemma. What I came up with is simple and easy and has worked wonders on my decks.

First, I wash the deck thoroughly using a mild abrasive cleaner and brush. The combination of Soft Scrub with bleach and a fingernail brush works well. This somewhat "mildly aggressive" cleaning approach insures the removal of dirt, most stains, and loose oxidization. It also cleans the molded-in non-skid.

After the entire deck has been washed, I go over it again with clear water and, using the fingernail brush, brush the non-skid to remove any residue.

Dry thoroughly

I usually do the cleaning at midday, when the sun is high and the deck surface is warm. I then kick back with a beverage and allow the deck to dry thoroughly.

Late in the afternoon or early the next day, I begin the final step. (Don't do this in direct sunlight.) Using a 3-inch-wide paint roller with a very short nap (maybe ¼ inch), I apply a thin coating of Penetrol to the entire deck. If applied too heavily, Penetrol can flake off and leave the surface blotchy. It works best when applied in very thin multiple (2 to 3) coats. Thin coats dry very fast…in minutes. I roll out most of the moisture so I don't clog the non-skid. Excess material should be cleaned up quickly with mineral spirits and a lint free cloth. Old T-shirt rags work great. If dried, Penetrol can be removed with any paint remover formulated specifically for use on fiberglass.

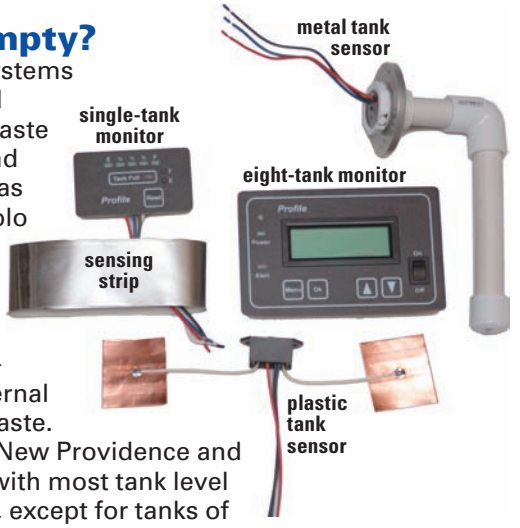
Penetrol is a petroleum-based additive originally developed to increase the penetration and adhesion of oil/alkyd paints and varnishes. When used alone, this deep-penetrating oil reaches down into the fiberglass and restores the original color. Upon drying, it cures to a tough, flexible, and shiny finish. It is available in many hardware stores, most paint stores, and the local chandlery.

All fiberglass laminates are permeable to some extent and will allow moisture to penetrate them. As an added benefit and as its name implies, Penetrol penetrates the porous fiberglass and impedes moisture penetration. It also eliminates the need for other surface coatings, such as polishes, that dry out quickly.

The Penetrol coating isn't slippery, but sailors should always be careful on wet fiberglass, especially on older boats where the non-skid may be severely worn.

As far as reapplication goes, I've learned to apply Penetrol based on need, rather than schedule. And reapplication should always follow the same four steps: clean, rinse, dry, apply.

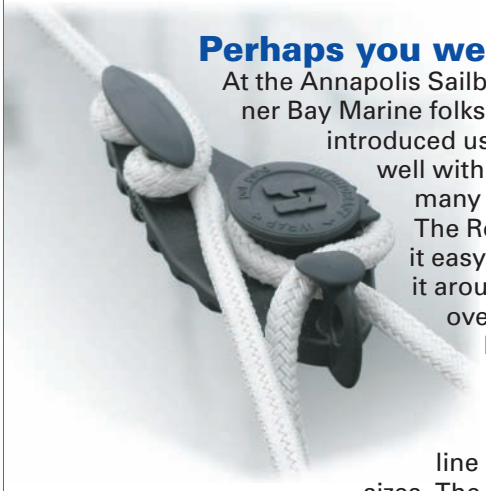
Half full or half empty?



New Providence Marine Systems has created a sophisticated family of fuel, water, and waste tank monitors. Standard and Legacy models connect to as many as eight tanks; the Solo model connects to just one. Sensors are available for all types of tank material. Plastic tanks don't require internal senders. Metal tanks use an internal plastic rod for water and waste. These panels will read the New Providence and other senders. A problem with most tank level monitoring systems is that, except for tanks of rectangular cross-section, the volume is not a linear function of the depth. (Consider the typical automobile fuel tank.) New Providence has attacked this problem with four tank profiles: rectangular, slight, hard-tapered, and circular. Choose the profile that most nearly describes your tank and accuracy will be vastly improved. Although these sensors work on the principal of variable capacitance, the monitors also function with mechanical and other types of sensors. Pricing depends upon the components selected. A Solo unit retails for $140, the larger units retail for $235.

