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THE SAILING MAGAZINE FOR THE *REST* OF US!

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Issue 73 July/August 2010

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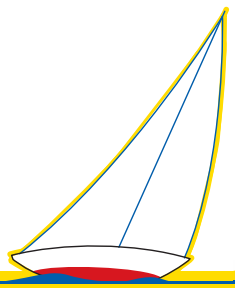

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We're cruisin'!

The point of going is to be gone

by Karen Larson

This summer — for the first time in my adult life — I will have a 12-week vacation. By the time you read this issue, Jerry and I will have just left the dock for our first big cruise: a counterclockwise circumnavigation of Lake Superior.

We plan to start in the twin ports of Duluth, Minnesota/Superior, Wisconsin, at the bottom of the lake's sock in the southwest corner, right around the summer solstice (June 21) and return to the same dock in mid-September. By then, fall will be closing in on the lake once more and we'll be focused on winterizing our baby, covering her, and patting her farewell for the winter. There's a bit more sailing season left, even on our big, cold northern lake in September, but not if you're bound to the deadlines imposed by the Annapolis boat show. So we'll head home, unpack boat gear, do the laundry, pack the truck full of our booth furniture and supplies, and head east to the show in Maryland's sailing capital.

Our summer circumnavigation will include such highlights as the Apostle Islands of Wisconsin, Michigan's Upper Peninsula, Lake Superior's eastern shore along Ontario's Pukaskaw Provincial Park, the Slate Islands where the idea for this magazine was born, the towns of Rossport and Red Rock and Nipigon along the Ontario shore, Western Ontario's sailing capital Thunder Bay, Isle Royale (Michigan's wonderful national park), and the western shore of Lake Superior along Minnesota's rugged coast. Although we will be able to dally and smell the roses as we never have before with two- and three-week vacations, the time will fly by.

We hope to post an occasional blog. If that works, we'll let you know through our email news releases, the Press Gang News. If you're not on that email list, contact <karla@goodoldboat.com> to make it so.

> **"We're going to take our notebooks and cameras to distant shorelines."**

Mostly out of touch

We'll still be reading articles that are submitted and picking up our mail from time to time along the way, but we'll mostly be out of touch. I do mean *really* out of touch. Cell phones are pretty much useless along most of the unpopulated coasts of Minnesota, Ontario, Michigan, and Wisconsin and WiFi and Internet are even harder to find than a good cell connection. Our mail will be forwarded by pony express. We don't mind, though. We think that's the *point* of being gone: actually being *gone*.

This is our great, grand experiment: can we truly vanish while two issues of the magazine (September and November) are put together without us? I'm betting it can be done. A whole bunch of *Good Old Boat* crewmembers (our ground crew) are betting the same thing. This summer will set Jerry and me free just as it will free the folks who have been putting the magazine out for the better part of the last year (while I breathed heavily over their shoulders).

If this works, we'll do more of it. We'll still have our hands on the reins but with an increasingly light touch. As the semi-retired traveling founders of this magazine, we have some winter travel plans for that yellow trailerable project boat . . . the one Jerry slaves over in our backyard. We're going to take our notebooks and cameras to distant shorelines and to the lakes in America's heartland and Canada. As long as we're able, we hope to meet you there, see your boats, learn about the neat gimmicks you've invented, and tell your stories.

Y-valves, comparing boats by

Watermaker Y-valves and membranes

As usual, a very good article on building your own reverse osmosis (RO) unit, "How to Make a Watermaker, Part 1," May 2010. I work for a company that specializes in membrane systems for waste water. I design RO units and ultrafilters (that remove all suspended solids but no dissolved solids). I'd like to address a couple of small points.

In my six years at this company I've had pipes or hoses burst on RO units three times. One was carrying inkjet printer-ink waste.

It is really important that the Y diverter valve used in the permeate line to the water tank or sample outlet has *no* off position. It must only be open to the A port, B port, or both ports, but *never* closed. RO permeate pressure can rise all the way up to the pump pressure if the line is ever blocked, and the pipe or hose can explode.

One thing missing from the drawing is a way to actually clean the membranes. On relatively clean water, chemical cleaning may not be required very often. However, running for short periods on a boat, with relatively long periods shut down, is not the way to keep membranes from fouling. You also might pick up some really dirty water and foul them unexpectedly. I'd bet that many RO membranes on boats get replaced way before their time because there is no provision to clean them.

A proper cleaning uses a high pH (10 to 11) wash with some EDTA soap, often followed by a low pH (2 to 2.5) wash with an acid, typically citric. A cheap and effective way to make provision for a proper cleaning is to simply devise a way for three hoses to go into a 5-gallon bucket. You want the optional hose from the Y-valve on the intake side of the booster pump (shown in the drawing in the May issue) to reach the bucket. You also want the reject brine line (shown in the drawing) and the permeate sample outlet (shown in the drawing) to return to the bucket. This way, cleaning chemicals can be circulated through the bucket for the hours required to do a proper cleaning. If you use valves for this, there must be *no* off positions. All these hoses can see high pressures.

The carbon filter on the galley pump feed (shown) is very important. Chlorine-resistant membranes are the Holy Grail of membrane makers; even a trace of chlorine can destroy the membranes.

Another good source for the pressure-control valve is Wanner Engineering. I think the extra money for the proper valve is well worth it. If you are building this system using a positive-displacement pressure-washer pump, as mentioned in the article, you could easily get pressures that would burst the gauges, hoses, and even the RO housing. Having a valve that will maintain a constant pressure while the engine speed changes is not a convenience, it's a safety issue.

–Gary H. Lucas, Hightstown, N.J.

Randy responds

I agree that there should be no off position on the product water output line, which is why a Y-valve is specified. I believe that a Y-valve diverter, by definition, has no off position. As far as I know, the advice Gary gives regarding cleaning of the membrane is sound. We have never felt that our membrane needed cleaning because it still produces full output at less than 300 ppm total dissolved solids. I agree completely that no chlorine should be allowed to contact the membrane, an issue I address in the second part of this article, which starts on page 50 of this issue.

–Randy Baker, Clinton, Ark.

How long is a Dana 24?

Regarding page 22 of the May 2010 issue, far be it from me to take it upon myself to correct an old salt like Ted Brewer. So, let's just say his eyes slipped over to the wrong column on the chart when he listed the overall length of the Dana 24 as 24 feet, 2 inches (that's the length on deck). The Dana's overall length is 27 feet, 3 inches, making it a more direct comparison to the Cape Dory 27 and the Hullmaster 27. Love the magazine!

–Kim Sikoryak, Golden, Colo.

Comparing boats by length

Ted Brewer chooses his comparison boats partly on the basis of waterline length, which is a good indicator of potential speed and useful interior volume.The Dana 24 has a little bowsprit that's not part of the hull and contributes nothing to the boat's interior volume or sailing length. For this reason, we stand by Ted Brewer: the Dana 24 is 24 feet, 2 inches LOA.

The 27 feet, 3 inches dimension is more comparable to the "sparred length" used when describing "tall ships." The *Pride of Baltimore II*, for example, lists her overall length at 157 feet. That's her "sparred length" from the tip of the jib boom to the tip of the main boom — lots of overhanging sticks there. Her LOD is 96 feet 6 inches, and that's a far better measure of how big she really is.

One of the sensible products of the European "normalization" effort (from which all those CE stickers began appearing on boats) was the LOH (length of hull). This is the length of the hull from the bow (not measuring anchor rollers, pulpits, sprits, etc.) to the stern. On a reverse transom, that's the tip of the transom; on a "traditional" transom it's the aft end of the deck. This matches the definition of LOA that Bob Perry gave us in his first *Good Old Boat* column, "Design Language," September 2009.

–Editors

length, and C&C drawings

Lighter than an albatross chick

What do you do if you want a decent-sized dinghy that can carry two adults, take an outboard engine, sail really well, yet can stow easily on the smallest of decks and mustn't weigh more than a baby bird? Sounds too good to be true? You may be surprised to know that all this and more is possible.

Enter Stasha, the world's lightest nesting dinghy. It weighs the same as a Wandering Albatross chick — about 23 pounds. Heavy for a bird maybe, but very light for a 7-foot boat and, because there's so little of it, it's cheap and easy to build. You'll hardly need any space to make it either. Woodenwidget has gone to a lot of effort demystifying boatbuilding so anyone can easily build his own dinghy. Step-by-step illustrated instructions walk you through the build every step of the way.

And if this news wasn't good enough, Woodenwidget will even plant a tree in Madagascar for every set of plans sold.

– Robin "Benjy" Benjamin, out cruising

Safety wire for coupling bolts

I was reading the article "Inspect and be Safe," May 2010, by Bob Tigar this morning. His article brought to mind an incident that happened to me a number of years ago that might be worth sharing with your readers. I was close to Annapolis on the Severn River, waiting on a drawbridge (the drawbridge has subsequently been replaced by a fixed high-arch bridge). When the bridge began to rise, I put my transmission in gear. Nothing happened. Needless to say, I panicked a bit, then got help from a friend's boat. When I calmed down, inspection revealed that all the bolts holding the transmission shaft coupling together had vibrated loose and fallen into the 5-foot-deep bilge. Once back at my home marina, I retrieved the bolts and drilled them for a safety wire, which has been in place ever since. Lock washers are nice, but there is something reassuring about a safety wire as the bolts cannot possibly come loose. The coupling has been this way for about 15 years since this event.

Keep up the good work … your publication is great. I read each issue cover-to-cover and am always fearful to discard them when finished and generally do *not*. Thanks again!

–Bruce Worster, Saint Leonard, Md.

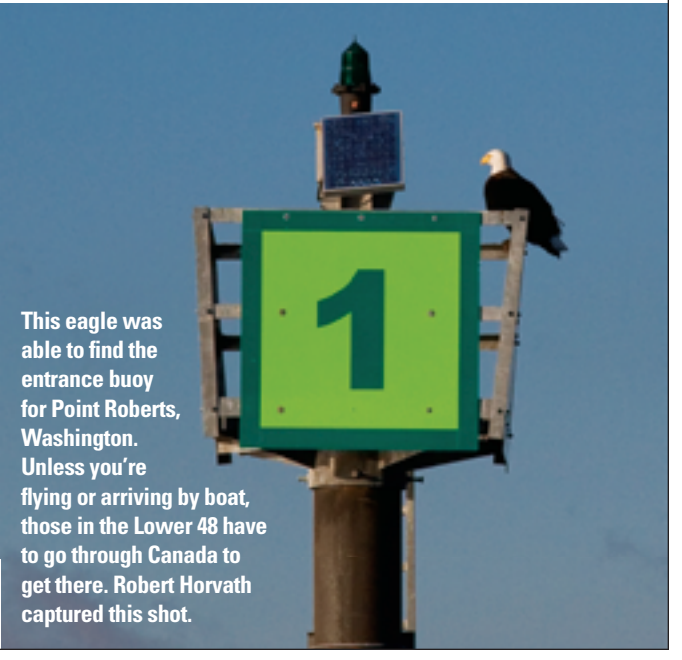
C&C drawings to be available

The history and drawings by the notable Canadian sailboat designers and builders Cuthbertson and Cassian and C&C Yachts will be preserved for future generations of students and enthusiasts, thanks to the efforts of the Marine Museum of the Great Lakes and some of the original C&C designers.

The Marine Museum of the Great Lakes in Kingston, Ontario, was the perfect recipient for the collection of original C&C drawings. That was the thinking of C&C founder George Cuthbertson when he donated all the company's designs from prior to 1974 to it. This sentiment was more recently echoed by Tim Jackett, designer and builder of the current C&C and Tartan lines, when he donated the remainder of the C&C drawings from 1974 to 1996 to the museum. Under the leadership of Maurice Smith, curator emeritus of the museum, 20 years' worth of drawings (roughly 4,000) will be digitized to make them available online. If all goes well, the museum may schedule an exhibit focused on C&C designs in the summer of 2011.

"It's comforting to know that all those drawings are being well preserved and will be available to the public," says member of the original design team Rob Mazza. "However, first they have to raise the money. With that in mind, the museum will soon be conducting a fundraising campaign to approach all past and present owners of C&Cs to ask for contributions. I don't think raising the money will be a problem." Those wishing to make a donation can do so online at <www.marmuseum.ca>. For more information, please contact the curator emeritus of the museum, Maurice Smith at barque2@cogeco.ca. or call the museum at 613-542-2261.

–Editors



This eagle was able to find the entrance buoy for Point Roberts, Washington. Unless you're flying or arriving by boat, those in the Lower 48 have to go through Canada to get there. Robert Horvath captured this shot.

Fixer-upper web page

I have found a good home for my Pearson Coaster in the *Good Old Boat* Fixer-upper classifieds and, man, that was quick: four days. Whoa! I was overwhelmed at the response I received too. This is a great venue to keep our good ol' classics going. The new owner is close and has the resources to pull the trailer. This boat has always been his dream, but out of reach financially. What fun to see a good boat go to someone who really wants it.

–Elizabeth Daneman Melrose, Fla.

Great results!

After having her boat posted for just four days on the *Good Old Boat* Fixer-uppers page at <www.goodoldboat.com/resources_for_sailors/fixer-upper_sailboats.php>, Elizabeth found a good home for it. If a boat's price is $5,000 or less (some are even free to good homes), it can be posted at no charge on this very popular page.

–Editors

New adventures for old boats

Thanks for your help. My good old boat, *Bindi*, has found a new home with an intrepid young fellow who will take her back to Central America for a refit and adventures galore. I received many inquiries as a result of your listing from other vagabonds and eligible folk. I really appreciate your "fixer-upper" service. It produced just the kind of potential for a new home I was looking for.

P.S. I have moved "up" to a Cape Dory 30, a 29-year-old in place of the venerable 50-year-old.

–Bob Guild, Columbia, S.C.

Princely sounds . . .

Oops, don't look too hard in your world atlas for the Prince Edward Sound, Alaska, we mentioned in the "Small boat, large experience" article, May 2010. We goofed and further, we're not at all sure there even is a Prince Edward Sound . . . anywhere. Karen Sullivan was kind enough to point out that it should have been Prince William Sound (it was our editing error). Sorry to any princes we may have offended.

–Editors

A special kind of happy hour

I'm really hooked on racing sailboats and, early on, I infected my two sons — Bruce, the older, and Brian — with the disease. They started racing with me when they were 10 years old. We grew to be a pretty good team. In 1975, I got a Morgan 24 sloop, which was a great performer. We honed our skills as a racing crew and placed in the top three in one third of the races we entered over a span of 24 years.

My sons married and their family obligations grew. This, coupled with my year-round residence on Fisher's Island after retirement, made it increasingly difficult to get together for races, so I reluctantly sold the boat in 1999. My sons bought a Pearson 30 in partnership but, after Brian went to a new job in Florida, they sold it and Bruce began searching for a smaller boat . . . but without much success.

Fast forward to October 2009. Brian was idly surfing the Internet when a boat offering caught his eye — a Morgan 24, but not just any Morgan 24. A close inspection of one of the pictures revealed it to be a special Morgan 24 — *the* Morgan 24 that I had owned from 1975 to 1999. Brian called Bruce, who then proceeded to buy the vessel. Late on Thursday afternoon, November 3, Brian, who was in the area on a business trip, Bruce, and I boarded *the* Morgan 24 in New London to take her around to Noank to be hauled out for the winter.

The sky was clear, the temperature moderate, the breeze fresh NNW, and the tide a strong ebb. It took one hour to bring her around to Noank. The memories flooded back — her gentle, sensitive helm, her motion in a seaway, her eager rush in the strong puffs, the bond of the three of us sailing together again.

Now, that's what I call a really special happy hour.

–Cal Beggs, Mystic, Conn.

Plan ~~A~~, err ~~B~~, ahh . . . C

So nice to hear that you tried and liked a Sailrite kit. I, too, have done lots of repairs and mods and just a bit of sailmaking. The whole theme of your magazine is to help and share so I was interested and happy to read that.

The article by Parsons Clark was good, but I hope she was not the navigator since, contrary to her story, she was never in Long Island Sound. She began her trip in Gardiners Bay, then went into Block Island Sound, then Rhode Island Sound, then Buzzards Bay — unless she took a very strange detour! I still liked the article!

Special congrats to Bill Kinney. His article should be reprinted in every sailing publication. Like Bill, I have been teaching sailing for well over 40 years and the calmness and the emphasis on Plan A and Plan B (I teach a plan C also) have impressed countless sailors from beginner to veteran boatowner. Stellar article.

–Len Lipton, Norwalk, Conn.

***Minstral*, Cal Beck's Morgan 24, rounds the southeast point of Block Island on the way to a third-place finish in a 1999 Spring Series.**

No heroics

I just wanted to drop you a note to say how much we appreciated your editorial in the January/February 2010 issue. We have had our share of "Hold on, dear" moments and think you hit the nail on the head with your observation that heroics are not necessary to enjoy the sport. The operative word, as you pointed out, should be, "enjoy."

–Jack and Ronnie McClung, Hilton Head Island, S.C.

Stalwart endeavor

I just wanted to thank you for the outstanding magazine and all the work from so many that must go into each edition. I am the proud owner of a 1979 Endeavor 32 that is being restored. With

each issue, your articles just keep turning on my light bulbs. I run across a problem and, before I know it, there is the help I need right in the pages of *Good Old Boat*. The next project is always an adventure when you own a GOB, yet I stalwartly continue thanks to you and yours. Can't wait for an article on homemade lazy-jacks. (***Note:*** *See page 38.* ***–Eds.***)

–Don Locke, Highland Village, Texas

Faded memories

Not only is my memory fading, I'm easily distracted . . . each time I begin looking through my back issues I begin re-reading something that catches my eye and I lose my objective. At the rate I'm going, the wine I plan to cool this summer will be well aged before I learn to tie the "cooler hitch" again.

Thanks for any help you can offer. Love the magazine. You guys do an outstanding job.

–E Michael Bailey, Ontonagon, Mich.

Hooked for life

I just want to tell your people, this is the best magazine I have ever subscribed to. It brightens my outlook for weeks on end. I am hooked for life.

–Lee Bunzel, Winnetka, Calif.

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

Lenny Reich wins the Editor's Choice Mail Buoy photo contest for July 2010 with a recent photo of his 1990 Tartan 31, *White Hawk*, passing in front of the lighthouse guarding the entrance to Rockland Harbor on the west shore of Penobscot Bay in Maine. Send your sailboat photos to jstearns@goodoldboat.com and we'll post them on our website. If we publish yours here, we'll send you a good old T-shirt or cap.

Jeanneau Arcadia

A Euro-style racer with few concessions to cruising

by Richard Smith

Amoretto, **a Jeanneau Arcadia, has a classic 1980s European look and sails like a big dinghy, which suits her owners, Sheryl and Marty Bower, who race her out of Edmonds, Washington.**

When viewed from dockside, our review boat, *Amoretto*, a 30-foot Jeanneau Arcadia, appeared to be a solidly built, no-nonsense racer/cruiser with a clear emphasis on racer. She looked like a close-winded boat. On closer inspection, and during sea trials, those first impressions proved accurate.

The boat's second owners, Sheryl and Marty Bower, belong to the Corinthian Yacht Club of Edmonds, Washington, where Marty serves as fleet captain and Sheryl is treasurer. They're equally fond of *Amoretto* and share a keen awareness of her attributes and limitations as well as a familiarity with her pedigree.

Jeanneau was founded in 1956 by Frenchman Henri Jeanneau, who began building outboard runabouts and other small craft before developing a line of sailboats in the 1970s. When things weren't going so well in the 1980s, the company was bought and sold by several conglomerates, including Bangor Punta, which also owned the American brands O'Day, Cal, and Ranger. Jeanneau got bigger, and for a while was second only to Beneteau. In 1995, Beneteau purchased its old rival. More than 600 Arcadias were built, all of them in France; not many were exported to the U.S.

Design

The Arcadia was designed by Tony Castro, who began his career with Ron Holland in Ireland. Tony earned a reputation as one of Europe's top designers and more than 6,000 boats of all sizes and types have been built to his designs, including *Blue Arrow*, a British contender for the America's Cup. Although designed to compete in the IOR Half Ton Class after the 1979 Fastnet Race, the Arcadia isn't as extreme as radical IOR boats with their pinched ends and exaggerated tumblehome. It does have a relatively light and flattish hull, a high-aspect-ratio keel, and a spade rudder carried behind a small skeg. Keel and keel/centerboard configurations were offered.

With bold slashes of black portlights, Bomar hatches, and go-fast deck fittings, the Arcadia's overall appearance is distinctly European. In 1985, when *Amoretto* was built, the look was certainly modern; it still is. In contrast, its construction is rooted in many traditions of sound boatbuilding.

The hull sheer is as straight as it comes, and the coachroof is sleek and sloped. There is no dodger. The shrouds are placed well inboard on wide sidedecks so headsails can be trimmed in tight, and the upper lifelines are brought to the base of the bow pulpit to reduce interference with them.

Construction

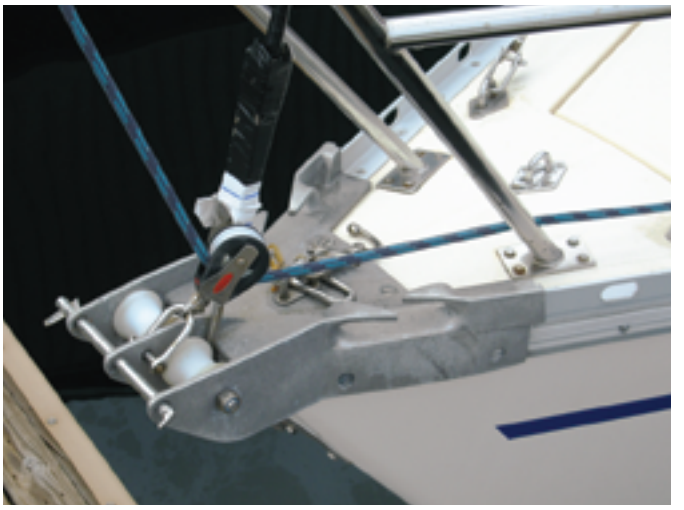
The Arcadia's fiberglass hull is hand-laid-up with alternate layers of mat and woven roving and reinforced in high-stress areas. The deck is hand-laid fiberglass with a balsa core.

The hull-to-deck joint consists of a conventional inward-turning hull flange to which the deck is fastened with ¼-inch stainless-steel bolts also set through the aluminum toerail. The whole assembly is sealed on the inside with a thick layer of fiberglass. This practice almost guarantees a leak-free joint but, if anything goes wrong, it will be difficult to repair.

The stemhead fitting is a well-thought-out aluminum casting that provides a substantial mounting for two bow rollers, a terminus for the aluminum toerails, a pair of chocks, and attachments for running rigging.

Amoretto's keel is an iron fin, which is prone to rusting; lead is generally preferable. The keel bolts extend up into the bilge area and are sealed with a heavy layer of fiberglass and resin, again making maintenance or removal difficult. However, 24 years after the boat was built, Marty reports no leakage in either the hull-to-deck joint or the keel bolts.

Jeanneau also bonded virtually everything structural to other structural members to add to the boat's overall strength and stiffness. Just as athwartship bulkheads are bonded (or "tabbed" in industry jargon) to the hull and deck, cabinet fronts are fiberglassed to bulkheads and cabinet sides are bonded to fronts and bulkheads. The cumulative



Sail-control lines are color coded, and with good reason; there are 15 rope clutches mounted on the cabintop, at left. The cast aluminum stemhead with its two bow rollers is a much-appreciated cruising feature but is unusual for a racing-oriented boat like the Arcadia, at right.

effect of all this fiberglass tabbing is to produce an extremely tough hull, stiffened against loads imparted by the rigging and the washing-machine action of choppy seas.

The masthead rig has upper shrouds, aft lower shrouds, and a baby stay forward. *Amoretto* has double spreaders and is fitted with an adjustable backstay. A post in the middle of the saloon carries the compression loads from the mast down to the keel. Transverse overhead frames bonded to the hull and deck anchor the upper-shroud chainplates. The lower-shroud chainplates are connected to large brackets bonded to the hull and sidedecks.

On deck

The cockpit of the Jeanneau Arcadia struck me as a combination of features, some traditional and others innovative, some good and some not so good. The seats will hold four persons; additional crew will have to find perches elsewhere. Although Marty and Sheryl find the seats comfortable, I thought they were a little short for my legs and the backs a bit too upright. But racing a boat isn't the same as cruising, where hours spent in the cockpit demand more inviting seating.

The coaming tops are angled, providing comfortable seats for the crew when the boat heels. The hinged starboard seat and backrest can be raised, like the gull-wing door of a Mercedes 300SL, to access a large, if rambling, amount of under-seat cockpit storage.

The companionway of the Arcadia is forward of the substantial bridgedeck, which is formidable to negotiate but effective in keeping water out of the cabin at the same time as it stiffens the hull in way of the cockpit bulkhead. While the companionway is fitted with dropboards, it also has acrylic doors that fit into gudgeons and pintles on either side of the opening to close it while allowing in light.

Accommodations

The interior is striking. When you go below for the first time, the boat appears suddenly and clearly European. Whether this is to your taste or not, there is nothing ordinary about the space. It's open and light and well-finished teak is everywhere. The stainless-steel compression post, as much architectural feature as structural member, passes right through the middle of the fixed table but does not intrude on the usefulness of the cabin. Along with handholds on either side of the companionway and port and starboard grips at the galley and nav-table level, the post offers another welcome handhold when things get a bit rambunctious below.