Contact Ferriello Sales (exclusive distributors), 435-656-0042, <http://www.ferriellosales.com>, dennis@ferriellosales.com.

Perhaps you were looking for this

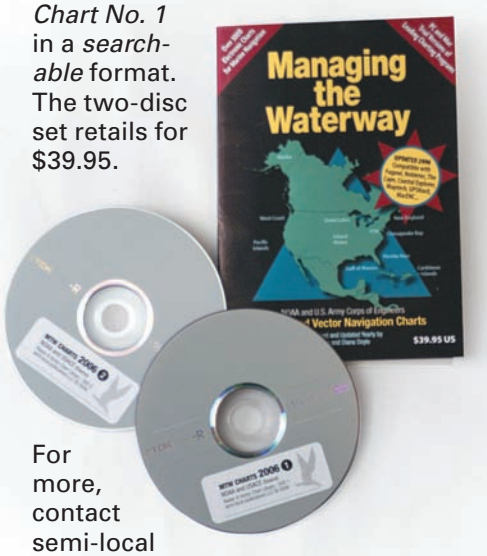


At the Annapolis Sailboat Show in October, the Banner Bay Marine folks (in the booth next to ours), introduced us to a new device that works well with their anchoring sails and has many other practical applications. The Rope Tie, by Hitchcraft, makes it easy to tension a line by leading it around an integral deadeye then over a jam cleat which locks the line down. The Rope Tie increases mechanical advantage on the line and makes adjusting the tension of the line easy. These ties come in two sizes. The Mini is for ⅛- to ¼-inch line and has a safe load strength of 250 pounds. The Monster is rated for loads up to 500 pounds and ¼- to 5/16-inch line. A pair of Minis costs $11.95; a pair of Monsters sells for $17.95. They can be found at <http://www.Hitchcraft.net>, along with a quick video about how these devices work.

For more information, call 415-462-5667 or email info@hitchcraft.net. Or contact Laurie and Jess at Banner Bay Marine who told us all about this handy device: 201-452-2834, <http//www.bannerbaymarine.com>, info@bannerbaymarine.com.

Electronic charts for the rest of us

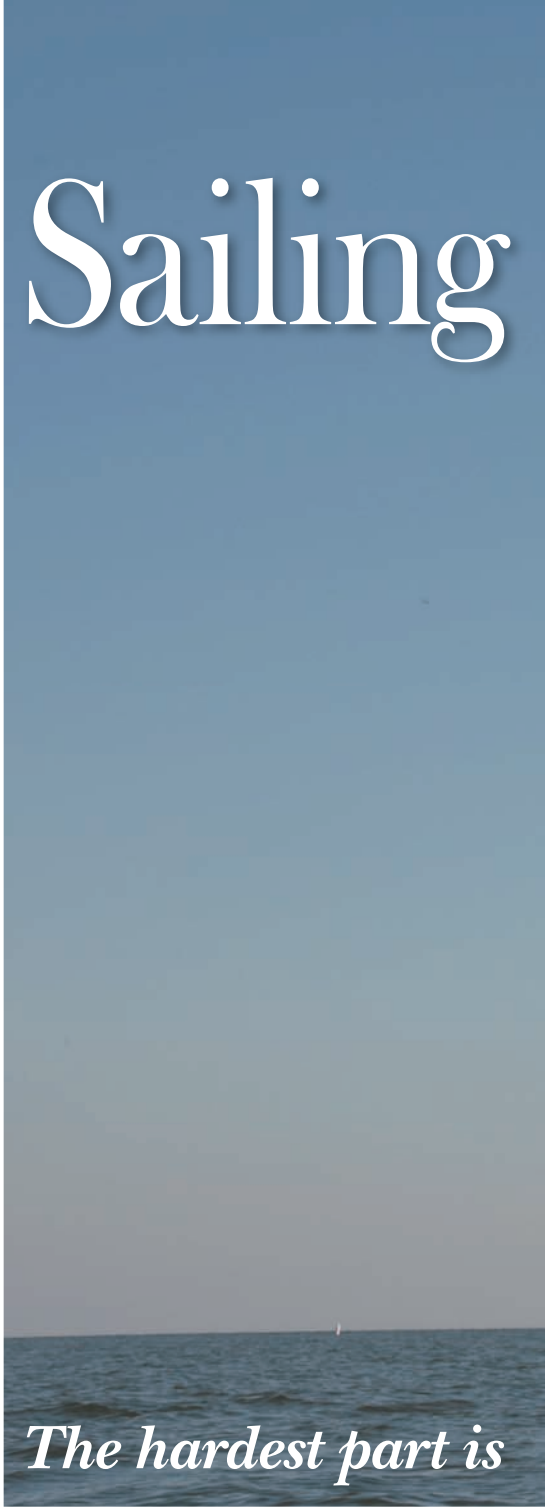
The creators of the Managing the Waterway cruising guides, Mark and Diana Doyle, have made electronic charting convenient, affordable, and available. The magic in *Managing the Waterway: Electronic Charts* is that large NOAA and USACE raster and vector files are downloaded and organized for you in nine geographic cruising regions. You *could* go rooting around on the government websites and do the endless downloads yourself. Or for just under $40 you can buy a two-disc set, which will give you the latest versions, compact and organized. The set includes more than 3,000 Raster Navigational Charts, vector Electronic Navigational Charts, and vector Inland Electronic Navigation Charts. These charts are compatible with all leading charting and navigation software and include a growing list of free and trial software for PC and Mac so you can try out charting and navigation applications if you're new to electronic charting or considering changing programs. One last thing: it includes government publications such as coast pilots, light lists, and *Chart No. 1* in a *searchable* format. The two-disc set retails for $39.95.



For more, contact semi-local publications, 612-729-4411, <http://www.managingthewaterway.com>, info@semi-local.com.

To be featured on this page, items must be new products. If you would like to have 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 the folks there that *Good Old Boat* sent you.

Sailing



The hardest part is

About two weeks ago, the weather improved enough here in the mid-Atlantic for me to rush out to my boat, a 1986 Hunter 28.5, scuff up the ablative bottom paint a bit, and put a new coat on. The next day I was able to wax the hull before the cold weather moved in again. With a launch date looming, I had been worrying that I wouldn't have enough good weather to get the basic spring maintenance done in time. The thought of having to miss my scheduled launch, and going to the end of the Travelift queue, had been giving me goosebumps. I'd rather forfeit tickets to the Superbowl or a first-run theater performance, than give up my launch date.

Unique smells

As I climb into the cabin, the first sense activated is that of smell. I suppose all boats have unique odors. The combination of musty, stale air, the faint odor of the oils and lubricants used in fall layup, and the many air fresheners I leave out, all combine to produce the most delightful aroma. I'm not sure others would agree that these odors are "delightful," but I love them. If I were somehow transported, blindfolded, and deposited into an unknown boat, I feel certain my nose would tell me if this were my boat or someone else's.

My eyes grow accustomed to the relative gloom in the main cabin. Opening the hatches lets in a bit more light and some fresh air. I light a few candles and relax on the main bunk. After checking all the things that need it, I pour some coffee from my thermos and eat the sandwich I've brought along. Slipping a CD into my portable boom box, I conduct a Vivaldi concerto. I conclude that Vivaldi must have been a sailor. Life ashore doesn't get much better than this. I wonder what my friends would think if they could see this side of me — and of sailing — at these times. I love being on the boat and feel lucky.

> "…there is some truth to all these reasons, but the real reason I go out to the boat is just to *be there*."

It's been a long winter for me. Maybe all the winters here are the same length — the four months from when the boat is hauled around December first to when it goes back into the drink around April first. But this one seemed longer. I usually occupy myself during this hateful period by doing a few boat-related projects in the basement, catching up on all the boating magazines stacked up in the corner of the family room (which make my wife crazy), and by visiting the boat in the yard every two or three weeks. I tell my friends that these frequent visits to the boat are necessary to ensure that all is well with the boat, that snow or ice hasn't found its way into the cabin, or to readjust the tarps that the wind always seems to rearrange.

I suppose there is some truth to all these reasons, but the real reason I go out to the boat is just to *be there*. After making a quick inspection of the exterior, I drag out the collapsible ladder and climb into the cockpit. While I'm standing at the wheel, my mind instantly takes me to sea. Turning my head this way and that, the differential pressure of the wind passing my ears tells me exactly where the wind is coming from. I imagine sailing to wonderful destinations far and wide.

When I leave the boat, I always do a mental calculation of how long it will be before both of us are back on the water. Driving home, I can't help but notice the flags flying on buildings and signs. To me, these flags are wind indicators. I'm figuring how strong the wind is and from what direction it's coming. A "5-knot flag" is as different from a "15-knot flag" as night and day. I know this is an addiction, but I'm a closet wind junky.

In business again

The phone rang on Tuesday. It was my marina calling to tell me my boat has been launched and is in its designated slip. The time has arrived. Groundhogs notwithstanding, this is the official sign that winter is over. Another sailing season has begun.

The next day I visit my boat in her slip. The first thing noticed is how alive she feels underfoot when in the water. I know it's a silly personification, but I can't help feeling the boat is happy being afloat after being held immovable in her winter straitjacket. I certainly am happier.