The long tinted portlights, together with the Bomar hatch, flood the saloon with light. Looking forward, past the handsome and well-built table to the too-short-to-use-comfortably V-berth beyond, the effect is of a large and unified saloon space making the boat seem bigger than it really is. At the same time, the 6-foot headroom aft rapidly diminishes as you move forward. In many ways, the Arcadia feels like a 28-foot boat dressed up in 30-footer clothing. In fact, later models that used the same hull were sold as 28-foot boats—the Sun Dream 28 and Sun Way 28.

The teak-and-holly sole lies in marked contrast to the modern vinyl overhead that in places barely seems to cover the fiberglass deck molding. Some bits were hanging loose because of adhesive failure. This is easily repaired but can be an annoyance in a boat that contains some high-quality construction and joinery. Marty has replaced much of the original glued-on liner with solid panels he can remove to get at various deck fittings.

Narrow shelving runs along the tops of the settee backs but headroom under the sidedecks will require even persons of average height to slouch when seated — another concession to the exigencies of racing. A nice French touch is a

The companionway, recessed into the cabin trunk, is well protected. Here, the removable acrylic doors are closed.



In the head, a hinged sink folds down over the toilet to make the most of a compact space, at left. The engine compartment, under the companionway ladder, is tight, center, but access to most service points is adequate except for the dipstick. To increase space for food preparation, the galley has a hinged counter over the French-made stove, at right. In the 1980s, boats imported into the U.S. weren't "Americanized."

built-in wine rack in the port-side settee near the galley.

I thought the port-side galley was small for a 30-footer. Part of the counter is hinged to provide access to a two-burner propane stove. A foot pump draws from a 24-gallon water tank and the icebox is adequate.

A large navigation table is located to starboard, opposite the galley, where it's convenient to the cockpit. An 80-amp-hour house battery is located beneath the seat. The VHF radio, a gooseneck lamp, circuit-breaker panels, and materials storage are close at hand.

The view aft is almost sculptural when compared with more traditional interiors. Actually, this attention to interior design is a hallmark of Tony Castro's office and characterizes all his designs from daysailers to megayachts and aircraft. Full-size doors leading to the head and after cabin are symmetrically placed on either side of the companionway. Lavish amounts of teak plywood balance the expanse of white vinyl overhead.

In the head, the sink is fitted in a counter that hinges down to rest over the toilet. The space is cramped, in part because the cockpit and a large saloon trumped more utilitarian concerns. Although it's not to be compared with the accommodation on, say, a Catalina 30, it's workable.

The port door leads to the aft berth, which appears to be a double in plan but in reality is a meandering space overhung by the cockpit. It must be next to impossible to roll over in this berth and it's hard to imagine two adults sleeping well in here; maybe a boy and his dog. As a cruising arrangement, it would have been infinitely better to add a few more inches to the too-short V-berth and give over this cubbyhole to storage. But this is a boat designed to race more than cruise — and to make a striking impression below. This it does well.

Between the double doors in the aft bulkhead, the companionway ladder panel lifts off, providing access to a small and well-insulated engine compartment and the two-cylinder Yanmar 2GM 20 diesel. Additional access is through the aft cabin.

Marty reports that the engine is easy to service except for the starboard side dipstick that is difficult to find without a mirror. But, as if to balance this


The open-plan living quarters look spacious but only a small dog would consider the V-berth commodious, at left. The view aft is striking for the generous use of light-colored teak and the well-camouflaged doors in the bulkhead, at right.

inconvenience, a small electric bilge pump was fitted as standard equipment to remove water from the small sump below the packing gland, a difficult place to get at. A mysterious covered hole through the ladder panel turned out to be a receptacle for an extinguisher nozzle to fight an engine fire without admitting more oxygen into the space. That looks like a good idea. The 7-gallon fuel tank seems a bad idea for any but the most dedicated racing skipper.

The navigation station, aft of the saloon on the starboard side, is large and very workable for a boat of this size, at left. Beams and knees stiffen the deck and anchor the chainplates, at right.

Under way

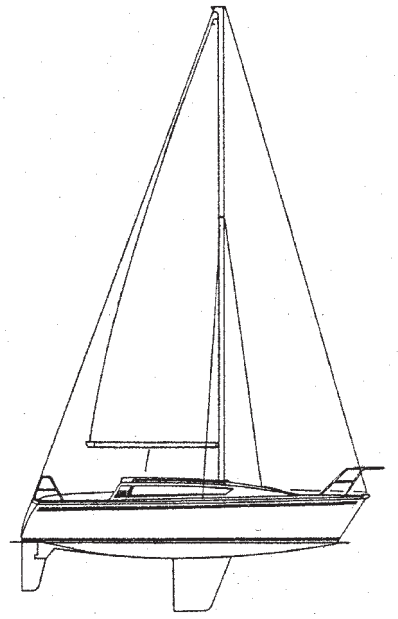
On trial day, the Arcadia, equipped with a two-bladed folding Max-Prop, backed down predictably. The noise and vibration were less than I would have expected from a two-cylinder engine and we easily reached hull speed of about 6 knots. *Amoretto* sails with 110-, 130-, 140-, and 155-percent laminate headsails as well as a .75-ounce nylon drifter, an asymmetrical spinnaker, and a storm jib.

Running rigging is color coded and led to the cockpit where it's organized with the aid of 15 Spinlock Powerclutches. A Barbarossa 15 two-speed winch is mounted to port of the companionway while to starboard there's a Barbarossa 14 single-speed and a Lewmar 16 two-speed. Each winch serves multiple line-handling purposes. Two-speed Barbarossa 40s mounted on the cockpit coamings handle the sheets. None of the winches is self-tailing. Barbarossa was acquired by Harken in 1987.

Marty hoisted the main and hauled on the jib halyard while daughter Katie eased the 140-percent genoa into the foil. I braced my feet against the opposite seat and we were off. Winds wavered around 6 to 8 knots in a generally smooth sea and, when we shut down the Yanmar, *Amoretto* leaned to a freshening wind without missing a beat. She was easy to steer from both the cockpit seat and up on the angled coaming with the help of a Forespar Twist-Lock tiller extension. At these wind speeds, she was well balanced, had virtually no weather helm, and accelerated sharply in the gusts.

Amoretto handled like other boats of her size and type. She pointed well and tacked smartly. Marty reports that the boat can tack through 75 to 80 degrees, partly because of good sails, a trained crew, and the inboard shrouds that allow headsails to be sheeted in tight on the same wide sidedecks that restrict comfort below. She tracked well downwind, showed no squirrely tendencies, and took wakes from ferries and large powerboats in stride

The Arcadia's PHRF base rating in the Pacific Northwest/Puget Sound region is 188 and *Amoretto*'s is adjusted to 194. Other regions of the U.S. give the Arcadia ratings of 159 to 191. By way of comparison, locally, the J/30's PHRF is 139 and the Laser 28 rates 141, while the Catalina 30 and the Hunter 30 both have a PHRF of 210.



Jeanneau Arcadia

Designer: Tony Castro
LOA: 29 feet 6 inches
LWL: 24 feet 5 inches
Beam: 10 feet 4 inches
Draft (centerboard): 4 feet 3 inches
Draft (fin keel): 5 feet 4 inches
Displacement: 6,175 pounds
Ballast: 2,360 pounds
Sail area: 387 square feet
Disp./LWL ratio: 189
Sail area/Disp. ratio: 18.4
Fuel: 7 gallons
Water: 25 gallons

Conclusion

The Jeanneau Arcadia's interior feels small for a 30-footer. Comfort and convenience in the living area take second place to sailing and racing qualities. A certain rakishness of form — a boldness — also sets her apart from comparable American yachts.

Under way, she comes across as a broad-shouldered boat that can be sailed hard. She's fun to sail, like a big dinghy, and, as I adjusted to her decided idiosyncrasies, her blemishes, and her shortcomings, I found I liked this boat. Comparing the Arcadia with a Catalina 30 is like comparing a Mazda Miata with a Ford Focus. They serve similar purposes in different ways. There is a certain *je ne sais quoi* about the Jeannneau — something hard to define but something ultimately likable.

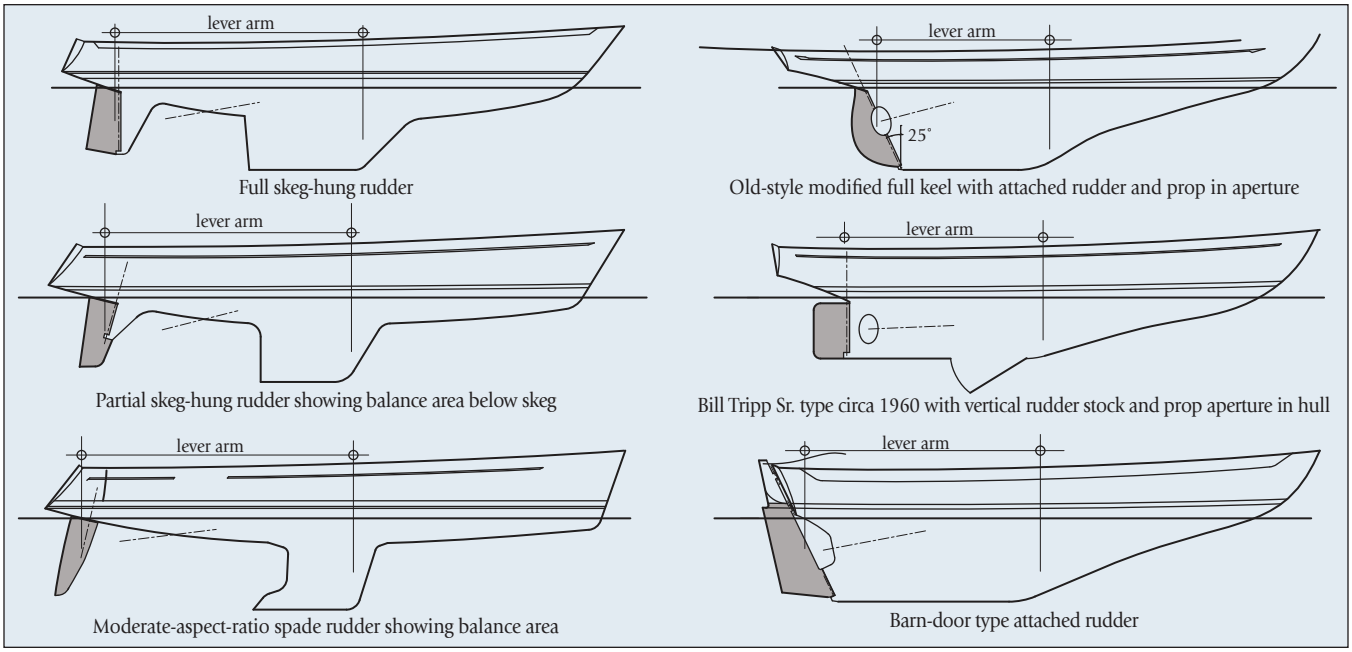
Because of its relative rarity, it's difficult to estimate the value of a Jeanneau Arcadia on the used-boat market. The Internet turned up two currently for sale in Europe at prices exceeding what the market would bear in the States, $38,000 to $44,000. Marty reports that a centerboard Arcadia recently sold on the East Coast for about $16,000. He feels that *Amoretto* might sell for around $22,000.

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

The rudiments of rudders

Examining what lies beneath and behind

by Robert Perry



If you go through the various texts on yacht design, you will find the section on rudders to be relatively anemic. Rudder design is tricky and full of all the trade-offs and more that go along with keel design.

Rudders fall into three basic types. Most older designs with full or modified full keels will have the rudder attached to the trailing edge of the keel. Then there is the rudder hung off a skeg, separate from the keel, that extends the full depth of the rudder. The third type of rudder is the spade style that is independent of the keel and has no skeg. We could extend this range with outboard rudders that are hung off the transom or sternpost but an outboard rudder could be any one of the other three basic types.

The majority of production boats built today, and all race-boats, have spade rudders, so I think we have to agree that if you are after efficiency, the spade rudder is the answer. Cost is a factor too: it's just cheaper to build a spade rudder for a modern hull with a short-chord fin keel.

Regardless of the style of rudder, its design will largely depend on the vessel's draft. With a deep draft, the designer will have a free hand in determining the shape of the rudder. If draft is restricted, the over-ruling factor will be reducing the span, or draft, of the rudder while maintaining control.

Attached rudders

With the keel-hung attached rudder, the leading edge of the rudder is tucked behind the trailing edge of the keel and, in most cases, is a fair extension of the tapering keel shape. It is not unusual for this type of rudder to have flat sides, and you can look at it as being essentially a trim tab on a very-low-aspect-ratio foil that is the keel and rudder combined. This is not efficient but it does work.

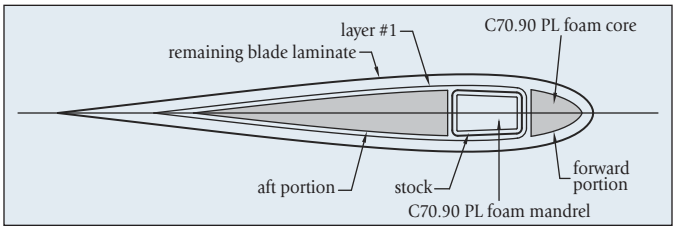
In order to reduce wetted surface and have the tiller head exit the deck in a convenient spot, the rudder post was generally strongly raked, sometimes as much as 45 degrees. The more you rake the rudder the less effective it is for a given blade area because, as well as creating less turning moment, the rudder is imposing a downward force on the boat's stern, which just means more drag.

Attached rudders also often have a large hole in the middle for the prop, the prop aperture. I have found boats like this to be the most challenging to handle under power in reverse. The center of pressure of a hull with a full or modified full keel shifts dramatically aft in reverse, thus greatly reducing the turning moment. Combine this with directional flow off the prop in the aperture and control in reverse can be minimal, especially at low speeds.

To many sailors, the fact that the attached rudder is hidden behind the mass of the keel means that it is protected. That can be a big advantage in some areas where you may on occasion bump the bottom or leave the boat sitting on the mud. And with the rudder heel gudgeon at the bottom of the rudder post, the rudder can be strongly supported.

Skeg-hung rudders

The additional area of a skeg aft can help a boat track straight. A skeg-hung rudder will have a higher stall angle than a spade rudder. Given that the leading edge of the skeg is fixed, it sees a far lower angle of attack than the leading edge of a spade rudder. However, pragmatic building concerns



When a spade rudder is built entirely of carbon fiber, the stock can be integrated into the blade, which then makes an extremely strong monocoque structure of the whole.

generally mean that the thickness at the rudder stock will remain constant to avoid what is called (and seldom seen today) the "golf tee" rudder. This need to hold the rudder thickness constant at the stock forces the foil to be altered as the skeg tapers, so the maximum thickness of the foil will move forward dramatically, and the thickness ratio of the foil will increase as you get down to the rudder tip. This can be good, as the rudder will stall at the tip first, in most cases, and a thicker foil at the tip will help reduce the stalling tendency.

Skegs can also help protect a rudder blade, but the deep taper of a full skeg makes a tough place to laminate fiberglass and I have seen some skegs that I thought were held on by the rudder, rather than the other way around.

For me, the biggest drawback to a skeg-hung rudder, especially for boats over 40 feet long, is that you cannot add rudder-blade "balance" with a skeg. There is no rudder area forward of the stock axis and you will feel every ounce of pressure on the rudder through the helm. This is not a big deal on small boats but on larger boats, if the boat has a tendency to weather helm, it can result in uncomfortable loads on the tiller or wheel for the helmsman. My current solution to this has been to use a "partial skeg" that extends for about half the depth of the rudder. This allows a portion of the rudder blade to extend forward of the pivot axis and create the balance area to move the center of pressure forward and reduce helm loads. You get the advantage of a lower rudder bearing and some protection.

Spade rudders

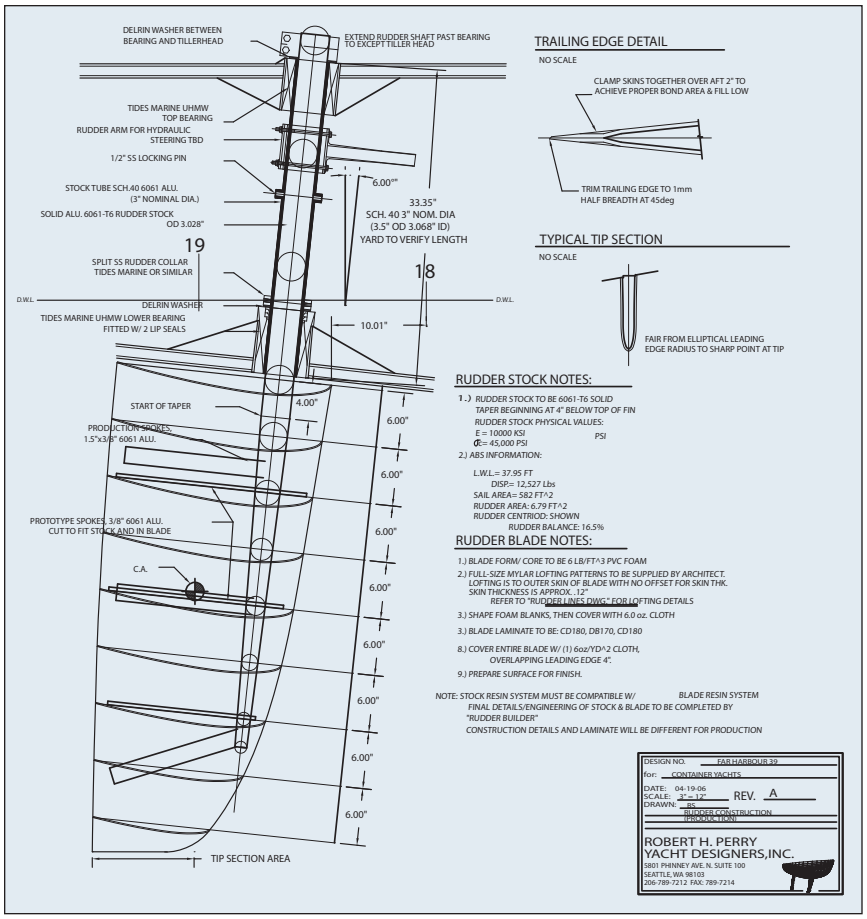
The best rudder for almost any modern boat, if you are after performance, is the spade type. With a clean spade blade, the designer can treat the rudder shape like a true foil. Cruisers often shy away from spade rudders because they feel they are vulnerable to failure. There is no lower bearing, so all the loads are taken at the intersection with the hull, and the rudder stock is supported with a bearing at the hull and another bearing up in the boat, usually under the deck. The spade rudder sees both twisting and bending loads, while supported rudders see only twisting loads. This means the rudder stock for a spade-type rudder has to be much larger and stronger than for a similar-sized rudder hung on a skeg.

The best thing for a designer designing a spade rudder is that the rudder can be considered a pure foil. Because a rudder can see quite high angles of attack, especially when a boat is hard pressed, the foil used has a fatter or rounder leading edge that makes it harder to stall. It will have its maximum thickness at 30 percent of the chord, as compared to 40 percent for a keel foil.

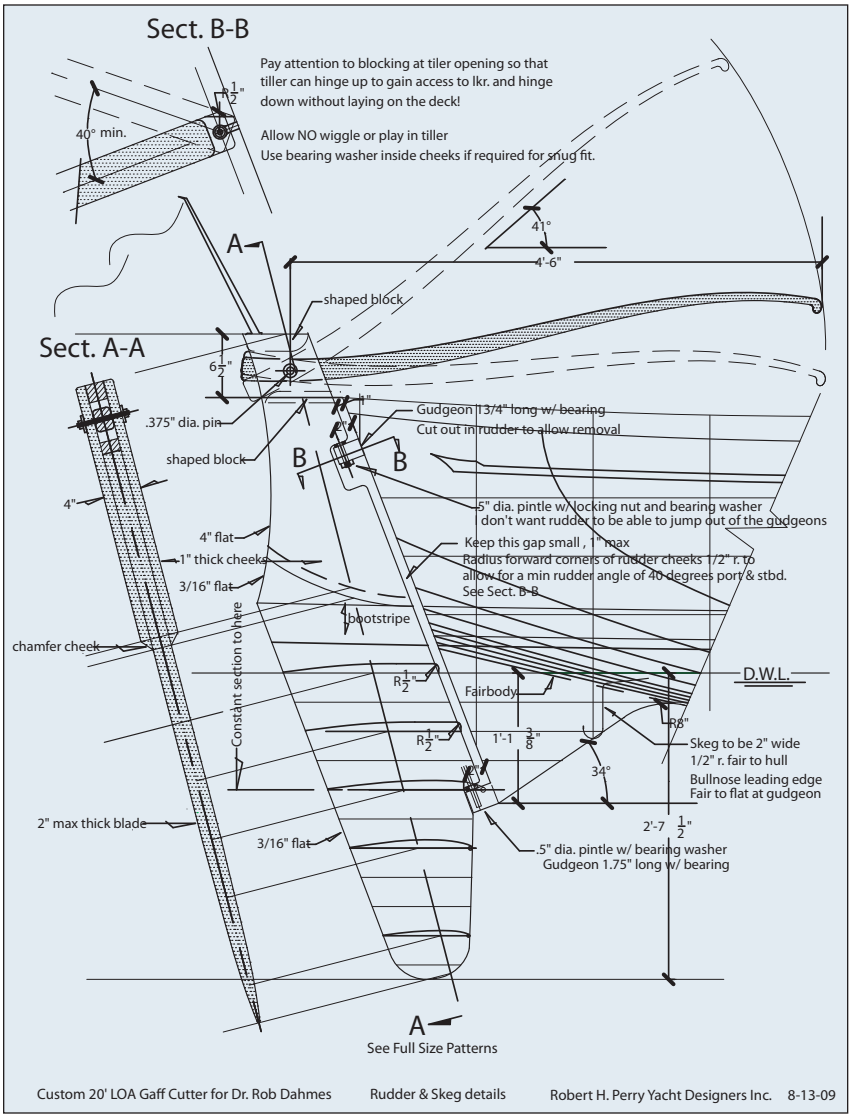
My favorite rudder foil is NACA section 0012 with a 12 percent thickness ratio. If you want less drag, you can reduce this thickness ratio to as low as 10 percent, but that produces a rudder that will stall early and has a very narrow "groove" for the helmsman. A racing boat with a very skilled driver can get by with a very thin rudder. There is also less drag from a rudder with a high aspect ratio.

In many cases, the thickness ratio for the length of the rudder blade will vary as the designer tries to wrap a blade around a given rudder-stock diameter requirement. This can be avoided to a large degree with a carbon stock that can be shaped to fit snugly within the blade.

With a spade rudder, the designer has the option of adding "balance" to the rudder blade, that is, blade area



This drawing (much larger than this) is typical of what Bob Perry would supply to a boatbuilder. It shows the main construction features of the rudder (in this case a spade) and how it attaches to the boat.



This drawing shows the rudder arrangement for a 20-foot gaff cutter. On it, the designer (Robert Perry) provides dimensions and detailed instructions for for the builder to follow when constructing the rudder and assembling it to the transom and the skeg.

forward of the rudder stock. The right amount of balance can reduce helm pressure. Too much balance can result in a rudder that has a mind of its own, making it very difficult to drive the boat. In the old days, 10 percent balance was considered the maximum, but today we see big spade rudders with up to 17 percent balance area. I usually use around 15 percent on boats over 45 feet.

Don't confuse helm pressure with weather helm. You want between 2 and 4 degrees of weather helm for optimal performance upwind. If you need above 8 degrees of rudder to keep the boat going straight upwind or reaching, you have too much weather helm. Rudder balance won't help correct the angle but it will reduce the load felt on the helm.

Rudder location

I like to put my rudders as far aft as practically possible, but this is often affected by cockpit design or the height available under an aft double berth. For a given rudder area, the greater the turning moment the farther aft it is.

In a boat with an aft cockpit, I like to see the rudder tucked under the counter just enough that the top of the rudder blade can be closed off by the hull, preventing to some degree the high-pressure flow from crossing over to the low-pressure side. The trick is to keep the water flowing over the rudder blade in line with the foil. If you move the rudder aft, you increase the possibility of rudder ventilation and this can be very serious on today's modern fat-sterned boats. Notice how many of the ultra-wide-sterned boats today are coming out with twin rudders. The leeward rudder is always immersed. If you move the rudder forward, you keep it immersed better but you reduce the turning arm.

If you want the rudder as far aft as possible, one way to do it is with an outboard rudder. You see these on old Colin Archer types, Atkin-type cutters, Bristol Channel Cutters, and just about every dinghy ever built.

I have a transom-hung outboard rudder on my own boat. The biggest problem with the transom-hung rudder is that the foil pierces the waterplane and this allows the water flow to escape, producing zero lift at the root. In extreme conditions, air can be sucked down the low-pressure side of the rudder causing the blade to lose its grip on the water and the rudder to stall. This is often called "ventilating." This problem can be offset by just adding more rudder span. When the rudder stalls, you lose control.

Outboard rudders may not be the most efficient but they just look right to my eye and they are easy to install and inspect. If draft is a consideration, the outboard rudder can be retractable.

Opinions from the experts

As I mentioned in my introduction, rudders receive little attention in published texts, but I had an idea. Why not contact some other designers whose work I respect and impose on them to contribute ideas on rudder design? So I sent three friends the same questionnaire and asked them to submit illustrations for the article.

Yves-Marie Tanton and I go back 35 years to when we once worked together for Dick Carter. Yves-Marie was my boss. His work spans the range from very traditional to very radical.

Jeremy Wurmfeld, designer of the e Sailing Yachts series is 34 years old and works with Carl Persak at Persak & Wurmfeld in Marblehead. Jeremy has some clever and innovative design ideas and I thought we should have some young blood on the panel.