After checking all the mechanical and electrical systems, bending on the sails, and stowing all the stuff that has been living without license in the cabin over the winter, I decide to take a short shakedown sail.

Backing out of the slip, I'm headed

really *is* magic

KAREN LARSON

waiting out the winter

by Warren Milberg

for the channel out to deep water, trying to remember all those little sailing tricks in the back of my brain awaiting reactivation. It never fails to amaze me how much one forgets in four short months. Now in deep water, I turn the boat into the wind, set the brake on the wheel, and start raising the main. With the main up and drawing, the low purr of the diesel is ended with a pull of the kill switch, and I'm sailing.

The silence is deafening. It's almost a spiritual thing the way the boat swooshes through the water effortlessly. Wind, water, boat, and captain are as one. The new 150 genoa unrolls nicely and is sheeted home. The knotmeter jumps from 3 to 5.5 knots almost instantly. After a few tweaks of the control lines, the boat heels to 15 degrees and our speed picks up to 6.5 knots — hull speed — in the fresh breeze. I can't help but smile as my heartbeat rises. After sailing for more than 30 years, I'm still as excited as a little kid with a new toy. Looking up at the beauty of the full and drawing sails, I'm caught up in the magic of it all.

When I was a kid a few centuries ago, I had the same kind of amazement at how you could put a metal needle on a spinning plastic circle (now you know how old I really am) and somehow music emerged. While I understand the physics and dynamics of sailing as well as most sailors, the idea that these pieces of Dacron can somehow combine to produce enough force to move my 3½-ton boat through the water just seems magical.

As my first sail of the season ends, and I'm putting the boat away until my next trip to wonderland, I conclude that, science be damned, sailing really *is* magic.

Mail buoy

Cover girl

I want to thank you for the beautiful picture of *Curlew*, my 1975 C&C 33, on the cover of your September 2006 issue (the red boat). What a delightful surprise to find her there! That picture was taken two years ago. I had just returned from the Off-Sounding Club Fall Series, a two-day regatta off the Connecticut/Rhode Island border. My father has been giving me a hard time for not having a burgee up in the picture, but I pointed out to him that on Saturday a front came through with gusts in the 50s. Races were abandoned. Sunday, during the trip to the Connecticut River from Greenport, it blew about 25 knots right on the nose with waves in the gut like brick walls. The burgee was ripped away, but you can still see the pigstick in the picture. My good mate, Ty Streeter, and I raced the boat in a non-spinnaker class with sore shoulders from grinding but never any fear for the fine vessel we were aboard. Thank you for reminding me of why we love our good old boats!

Mark Andrews
Guilford, Conn.

Folding dinghy questions

We have the same folding dinghy [as the one shown in the November 2006 Mail Buoy with Don Launer], only we have the shorter one, about 6 feet overall. Smaller sailboat, smaller dink. We had a canvas bag sewn that would hold the folded boat and all of the pieces in its rack on the deck. We fashioned the rack out of recycled stainless welded by a local shop. I through-bolted the rack onto the deck, which in 20 some years, I am proud to say, has never leaked.

Climbing out of and into the dinghy in deep water has always been something of a circus act and now — as we are older — darned near impossible. We are working on a fix.

The dinghy is light enough that Ellie and I can launch and retrieve it over the lifelines in about 10 minutes. If we get caught out with too high waves and a wildly pursuing dinghy, we have none other to blame but our own lack of foresight. We always — well, almost always — haul her in for a long daysail or an overnight.

I suppose we have actually towed her 10,000 miles or so, and she is still going strong. From time to time, we wonder what we would do if we had to replace her. Don wondered if the dinghy is still being built…I spoke to [the U.S. distributor] about three years ago seeking advice on engine size for the little boat as we were replacing the one that had served us well for all those years. He told me that he had retired and was no longer importing boats.

Jim Hawkins
Minneapolis, Minn.

Mystery solved

Our British correspondent, Geoffrey Toye, has put us in touch with Steve Rea, owner of Seahopper Folding Boats <http://www.seahopperfoldingboats.com> in Somerset, England. Fortunately, these popular boats (originally sold in the U.S. by Britannia Boats) are still being manufactured in Great Britain and are available for purchase as completed boats or kits. These can be flown in to the nearest airport for U.S. customers who can pick them up upon arrival. Further contact information for Seahopper: phone (when calling from the U.S.) 011 44 1823 665151; or by email, cherry.steve@virgin.net.

It is coincidental that some time ago Geoffrey proposed writing a review of these boats, but we had not made the connection until Jim Hawkins asked for information regarding their availability in the U.S. Now we realize that the dinghy Don Launer tells us about is none other than a Seahopper, which we plan to profile later this year or early next year. It's a small world.

Perhaps a new U.S. distributor will come forward now that we are beginning to realize the convenience and quality of these boats which, according to testimony by Jim Hawkins and Don Launer, just keep going year after year.

Editors

Newsletter podcast

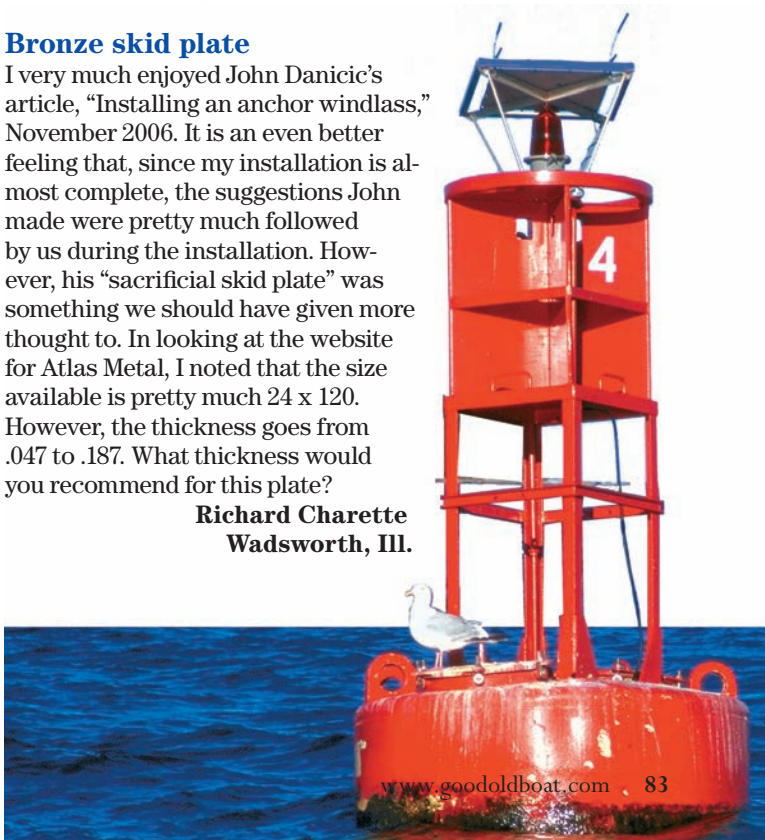
Where does the time go? The *Good Old Boat* newsletter for subscribers has been available as a podcast for nearly a year already. It keeps getting better and better as we learn about this new technology. If you haven't tuned in, give it a go. Start by visiting our podcast website at <http://www.audioseastories.net/>. You need a copy of the free software called iTunes. (It works on Macs and PCs. We tell you how to get a copy on our site). You can choose to subscribe to the podcast through iTunes (this means we'll send you each newsletter podcast automatically at no charge) or listen to it directly on your computer at the click of a mouse (no subscription required).

Editors

Bronze skid plate

I very much enjoyed John Danicic's article, "Installing an anchor windlass," November 2006. It is an even better feeling that, since my installation is almost complete, the suggestions John made were pretty much followed by us during the installation. However, his "sacrificial skid plate" was something we should have given more thought to. In looking at the website for Atlas Metal, I noted that the size available is pretty much 24 x 120. However, the thickness goes from .047 to .187. What thickness would you recommend for this plate?

Richard Charette
Wadsworth, Ill.



GENE GOTTSCHALK PHOTOS

Alfred Poor's Cal 29 in hot pursuit of Vern Penner's Sabre 28, at left. Below, Terry Thielen, on right, the Vanna White of Good Old Boat Regatta trophy presentations, hoots it up with skipper Cindi Gibson, second from right, and the crew of *Checkmate* on their first-place romp over the Fin Keel II Handicap Class.

John Danicic responds

My windlass is only about ½ inch higher than the skid plate. Consequently, the chain tends to skip up and down, making intermittent contact as it drags along the plate. After two years of use, I have not noticed any significant wear on the bronze nor scratches, deep or shallow. The chain tends to be lubricated with water upon retrieval which can only help minimize the overall wear in that direction.

That said, I would determine the height of your windlass chain feed from your bow roller. If it is higher, you could get away with a thinner plate. If it's even or lower, you will get more wear, so go thicker.

I used a ⅛-inch plate (.125) because a piece close to my dimensions was in the scrap pile at Atlas. As it turned out, that size was stiff enough to lie flat on the teak without bulging (and having to screw it down every few inches) and thick enough that I could countersink flathead #4 wood screws flush where it was attached. This made for a neat, smooth installation. I wouldn't go any thinner than the ⅛ inch for that reason. The larger size you mentioned (.187) is 1/16 inch thicker than ⅛ inch. That would buy you more wear time if you feel you need it.