Greg Stewart has been with Nelson/Marek for 24 years and his work is generally on the high-tech side of design, with

experience in America's Cup boats and many grand prix-type racing boats. Greg is a quiet guy, a college-educated naval architect who thoroughly knows yacht design.

I asked the experts to avoid answers that start with "It all depends." Yes, it does — but I asked for short, concise answers.

How do you calculate the required area of a rudder?

Yves-Marie says he starts with 1.4 percent of the sail area using 100 percent of the main and foretriangle.

Jeremy says he also bases rudder size on rig size and follows with a lift/drag analysis.

Greg's answer is a little different. I like it because it starts by stressing experience with other rudder designs. "First we look at our rudder database that includes the principal yacht and rudder parameters for NMYD racing rudder designs from 25-foot yachts up through IACC yachts and another database for lower-performance cruiser/racers and megayachts. This gives a good first cut at the required rudder area."

What is the benefit of a full skeg?

Yves-Marie says, "The appearance of strength, I suppose." He also cites an increase in the stall angle.

Jeremy says the only advantage of a skeg is structural if the owner intends to beach the boat.

Greg says NMYD has never designed a boat with a skeg but he believes the primary advantage to a skeg is directional stability.

What thickness ratio do you prefer?

Yves-Marie says he uses a 12 percent foil and varies it as required to fit the stock diameter.

Jeremy says he uses between 10 and 18 percent thickness ratio. That covers a lot of ground.

Greg says he uses a thickness ratio of 10 to 12 percent, going as high as 12 to 16 percent for cruiser/racer types. Greg also says that to accommodate the diameter of the rudder stock where it enters the hull, they often go as high as 14 to 18 percent.

How many degrees of rudder angle are required?

Yves-Marie says 35 to 40 degrees.

Jeremy says the same.

Greg says 40 degrees each side.

What are the benefits of a high-aspect-ratio blade?

Yves-Marie says short-chord, long-span rudders can stall quickly but have less drag.

Jeremy says he likes the ability to reduce wetted surface with a high-aspect-ratio blade but reminds us that this type is not appropriate for boats with draft restrictions.

Greg says he likes the high-aspect-ratio rudder because it "can provide more lift and unload the keel some and result in a biplane effect with the keel."

I also asked each expert to add a few words of wisdom covering the design of rudders.

Yves-Marie says, "In a setup with a few questions, it is hard to oversee all aspects of the problem of rudder design. I have slanted my answers toward cruising sailboats. The rudder design for a racing machine is almost simpler. It seems that a spade rudder hung below the hull is superior for both lift and drag. And therefore the answer is: spade rudder, high aspect ratio, thin chord, exotic building material, and oven curing for manufacturing.

"I spend a lot of time on rudder design."

Jeremy says, "As one of the most direct conduits of feedback to the skipper, the helm (and therefore the rudder)

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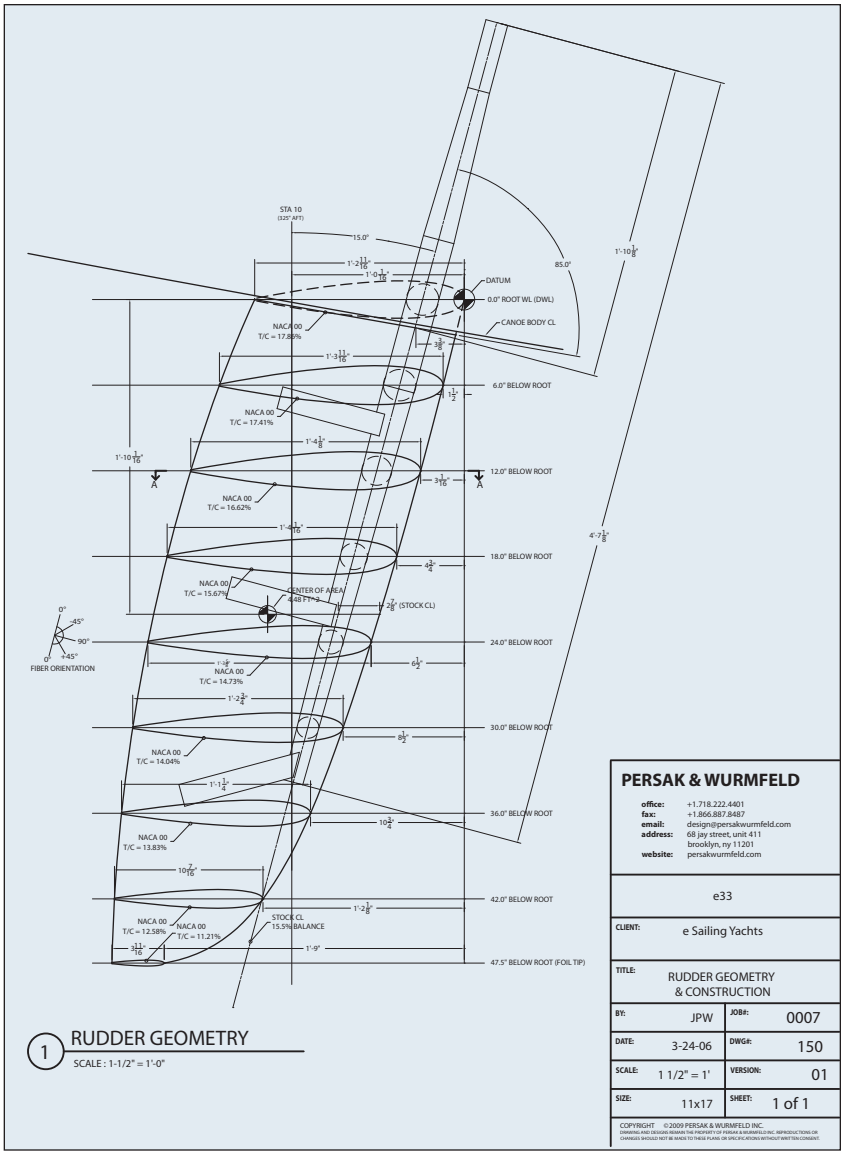


Jeremy Wurmfeld of Persak & Wurmfeld supplied this drawing of the rudder for the e33. The thick foils and short chord are typical for a high-performance daysailer of this type.

One man, one woman, one J/32

Durkee and Mary Jeanne Richards attempt to outrun the photo boat (an F 24 trimaran) in their J/32, *Sirius*, on Washington's Sequim Bay. *Sirius* is maintained and handled as a go-fast boat and gives all boats in her local racing class a run for the money. Then the Richards add a furling jib, a more robust prop, and beefier anchor tackle, and cruise British Columbia for weeks on end.

They've stuck together through thick and thin

by Karen Larson

Durkee Richards found the girl of his dreams at age 18 and became a one-woman man. He and Mary Jeanne hit all the expected stops along their passage from innocent youth to modern maturity: education, children, and a fulfilling career. Then, when it came time to buy a cruising sailboat, they bought the right one on the first try — no need to fix up a series of incrementally larger boats before falling in love with the right one.

When the newly introduced J/32 caught their attention, the two became a one-boat couple and, in the process, saved a lot of the time, money, and stomach lining the rest of us sacrifice in our attempts to meander through a minefield of compromises in sailboat design. Some people are just blessed with the ability to get it right the first time.

Durkee's adventures in sailing are all thanks to a friend named Eric Jacobson, whose family owned a Snipe and who encouraged Durkee to sail with him and to get involved in Sea Scouts in their hometown of Vancouver, Washington, near the Columbia River. The Sea Scout vessel was an old 26-foot Navy lifeboat that had been converted to a ketch-rigged centerboarder and was sailed with live ballast. Durkee earned his Quartermaster Sea Explorer, the equivalent to an Eagle Scout rank, and earned his Permit to Command under Sail and Oars.

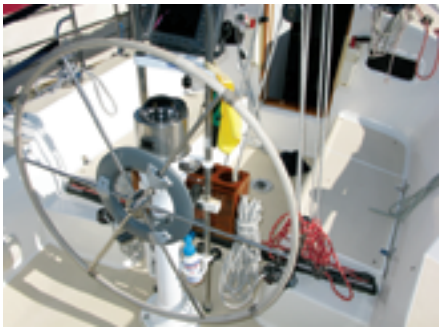
When Durkee and Eric wanted to go for a longish daysail aboard Eric's Snipe, it occurred to them that they'd need a picnic lunch. They reasoned that, since girls can be relied upon to produce this sort of thing, they should invite a couple of young women to come along. Eric suggested that Durkee invite 16-year-old Mary Jeanne Hopper to come along as his "date."

Off they went on the 15-foot 6-inch *Orion*: two young men with a bit of sailing experience and a couple of girls named Mary, neither of whom had ever been sailing before. Although neither Durkee nor Mary Jeanne knew it at the time, this was the start of something big.

A lifetime commitment

The two continued to date and married when they were old enough. Mary Jeanne followed Durkee to Iowa where he earned his Ph.D. in physics. A move from there to the 3M Company's headquarters in St. Paul, Minnesota, followed. This pair of West Coast transplants remained in the Midwest (far away from salt water) for the remainder of Durkee's professional career. At 3M, he was in the center of things as magnetic recording technology evolved.

"I was in the field before we hit our heyday," he says, "but I didn't have



as much fun as the *real* pioneers did. Now the field (recording process, materials, and applications including tape drives and discs and magnetic media) has definitely reached the mature stage." Durkee earned nine patents before he turned in his badge at the 3M division that had been renamed Imation and spun off in the late 1990s.

During this time, Durkee became a private pilot but found that keeping a license current was an expensive proposition. They dabbled with whitewater canoeing on the rivers of Minnesota and Wisconsin. Meanwhile, Mary Jeanne was developing her talent as a fiber artist and patternmaker. She took a two-week course in boot-making and learned to make professional-quality shoes. And she gathered an interesting collection of very specialized sewing machines while nurturing her amazing ability to see patterns and work artistic magic with yarn and fabric. Mary Jeanne sees the potential in materials that the rest of us would miss and turns out amazing quilts and wall hangings.

Interest reawakened

It wasn't until their two sons, Trevor and Brad, grew up and retirement loomed that Durkee thought much about the fun they'd had aboard *Orion*. During the 1990s, Durkee — sometimes with Mary Jeanne and sometimes with a crew of friends — chartered boats 24 times on cruises varying in length from a weekend to a week or more, primarily in Wisconsin's popular Apostle Islands on Lake Superior. Durkee also took a series of beginner-to-advanced sailing courses during the time. The hook was set.

Starting with a Bristol 29.9, the many charters gave him the chance to learn what he liked and didn't like about sailboat design without having to go through three-foot-itis disease. The first boat he and Mary Jeanne chartered together was a 30-foot S2. "That was the transition phase," he says. It gave us the confidence that we could manage a boat this size, just the two of us."

There was the Beneteau 28, which Mary Jeanne embraced because she could dock it herself. And there was the 45-foot Morgan that Durkee chartered with a group of men and on which he realized that a boat of this size made no sense for their cruising ambitions, since none of the men aboard could reach the halyard at the headboard of the mainsail without an awkward boost from one of the others.

A sail on a Crealock 34 in the San Juan Islands of Washington state introduced them to the area that would become their retirement home and future sailing grounds. They now knew their plans for the future and were thinking closely about the size of boat that would fit into them.

Narrowing their focus

When Durkee and Mary Jeanne chartered a C&C 33, they learned that the effort involved in winching in the large masthead jib was too much. This narrowed their focus to a fractional rig. An article in *Sail* magazine in the late 1990s compared four new boats in the 32-foot size range. Among these was the new fractional-rigged J/32 cruising boat.

While J/Boats is certainly best known for racing models, it introduced several models in the 1980s that company founder Rod Johnstone viewed as "performance cruisers."

Durkee's windlass installation occupies part of the anchor compartment, above left; the skipper has full instruments at the helm, above center; and the port-side cockpit locker gives up space for the head located just below, above right. It all adds up to make *Sirius*, at right, a serious cruiser/racer.

These were the J/28 (1986), J/34c (1987), J/37c (1989), and the J/40 (1985).

The J/35c was introduced in 1990. Then the J/32 — the only other mid-length cruiser to come from the company to date — was introduced in 1996 and a total of 85 hulls were built.

Alan Johnstone, Rod's son, is credited with the design of the J/32. Alan has listed his criteria as ". . . the boat should sail well and handle well. It was targeted to younger families with children as an entry-level boat and for older sailors who may have tired of bigger boats and want to step down in size."

After reading about this new offering from the company, Durkee contacted J/Boats to ask if there were any for charter in the Midwest. It just

The doors at the bulkhead between the cabin and V-berth add a spaceship quality to the main cabin, above left. The table drops down to reveal one of Durkee's clever innovations: a wine cabinet, above left and below. Durkee makes coffee in the L-shaped galley above right. The head is tucked in next to the companionway ladder to port and the cavernous cockpit locker is behind Durkee to starboard.

so happened that one was nearby at Hooper's Yachts and would be going out very soon for a test sail. Durkee and Mary Jeanne were invited to come along for that sail with the boat reviewer, the broker, and the new owners. It was the summer of 1998. They never looked back. Mary Jeanne says, "You just know when you find your boat."

Casually looking

They'd narrowed the field to one candidate, but Durkee had not yet retired. Although that would come in 2001, they felt they were about a decade away from relocating to Washington. They moved into that fuzzy mental zone known to sailors as "casually looking" while being well aware that there weren't many of this sailboat model — new or used — available on the market.

A two-year-old J/32 turned up in a classified ad in *Sailing* magazine that Durkee saw while flying to Seattle for business. Mary Jeanne had left a few days ahead of him to spend some time with her family in Vancouver, Washington. The two planned to wind up with a couple of relaxing days in a bed-and-breakfast while considering communities on the Olympic Peninsula as possible retirement locations. But that classified ad for a used J/32 changed everything.

"Durkee was a cat on a hot tin roof," Mary Jeanne says. There they were in the Pacific Northwest and the boat of their dreams was in Little Traverse Bay, Michigan. "It was too soon to find an available boat and too much money," Mary Jeanne remembers. But logic doesn't enter into decisions such as this. These boats were rare, and this one would not be waiting when they were ready. Lights and sirens! Battle stations! They chose the future community (Sequim, Washington) and checked out the available marinas. They went home and headed to Michigan as soon as they could to meet with the brokers at Irish Boat Shop.

The next time they headed west to the Pacific Northwest, they were the owners of a boat, had their name on the waiting list for a slip at the John Wayne Marina near Sequim, and were moving full tilt into what had been a hazy retirement plan.

Written in the stars

When the boat was hauled out for an inspection in Michigan, Durkee noted quietly to himself that the bottom showed that this was a "serious boat." Mary Jeanne overheard and jumped on that pronouncement. Her name would be *Sirius*, since the star of that name is closely associated with the Orion constellation and the name of the boat on which they had fallen in love those many years before.

Sirius was built in 1997 as hull #5 and still had only 500 miles on the log. She had many of the options they liked: a V-berth design without battens and shelves and a cockpit- and cabin-accessible stowage locker instead of a quarter berth. When Mary Jeanne saw the immense cockpit locker from inside the boat, she amused the broker when she announced with delight

that this boat even had a sewing room with a skylight.

It also had a Yanmar 3GM30F diesel engine, a Martec folding prop, an early model Garmin chart plotter, and one extra item that Durkee thought was overkill: an electric halyard winch. However, he began to appreciate this luxury item the first time Mary Jeanne had to haul him to the masthead. They insisted on adding radar before sailing their new boat to her new home marina at the far end of Lake Superior. Durkee also added an inverter right away so that anytime Mary Jeanne wanted to have a sewing machine aboard, power would not be a problem.

Making *Sirius* their own

Thus the boat came before their retirement by a couple of years and the Richards sailed her in Wisconsin's Apostle Islands, keeping *Sirius* in the same marina where Jerry and I had a slip for *Mystic* at the time. Once they were there, they continued laboring to add all the thoughtful touches that appeared to be missing: Mary Jeanne's efficient storage pouches for clothing and charts, a laundry bag in the fore-peak, a clever wine rack and glassware organizer, and the other bits and pieces that make a boat a home.

The two problem-solvers worked as a team to make this boat work for them inside and out. Over time, once they'd made their move to the Pacific Northwest, Durkee also added a propane detector, upgraded the Garmin chart plotter, rigged jacklines, added a diesel heater and, most recently, added a windlass that fits out of sight in the anchor locker at the bow.

Once they were settled, Durkee got involved with the Sequim Bay Yacht Club, racing on *Sirius* and crewing on other boats. He also took part each May in Victoria's well-known annual Swiftsure Race.

One year, they experienced a devastating setback: while they were not present, a fire aboard *Sirius* caused enough smoke damage for insurance assessors to consider her totaled. In our November 2009 issue, Durkee wrote about the cause of the fire, their emotional response, and the many hours of labor they committed to bringing *Sirius* back to better-than-new. As far as they're concerned, if you have found the boat of your dreams, you labor to save her. No question.

> **"These boats were rare, and this one would not be waiting when they were ready. Lights and sirens! Battle stations!"**

Expanding their range

Together with *Sirius*, these two have been exploring the Pacific Northwest coastline, extending the distances traveled with every cruise.Durkee refers to each long step farther afield as the crossing of "psychological barriers." First they explored the local cruising grounds. Then they crossed the Strait of Juan de Fuca (psychological barrier number one for many Seattle sailors) to Washington's San Juan Islands and Canada's Vancouver Island. Next they explored the Strait of Georgia between Vancouver Island and the British Columbia coast (psychological barrier number two).

Then they went beyond Vancouver Island to cruise in Canada's Queen Charlotte Islands (also called Haida Gwaii) and visited the homeland of the Haida people. They arrived by way of the Inside Passage and returned home via Vancouver Island's wild western shore (psychological barriers numbers three and four).

Other goals await them along the rugged and beautiful coastline of British Columbia and Alaska to the north. It's just a matter of time and planning. "As we reached the Strait of Juan de Fuca and could see Washington once more, I realized that I didn't want to come home from that Queen Charlotte cruise," Mary Jeanne says. It is hard to come back to civilization after a wilderness cruise in which time moves at a slower pace and priorities are reduced to the minimum and the essential.

So there will be more, many more, explorations for this cruising couple as they continue to push the psychological barriers back while exploring ever greater distances. One man. One woman. One boat.

Karen Larson and her husband, Jerry Powlas, the founders of Good Old Boat, *have been sailing their C&C 30 on Lake Superior for nearly 20 years. Their C&C Mega 30 project boat might soon be moving from the backyard to the tow hitch on the good old truck.*

More online . . . For Durkee's thoughts about the sailing performance and other features of this boat, please go online to <www.goodoldboat.com/reader_services/more_online/J32.php>.

The vast cockpit locker, that also opens to the cabin, at right, endeared the J/32 to Mary Jeanne. She added the extra touches, such as the storage pouches in the V-berth, far right.

J/32 vs. two competitors

Comparing three light-displacement cruiser/racers

by Ted Brewer

I would hardly call any one of these three beamy designs a good old boat, since two of them are still in production today and the last of the J/32s is only six years old. They are quite interesting designs, though, and they all have the numbers that add up to being top-performing cruiser/racers.

All three of the boats are of reasonably light displacement but within a fairly wide spread from the Catalina's moderately light D/LWL ratio of 238 to the J/32's 183 and the C&C's very light 168. In addition, two offer shoal-draft versions. The Catalina's 4-foot 3-inch draft option uses a wing fin and an additional 700 pounds of ballast to make up for any loss of stability, while J/Boats added another 390 pounds to the 32's shoal 4-foot 9-inch draft fin. Mysteriously, this substantial added weight contributes little or nothing to the advertised displacement. Still, the increased ballast will help offset the loss of stability created by the shoal draft.

How the optional shoal fins might affect weatherliness is harder to ascertain. The shoal-draft boats may heel a bit less due to the added ballast as well as to the slightly shorter heeling arm. Also, a well-designed wing fin can add to a boat's windward ability but whether it can offset a loss of 21 inches in draft is open to question. And can the heavier ballast offset the 15-inch loss of draft on the J/32? My own advice is that if you normally sail in waters where the bottom is close to the top, go for the shoal-draft version. Otherwise, enjoy the added windward performance and power that a deep fin provides.

The wide-stern effect

Getting back to stability, the Catalina is the heaviest and beamiest and has that incredibly wide stern so she will, undoubtedly, be the stiffest of the three, at least in her deep-fin version. The C&C is another fat-sterned offering and the form stability this adds to her lighter hull will prove beneficial in a stiff breeze as well. I have to wonder, though, how those super-wide sterns affect the helm balance and trim when the beast is pressed hard on the wind and heeled well down. My own experience tells me the J/32, with her more balanced hull form, will be much easier on the helmsman under such conditions.

Considering the deep-draft versions, thanks to her stability the Catalina 320 should do well in a spanking breeze while her huskier displacement will give her the momentum needed to knife through a chop. Like the C&C 99, she has a masthead rig, so will spread a good-sized spinnaker offwind. The C&C outdoes her, though, as she has considerably more sail area to begin with but also carries an oversize 14-foot 6-inch spinnaker pole. That's like adding a turbocharger to the family car! In effect, despite her six-berth layout, the 99 appears to be more sport boat than family cruiser and should be an excellent choice for the serious racing skipper.

The J/32, in comparison, takes the middle course and, for that reason, seems to be even more suitable as a fast cruiser for a young family. Her ⅞ rig spreads ample area but sets smaller headsails than the masthead rigs of the other two. This will ease the work for a shorthanded family crew, but she should still be fast enough to prove competitive in club racing. The J/32 is longer on deck, due to her conventional transom. That gives her more cockpit space and under-cockpit stowage. Her layout provides four berths instead of the six and seven berths of the other two boats. Does anyone, except a charter skipper, really need that many berths in a 32-footer? Still, I think it would have made good sense for the J/32's starboard saloon berth to be convertible to a double.

All in all, these are three good boats for three different needs. The J/32 gets my nod, though, due to her shipshape layout and her uncluttered appearance. She is a handsome yacht indeed and has a clean, understated, New England elegance that will make experienced sailors look at her with a nod of approval in any harbor she enters.

J/32 Catalina 320 C&C 99

	J/32	Catalina 320	C&C 99
LOA	32' 5"	32' 6"	32' 6"
LWL	29' 0"	28' 0"	29' 1"
Beam	11' 0"	11' 9"	10' 10"
Draft (shoal/deep)	4' 9"/ 6' 0"	4' 3"/ 6'0"	5' 5"
Disp.	10,000 lb	11,700/ 11,300 lb	9,265 lb
Ballast (shoal/deep)	4,240/ 3,850 lb	4,700/ 4,000 lb	3,500 lb
LOA/LWL	1.12	1.16	1.12
Beam/LWL	0.379	0.420	0.372
Disp./LWL	183	238/230	168
Bal./Disp. (shoal/deep)	0.42/0.39	0.4/0.35	0.38
Sail area	518 sq ft	521 sq ft	562 sq ft
SA/Disp. (shoal/deep)	17.9	16.2/16.62	20.4
Capsize no.	2.04	2.09	2.06
Comfort ratio	20.96	22.98/22.19	19.77
Year introduced	1996	1993	1999
Designer	Alan Johnstone	Catalina	Tim Jackett C&C

Ted Brewer is a contributing editor with Good Old Boat *and one of North America's best-known yacht designers. He has designed all manner of sailboats.*

When sail rules

Listening to the lovely sound of no engine

by Karen Sullivan

***Sockdolager*, a Dana 24, finds enough wind to sail on a reach while her sailors practice valuable skills.**

"If you don't mind, let's not start the engine yet," Jim said as we sailed across a tide rip between Sucia Island and Patos Island State Parks, in Washington's San Juans. "I'd like to practice as a team, doing everything we can under sail alone."

This may sound odd, but these were some of the most romantic words I'd ever heard. Although we'd been dating for seven months, this was our first real cruise together, and the sound of no engine, even if it's only a modest Yanmar 2-GM20, is music to my ears. Somehow, when you're sailing and you start the engine, everything changes — for the better if you're seeking convenience and comfort or for the worse if you're reaching for a more satisfying pure sailing experience.

I've been soloing on *Minstrel*, my Dana 24, for several years and find that I prefer to choose a totally anachronistic solution over a perfectly good engine whenever possible. I learned this about myself while sailing and motorsailing from Puget Sound to Prince William Sound and back. In Alaska, wildlife is everywhere, and I realized you can miss a lot of amazing sounds if the engine's on: a family of orcas breathing, the whistle-difference between the wingbeats of a puffin and an eider, the sound of an iceberg melting. With music like that surrounding you, why hurry to get somewhere else?

Jim has also been sailing solo for several years on a Dana 24 named *Sockdolager* (pronounced Sock-DOLL-a-jur). Two singlehanders, each with strong views on how things ought to be done, made for some comical moments as we worked in and out of harbors together under sail. We did things that when alone would have required three arms, six legs, and a brain-and-a-half. In choosing to use just sails when possible, we entered a little parallel universe of focused concentration and fun. We reveled in the quiet and perhaps earned a little nod from ghosts of schooners past.

Blew a gasket

In the fall of 2008, when Jim sailed alone to the far end of the Strait of Juan de Fuca, his engine blew a head gasket and the stage was set: "I checked into having it towed a hundred miles back to Port Townsend," he said on the phone from Neah Bay. "They want $3,800."

"Yeeks," I said. "What do you want to do?"

"I think we should sail it back," he said. It was October in the Straits, when the weather can get exciting. We waited for a fair tide between gales, and our odyssey began on a pitch-black night. We turned the boat bow-out in the slip at Neah Bay Marina and, with a homemade towing bridle led to the dinghy and our hearts in our mouths, Jim rowed while I steered. He had *Sockdolager* moving in calm water at 1½ knots within a minute. A scrowd of fishermen gathered on the other side of the fairway. "Hey!" one shouted, "It's midnight. Are you two stealing that boat?"

"No," I answered.

"What?" bellowed Jim from the dinghy. He couldn't hear the fisherman.

"Row!" I yelled at him.

A fisherman called, "Why don't you start your engine?"

"Because it doesn't work," I said.

"What?" shouted Jim. Right about then, I noticed two large, agitated sea lions on a finger pier just ahead of

Sunset at Sucia Island: somehow, dinner tastes better when you've sailed into harbor.

him. He hadn't seen them. They were shuddering and swaying, ready to lunge into the water. They were awfully close to the dinghy.

"Look out! Sea lions!" I yelled and pointed. With a succinct reply, he veered away, but a wind was coming up and this would put us too close to the breakwater, so I pointed and yelled "ROWWW!" as the fishermen watched in amazement.

Unnerved by surf

We set sail in the dark and caught the last of the ebb and a light west wind out of Neah Bay. Immediately outside the harbor, we heard surf on both sides. It was unnerving in the pitch black. "Can you hear where it's coming from?" we asked each other. We could. "Is the sound getting closer?" Our ears told us we were still safe. We talked through what we'd do if the wind died and the tide carried us too close. We discovered a new way of thinking . . . actually a rather old way of thinking.

If there's wind, we can sail. If there's no wind, we must wait. If we drift near rocks, we can anchor. If we drift near shipping lanes, we must row. If we're too close to either and there's wind, we can sail. We had everything we needed to stay out of trouble. But to understand this at a gut level, rather than an intellectual one, was to relinquish a fear-based reliance on the engine.

We stood three-hour watches in a northwest zephyr that brought fog. The next day, we spent seven long hours off Clallam Bay fighting the tide with the asymmetrical spinnaker. A light-air sail is not a luxury, it's a

necessity if you're engineless. With that spinnaker we made half a knot; without it, we'd have gone backward. Half a knot felt like progress; 2 knots felt like victory. When we finally got enough wind to move at 3 knots, we joked about donning seat belts.

On my watch that night, in windless fog so dense I couldn't see stars to steer by, I heard sounds. Faint at first, there was a low roaring, but it didn't sound like a ship's engine. I listened, alarmed. Off the port bow, it got louder. Then I heard, over the roaring, a rustling, hissing, chuckling noise. It sounded like a waterfall, and I imagined the fear felt by early sailors in uncharted seas who really believed "there be dragons" and an edge to the earth over which you could fall. In the dim light of our masthead tricolor, whitecaps revealed a chaotic lumpy seascape as we were drawn into a 50-acre tide rip. The rip soon spit us out the other side as slick as a watermelon seed.

Constant fog

Jim and I were queasy from a combination of the crazy motion, our fatigue, and the disorienting effects of constant fog. At that time, I wished we could start the engine to steady us with some speed. It would have been nice to have a boost of speed from an engine to reduce pitching and yawing, increase comfort, and reduce seasickness. Without an engine we had no alternative: just get used to it. That's when I thought of the sounds we might have missed. Besides the creaks in the rigging and the lapping of wavelets on the hull, a "Poosh!"

> **"In the dim light of our masthead tricolor, whitecaps revealed a chaotic lumpy seascape as we were drawn into a 50-acre tide rip."**

of breath revealed a seal, its curious eyes watching us glide by. High above the fog, soft peeps betrayed birds migrating under cover of night. Off in the distance, a fish jumped and an unseen sea lion belched.

We had a battery-driven handheld GPS with our course plotted on it to help us stay outside the shipping lanes and away from shore and other hazards. But the most important piece of equipment we carried that night was a radar reflector mounted on the backstay. Nearly all the other boats out on the Straits that October night would have had engines and radar running. They should have been able to see us, and we could hear them. We kept the VHF radio on to listen to and stay in touch with Seattle Vessel Traffic Service and in case we needed to make a Sécurité call.

It took us 34 hours to sail 55 miles to Port Angeles, then another 16½ hours to sail the remaining 52 miles (that would have been 32 miles as the crow flies, but the wind was on the nose) to Port Townsend. Jim rowed *Sockdolager* from time to time, for a total of two or three miles. Rather than try to sail into Port Townsend's crowded marina at dusk, we anchored out. On our small green solitary sailboat, surrounded by a watercolor evening, we imagined whispers of old ghosts along the waterfront: "Not bad living by wind and wit, now, is it?"

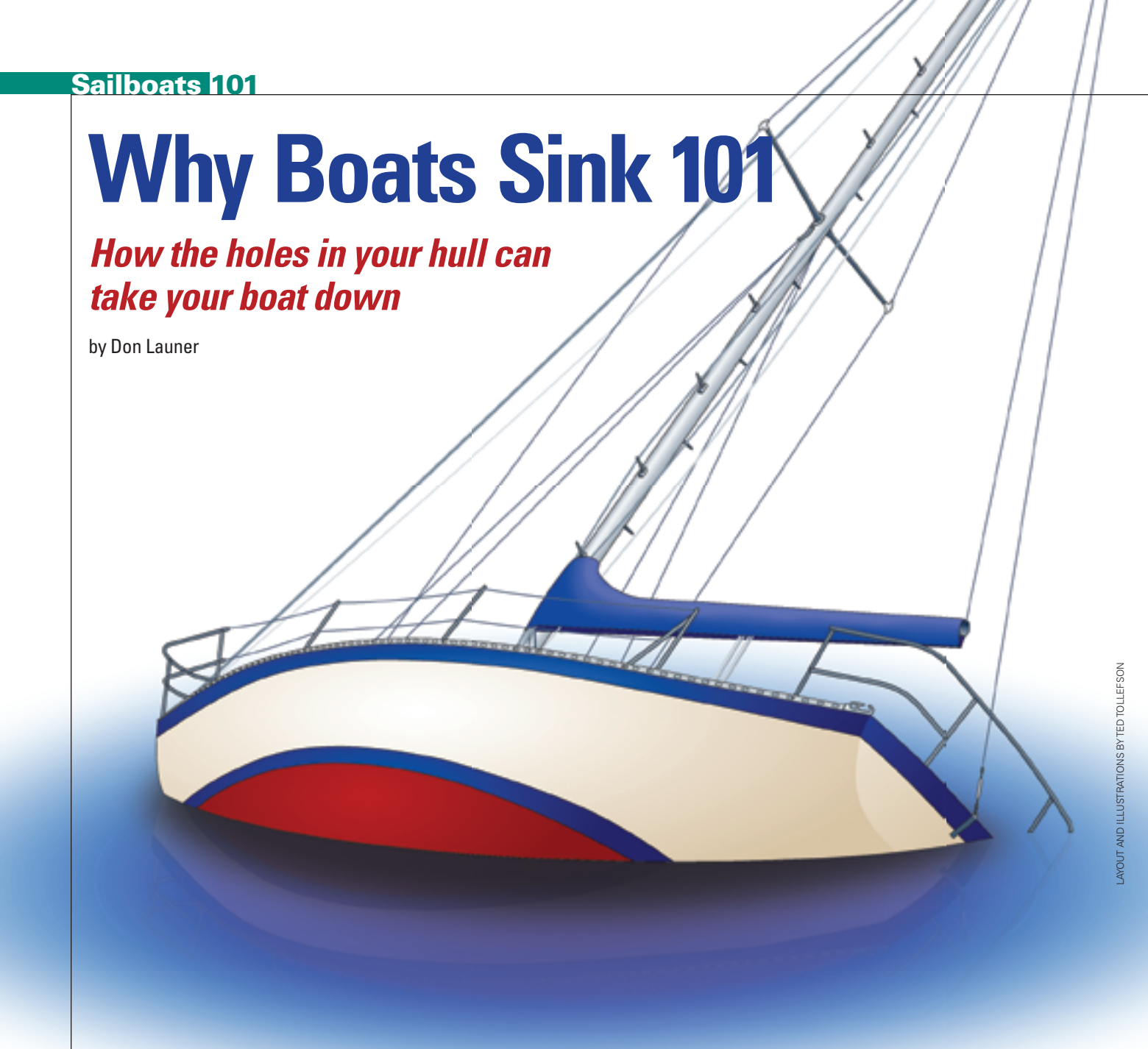
Early the next morning, watching each other grin as we rowed *Sockdolager* quietly into harbor, we felt as if we could do just about anything.

Karen Sullivan discovered sailing in 1973 with a wooden Folkboat in New England. After 10 years on larger boats and a spell ashore, she returned to her small-boat roots, sailing her Dana 24, Minstrel, *to Alaska in 2001, then back to Puget Sound in 2006. After she met Jim Heumann she sold her Dana. Now they cruise together on* Sockdolager *out of Port Townsend, Washington.*

Why Boats Sink 101

How the holes in your hull can take your boat down

by Don Launer



LAYOUT AND ILLUSTRATIONS BY TED TOLLEFSON

Although fiberglass, steel, and aluminum are not naturally buoyant, they can be fabricated into a shape like a boat hull that will float . . . until it's punctured. In spite of that truth, we deliberately puncture our hulls to install raw-water intakes (for heads and engines) and discharges (for the same heads and engines plus galley sinks, cockpit drains, and more).

The legendary naval architect L. Francis Herreshoff thought putting holes in the bottom of a boat was such a bad idea that he advocated the use of a cedar bucket instead of a plumbed marine head.

Don't bet on the bilge pump

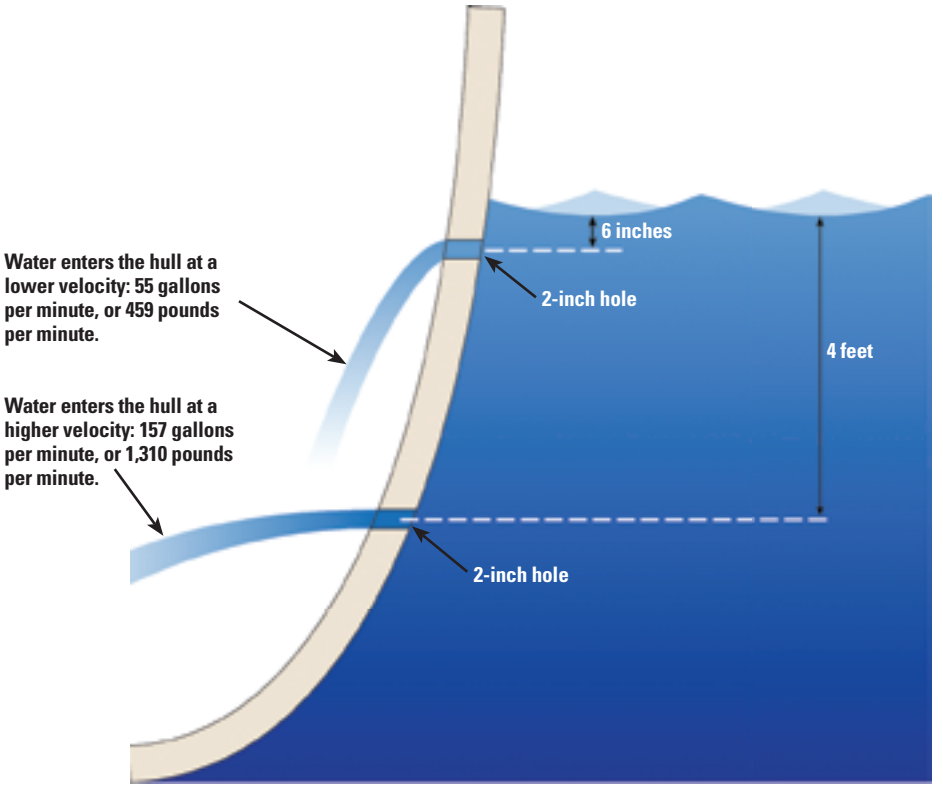
Some small boats, such as center-console outboards, have double hulls filled with foam to make them buoyant even when swamped. But larger boats (and most sailboat hulls) will not float after the hull has been punctured unless the bilge pumps can keep up with the leak.

It would be nice to think your bilge pump *could* handle the task, but a 1-inch hole 2 feet below water level will allow water into the hull at a rate of 28 gallons per minute. That's 1,680 gallons per hour — 14,000 pounds. Doubling the diameter of the hole quadruples the flow, since the area of a hole is proportional to the square of its diameter.

As weight is added to the boat it will settle lower in the water and the flooding rate will increase.

Can the average boat's bilge pump handle this? Only if it's very large *and* the battery remains charged *and* the automatic bilgewater-level switch works properly *and* the bilge pump's switch is in the automatic position *and* the pump is wired directly to the battery rather than through a battery-selector switch that *might* be turned *off*.

It's also sobering to realize that the gallons-per-hour (gph) rating of your bilge pump is not at all realistic, since that figure is determined by how many gallons it will pump with zero "head" (the distance it must raise the water). Friction



Under the laws of hydrodynamics (the study of liquids in motion), the velocity at which water flows through a hole is equal to the velocity that a falling object would have if it fell through a distance equal to the distance the hole is below the surface of the water. Given that and the hole's diameter, it's possible to calculate the rate of flow through the hole.

in the pump's hose adds to the head, with the result that the effective head decreases the actual rate at which the pump will operate to about 40 percent of its quoted rating.

Where is the leak?

The location of the leak very often determines whether a boat can be saved or is doomed. Is it at a point in the hull that cannot be reached? At what depth below the waterline is the leak? The farther below the waterline, the faster water will come into the boat and the more difficult it will be to stem the flow. Whenever possible, any through-hull added below a boat's waterline should be as close to the surface as is practical for the particular application.

Sinkings by the numbers

Bob Adriance, editor of the BoatU.S. publication *Seaworthy*, describes some of the common causes of sinking as: leaks at through-hulls and hoses (18 percent); leaks in the engine's cooling system (12 percent); damage due to grounding (10 percent); and striking a submerged object (4 percent).

Failure to close through-hulls is a major cause of winter-related sinkings. Many of these sinkings are caused by ice lifting the hose off the through-hull. Most of these off-season sinkings could be prevented if the hoses were fastened to the through-hull fittings with two opposed all-stainless-steel hose clamps or, better yet, if the through-hull seacocks are closed.

Many boats also sink at the dock due to leaky stuffing boxes. On most sailboats, unfortunately, stuffing boxes are difficult to reach and don't get inspected or adjusted regularly. Inspecting for deteriorated hoses and broken raw-water strainers is also often difficult. Water left in a strainer over the winter can freeze and crack the strainer's glass and the damage can go unnoticed during spring commissioning.

Another cause of sinking is water siphoning back into a marine toilet located below the waterline and connected for direct discharge (which is only legal well offshore). Frequently, this is caused by the air-valve at the top of a vented loop becoming corroded so it cannot open and break the back-siphon. To prevent the head discharge from coming in contact with the air valve and causing corrosion, it's a good idea to mount the air valve at the end of a short tube and screw the tube into the vent fitting on the loop.

A damage-control kit

Since the United States Coast Guard does not have any regulations concerning the equipment that should be on board to prevent flooding and sinking, it's up to individual boatowners to create their own damage-control kits. A good starter collection for this bag should include a selection of tapered softwood plugs that can be pounded into place and a mallet with which to pound them; rubber balls in various sizes; small sheets of flexible metal, along with pieces of wood of different lengths for wedging them in place; and underwater two-part epoxy putty.

Don Launer, a Good Old Boat *contributing editor, has held a USCG captain's license for more than 33 years and has sailed the East Coast from Canada to the Caribbean. He has been a lifelong student of the history and arts of navigation and frequently gives talks on the subject.*

The truth about GPS

What advertising and operating manuals don't tell you

by Bernie Weiss

Retrofitting your good old boat with a new GPS receiver? A GPS chart plotter? Beware. Whatever the salesman told you, whatever you learned in the advertising and promotion, whatever you read online and in the owner's manual — it's not the whole story. Caveat emptor.

A GPS system can steer you into trouble just as easily as it steers you toward your destination. Yes, GPS technology is mature and reliable, it's accurate to less than 10 feet, and it's easy to use. But there are serious pitfalls and risks associated with GPS, as any knowledgeable skipper will testify.

These important points are worth your consideration:

- GPS cannot show you where the navigation aids actually *are*, just where they *should* be. The buoy charted at position N 41° 48.872' and W 70° 27.609' may not be there. Since your GPS receiver was programmed, the buoy may have been relocated or removed (whether deliberately or accidentally). Verify the buoy's position either with data updates or visually as you pass near it. In fact, the data that constitute your plotter's charts should be updated periodically. Chart updates are free from NOAA or available in an organized way on CD from the folks at <www.managingthewaterway.com>.

- GPS cannot show you what's actually at a waypoint, only what's *supposed* to be at a waypoint. So you may get to the waypoint just as other vessels are also approaching the waypoint. Or the buoy may be a convenient reference point for fishermen who have anchored or are drifting in the area. In other words, if you let the GPS system drive your boat's autopilot, keep a sharp lookout at the same time. You may be heading for an unpleasant surprise.

- Beware of the potential hazard associated with reciprocal courses between popular GPS waypoints. When you are en route to a popular waypoint, consider that other boaters are likely to be using the same waypoint. Some are going toward it; some have just left and are headed your way. To avoid the prospect of close encounters on reciprocal courses, I don't drive my vessel precisely down the rhumb line between two waypoints. Instead, I run parallel to the rhumb line a short distance (say 100 to 200 yards) off to starboard, ignoring the GPS system's warning about cross-track error. If the other guys coming my way are doing the same thing, the rhumb line serves as a virtual highway median.

- GPS cannot warn you of floating hazards that are not "in the system" — debris, crab pots, fish traps, swimmers, kayakers, floats marking shellfish beds, and yacht-race buoys. These and countless other objects floating on the surface and just below it must be avoided. You cannot rely on GPS to help you steer clear. The advice to keep a good lookout is much

ILLUSTRATIONS BY TOM PAYNE

more relevant. You may need to steer a crooked course before returning to the GPS-directed compass course or bearing to the waypoint.

- With GPS waypoints and routes, you may not be able to go from here directly to there. In your car, you program your GPS unit to take you to a single waypoint, the destination. The GPS computer calculates the route, then signals the turns and distances en route, updating itself as progress is achieved. However, your marine GPS has marine software. Enter a single destination waypoint in your boat's GPS and you may be shocked to find that your GPS directs you across dangerous shoals and reefs — and even peninsulas and islands. Your marine GPS calculates a straight line (the rhumb line) between two waypoints. It differs from your car GPS in that it is not capable of routing you through one or more turns to the ultimate destination. You must give it one or more interim waypoints that will route you around the island, reef, or peninsula. You must identify and select each of these waypoints, enter them into the GPS memory, and then assemble these waypoints into a route. Only then will your marine GPS follow the turns to your destination safely.

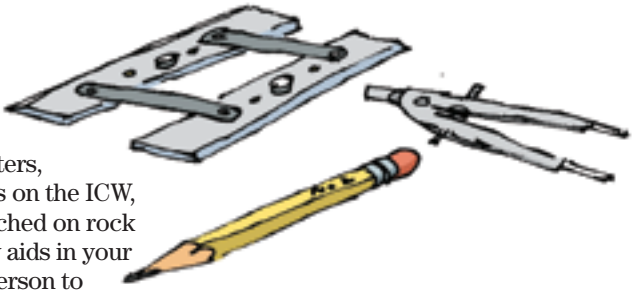
- GPS cannot alert you to hazards that develop when rain, fog, and darkness reduce visibility. This is the role of radar, rather than GPS. Some chart plotter models combine the two functions on a single display, overlaying radar images on the GPS display. This is a great advance in navigation technology.

- Some nav aids should never be entered as waypoints in a GPS, such as lighthouses, towers on the ends of breakwaters, mile markers and stakes on the ICW, and skeletal towers perched on rock piles. Entering such nav aids in your GPS tempts the helmsperson to head directly for (and pass as closely as possible to) the navaid, turning it into a hazard. As GPS waypoints, I recommend only floating nav aids, especially big buoys with bright lights and sound-emitting devices such as horns, bells, and whistles. If you get too close to one, you'll see it in time — or bounce off.

- All GPS routes and waypoints must be saved — preferably on paper — but at least in a separate electronic device, such as your computer. One of these days, when you are most in need of navigation assistance, the waypoints and routes that you painstakingly and carefully installed in your GPS system will be unavailable. Someone (you, perhaps) will have inadvertently deleted them. A backup file will be your salvation.

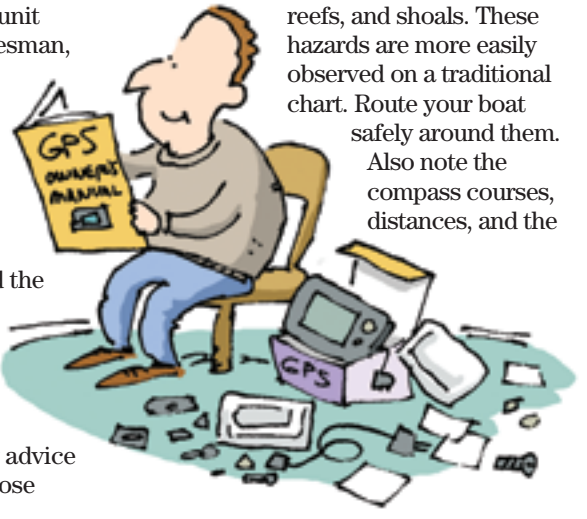
"Do not blithely steer to waypoints or follow routes that were previously installed on your GPS unit . . ."

- Do not blithely steer to waypoints or follow routes that were previously installed on your GPS unit by the manufacturer, the salesman, your brother-in-law, or the boat's previous owner (PO). Especially the PO. He may have sold the boat because, following a faulty route that was sloppily planned, he steered across a shoal or mudflat or reef and damaged the boat. Probably damaged his ego too. If there are waypoints and routes in the GPS when you acquire it, verify their accuracy and safety before setting out. My advice is more deliberate. Delete those untrustworthy routes and waypoints (many of which you'll never use anyway) and create your own.



- Keep your GPS and chart plotter up to date. The newer ones automatically download chart updates and software updates when in range of wireless Internet service. Failure to update older systems periodically is dangerous because, over time, buoys are re-numbered, added, moved, and removed; deepwater channels and shorelines are shifted by storms and currents; and underwater dangers and obstacles are found in the most unlikely places. Furthermore, some cruisers have found that the charts still in use were never accurate to begin with. The islands haven't moved, but the accuracy of today's GPS exceeds the accuracy available to the original cartographers. Keep this in the back of your mind any time you cruise beyond your home waters.

- Take time to honor tradition. When planning a series of GPS waypoints and a route to a new destination through unfamiliar waters, do it on a paper chart first. With a pencil. Look for hazards to be avoided, such as fixed nav aids, reefs, and shoals. These hazards are more easily observed on a traditional chart. Route your boat safely around them. Also note the compass courses, distances, and the



prominent nav aids that will constitute waypoints along your route. Then transfer these data from the chart into your GPS unit. Save everything including the paper chart; it may be pressed into service as your backup navigation tool.

- Learn how to use virtual waypoints. Unlike GPS receivers for highway use, with your boat's GPS any intersection of latitude and longitude can be assigned and labeled as a waypoint. Such intersections are, quite literally, everywhere, so a waypoint needn't be where a buoy is located, it could be between buoys. It needn't be at the jetties marking the entrance to your harbor, it could be a fourth of a mile to seaward of them. Note the position of the desired waypoint, call it a virtual waypoint, and give it a name (Home Harbor Entrance), save it in your system, and add it to your route.

- Identify new GPS waypoints by giving them meaningful names. When you create a new waypoint, your GPS will automatically assign it a three-digit numerical code in sequence (001, 002, and so on). Days or weeks later, these codes will mean nothing to you. You can change these codes to names that are more easily remembered at the time you need them. Instead of 015, you could label the waypoint Port Jeff or PJ, indicating the red-and-white buoy marking the harbor entrance at Port Jefferson, Long Island.

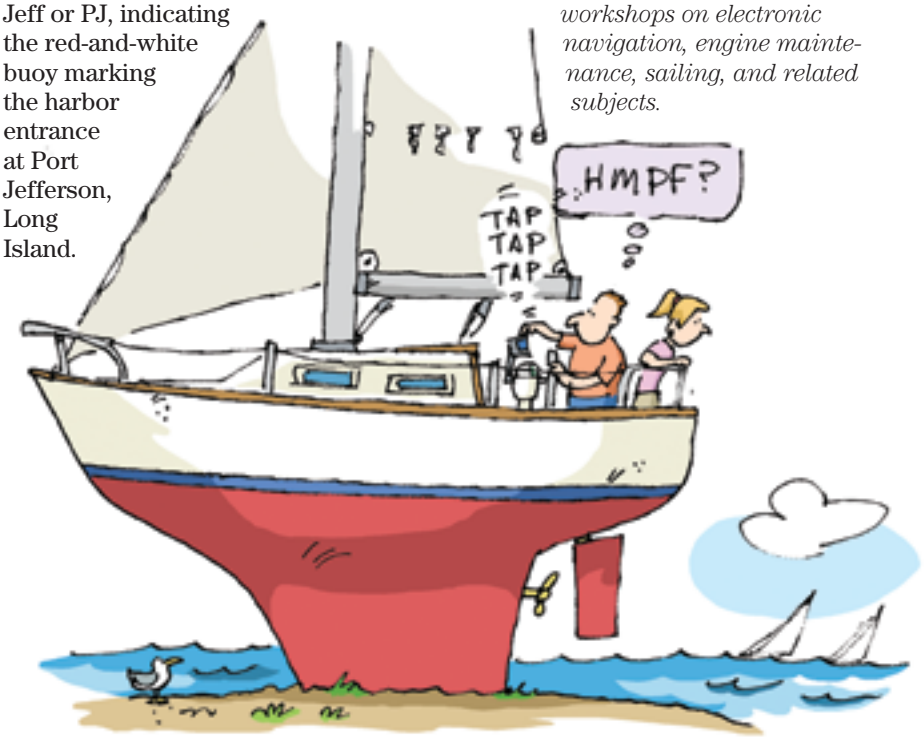
Because the sea is not our native environment, everyone on board should be attentive and alert at all times. Even the best navigators equipped with the finest GPS chart plotters and other electronics will welcome observations from the helmsperson and other crew on deck.