The bronze cuts nicely with a simple jigsaw using a bi-metal blade at a moderate speed (don't use a fine-tooth metal blade like a hacksaw has) and can be finished nicely with files and fine sandpaper. I got a countersink designed for metal work for the wood screws, which I would recommend.

You will find that your windlass is one of the better improvements to your boat if you anchor a lot. I'm glad my experience helped you with your project.

John Danicic
Minneapolis, Minn.

Blown away at the Good Old Boat Regatta

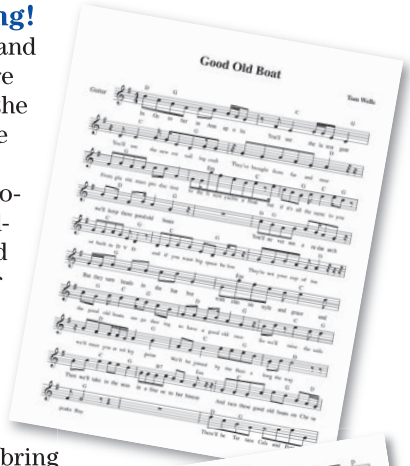
For the first four years, the Good Old Boat Regatta, sponsored by *Good Old Boat* magazine and hosted by Shearwater Sailing Club, enjoyed great sailing weather. But last year a gusty slow-moving rain squall forced cancellation of the Saturday race. So the racers went to the Annapolis Sailboat Show, ate, and began the party earlier. Very adaptable, these Good Old Boat Racers (known affectionately as GOBRs).

This year, when race chairman Charlie Husar scanned the weekend weather forecast, his eyes widened in horror. Saturday's prediction read 25-knot winds with gusts of 30-plus and 4- to 5-foot seas! The club issued a Saturday cancellation via email and telephone in the hope of reaching the entrants — particularly the faraway racers from New Jersey and southern Virginia — before they left home. Too late. Many were already underway. They arrived with stories of 10- to 12-knot rides down the faces of huge rollers and being continually battered by heavy gusts.

So, instead, the GOBRs went to the Annapolis Sailboat Show, ate, and began the party earlier. Did we mention how adaptable these racers are? For more on this and previous Good Old Boat Regattas, including race results, go to <http://www.goodoldboat.com/regatta_2006.html>.

Don Frye, race co-founder
Silver Spring, Md.

Tom's playing our song!



Singer, songwriter, sailor (and no doubt man of many more talents), Tom Wells wrote the Good Old Boat song in time for the October 2003 Good Old Boat Regatta in Annapolis. The regular race attendees have had a mighty good time with it ever since. Our hearts swelled with pride when we had a chance to hear it sung once more in 2006 at a very fine regatta party. Along with their good old boats, these guys bring their instruments each year. Now in its seventh year, the GOBR has become something of an annual reunion for the regulars, who really know how to have a good time!

The song is so catchy, and Tom has gone on to write other tunes about the Annapolis regatta boats and those who sail them, that we're hoping to release the songs on CD.

Imagine that . . . our very own song! The words are below. The

music is posted on our website at <http://www.goodoldboat.com/regatta.html>.

Editors

Good Old Boat, by Tom Wells
Reprinted with permission

In October in Annapolis you'll see the latest gear.
You'll see the newest sailing craft they've brought from far and near.
From plastic mass production to the finest yachts afloat,
But if it's all the same to you, we'll keep these good old boats.

You'll never see a radar arch or built-in DVD
And if you want big space below they're not your cup of tea.
But they turn heads in the harbor with their classic style and grace
And the good old boats are gathering to have a good old race.

Chorus
So we'll raise the sails; we'll meet you at Tolley Point.
We'll be joined by the fleet along the way.
Then we'll take to the seas in a fine October breeze
And race these good old boats on Chesapeake Bay.

There'll be Tartans, Cals, and Pearsons and others by the score
Comin' in along the coast to the western Chessie shore.
We'll gather at the starting line and then await the gun
A lovely fleet of good old boats out to have some fun.

There is a difference

Thanks for the nice surprise of putting my tips in the letters section (November 2006 Mail Buoy) and the bit about the renewable energy fair . . . except that our boat is a 1989 MacGregor 26 (some call it a "C" model but MacGregor never did). I call it a "real" sailboat, rather than the "powerboat with a mast" version that the "X" is. Ours is the last of the daggerboard version (I refer to ours as the "depth finder").

Allen Penticoff
Rockford, Ill.

Great video

The "Adjusting your standing rigging" article in your September 2006 issue came with a recommendation for a DVD by Brion Toss. I have now ordered and received this DVD. It is very well done, indeed. When I first bought my boat, I ordered DVDs from another company and was disappointed. This one is complete, to the point, and very professionally done.