Captain ***Bernie Weiss*** *is a delivery skipper based in Stamford, Connecticut. At Atlantic Yacht Delivery <www.AtlanticYachtDelivery.com>, Cap'n Bernie repositions sailing and motor yachts between Maine and Florida. He also trains new boatowners. When not at sea, he instructs, lectures, and organizes workshops on electronic navigation, engine maintenance, sailing, and related subjects.*

Resources

NOAA free chart updates
www.nauticalcharts.noaa.gov

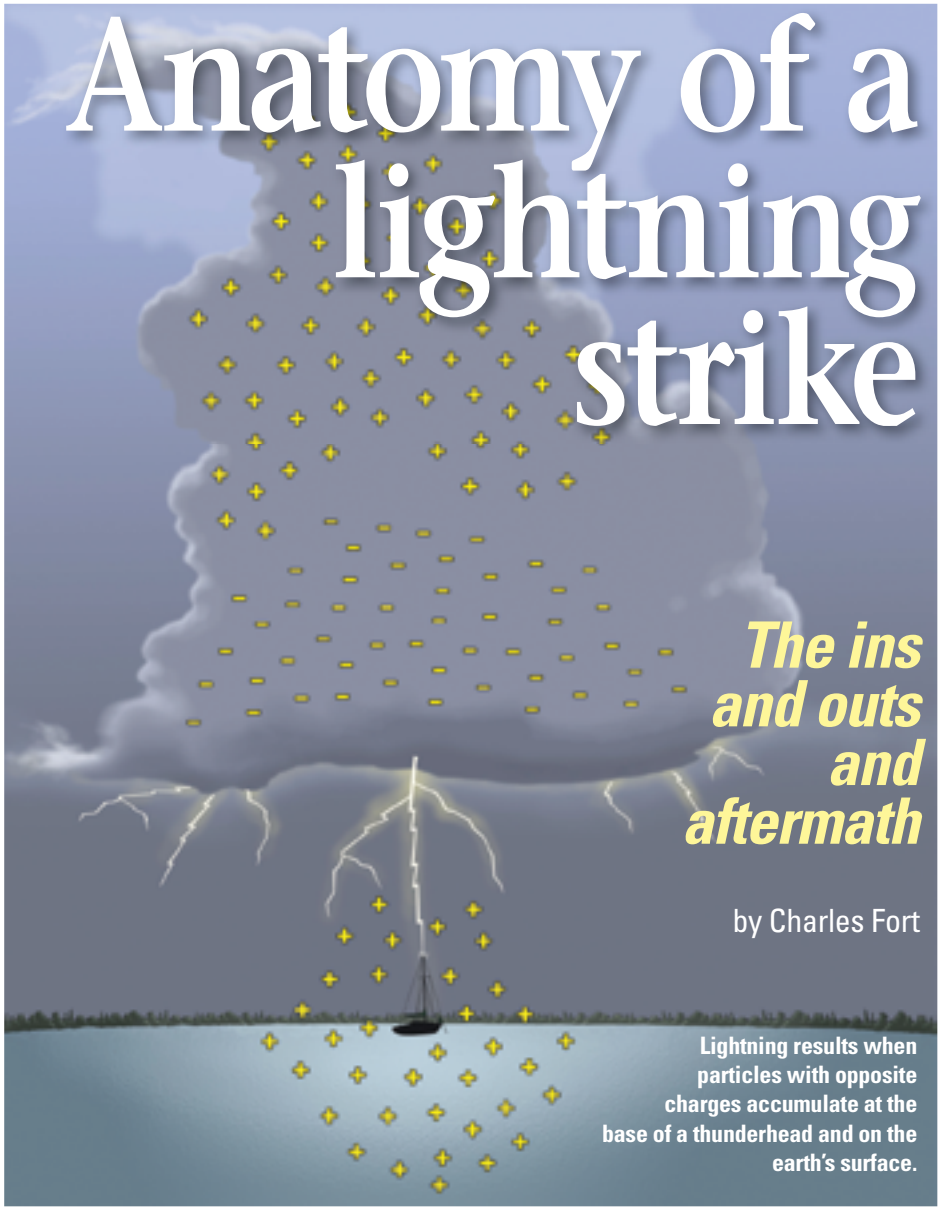
Chart updates on CD
www.managingthewaterway.com



Anatomy of a lightning strike

The ins and outs and aftermath

by Charles Fort



Lightning results when particles with opposite charges accumulate at the base of a thunderhead and on the earth's surface.

ILLUSTRATIONS BY FRITZ SEEGERS

Flash — BANG! My eyes flew open. I had been sound asleep, so it took me a second to orient myself. I was sleeping in the V-berth, the hatch above me was open, and it was eerily quiet. Then the sky lit up a second time and I prepared for the next thunderclap.

My first thought was whether I had left anything out on deck. My wife, Theresa, stirred next to me, smug in the realization that the 20 or so pieces of teak trim she had been refinishing had been brought below before we turned in for the night. I, on the other hand, had left three portlight trim rings hanging in the rigging after their last coat of paint. I had finished the painting at 10 a.m. the previous day. The can said 16 hours must pass before the paint is wet by rain or dew. I looked at the clock through blurry eyes: 2:15 a.m. Made it by 15 minutes; but I'd better get them in. Another flash and crash brought me to full alert status. Those strikes were close!

Coquette, our 44-foot Van de Stadt cutter, is one of the largest sailboats in our small marina tucked away in a creek off Chesapeake Bay. The VHF antenna is 61 feet off the water — one of the tallest objects around — and I waited for the simultaneous flashbang of a direct hit. This thunderstorm was spewing lightning at an alarming rate. No sooner had one flash imprinted on my eyes than another streaked across the sky. Working at BoatU.S. as an editor for *Seaworthy*, the marine insurance damage-avoidance magazine, I knew what to expect if we were struck by 200,000 amps from the sky. I also knew the odds were pretty high, since 29 percent of all lightning claims arise in the Chesapeake Bay area. Only Florida, with 33 percent, sees a higher number.

Prelude to a strike

As ice particles collide with hail in the violent updrafts of a thunderhead, the smaller ice particles become positively charged while the falling hail inherits a negative charge. This separation of charges causes the upper areas of the cloud to be positive while the lower areas become negative with respect to the earth. As a thunderhead passes overhead, positive charges also build up on objects below the cloud. Since these positive charges are doing their best to hook up with the negative charge in the cloud, they tend to congregate at the top of the highest object around. A huge amount of negative charge in the cloud's lower regions and a huge amount of positive charge at the earth's surface now want to equalize, in a bad way. What happens when a sailboat mast is the closest target?

The invitation

First, a stepped leader finds its way to an attachment spark sent up a couple of hundred feet from the boat — usually from the highest point on the boat, the tip of a VHF antenna. This isn't the actual strike, just an advance party paving the way by ionizing the air between cloud and mast. Ionized air is a much better conductor than your average air and, with the help of a spark from the antenna, the entire 6-inch-wide charge (NOAA estimates it at 30 million volts) takes a leap to the puny wire of the antenna, vaporizing it on its way and leaving small molten pieces of metal on the deck as a souvenir.

Once the lightning has arrived at the mast, it has several options. Some of the charge will travel down the coax cable and rattle around inside the VHF radio, melting components, but the rest has to decide whether the standing rigging

looks like the fastest way to ground via the water or if a direct path down the mast would be best. Aluminum is a better conductor than stainless steel, but sometimes it goes both ways and other times it changes its mind halfway down and all or part of it jumps from the mast to the stays (or vice versa) through whatever is in its way — a dangerous side flash.

The aluminum of the mast conducts so well that there is very little heating except at the point of contact. The stainless-steel stays, which are less conductive, can heat up a bit, but standing rigging is rarely damaged in a strike. However, on its trip down, the charge is likely to induce currents in anything metallic, destroying circuit boards, wires, and components with abandon. Mast-mounted units, such as radar domes and wind instruments are prime targets.

A forced exit

The most painful part of the trip is probably the jump to water. When the strike makes it to the mast heel on a keel-stepped mast, the strike may meet with a few thousand pounds of lead. Lead is only a tenth as conductive as copper, and the charge *really* wants to get out. If there's no direct connection between the mast and keel and the outside water, there is a problem — but not for the lightning. A lightning bolt that's just traveled a couple of miles through the sky won't have any problem going another ¾ inch through solid fiberglass and leaving a gaping exit wound (a burn mark or a hole).

Then again, it may decide that the nearest through-hull makes a great getaway. The problem there is that the lightning bolt might be a bit too large to get through the fitting, but if that's where the lightning's going, it will take out the fitting if necessary. Observant readers will deduce that, with the removal of one of its through-hulls, a boat will be left with a sizeable hole. Unfortunately, the strike might also have destroyed the batteries and anything attached to them, including the bilge pump.

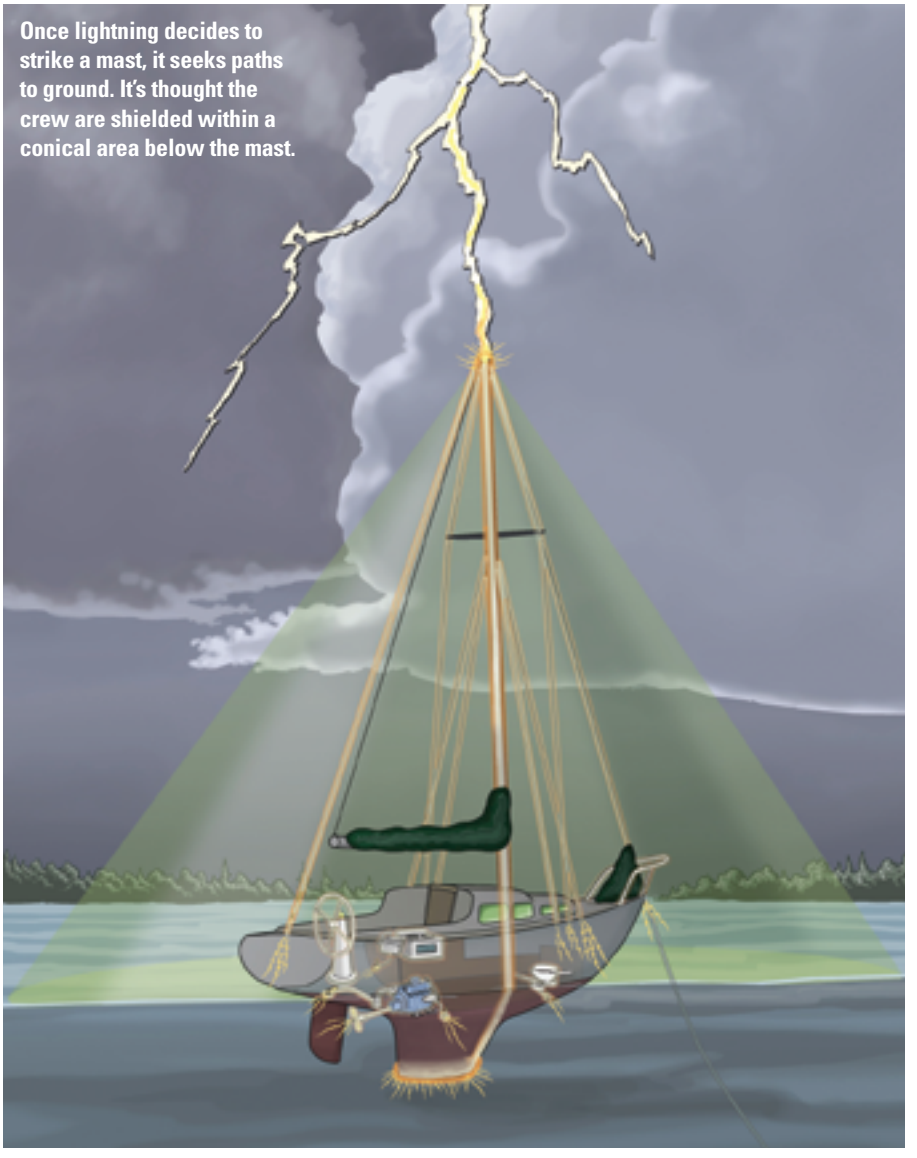
Lightning has other tricks too. A nearby strike can induce a current into the shorepower system and deliver a slug of voltage to anything connected. An induced current can also be generated through a boat's electrical system from a strike several boats away. With luck, breakers or fuses will prevent serious damage from this type of near miss. Lightning's best and, alas, rarest performance is to hit and run — and strangely leave nothing damaged.

Damage assessment

What's the first thing to do if you know or suspect that your boat's been hit? Grab your insurance policy and, while you're dialing the claims department, look for a leaking through-hull and any other leaks. Lightning has been known to leave multiple exit wounds in the hull, both above and below the waterline. Some insurance companies, such as BoatU.S., will pay to have the boat immediately short-hauled. They know that the only thing more expensive to fix than a lightning-struck boat is a *sunk* lightning-struck boat.

Chances are that most, if not all, of the boat's electronics will be smoldering. The most common electronics to be toasted are battery chargers, autopilots, radar, refrigeration controls, alternators, and, of course, the VHF and SSB radios. The more sensitive the electronics (fluxgate compasses, radios, transducers, and radar), the more likely they are to be damaged. Sometimes, the steering compass gets wacky and may or may not return to normal. It may have to be re-swung.

With luck, some of the fuses will have blown (in fact, if you arrive at your boat one day and find some fuses blown, suspect a strike). Sometimes electronics can be repaired, but more often than not they'll be far gone. Typically, wiring that carried a significant amount of current — such as the VHF and radar



Once lightning decides to strike a mast, it seeks paths to ground. It's thought the crew are shielded within a conical area below the mast.

cables — will be damaged but, strangely, sometimes it's not. It should usually be replaced regardless.

If the hull has been breached, the repairs are straightforward fiberglass work but, if the boat sank, the repairs for the hull, water damage, and electronics could exceed the value of the boat. A rare occurrence is that if a hull laminate (or core) is very wet, the strike can weaken the structure. In that case, hull samples may have to be cut out and analyzed for strength.

Prevention theories

Why not just try to prevent a strike? That's a nice thought, but you can't. At least, that's what many experts believe. Ewen Thomson, a well-known lightning researcher based in Florida, says current research shows promise in mitigating strike damage, but nothing is effective at preventing a strike.

Many people agree. The American Boat and Yacht Council (ABYC) has lightning bonding standards that can help lessen damage, but the standard itself contains this statement: "The probability of a lightning strike varies with geographic location and the time of the year, but, when the conditions that create an electrical charge between clouds and the earth exist, there is nothing that can be done to prevent the lightning discharge." Since building a boat to the ABYC lightning protection standards is an expensive and rather difficult job, very few manufacturers do it.

> "Sailboats really don't get struck *that* often; the average rate is only four strikes per 1,000 boats."

How about fuzzy mast-head dissipaters — do they work? Most experts believe they don't. Lots of boats that have them don't get struck, but plenty of boats did have them when they were struck. Ewen Thomson doesn't have one on his boat.

Should you take up cave diving? Maybe it's best to take comfort in the fact that sailboats really don't get struck *that* often; the average rate is only four strikes per 1,000 boats, unless you own a multihull. These, oddly, are struck twice as often. If your neighbor owns one, it might just distract a bolt or two from hitting your boat. It might be somewhat comforting to know that most marine insurance companies are well versed in handling lightning claims and the damage is repairable.

Be calm in a storm

What should you do if you're caught in a lightning storm? Don't panic. Injuries due to lightning on sailboats are rare and fatalities are almost non-existent. A sailboat mast provides a cone of protection roughly equal to its height and, since sailboats are nearly always struck at the top of the mast, the cone is usually bigger than the boat. But, because lightning can sideflash as it comes down the mast and rigging at the same time and can jump through the hull near a fitting, it makes sense to not get in the way of a belligerent strike. Stay down below, if possible, keeping away from the mast, chainplates, or anything grounded. If you have to be in the cockpit, don't touch grounded metal (such as the wheel or throttle controls). Lightning storms are usually short-lived and have more bark than bite.

Coquette was struck, not during the storm mentioned here but a couple of years before we owned her. All her electronics were replaced afterward and, fortunately, she suffered no hull damage. But part of the strike traveled down an upper stay to our stainless-steel lifelines where the deck-mounted spinnaker pole lay against a stanchion. Scorch marks are still visible on the stanchion, a reminder that, if lightning wants us, it knows where to find us.

Charles Fort cruised extensively with his family in another life and is currently living aboard and sailing his 45-foot Van de Stadt cutter on Chesapeake Bay. When not sailing, he works as an editor for BoatU.S.

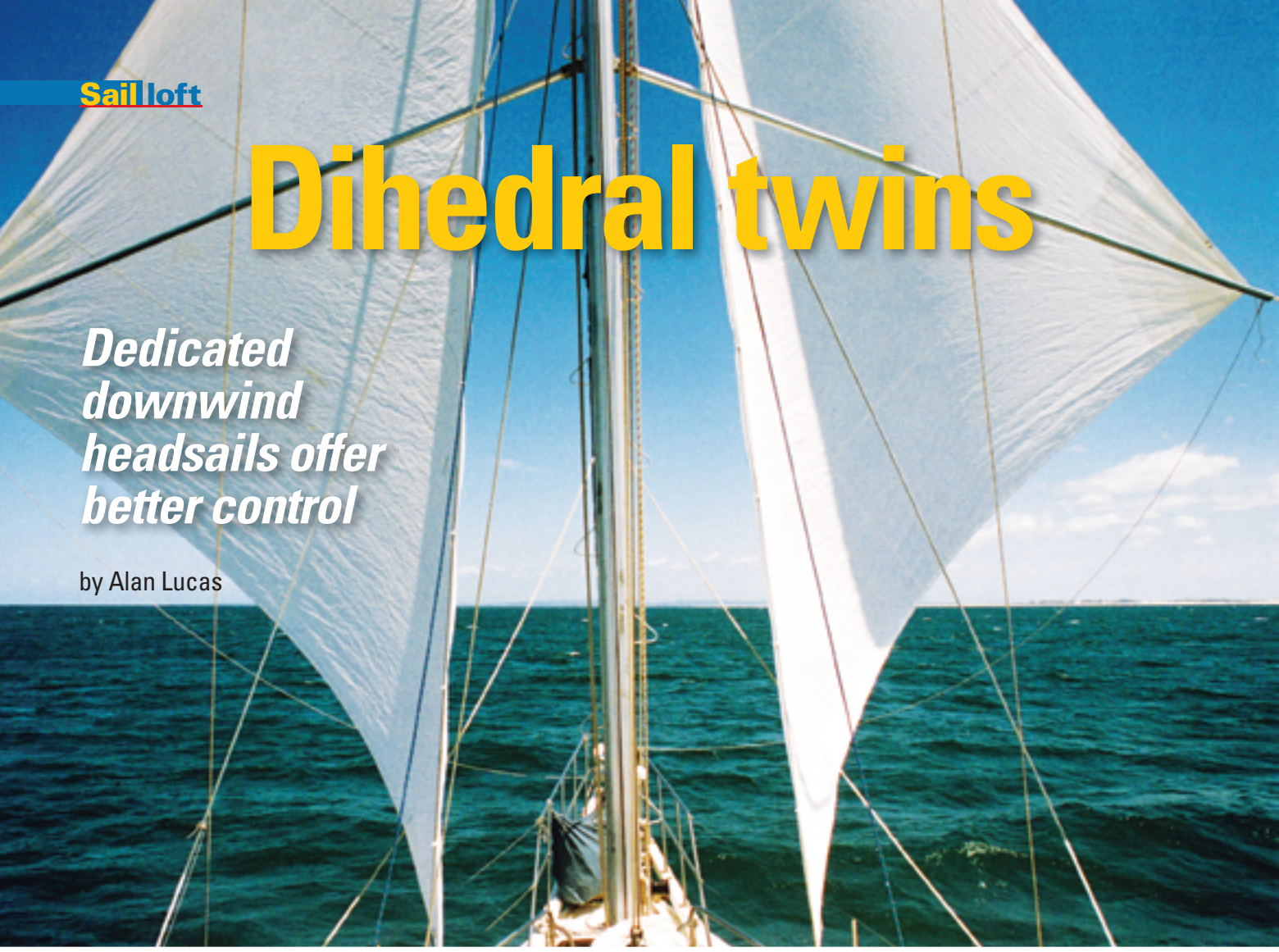
Preventing damage from a strike

- Keep your VHF antenna disconnected from your radio and unplug the power, if possible. But don't be near the free end if there is the potential for a strike, since part of the charge will likely be heading that way.
- Other electronics can be unplugged. Turning off the breaker is not as effective since the charge can easily jump the breaker. There's no guarantee that electronics won't get fried due to a current induced inside the equipment by the strike, but disconnecting them gives you an edge.
- Surge suppressors can be installed for sensitive equipment but are only effective in clamping the smaller surges that might be induced by a strike. Nothing will protect electronic devices from a direct hit.
- There are a couple of good reasons for not using a metal seacock on a plastic (Marelon) through-hull. Here's another: when lightning heads for the water via a seacock (these are often grounded), the non-conductive through-hull acts like a gnat trying to stop a bullet. The result is one less through-hull.
- Hug your neighbor. There appears to be a "shielding effect" from nearby boats. Ewen Thomson did research on why multihulls are struck twice as often and theorizes that due to the wide berths multihulls require, they get less shielding from other boats.
- Installing a working lightning bonding system is difficult and expensive, but evidence suggests it can lessen the damage from a strike. The key, however, is to keep it maintained. Corroded or loose connections, damaged or corroded wire, or new electronics that aren't included in the original plan can render any system ineffective.
- How about hanging a jumper cable or chain from a stay over the side? It can't hurt, but the connection to a stay won't likely be suitable for high current and chain doesn't have much contact area between links. Still, as capricious as lightning can be, any effort might pay off.

Dihedral twins

Dedicated downwind headsails offer better control

by Alan Lucas



Soleares **runs under her twin headsails, set from permanent stays. The forward-reaching dihedral-angled sails imitate a gliding bird's wings and produce a powerful natural self-steering moment.**

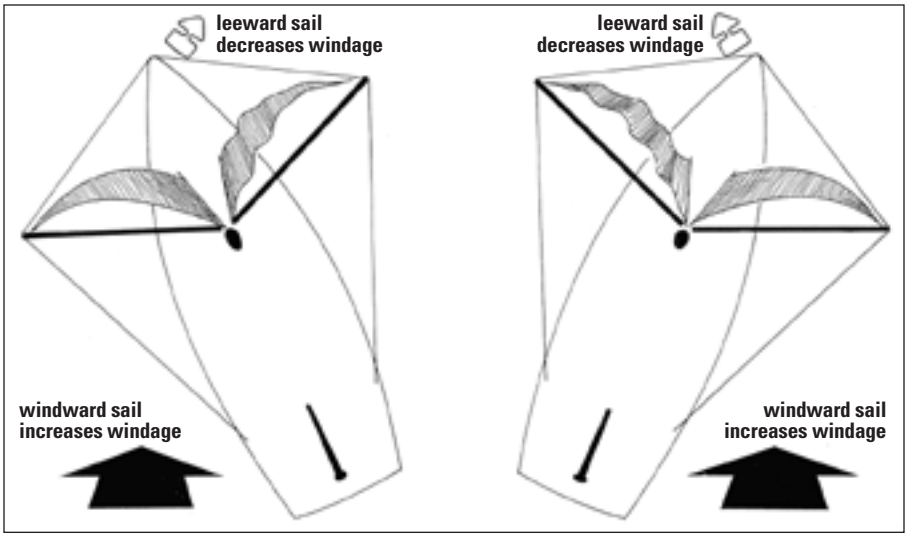
The twin-headsail rig, once commonly seen on boats running in the trade winds, has become a dinosaur in today's fleet of roller-furled and autopiloted yachts. Even a few hemp-and-tar shellbacks have sacrificed this tried-and-true system on the altar of electronic advantages. But just how advantageous is it to ignore a traditional rig that does not block the view ahead, promises no deadly jibes, will never chafe against leeward rigging, and, into the bargain, produces a natural windvane effect that resists yawing and broaching?

Since the dihedral-angled, twin-headsail rig offers all this, why has it virtually disappeared? Probably because pushbutton sailing is so addictive that we willingly bumble our way downwind with unbalanced fore-and-aft rigs. When designing the rig for *Soleares*, our 50-foot skipjack-based ketch, I took a page out of my less complicated cruising past and committed her to a boom-less, loose-footed, fore-and-aft rig that suited the various angles of reaching but collapsed when running off the wind. To compensate, I added poled-out, dihedral-angled twin headsails for exclusive use before following winds. Having used twins in the past, I was well aware of the extra work involved in setting up a dedicated running rig, but I also knew it to be a wonderfully docile arrangement with all the above-mentioned advantages.

When Patricia and I built *Soleares* in the late 1990s, we had visions of going offshore again, and this colored our thinking. However, our commitment to self-publishing two Australian cruising guides limited us to coastal cruising. This meant that the twins would be used for daysailing only, a task for which they were never intended. Yet now, 10 years later, we still willingly go through the ritual of swapping rigs according to wind and course and find the effort well worthwhile.

A system for setting

We so love our twin headsails that we never begrudge them the 10 minutes it takes to set them up, especially as we have developed a system whereby *Soleares* is never completely naked during the changeover. As we pay off to run square — just prior to the boom-less sails collapsing and being progressively dropped — we hoist the leeward twin under the lee of the fisherman. Then we drop the fisherman and hoist the opposite twin. The reduction in speed during the changeover is irrelevant to non-racers and, once set and filling, the twins more than compensate with their friendly, peaceful habits.



The self-steering dynamics of the dihedral-angled, twin-headsail rig is shown here: unlike any other downwind rig, the moment one of the twins becomes a windward sail, as the vessel tries to broach, it increases pressure and drives the bow downwind. The leeward twin is sympathetic in the way it loses pressure with equal rapidity.

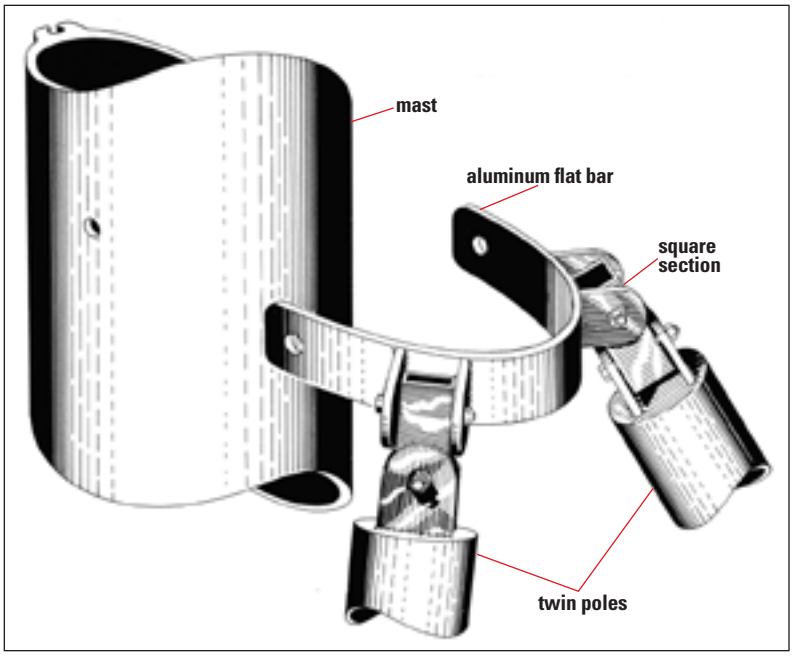
Contrary to popular assumption, the modern Bermudan rig is not well-balanced when squared away because a boomed mainsail sheeted right out easily overpowers a poled-out headsail set on the opposite side, producing a broaching moment. A boomed mainsail readily reacts to poor helming with an accidental jibe, with the possible consequences of rig and sail damage and injury to crewmembers. Preventers and vangs offset this tendency but they can let you down when least expected.

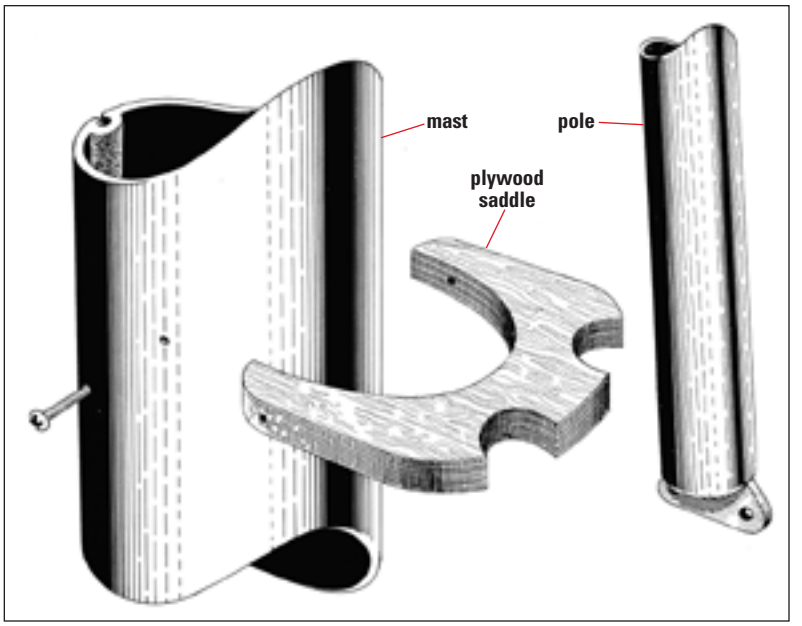
An erroneous term

The popular term "wing-and-wing sailing" is erroneously applied to a Bermudan rig running off the wind; a bird that badly balanced would never take off or, if it did, would glide like a brick.

Wing-and-wing should apply exclusively to dihedral-angled twins because they are truly balanced in the way their clews reach forward of their luffs and their entire sail area is forward of the mast, guaranteeing that the center of effort is ahead of the center of lateral resistance. This configuration ensures that a vessel trying to round up has to fight hard against strong natural correcting factors.

If rounding up starts to occur, the windward twin immediately experiences increased pressure while the leeward twin loses pressure and the rapid imbalance of forces brings the vessel back on course. Despite these constantly active dynamics, the course remains remarkably true with very little wandering or dependence on extreme rudder angles for correction. Indeed, the course can be so true and strong that the greatest single danger dihedral twins pose is their resistance to sudden course changes in the face of imminent collision.





Permanently hung poles

Whether employed as a long-distance ocean-crossing rig or just for daylong coastal cruising, the rig needs to be easy to set and handle, making the permanent hanging of the two poles virtually obligatory. Ours are plain aluminum pipes, foam-filled and hung from goosenecks welded to aluminum strap bent around and bolted through the mast. When not in use, the lower ends of the two poles are lashed into an easily fabricated plywood saddle that's fixed to the mast with a sealant adhesive and metal threads.

There are two ways to set the poles into their working positions, and boat size will affect the

ILLUSTRATIONS BY ALAN LUCAS

The proper way to rig twin-headsail poles is to have hoists (lifts) for the poles and outhauls for the sails. Fore-and-aft guys are vital to maintain a constant dihedral angle, at left.

Free-setting twins are OK on very small rigs. Otherwise, permanent stays are mandatory, the poles setting behind them and in front of the shrouds. The stays run from the masthead to points forward of and outboard from the mast by about 10 degrees, typically to the sides of a trunk cabin. The inverted "V" gap that results is important for wind flow, at right.

method chosen. One way is to hoist them out on dedicated topping lifts, secure them in position with fore-and-aft guys, then hoist the twins and outhaul their clews to the pole ends; the other is to clip the bottom ends of the poles directly to the twins' clews and let the sails take the poles with them as they are hoisted (sometimes helped by shoving the poles outboard to overcome inertia). Aboard *Soleares* we use the second method, but lifts and outhauls would be necessary with big rigs.

Dedicated stays

Dihedral-angled twin headsails are best set on dedicated stays to prevent the sails from blowing off when being hoisted or handed in blustery conditions. Because it's a downwind rig, always decreasing its apparent wind, the stays can be around two-thirds the diameter of normal stays with the poles passing between them and the shrouds in their working positions. In this position the poles are held firm at an angle that will keep the sails' clews forward of their luffs. This is the opposite of normal poled-out headsails whose clews reach aft of their tacks at anhedral angles.

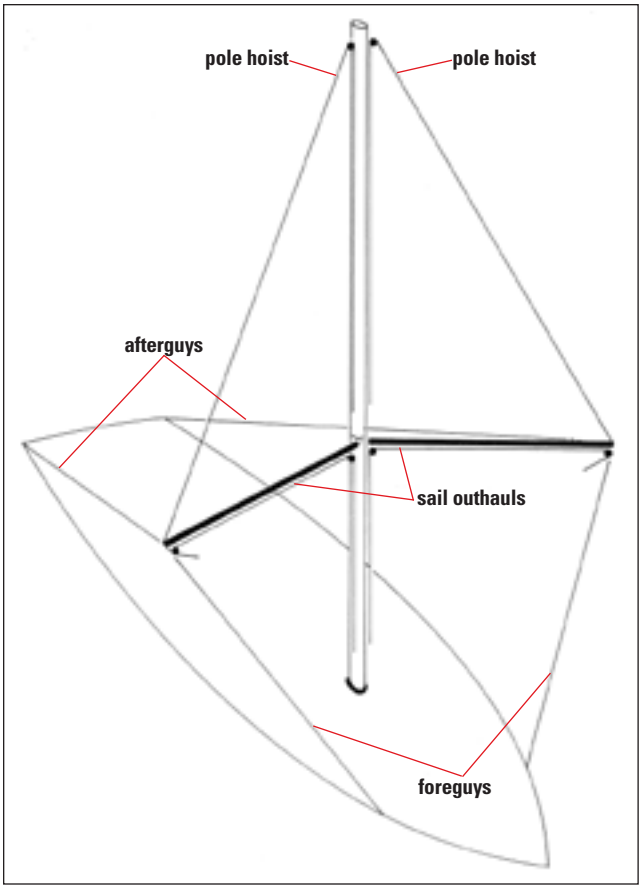
Twin-headsail stays should run from the masthead to points on deck about 10 degrees from the vertical, forward of and out from the mast. This keeps the sails' tacks well apart. The resulting inverted "V" gap between luffs increases their leverage over the ship's centerline and vents wind that may otherwise encourage rolling.

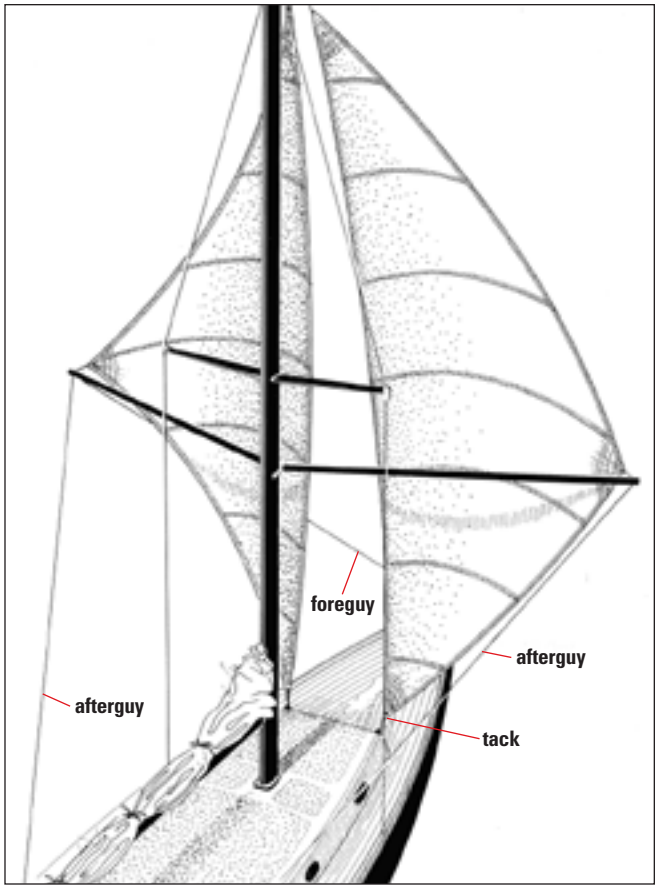
To digress a moment, it should be noted that some modern sailors deploy their sails from double-tracked roller-furling gear set on a single dedicated stay — rather like a jackstay — close in front of the mast. They say the absence of air space between the sails makes no behavioral difference. They argue that having both sails roll out from a common stay makes them child's play to handle and much easier to reef.

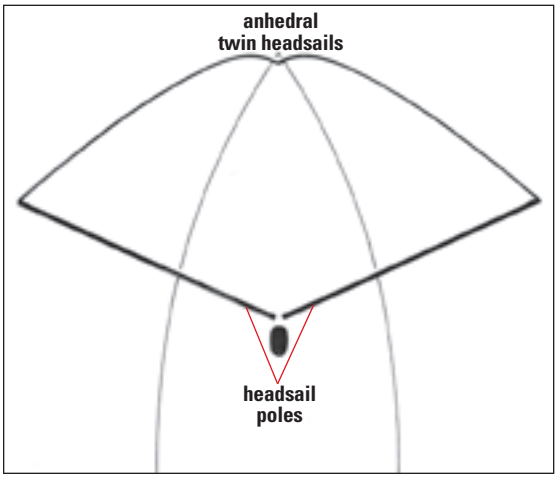
A more common method is to deploy the above-noted roller-furled twins from the standard stem-head forestay. This allows one twin to be removed whenever the other is needed for conventional reaching as a number-two jib. Such versatility is a powerful argument in favor of this variation. However, when running downwind, these twins are obliged to form anhedral angles that are detrimental to self-steering qualities (although superior to mainsail and poled-out genoa). If this rig wanders off course, pressure in the windward sail reduces while the leeward sail increases and thus denies the immediate windvane effect of the dihedral rig.

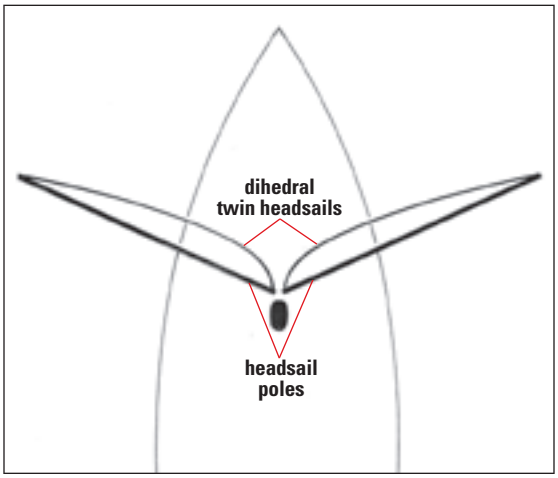
Dihedral is superior

According to Frederic Fenger, who published his experiments with dihedral twins on model yachts in 1932, it is vital that the dihedral angle be 23 degrees to the athwartships plane. I have followed this









The anhedral twin-headsail configuration, at far left, is commonly set from double-track roller furling on a single forestay. It is convenient to use but deficient in self-steering qualities. The dihedral sails, at left, set at angles of about 23 degrees forward of the beam and constitute by far the best-balanced and most powerful self-steering rig.

advice on most of my twin rigs over the decades but I confess to never actually measuring the angle, being quite satisfied with guesstimates. There is, however, one thing I can state with certainty: the dihedral angle beats the pants off the anhedral angle for its vastly superior natural self-steering influence and docility under way.

Because dihedral-angled twins produce a natural windvane effect, some vessels will steer themselves for days on end while requiring no attention from helmsman or autopilot once their rudders are locked amidships. Aboard *Soleares*, we leave the autopilot on and are content in the way its workload is reduced to the level of occasional murmurs rather than constant groans. Yes, changing from one rig to another on a daily basis is inconvenient compared to easing a Bermudan rig's mainsheet and poling out its jib, but the results are so superior that we wouldn't have it any other way.

Alan Lucas, an Australian from New South Wales, has been cruising for 50 years, primarily south of the equator. He's authored several Australian cruising guides.

As *Soleares* sails on a broad reach with most of her boom-less fore-and-aft sails filling, a windward twin is visible between the mizzen staysail and the fisherman. Alan says using just one twin to weather like this complements the rig as a whole when quartering, and was a bonus discovery.

Make your own

Mainsail control for less than $100

by Joe Orinko

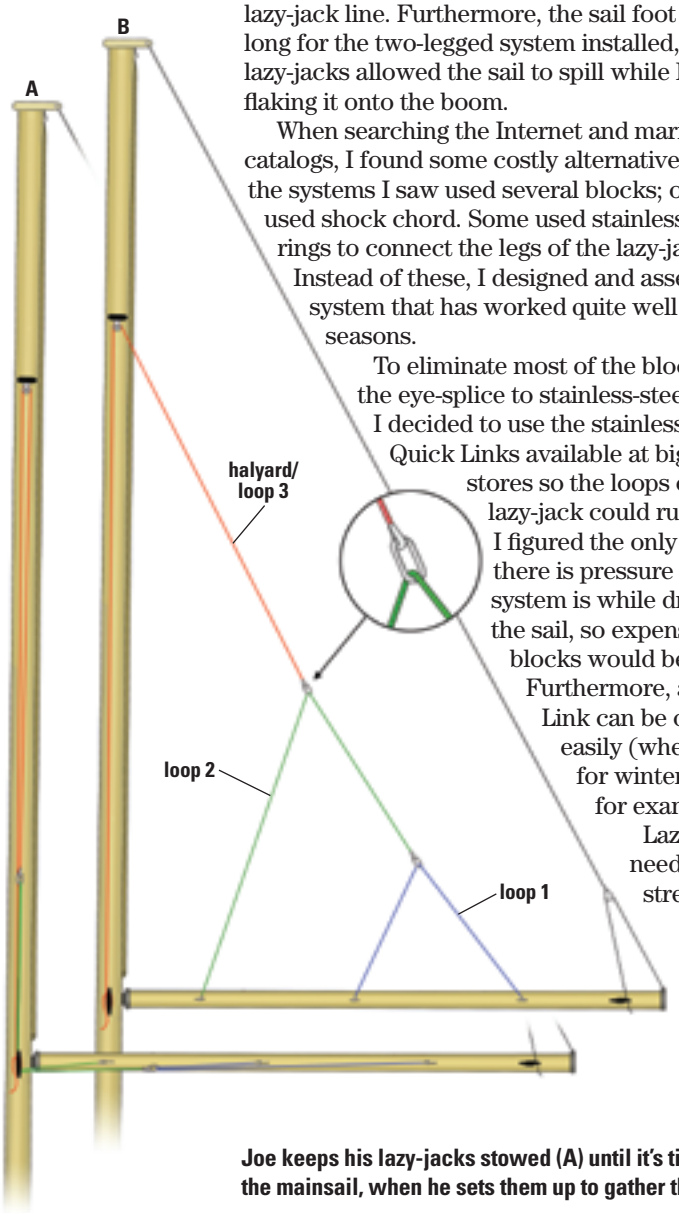
The previous owner of our Catalina 30 had installed lazy-jacks to handle the fully-battened mainsail. The system was rigged so the lazy-jacks were always set up and the owner even had slots cut in the mainsail cover to accommodate them.

We tried to use the system for a couple of seasons. When raising the sail, a batten would get caught about a third of the time and, sometimes, when we were lowering the sail, it snagged the lazy-jack line. Furthermore, the sail foot was too long for the two-legged system installed, so the lazy-jacks allowed the sail to spill while I was flaking it onto the boom.

When searching the Internet and marine-supply catalogs, I found some costly alternatives. Most of the systems I saw used several blocks; one even used shock chord. Some used stainless-steel rings to connect the legs of the lazy-jack. Instead of these, I designed and assembled a system that has worked quite well for three seasons.

To eliminate most of the blocks or the eye-splice to stainless-steel rings, I decided to use the stainless-steel Quick Links available at big-box stores so the loops of the lazy-jack could run free. I figured the only time there is pressure on the system is while dropping the sail, so expensive blocks would be overkill. Furthermore, a Quick Link can be opened easily (when it's time for winter storage, for example). Lazy-jacks need little strength, so I used an inexpensive ¼-inch double-braid. My initial sketch showed 100 feet of line but, as assembling it required 10 eye-splices, I ordered 120 feet of double-braid. I cut it into six segments (three on each side). Then I made splices in one end of each halyard and in both ends of the four secondary loops. The loop-end eyes are connected to the boom with stainless-steel eye-straps.

On the underside of each spreader, about 12 inches out from the mast, I fastened a small stainless-steel eye-strap to suspend a block. I fitted six more small stainless-steel eye-straps to the boom, three each side, to hold the spliced eyes in the ends of the lazy-jack lines. To mount the eye-straps, I drilled and tapped holes for #10-32 stainless-steel machine screws, because that was the smallest tap I had. I used blue liquid Loctite on the threads.



FRITZ SEEGERS

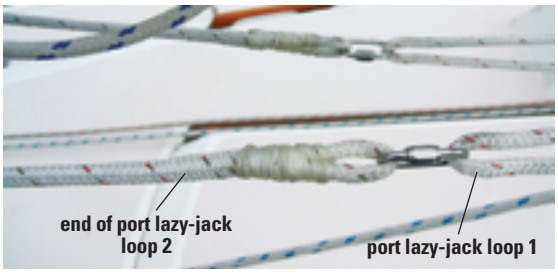
Joe keeps his lazy-jacks stowed (A) until it's time to drop the mainsail, when he sets them up to gather the sail (B).

Measurements

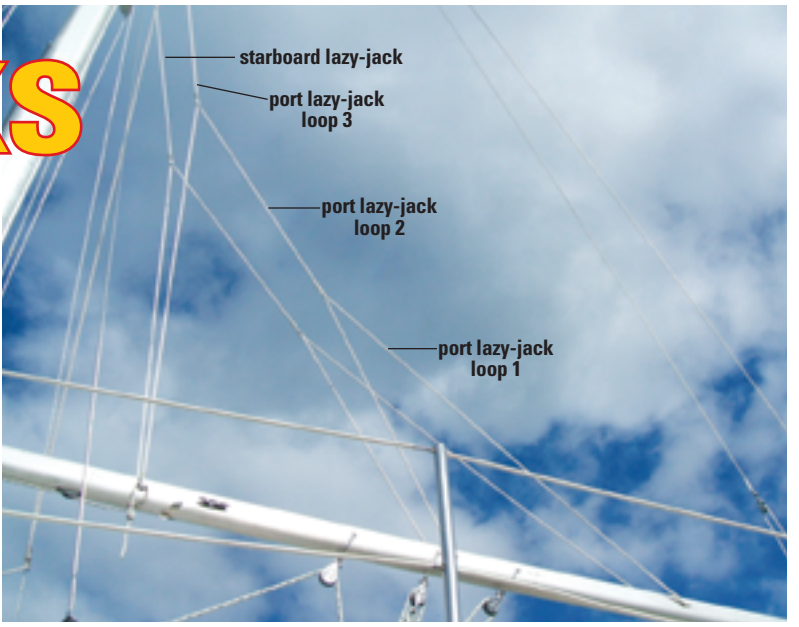
The dimensions I used are for a tall-rig Catalina 30. But the design is triangular and proportional to two measurements: the mainsail foot dimension and the boom-to-spreader measurement, as shown in the table below.

The actual final positioning of the connection points has to be adjusted around fittings already installed on the boom, such as reefing gear, bails, and cleats.

Dimensions	
Loop size, where H is the height from boom to spreader	
loop 1 (aftmost)	53% H
loop 2	60% H
loop 3	164% H
Boom positions for loop attachments, where E is the length of the foot of the sail	
Boom position 1 (aft from mast)	20% E
Boom position 2	50% E
Boom position 3	80% E



lazy-jacks



The loop lengths are proportional to the distance from the top edge of the boom to the spreader. For my Catalina 30, this distance is 18 feet. (This distance could be measured with a length of line attached to the main halyard.) The loops are 9.5 feet and 10.75 feet, and the lazy-jack halyard is 29.5 feet.

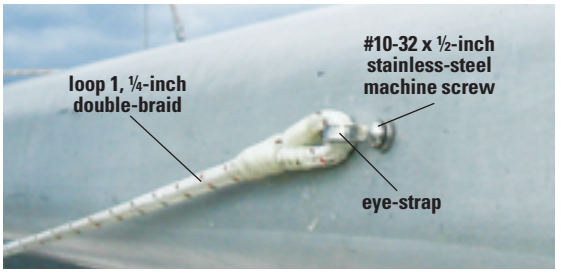
Retracted position

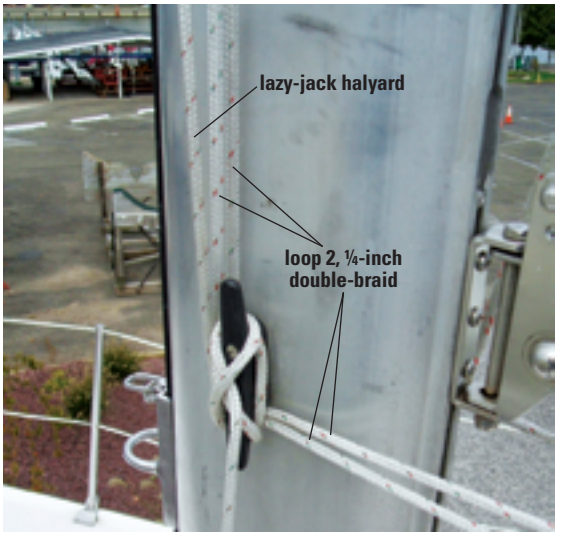
At the dock, with the sail flaked and held by sail ties, I retract the lazy-jacks. On each side, I gather the loops, pull them forward, and loop them around a cleat on the mast. I use the original halyard cleats for this since we now have internal halyards led aft to the cockpit. When looped under the cleat in this way, and with the lazy-jack halyard snugged, most of the lazy-jack is positioned below the boom.

With the lazy-jacks stored in this position, the mainsail cover needs no modifications. With the mainsail cover in place, only the lazy-jack halyard along the mast is visible.

Deployed position

When we're preparing to sail, we remove the sail cover and sail ties. We leave the lazy-jacks in the retracted position when we raise the sail and while we're sailing.





When it's time to lower the sail, we release the lazy-jacks from under the mast cleat, raise them to the deployed position, and cleat them off. We can then drop the mainsail in the normal way. We flake the sail on the boom and secure it with sail ties. Once we're finished, we pull the lazy-jacks back to the retracted position.