I have already written to Mark Herlinger at Western Media Products to offer my compliments and wanted to share that with you.

It just adds to the value of your publication. Glad to be aboard.

Richard Huint
Montréal, Québec

We goofed

The *Ariadne* article in the November 2006 issue looks great. But somehow a photo caption and its photo got cross-wired. The one of *Ariadne* under sail on Page 39 was taken off Santa Cruz Island in southern California many years ago.

Phillip Reid
Wilmington, N.C.

Phillip noted that the photo ***couldn't*** *have been taken near Wrightsville Beach, North Carolina, as the caption states. There aren't any mountains like that for* ***miles*** *around!*

And goofed again

I noticed on Page 7 in the November 2006 issue that the author Patrick O'Brian's name was misspelled with an "e," instead of the correct spelling with an "a." (It seems that MS spellcheck defaults to O'Brien.) It was not until after WWII that he changed his name from Patrick Russ to Patrick O'Brian. Alas, he was English, not Irish. His grandfather (Carl Russ) was a German immigrant. Thoroughly enjoy our GOB subscription.

Duane Nealon
Petersburgh, N.Y.

Duane, we thoroughly enjoy O'Brian's Aubrey/Maturin series. You'd think, wouldn't you, that we could get that right . . . but we never thought to check the spelling.

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

Rope-to-chain splices, Continued from Page 53

An extremely effective test

by John Danicic

When I mentioned testing the strength of my splices, by using my brother's car, to a certain technical editor who is revered for his expertise and methodical approach to solving problems, he gruffly fired off to me the proper way to proceed. Needless to say, I intend to outsource this test. His recommendation follows.

The best way to test a rope-to-chain splice is, in fact, using cars. Both cars should have a stout trailer hitch properly installed and an appropriate ball attached. The chain should be in the middle of the test piece with rope spliced at each end. This allows two splices to be tested at once. Typically, 100 to 300 feet of nylon rode is spliced to each end of the chain, which is usually 10 feet, just for convenience.

The ropes are flaked, not coiled, (very important, don't coil the rope) in piles by the chain, and the cars are parked back-to-back next to the coils.

A fair damsel with a clean white kerchief stands to the side where she can be seen by both drivers. When she drops the kerchief both drivers motor away at maximum acceleration, and the fair damsel runs like heck in a direction perpendicular to the axis of the test ropes and chain.

FRITZ SEEGERS

Naturally, something will fail. In some tests where splices do not break, the lighter automobile will be thrown over the heavier one. Occasionally, trailer hitches are torn from cars, which suggests shoddy installation work and, occasionally, splices or links or even rope will fail. Test drivers can expect some damage to their automobiles when parts of the test samples spring back toward them.

Spectators should be asked to keep at least three times the rode length away from the test site, and the fair damsel is typically decorated for valor at the end of each test cycle.

The European Union has banned this form of testing, to the great disappointment of the Spaniards, who saw it as a humane alternative to bullfighting.

High-latitude (almost) sailors

It's for the hardy and it starts at 50 degrees north

by Karen Larson

Lately I've had reason to contemplate the charms and challenges of high-latitude sailing. Since we've just completed the production of our audiobook of Dave and Jaja Martin's *Into the Light*, narrated by Jaja, I've become very well acquainted with the terrific tale of their three-year voyage to Iceland, Norway, and the Arctic Circle. It's a tale well told and one that is a pleasure to offer as an audiobook. (For more information or to order, visit <http://www.goodoldboat.com/audio.html>.)

While that book was still in production, I had the pleasure of meeting Beth Leonard at the Annapolis Sailboat Show in early October. She handed me her newest book, *Blue Horizons: Dispatches from Distant Seas*.

I enjoyed it as we made one last madcap passage: delivering our C&C 30 from Thunder Bay, Ontario, to Superior, Wisconsin. *Mystic* was returning to her winter home after two seasons in Canada. When I wrote this, we were experiencing three unseasonably cold days on a cold lake in mid-October, so I was having no trouble relating to Beth and Evans' six-year voyage from Annapolis north to the Arctic Circle and then south to round all five of the great southern capes…high-latitude sailing at both ends of the globe.

Beth's book isn't so much a story of their most recent voyage as it is a collection of short philosophical musings and personal observations of the cruising lifestyle and the pain and pleasure of arduous cold passages in areas known for tempestuous seas.

These pieces were written as columns for *Blue Water Sailing* magazine over the years and offer marvelous insights into high-latitude sailing from the perspective of one remarkable cruising sailor. That she is a female should encourage other women to do likewise. *Blue Horizons*, too, is a tale well told. Beth has a wonderful way with words. My very positive review of this book appeared in the December 2006 issue of our newsletter for subscribers.