In fresh wind conditions, the lazy-jacks can be left deployed while sailing. The smooth line and Quick Links pose no serious threat of abrasion. In this deployed position, the lazy-jacks are ready when we want to reef or lower the mainsail.

Enjoyable project

Making the 10 eye-splices was a satisfying off-season project. I use a New England Ropes Unifid. If you don't like this sort of project, perhaps you can persuade an amenable sailor, a Boy Scout, or a local rigging shop to do it for you.

Our lazy-jacks work pretty well for us. When needed, they do their job. When retracted (such as when we're sailing or when the mainsail is covered), they are invisible.

Joe Orinko has sailed the waters of Presque Isle Bay and Lake Erie for more than 25 years, 20 of them in his O'Day 23, Unicorn, *and for seven seasons on his second* Unicorn, *a Catalina 30.*

Each loop of the lazy-jack runs through a Quick Link supported by the loop forward of it, at bottom of facing page. These let the loops self adjust when the lazy-jacks are deployed, above. The lazy-jacks attach to the boom with spliced loops in eye-straps, top at left. To retract the lazy-jacks, Joe tucks them under mast cleats and takes up on the halyards, bottom at left.

Parts and costs (using Spring 2009 prices)

Qty	Unit	Description	Unit Price	Amount	Source
120	ft	¼-inch double-braid Dacron line	$ 0.35	$ 42.00	B
2	ea	Single block (such as Harken 082)	10.84	21.68	A
8	ea	Eye-strap	0.82	6.56	C
17	ea	#10-32 x ½-inch s/s machine screw	0.29	4.93	Local
4	ea	⅛-inch x 1¼ -inch s/s Quick Link	1.58	6.32	C
		Total		**$ 81.49**	

Source codes: A – West Marine, www.westmarine.com; B – Defender Industries, www.defender.com; C – Bosun Supplies, www.bosunsupplies.com

Taming the main

Integrating lazy-jacks with a sailcover

by Ron Vanderwell

Tying lazy-jacks into a sailcover gave Ron a whole new way to tame and tidy his mainsail, and making the system himself proved a fairly easy task.

I love my mainsail when it's doing what it's supposed to do: powering my boat. But since I am often a singlehanded sailor, there are times — such as when it's time to furl several hundred square feet of Dacron neatly by myself — that our relationship becomes a bit more complex. I'm not the first sailor to fantasize about a mainsail that would suddenly appear when needed and then magically vanish when the fun is over.

Recently, several companies have begun offering lazy-jack systems that are integrated with specially designed sailcovers. Marketed under names like Stack Pack and Lazy Bag, they use a sailcover that's suspended by the lazy-jack lines. This cover is mounted permanently, so there's no need to remove it before sailing or replace it upon returning to port.

The technology behind these systems is not that complicated. The design features are not patented, as most have been used in one form or another for some time. I discovered that a boatowner with access to a sewing machine can create his own low-cost lazy-jack/sailcover system. I have a good friend who can do wonders with her sewing machine. Installing such a system takes a little bit of work but can provide a nice upgrade to a good old boat.

How the system works

The lazy-jack part of the system is not complex. One line is attached to either side of the mast, usually somewhere a little above the spreaders. These lines descend in parallel until they meet a series of stainless-steel rings or small blocks which, in turn, are connected to shorter lines leading directly to the boom. This allows the lines to branch out to and hold the sail at several points along its length. The end result looks a little like a river branching out through a delta, creating the web that prevents the sail from flogging all over the deck while being hoisted or lowered.

Lazy-jack systems such as these are nothing new. The genius is in the addition of an integrated and permanently mounted sailcover. Instead of being draped over the boom like a conventional sailcover, this cover is positioned upside down, with the opening on the top. This gives the cover a shape, a little like a taco shell, that uses gravity to help the sail flake down neatly inside. Once the sail has been lowered, the crew needs only to remove the halyard and zip up the top of the "taco" to protect the sail from the elements. The lazy-jack lines are attached at several points along the top of the sailcover, which helps the cover keep its proper shape when the sail is raised and the sailcover would otherwise be empty.

Constructing the system

This system works best when all lines are led aft to the cockpit, removing the need for any rigging concerns at the mast. For our boat, I moved a mast winch to the coachroof and then shopped for the necessary blocks, deck organizers, and rope clutches to finish the job. While not absolutely necessary, it's also helpful to rig a single-line reefing system that runs to the cockpit.

Sunbrella is the fabric of choice for this kind of project. It has good UV-resistance and holds up well, but remember to reinforce it well at any chafe points. Although this sailcover appears to be constructed of a single panel (hence the

taco comparison), it is really composed of two large side panels roughly the length of the boom. The panels are irregularly shaped, similar to those in a conventional sailcover. The forward end of the cover is as tall as necessary to cover the sail slugs at the mast track. The panels can be much narrower at the aft end since they only need to cover the clew of the sail.

The two panels are jointly connected at the bottom to sail slugs on the boom sailtrack and the split between them allows rainwater to drain and makes it possible to rig reefing lines as needed.

You can transfer the slides from the sail, as the sail needs to be loose-footed to allow the system to fit. The panels are attached to the sail slides by nylon straps anchored in grommets on the panels. If you don't feel comfortable installing grommets yourself, any sign shop that makes vinyl banners can probably install them inexpensively. It works best to sew small patches of nylon webbing in the locations where the grommets will go, to provide a better purchase for them and as reinforcement.

Although they look symmetrical, the side panels are not identical. One of them must extend around the front of the mast to close the system. This wraparound section, which connects to the other side panel with a zipper, gives the sailcover a neater overall appearance and prevents the sailcover from flogging in the wind.

In addition to the side panels there is a two-part top panel. One side of this panel is sewn to each of the large side panels and they are joined by a long zipper the length of the boom. A weather flap over the zipper helps protect the stowed sail and the zipper itself from the elements. Add a lanyard of some type for the long zipper, as it may be difficult to reach in the closed position.

"This process of rigging lazy-jack lines involves some trial and error; make sure you're on good terms with your bosun's chair."

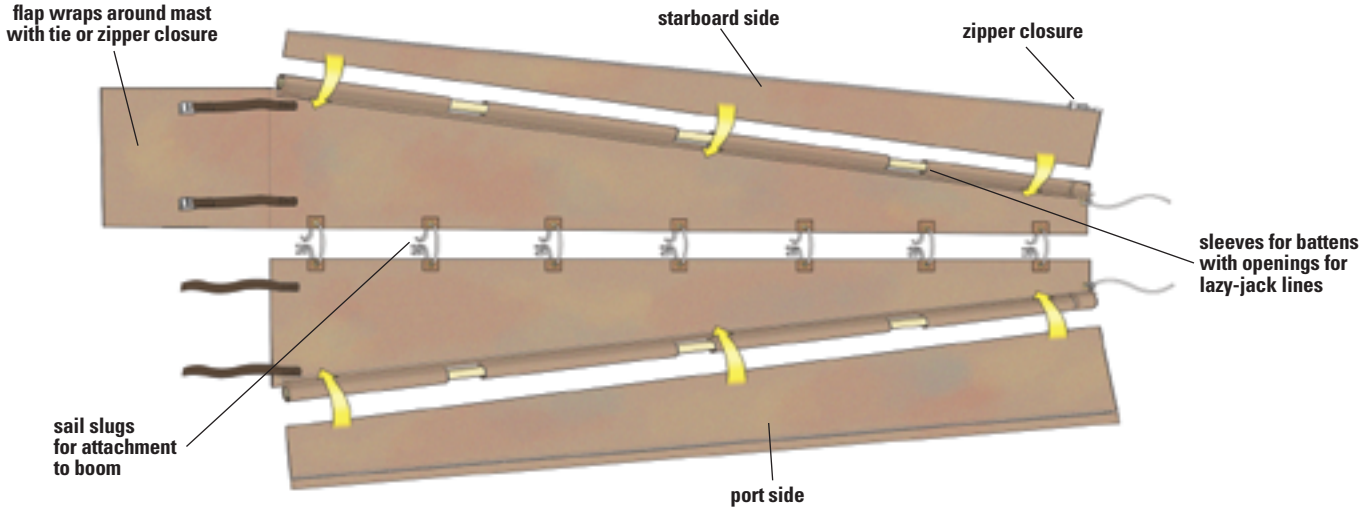
The attachment points for the lazy-jack lines require special attention as the sides of the sailcover need to be supported so they don't sag or flap in the wind. This is done through the use of rigid battens inserted into sleeves sewn along the top of each side panel. In commercial systems, the battens are usually made of some form of fiberglass rod, which you can purchase from a sail loft. Another option is to use small-diameter PVC pipe available from any big-box building-supply store.

Sew a sleeve into the top of each side panel to accommodate the battens. Leave one end of each sleeve open for inserting and adjusting the battens during installation. Since the batten is enclosed in the sleeve, you need to provide small openings every several feet so you can tie the lazy-jack lines to the battens.

Installing the sailcover

During construction, it's helpful to test-fit the panels to the boom to confirm accuracy before completing all the sewing. I found an odd combination of clothespins and Vise-Grip pliers helped hold the panels in position while I confirmed their fit. If something doesn't fit, now is the time to change it.

Once the final sewing has been completed and the two panels are stitched together, it's time to begin installation. Drape the two connected side panels over the boom and under the loose foot of the mainsail so the insides of the panels are facing up. Feed the sail slides into position on the sailtrack so the panels will be properly anchored to the boom when assembly is complete.



FRITZ SEEGERS

The sailcover is straightforward for a competent sewer to assemble. The two side panels are connected where they tie to the sail slugs (or slides) that attach to the boom.

Before sewing all the pieces together, Ron test-fitted the sailcover in case he wanted to make adjustments, above. A flap covers the zipper to protect it and the sail from sunlight and to keep out as much rain as possible, below.

Next, install the battens. Trim the battens so they're short enough to fit in the sleeves without wiggling or shifting. Use sandpaper or a file to smooth the ends of the battens to prevent damage to the chafe-prone Sunbrella cover. It's also helpful to pad the ends of the battens in order to protect the ends of the sleeves. On our system, I used scraps of nylon webbing folded and duct-taped over the ends of the battens to cover the fiberglass edges. This doesn't have to be pretty; the important thing is to make sure you have a sacrificial layer to prevent the batten ends from chafing through the fabric. Once the battens are properly fitted, stitch the sleeves closed. Raise the side panels and zip them together over the sail to help hold them in place.

Rigging the lazy-jacks

Now that the sail cover is complete, you need to rig the lazy-jacks with which to hold it up ready to receive the dropped sail. It's time to haul out the bosun's chair for the overhead work.

Begin by mounting a small pad-eye to each side of the mast a few feet above the spreaders. Using any light, low-stretch line, rig a line to each pad-eye so it can reach a little over halfway to the boom. Tie small stainless-steel rings to the lower ends of both these lines and use additional lengths of line to create the web of lines spreading to the attachment points on the battens. Running the lines from one attachment point up to a stainless-steel ring and down to another batten or ring makes it possible to anchor each side to several points along the battens. For a typical 30-foot boat, three attachment points should be sufficient. (***Note:*** *See Lazy-Jacks 101 in the September/October 2009 issue of* Good Old Boat *and the article on Page 38 of this issue for ideas on how to rig lazy-jacks.* ***–Eds.***)

This process of rigging lazy-jack lines involves some trial and error; make sure you're on good terms with your bosun's chair. Your goal should be to have the upward force evenly distributed along the battens with the side panels lying smoothly and the lazy-jack lines neatly parallel. It's helpful to have messenger lines so if a line slips out of your grasp you can retrieve it easily. While you're up the mast, take a few moments to lubricate your sail-track to give yourself an advantage when raising the sail and to help gravity when lowering it.

Once the lazy-jack lines are positioned, use a short length of light line to anchor the aft end of the sailcover to some attachment point at the end of the boom. This prevents the sailcover from creeping forward while in use. On our boat, the topping lift provides an ideal point to tie this off.

Once the lazy-jack lines are holding everything in place, it's time to test your system. Remember to head straight into the wind when raising and lowering the sail to avoid snagging a sail batten on a lazy-jack.

Ron Vanderwell tries to have the most fun-per-dollar possible. That's why he owns a good old boat, Clio*, a Cal 31 charter boat based in San Francisco Bay. When he's on land, he's a husband, a father to three boys, and a pastor to two start-up churches.*

Tom has gone

Cruisers pull together for the dear departed

by Sigmund Baardsen

The brassy summer sun beat down on the tiny Turkish port of Marmaris. Tom, the crusty old Brit, sat sweating under his cockpit awning as he surveyed the village across the glassy bay. He had been cruising the eastern Mediterranean in his raised-deck Hillyard cutter since WWII. Tom had retired from the Royal Navy with a small pension, enlarged liver, and generous heart. He was generous with his experience, correcting our charts and sharing weather lore and local knowledge.

To our yachtie potlucks on the beach, he always brought potatoes boiled in seawater. That was all he could afford. Invariably someone would declare, "Those were the best spuds I ever tasted," and ask him for the recipe. Tom always blushed with pleasure.

By the time the campfire was out, all the old stories retold, and all the old songs sung, a cool night-breeze — scented with orange blossoms and rosemary — drifted down the valley and signaled time to return to our anchored boats. By unspoken agreement, all the leftover food and wine would be left for Tom in his rotten old lapstrake dinghy.

One particularly hot afternoon, Tom was not at his usual place observing the sunset from under the big white canvas cockpit awning with his usual drop of brandy. We thought nothing of it. The next morning he did not appear at the weekly farmers' market. A friend rowed over to check on Tom and found him in his bunk, thoroughly and unpleasantly dead.

ILLUSTRATIONS BY CLEVEN "GOODIE" GOUDEAU

Now what?

In minutes Tom's little cutter was surrounded by dinghies, his cockpit full of anxious cruisers.

"This is terrible. *Now* what do we do?"

We did what cruisers always do in a crisis. Together, we collected options and opinions until we had enough to make a plan and swing into action. All the sailors there assumed the tasks for which they felt best qualified. I rowed ashore to phone the British consulate in Istanbul.

"No, we cannot help you, as you are neither next-of-kin nor a British subject," was their answer. I suspect they simply did not want to make the three-day bus trip.

Tom's best friend found correspondence from Tom's son, complete with envelopes showing the son's address in London. A telegram was duly dispatched.

There being no police, no doctor, and no coroner, one of the cruisers notified the port captain, who wanted no part of the business.

Another deputation went to the mosque to see about burial in the local cemetery. The imam was patient and sympathetic as he explained that Tom could not be buried in the Muslim cemetery. He did, however, point out an attractive, pine-covered hilltop that would be suitable for our purposes. "It has a fine view over the sea," he offered. "Just fine," we thought.

In the cooler

Turkey, being a Muslim country where bodies must be in the ground by sunset on the same day, has no embalming or cremation facilities. The only ice in the village was in the cooler at the waterfront hotel. We had a problem.

The two most attractive — and, we hoped, most persuasive — women in the fleet were deputized to call on the owner of the hotel and the only ice in town. He listened to the sad story and begrudgingly consented to hold Tom's remains in the cooler overnight. The four youngest and strongest men in the fleet wrapped Tom's body in an old cotton storm jib, wrestled the bundle into a dinghy, then ashore, across the beach, and into the hotel cooler.

Three days later, we received an answer from Tom's son, in London: "DO NOTHING UNTIL I ARRIVE!" Tom was becoming an increasingly unwelcome and unpleasant tenant at the hotel. The poor hotel owner was beside himself. Now we had a real problem.

Again we did as cruisers so often do. We met in the cockpit of the biggest boat to toss about options until we had a new plan. There was no avoiding the odious task ahead. The two best speakers of Turkish were sent up the valley to borrow picks and shovels from the orange grower. The rest reported to the hotel. Being a pallbearer is unpleasant even

“We all loved him, but on that day our sweat flowed faster than tears. Poor Tom’s requiem was a chorus of sailors’ curses.”

under the best of circumstances. We carried and dragged what was now a stinking and dripping bundle up the steep hillside to the place indicated by the imam.

Hard stony soil

Once there, we found the hard, sun-baked red earth was no more ready to receive Tom’s remains than anyone else in the village. The stony soil, rocks, and roots resisted mightily our best efforts to dig a proper grave. Our sailors’ salt-hardened hands blistered on the hafts of the pick and shovel, implements unfamiliar to mariners. We could not come close to the requisite 6-foot depth. “Good enough. It will have to do,” we said when we could do no more, and we lowered Tom in and covered him up.

Tom was a good man. We all loved him, but on that day our sweat flowed faster than tears. Poor Tom’s requiem was a chorus of sailors’ curses. We cursed the steepness of the hill. We cursed the hardness of the soil. We cursed the rocks, the roots, the heat, the flies, the stink, and, most of all, Tom himself for his lack of consideration in pegging out in such an inconvenient time and place.

We were done . . . relieved and satisfied that we had done the right thing and that we had done it together. It was time for refreshment back down at the hotel. As we slipped, skidded, and tumbled down that accursed steep hill, one of the youngsters asked, “Why didn’t you simply bury him at sea?”

Be prepared for the unwished-for

- Shipping bodies is difficult, expensive, and often impossible.
- Local death certificates, in foreign languages and formats, are often not acceptable to home-country authorities and institutions. Consult your own country’s consulate or legal attaché or refer to *The International Ship’s Medical Guide*, published by the World Health Organization. All ships are required to have it on board, and cruisers should too. It’s distributed by the International Maritime Organization (IMO) <www.imo.org>.
- The surviving spouse or partner may not be able to legally move or sell the boat. Keep on board documents that are signed, witnessed, and notarized, authorizing each partner to sail the vessel in case of death, disability, or absence of the other. A power of attorney should carry lots of official-looking stamps and signatures.
- Somewhere inside, every vessel should display a waterproof packet of emergency instructions, in the event of illness, injury, or death. It should contain a list of next-of-kin with contact information. Medical records should be included as well.
- The same important information could also be carried on your person, in a computer memory stick or USB flash drive. A flash drive can store all your medical records, allergies, even X-rays and critical care documents such as DNR (Do Not Resuscitate) and living wills. In the event of an emergency, rescuers and ambulance personnel will have immediate access to your specific medical needs, even when you cannot respond. Having this information available could be a lifesaver. For purpose-made ID USB flash drives, visit: <www.identificationdevices.net> or call 866-955-0535.
- Blank death certificates are available from <www.cdc.gov/nchs/data/dvs/DEATH11-03final-acc.pdf>.

Our obvious collective stupidity exposed, we began to snicker, then giggle, then laugh. We laughed until we cried.

That evening, at the wake in the hotel, one of the assembled gave the shortest and best eulogy I've ever heard: "Our dear friend, Tom, is dead. We are alive. Let us be glad." With that, the party began.

I like to tell this story because it can happen to any of us. As pelagic cruisers, we must be prepared for the eventuality of grave illness or death while at sea or overseas.

Repatriating a grieving surviving spouse or partner can be difficult. I recall participating in a "capstan auction" to sell off personal effects and boat parts in an effort to raise enough money to repatriate the widow. Later, her boat had to be moved to a place where it could be legally sold.

Birth and death always come at inconvenient times and places. Fortunately, a little thought and preparation can make things much easier.

Sig Baardsen raced dinghies and crewed on Stars and Dragons as a teenager and crewed in the 1957 and 1959 Transpac races. In 1987, he bought Mary T, *a Cheoy Lee Offshore 40 yawl, in which he and his wife, Carol, sailed south from San Pedro on a cruise that became a circumnavigation.*

Sample power of attorney

Limited Power of Attorney

I_____, owner of the vessel_____, registered in _____ registry number _____, authorize _____to act on my behalf and to make any decisions regarding the management and operation of this vessel if I am absent, incapacitated, or in the event of my death. These decisions include but are not limited to: applying for permission for this vessel to leave or enter any port; to appoint another person as captain of this vessel; and to arrange for shipment by land or sea, or to place this vessel in storage ashore or afloat. This power of attorney does not extend to encumbering this vessel with any debt beyond those implied by the actions above, nor to the sale of said vessel.

_____
Signed by

_____
Passport Number Date of Issue

_____
Place of Issue

_____
Date Power of Attorney is signed

_____
Witnessed by Date

_____
Witnessed by Date

_____
Notarized by Date of notary

_____
Ship's stamp

_____
Master's stamp and signature

"Is it done yet?"

A Bristol 30 restoration takes its sweet and proper time

by Dave Satter

Quester **takes up residence in rural New Jersey for a refit that will take four years.**

Every night for four years, when I came in from the yard after working on my 30-foot sailboat, I heard the same question from my family. "Is it done yet?"

How far should one go when fixing up a 30-year-old boat? I should put it in the water and go sailing. That's what "they" say to do: fix it a little each year and keep sailing. However, what most people do is not for me. I had a dream of the perfect boat in my head. I wanted to make it look just the way I wanted it to be.

I always said I'd have a sailboat by the time I was 40 years old. Along the way came marriage and children. At 38, I was tired of looking online and in magazines at boats for sale. My wife, Sue, was tired of hearing me talk about it also.

"Just go buy one and stop talking about it already," she'd say. (Sometimes you have to just jump right in and listen to your wife.) I knew what I wanted: traditional lines, full keel, a little teak, and a diesel engine. After looking at a few candidates close to home in northern New Jersey, I spotted what I wanted in a classified ad: a 1973 Bristol 30 sloop in Maryland. I rationalized that I might as well start with a larger boat since I had run out of the time needed to work my way up.

As we were vacationing in Delaware that summer, I ventured a little farther south to get a look at her. After I met the owner, we struck a deal, and I spent my first night aboard *Quester* on the hard. I didn't have a survey done as I had already spent $500 on a survey for a boat I didn't wind up purchasing. Besides, I planned to fix and rebuild everything on this boat anyway. I knew I was taking a chance.

Assessing the project

I had the boat trucked to my backyard. Thankfully, she was in good shape for her age. The previous owner kept her clean and in good working order, but the chainplates leaked, so most of the bulkheads were soggy. And everything about the boat said 1973. It needed some updates.

A lot of the interior leaks were caused by the toerails, which were loose and needed to be repaired or replaced. I made and installed new ones that I steamed in a 20-foot long steam box. This was one of the hardest jobs on the boat. I hope never to have to do that again.

It's amazing how fast you can take something apart and how long it takes to put it back together. The Bristols have a reputation for being of

Her restoration complete, only *Quester*'s original deck hardware gives away her age, at left. Resplendent in her refurbished teak and with fresh paint on her hull, deck, and spars, she looks like a new boat as she sits on the trailer prior to her journey to the coast, at right.

> **“Almost every day one member of the family would say, ‘Daddy, you’re bleeding again.’”**

solid construction. Taking apart and removing even soggy bulkheads was difficult. My goal was to rebuild the interior with lumber I had on hand: walnut, mahogany, and teak.

Along the way, I needed to replace the electrical and plumbing systems. I also wanted to keep things simple with a minimum number of pumps and only 12-volt electricity.

All in all, I figured on a 2005 launch date. My wife could not believe that the boat would be in our driveway for four years. I responded that I was trying to be realistic here because everyone underestimates these things when they start a project like this. Anyway, I didn’t even have a slip or mooring — yet — but I *was* on the waiting list. It was a very long list.

Working from the bow

This boat has a traditional layout with opposing saloon berths and the galley across the aft end of the cabin. A V-berth occupies the bow. Aft of it is the head with a hanging locker opposite. The head door closes off the V-berth for privacy.

Starting in the V-berth, I had to cut out someone’s homemade holding tank. This was extremely unpleasant. I then modified the space to accommodate a new 15-gallon holding tank. The hull lining in the V-berth was 1970s blue carpet. I replaced it with walnut ceiling strips that I made individually, varnished, and screwed to oak framing I had epoxied to the hull.

Working my way aft along the starboard side, I made two small lockers with cane doors, one wet and one dry. I moved the galley to the starboard side of the saloon. It’s now larger and is fitted with a Dickenson solid fuel heater, a Force 10 propane stove/oven (the smallest one they make), and a new icebox and sink. For the icebox, I purchased the best Igloo cooler that would fit and built it into the galley counter, while adding another 3 inches of insulation around it. Making all this took many cardboard mock-ups, much trial and error, and a lot of late nights in the boat.

Almost every day one member of the family would say, “Daddy, you’re bleeding again.” It’s amazing how often you bump, scrape, and bruise yourself on a job like this.

So I wouldn’t lose a sleeping berth, I made a large quarter berth by eliminating the starboard cockpit locker and removing the aft bulkhead. I finished its

When Dave bought her, *Quester*’s interior decor was state of the art for 1973.

Dave fitted a quarter berth to replace the settee he gave up to make room for the galley.

The new galley counter provides a large work surface and encloses an Igloo cooler.

By applying mahogany to the saloon bulkhead and renewing the upholstery, Dave brought the decor up to date, at left. New cane-front lockers give the forward cabin a fresh look and the cabin heater will make the whole boat cozy in spring and fall, at right.

Leaks around the chainplates led to water damage to the main bulkhead.

The aft galley was common in boats of the 1970s (and so was the woodgrain laminate).

Dave fitted a small chart desk into the space on the port side next to the new engine box.

"After four years, I finally got the call I'd been waiting for. My name had come up on the list for a mooring."

hull side with more ceiling strips and insulation.

Next, I built the engine box and lid, which you stand on as you come down the companionway, and added soundproofing.

On the port side, I added a small chart table above a door that provides access to the fuse panels. I resurfaced the bulkhead forward of the saloon settee with mahogany and added new cabinets and a bookshelf above the settee.

The head got new cabinets that could be protected by a curtain when the shower was in use. I installed a new shower head. The shower draws from a 3-gallon water tank, installed under the galley counter, that gravity feeds a pump under the cabin sole. (See my article in the March 2005 issue.)