What struck me, in particular, was Beth's comment that high-latitude sailing begins at 50 degrees latitude north and south.

What did she say?

Wait a minute! Did she say 50 degrees? The northernmost part of our very cold lake lies at 49 degrees north, making us (*very nearly*) high-latitude sailors on a freshwater lake!

Why did this fact seem so astounding to one who was inching southwest on a chart toward Superior, Wisconsin, in the dark on a very cold and lumpy lake? I typically say that we sail where the butter doesn't melt. But high-latitude sailing (*almost, anyway*)? Who would have *guessed?* (Did the disembodied voice of the female weather robot *really* say that we were experiencing "unseasonably chilly" weather that week? She could have just said "unseasonably cold." No need to mince words here since the air temperatures were in the 20s and 30s.)

It's true that we took *Mystic* south to Lake Huron for two seasons to see why so many people rave about the charms of the North Channel. It is lovely, no doubt about that (see my photos on Pages 44 and 45). But the butter is capable of melting there in the summer, a fact that makes it *way* too attractive to *way* too many people. We scurried back to Lake Superior (not far from Lake Wobegon) where the sailors are hardy and all the children are above average. We like this place. With their books, Beth Leonard and Dave and Jaja Martin have reminded me why.

In both tales of their voyages, the authors are able to witness the most stunning scenery and memorable wildlife… but not without the hardships that must accompany a sail on the wild side of latitude 50. I generally refer to the cold and inconvenience that accompany our own wilderness cruising as "character-building experiences." That which does not kill us makes us stronger, they say. Dave and Jaja and Beth remind their readers that the true rewards, when it comes to sailing experiences and incomparable scenery, are there for those who are willing to make the personal sacrifices in terms of comfort and convenience in order to travel where few go.

Our big lake has fewer sailors than any other cruising area I have discovered in our travels as *Good Old Boat* editors. There's a reason for this. As we inched slowly down the chart and the lights of the twin port cities of Duluth, Minnesota, and Superior, Wisconsin, didn't seem to grow any closer or brighter (we still had more than 13 hours to go on this freezing 30-hour scramble!), I resolved to remember all the beauty of our northern lake in the summer with its loons, moose, wolves, caribou, exceptionally dark star-filled skies, and occasional northern lights.

It's all right with me if the butter doesn't melt. I take solace in the fact that I, too, am (*almost*) a high-latitude sailor. My thanks to Beth Leonard for pointing that out.

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When the sun flashed green

A magical week on the beach in Mexico

by Jim Daniels

A month from land, you're in another world. Flying fish come aboard. A dolphin streaks the bow wave. A gray whale catching air makes your day. A ship on the horizon seems a foreign intrusion . . . a mystery. On the curve of the world it's as likely to be the *Flying Dutchman* as a Carnival liner. There is nothing like crossing the wide Pacific. And yet, I could not be prepared for what I saw off Mexico's Pacific shore.

I had taken up residence for a week on the second floor of my brother's house in Old Mazatlán. My first evening there, John and Nikki took me two blocks down to the beach, where we gazed toward the sun as it settled on the far reaches of the ocean, slowly and regally taking its leave.

That was my first time. John saw it. Nikki saw it. I saw it as clear as day. Still I wasn't sure whether to believe. Is it a frame of mind? Does this come of too many days at sea? Does everyone, or only those of a certain disposition or spiritual composition, see it? Can it be the power of suggestion? Is the influence of John's belief and Nikki's enthusiasm contagious to my naïveté on a foreign shore? Is there a special convergence zone in the Land of the Naked People, a vortex that reveals what's hidden over the same ocean off our own West Coast? Is this a vantage point not to be found even at the center of the sea? I can only say that yes, the green flash does happen.

In fact, it happened at the stroke of sunset every night that week, each greater and nearer, yet deeper in the cosmos than the night before. We stood together on the beach, feeling especially favored and tiny simultaneously. We breathed in the salty warmth of evening arrived.

The week was so good, with new friends and sights and things to do, that I stayed another week. One evening I walked along the beach to Canuck's, the Canadian-Mexican restaurant and jazz joint. Before dinner, I shot a game of pool and paused to look out the open front, watching for it in the pre-dinner-crowd stillness. The green flash didn't disappoint me. Turning to Armando, I asked if he saw it too.

He's lived here all his life. He gave me a look, is it envy, I wonder? Is it wonder? Armando has never, in all his life on this beach, seen the green flash.

It may be refraction. Then again, there may be a state of mind involved or poetry of the soul. I just know I've crossed the equator and the International Date Line and the Pacific, and I have never seen, and never will see, anything quite like it. May you see it, too, some day.

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