I bonded all the cabinetry and bulkheads, especially those fitted with chainplates, to the hull and deck with 3M 5200 and tabbed these with epoxy and cloth to keep the hull and deck stiff and strong.

Electrical and plumbing

I replaced every electrical component and all the wiring and installed another fuse panel for the pumps I added for the galley, shower, and foredeck washdown. I also put in a few extra 12-volt outlets.

Snaking the wires was a tough job, since the Bristol has a molded-in headliner. The only chance I had to do this project was in January which, in New Jersey, can be the coldest and snowiest month of the year. At 25 degrees, your fingers and the wire get pretty hard to work with. The Dickenson heater helped a lot at this time; it used natural charcoal and kept a steady, even heat without a large flame. It also kept the coffee warm. (Remember to keep a port light or hatch open for ventilation.)

The deep-cycle batteries that came with the boat lasted for years in my backyard. I started the Volvo MD2B every week or two except in the winter. Once all the electrical wiring was completed for the new light fixtures, pumps, and running lights, I replaced the batteries with two deep-cycle absorbed glass mat (AGM) batteries and voltmeters. I also added a new heavy-duty battery switch and a Blue Sea Maxi fuse block between the batteries and the fuse panels.

The only bilge pump in the boat was a Whale Gusher 10 that needed to be rebuilt. I added a new Rule-Mate 500 to the bilge on a long piece of PVC pipe so it can easily be lifted out of the 3-foot deep bilge for cleaning.

The boat has a water tank under the V-berth and another in the keel. They are connected so the V-berth tank gravity feeds the other. Both are integral with the hull, so I cleaned, sanded, and epoxied them on the inside through their inspection ports. Sounds like fun, doesn't it? Between the two tanks, this Bristol 30 holds 50 gallons of water.

Under the floorboards, and on top of the water tank in the keel, is a good 6 inches of space where the new pumps for the galley and the shower could be located.

I also added a seawater wash-down pump, which I fitted under the V-berth along with the 15-gallon holding tank for the head. All the through-hulls were bronze. As they were reusable, I fitted them with Groco ball-valve seacocks. The boat originally had traditional tapered-plug seacocks.

Exterior and deck

After removing all the deck hardware, I painted the deck and cabintop with

It had been a long journey, or quest, but eventually, the work was done. At about the same time, *Quester* rose to the top of the waiting list for a mooring in New Jersey's Sandy Hook Bay, where she looks very much at home in her proper surroundings.

Interlux non-skid paint (beige), the cabin sides with Interlux Brightside (white), and the hull with Interlux two-part Perfection (flag blue).

As long as I was in this deep, I decided to paint the mast and boom too. I moved the mast into my workshop, sanded it, and primed it with Interlux Vinyl-Lux prime wash (a two-part, self-etching primer), then I applied three coats of Brightside Sundown Buff. This was the first time I ever painted an aluminum mast and it worked out very well. The hardest part was removing and re-installing the hardware.

The boat only had one opening port and that was in the head, so I replaced all four ports in the forward part of the boat with bronze opening ports. It's a nice touch that gives the boat a traditional look. I replaced the old weathered acrylic panes in the four large deadlights in the main cabin with new polycarbonate.

I re-bedded all the deck hardware, the railings, the anchor roller, and a new mooring bitt with 3M 4200 and installed large backing plates.

Final touches

After four years, I finally got the call I'd been waiting for. My name had come up on the list for a mooring at a marina an hour from our house. If I didn't get the deposit to them immediately, they would move on to the next name on the list. I was able to come up with the money and complete the final touches: cushions and upholstery, cove stripe, and repainting of the boat's name, *Quester*.

After going through all the names in my head, I realized the name *Quester*, which had come with the boat, had served the previous owner well for 18 years. So the name stayed. Quester means a search or pursuit, an adventurous expedition. Of course, I added all the safety gear: carbon monoxide detectors, smoke alarms, fire extinguishers, and so on.

I don't know if I would take on a project this large again, especially while raising two children and trying to run a small business. It took a lot of my spare time and money. But you know, if you get the dream in your head, you just have to go with it.

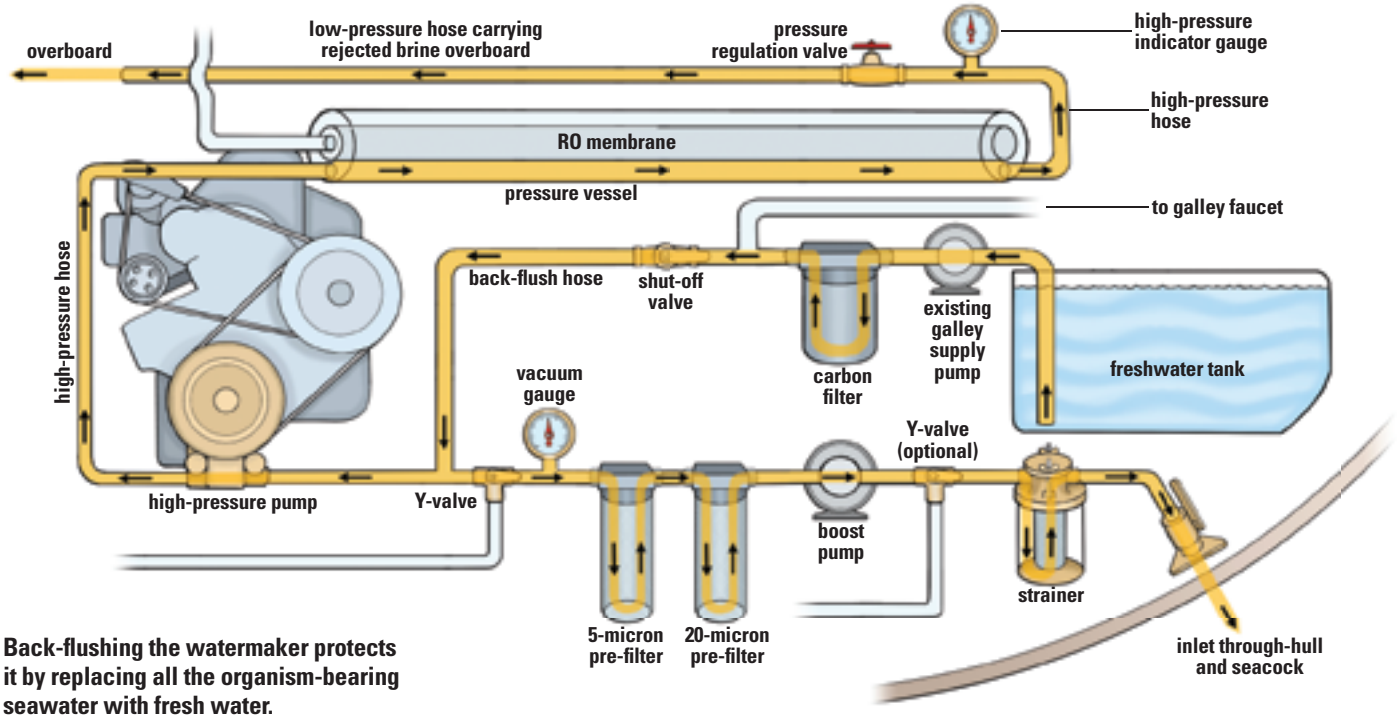
David Satter restores wooden canoes and small boats in northwestern New Jersey. See some of his projects at <www.sattersrestoration.com>. Quester, *in all her new glory, sails out of Atlantic Highlands, Sandy Hook Bay.*

Judging by the smiling faces of the crew, they won't pester Dave anytime soon with that other perennial query, "Are we there yet?"

Making your own

How to make a water

Installation, operation, and maintenance



Back-flushing the watermaker protects it by replacing all the organism-bearing seawater with fresh water.

In the May/June issue of Good Old Boat, *Randy Baker described how to build an inexpensive reverse-osmosis watermaker. In this second and final article he offers advice on where to locate it in your boat and how to operate and look after it.*

For the most part, assembling and installing the components of your watermaker is fairly routine. If you are handy with tools and familiar with plumbing and wiring, you'll find the process straightforward. One aspect that will present a challenge if you are using the engine to drive the high-pressure pump is how and where to mount the pump.

The pump has to be attached to the engine in a way that allows it to be aligned with a drive pulley, and you'll have to provide a means of adjusting belt tension. Whatever the design of the mount, it must be firmly attached to the engine and *only* to the engine. If it were to be mounted where it could move independently, induced belt flap would cause all kinds of problems from exploding belts to over-stressed pump bearings and broken mounting bolts. Flexible engine mounts exacerbate these problems.

This is an area where every installation is different, so it's not possible to give specific advice. If you don't feel comfortable designing the mount yourself, consult someone familiar with engine mechanics and aftermarket equipment. It shouldn't be technically difficult.

We decided to bolt a "table" of ½-inch steel plate to the engine mounting rails, under the front of the engine. We then mounted the high-pressure pump to the starboard side of the table and a high-output alternator (purchased at a bargain price from an online hot-rod supply outlet) to the port side. In this way, we can make a lot of electricity and water at the same time, maximizing the efficiency of our engine running time. This is especially beneficial when operating the systems at idle speed with the gearbox in neutral because it gives the engine more work to do — good for a diesel. It also allows the two belts to load the engine pulleys from opposing directions, avoiding side-loading the engine bearings. This is an example of how a little planning can sometimes solve more than one problem at a time.

After the design stage is complete, you will improve the prospects of the mount fitting properly if you take an accurate wooden or cardboard mock-up, rather than a drawing, to the machine shop or welder.

Pulley diameters

Unless you have an unused engine pulley of the correct diameter already in place, you will need to have a bolt-on attachment machined. This is simple work for a machine shop, especially if you make it from aluminum, but make sure it's a high-grade alloy.

ILLUSTRATIONS BY FRITZ SEEGERS

maker

PART TWO

by Randy Baker

It's important at this stage to do some planning and calculations, in order to decide at what speed you want to run the engine when making water and what pulley sizes you will need to do it. The formula is ESM = (PSM x PPD)/EPD where ESM is maximum engine speed, PSM is maximum pump speed, PPD is pump pulley diameter and EPD is engine pulley diameter.

If your pump has a maximum speed of 1,750 rpm and you use a 6-inch pulley on the engine matched to a 7-inch pulley on the pump, you will be able to run the engine at a maximum speed of 2,041 rpm. If you want to run the engine faster, you could use a 5-inch engine pulley, which would allow you to run at speeds up to 2,450 rpm, and so forth. It's best, for greater longevity, not to run the pump at maximum speed. You can juggle the formula to solve for different variables.

On *Caribee*, Randy fitted a double pulley on the engine to drive the watermaker (smaller pulley) and an alternator (larger pulley).

Pumps are not as sensitive to low-speed constraints but you really should run them above 800 rpm (some say 1,000), which would mean a minimum engine rpm of 934 in the first instance.

Location of components

You will have to decide where to locate the pressure vessel and control panel. I like the idea of short hose runs, so we mounted everything in the engine compartment. Some people are of the opinion this is a bad idea because of the heat, but two different vendors of complete systems have told me they do it routinely and I have had no problems with the approach. Because of the high flow rates of the water, there is no chance of the membrane being overheated while in use. Our pressure vessel/membrane is mounted right over the engine under the cockpit sole.

The control panel should be mounted in a location that's easily accessible and not too difficult to view when the engine is running. Otherwise, the only consideration is the length of the hose runs. If you make the panel attractive, you might want to mount it somewhere in plain view. Or you might prefer to fit it just inside an access door to the engine compartment, as we did.

The location of the boost pump and pre-filter housings will probably be dictated by what space is available. Other than the control panel, the pre-filters are the only components that will need to be easily accessible. You won't have to change them too often, but they will need more maintenance than any other component, with the possible exception of tensioning the drive belt.

Operation

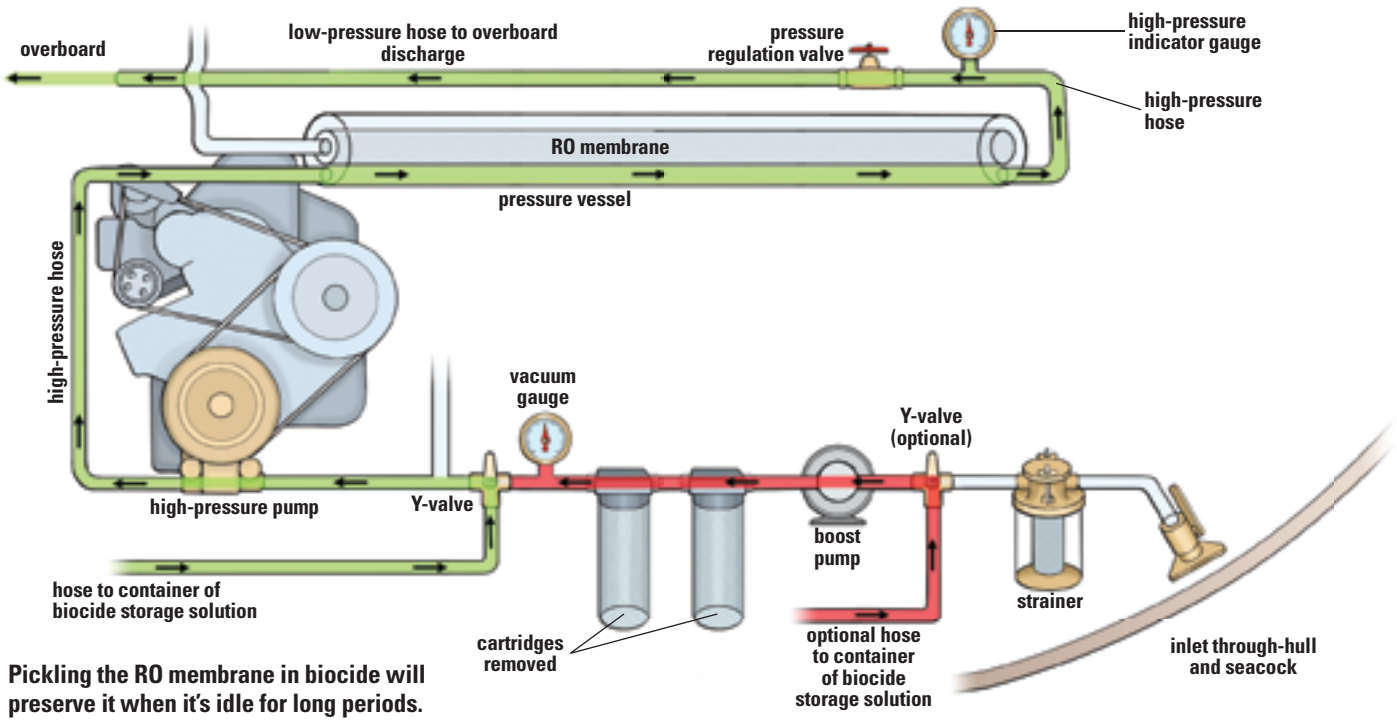
With the engine running at your preferred speed (normally between 1,000 and 2,000 rpm), open the inlet seacock and check that the product-water Y-valve diverter is set to the sample position. Then switch on the boost pump and check to see that the vacuum gauge shows positive pressure.

If you have clear pre-filter housings, do a visual check for air in the housings. If you see air, slowly unscrew the housings and bleed the air off while the boost pump is running, then re-tighten. Check to make sure the pressure-regulation valve (or needle valve) is turned all the way to open (no back-pressure).

Switch on the electro-magnetic clutch to start the high-pressure pump. Check the vacuum gauge again to make sure you have positive or neutral pressure. If it indicates negative pressure, shut down the high-pressure pump and locate the restriction.

While watching the high-pressure indicator gauge, slowly turn up the pressure with the regulating valve until the gauge reads 800 psi. Watch the flow meter to see when fresh water production begins. When operating in brackish

A digital TDS (total dissolved solids) meter provides a convenient means of testing the product water for purity.



Pickling the RO membrane in biocide will preserve it when it's idle for long periods.

or fresh water, use product-water flow as the limiting factor. Never allow the output to rise above 24 gallons per hour, even though the pressure will be much lower than 800 psi. It is generally safe to run the system at pressures up to 900 psi in seawater. This will increase output marginally but, again, never let output rise above 24 gallons per hour.

If the membrane is new or has been chemically pickled, let the watermaker run for half an hour before diverting the output to the tanks. After the first running, you should be ready to divert to the tank after a couple of minutes of run time.

Before switching over to the tank, taste the water for salt or test it with a TDS meter, which measures the concentration of total dissolved solids in parts per million. Water from a new membrane will typically test between 150 and 250 PPM. Pocket TDS meters are available for a reasonable price. Wateranywhere sells the HM Digital TDS-4 for $24. I found the Hanna TDS1 meter on eBay.

To shut down the watermaker, first switch the diverter back to the sample position. Then, turn the pressure-regulation valve all the way down (no back-pressure). The freshwater flow will stop. Next, switch off the clutch driving the high-pressure pump, then switch off the boost pump and close the intake seacock.

Oil and petroleum product residues can damage the membrane. Never operate the watermaker if there is visible oil in or on the surface of the water. Even though the oil may be floating on the surface and your intake may be 3 feet deep, it's not possible to know if there is emulsified oil beneath the surface and it's not worth the risk. For the same reasons, don't use petroleum-based thread compounds or sealants during assembly.

Maintenance

Membrane makers claim that if you run the watermaker again within three days, you don't have to back-flush with fresh water. I think it's good practice to back-flush after each use to get corrosive and organism-laden seawater out of the system. This is good for the membrane, pre-filters, and pump.

If you plumbed the galley supply pump into the system as recommended, open the shut-off valve between the pre-filters and the high-pressure pump, letting the fresh water flush through the pump, hoses, and membrane for a short time. The exact time necessary for this depends on the length of the hose runs and the flow rate of the galley pump.

The first few times you back-flush, test the water exiting the brine outlet with your TDS meter and use a stopwatch to measure the run time before it turns fresh. A few seconds longer should do the job.

After the high-pressure pump and membrane have been flushed out, and with the galley pump still running, open the inlet seacock and let the pre-filters, boost pump, and strainer flush. The resistance of the high-pressure pump and membrane is greater than that of the pre-filters and boost pump, so most of the water will now flow out the intake. An additional minute should be plenty to flush all the remaining seawater through the intake. Then close the intake seacock and the back-flush valve.

You can now safely leave the watermaker shut down for a week. After seven days, you will need to either run the unit again (followed by back-flushing), back-flush the system again, or pickle the membrane with a biocide chemical solution. If you're in a dirty harbor and don't want to run or pickle the watermaker, you can continue to back-flush weekly.

You must never use water that contains any chlorine for back-flushing. Only use rainwater or water you have made. Never add chlorine to the tank if the tank water will later be used for back-flushing.

Pickling for storage

If you will not be able to back-flush weekly, such as when the boat is in

“Your watermaker should provide years of service and add a touch of luxury.”

long-term storage, you must pickle the system to save the membrane from deterioration. After pickling with biocide, the membrane can be stored for up to a year.

To pickle the system, first back-flush in the regular way, then close the seawater inlet seacock and remove the pre-filter cartridges.

Mix 2½ gallons of fresh, unchlorinated water with 100 grams of sodium metabisulfite biocide in a clean plastic container. For $25, you can purchase10 pounds (more than you will ever need) from The Chemistry Store <www.chemistrystore.com>.

Run a hose from either the first or second cleaning/storage diverter valve (depending on your preference or which was installed) to the container. Switch the valve to the cleaning/storage position. Switch the sample/tank diverter valve to the sample position. Open the pressure regulation valve all the way (no back-pressure). Pump the solution through the system using either the booster pump or by running the high-pressure pump at its slowest speed until the container is nearly empty, then shut down the pump. Do not allow air to enter the system by running the container dry.

Ongoing maintenance

You should inspect and/or clean the raw-water strainer and pre-filters every 100 hours or whenever you see a negative reading on the vacuum gauge. You can usually clean the pre-filters a few times with a pressurized water nozzle (a garden hose nozzle connected to a deck washdown pump for example) before you have to replace them. If they’re blackened, you can soak them in a chlorine solution after cleaning to whiten them, but make sure they are completely dry before re-installation.

The carbon back-flush filter should be changed every six months.

Change the high-pressure pump oil after the first 50 hours of operation and every 200 hours thereafter. Pressure Washer Parts sells a pint of General Pump crankcase oil for $5.50.

With a little attention given to the details of operation, diligence in back flushing after each use, and a minimal level of routine maintenance, your watermaker should provide years of service and add a touch of luxury to your cruising lifestyle.

Randy and Cheryl Baker have been living aboard and cruising Caribee, *their 1968 Nicholson 32 sloop, since 1992. They completed a major three-year refit and upgrade in Trinidad in 2004. After 16 years of cruising the Caribbean, they transited the Panama Canal and sailed across most of the Pacific in 2008.* Caribee *spent the 2009/2010 cyclone season in Tonga and at press time was bound for Fiji.*

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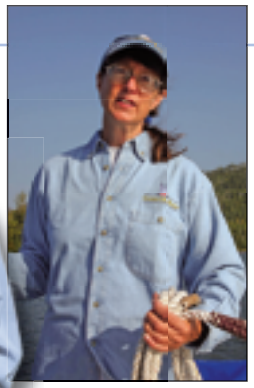

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Making your own

A tiller for *Sigfrid*

A seagoing ketch gets a brand-new steering system

by Richard Toyne

Sigfrid's new tiller is elegant and functional (at left). It replaced a shorter tiller that was used with an extension, at top below, when it was not connected by cables to a steering wheel. A supply of secondhand oak floorboards provided the ideal material for laminating into the desired shape, at bottom.

Over the past nine years, my partner, Magali, and I have been steadily modifying our ketch, *Sigfrid*, to turn her into a practical and enjoyable sailing boat. Among the most important modifications have been the changes we made to the steering.

When we bought her in the summer of 2000, she was fitted with a curious dual setup involving both a wheel and a tiller. The boat's previous owner, the creator of the system, explained the logic behind it. When he was at sea, he preferred the wheel, but for close maneuvering in a harbor, he found it unsatisfactory. He would, therefore, on the final approach before continuing into his berth, unship the wheel, disconnect the steering cables from the short steel tiller, and fit in their place a wooden extension.

Although we were immediately dubious about his ideas, we decided to give them a fair trial by sailing from Toulon, France, where she had been kept, to Gibraltar, about 700 miles away, before making any modifications. In practice, it was all as unsatisfactory as we had feared. If we steered with the tiller, the helm was very heavy, while the wheel could not put the rudder fully over. On top of this, the steering cables, which ran down through the aft deck and underneath the cockpit floor to the steering pedestal, were arranged in such a way they channeled rain or seawater directly onto the engine.

A preference for a tiller

We needed to give our boat some sort of proper steering system, either a well-designed setup using a wheel or a more powerful tiller. In recent years, Magali and I had been sailing on smaller boats, so we were both inclined toward the idea of a tiller, but we were concerned that, at 34-foot 6-inches long and displacing 9 tons, *Sigfrid* might be too large for this.

After a lot of thought, we decided to trust the boat's original drawings. These showed a tiller, but it was over one-and-a-half times the length of the one we had been using. As the tiller is basically just a lever, we reasoned that reverting to the designed length should cut the weight of the helm by about one third and perhaps make our boat pleasurable to steer.

The simplest way to make our new tiller would have been to cut it from solid lumber, but this had two drawbacks. First — as it needed to be 5 feet 8 inches long and measured 5¼ x 2½ inches at the rudder head — it would be hard to find a large enough piece of good-quality hardwood in Gibraltar. Second, even if we could get hold of anything suitable, the high level of waste, due to the shape and taper, would make it expensive. We had, however, been given a supply of secondhand oak floorboards by a local building company, so we decided to laminate the tiller from these.

The laminating completed and the glue cured, the rough tiller awaits removal of the clamps, at left. To create the curve on the underside, Richard sprung a batten on the side of the tiller, drew along it with a marker pen, at right, then cut to the line with a jigsaw.

Due to the shape of the stern and the layout of the cockpit, we chose to make the top of the tiller straight. In width it would taper steadily, from 2½ inches where it fitted into the rudder head down to ⅞ inch at the end to form a comfortable handhold. For the underside, we chose a gentle concave curve, again reducing the size, from 5¼ inches at the rudder head to ⅞ inch.

Seven laminations

As the floorboards were ¾ inch thick, it took seven pieces to create the required thickness. Of these, we made the first three full-length and the remaining four progressively shorter to create a shape approximating the desired curve. We also cut the taper on each piece, allowing an extra ¼ inch for shaping up later. Finally, we planed the faces of the boards clean before scoring them with a knife and roughening them with 40-grit sandpaper to provide a good tooth for the glue.

Although it seems very simple, gluing and clamping a stack of laminations like this can be surprisingly tricky. Once coated with glue, the wood becomes very slippery and the pieces will try to move out of alignment as the clamps are tightened. To try to keep this process as trouble-free as possible, we first spread plastic sheeting over the bench to catch the inevitable drips and squeezed-out glue. On this we placed a couple of blocks of lumber.

We laid the first full-length lamination, which would end up as the top of the tiller, across the blocks and applied the glue. We used epoxy, first spreading on a straight mix to thoroughly wet out the timber, then a second coat thickened with microfibers. We spread the remaining pieces in turn with glue and laid them on top, making a multi-layer wood-and-epoxy sandwich. Once all the pieces were in place, we started to put on the clamps. The blocks on which we'd assembled the tiller allowed us to put the clamps in place around the stack of laminations without moving it. By starting the clamping-up at the small end where we only had three laminations, we reduced the slipping and sliding between the layers.

Richard cut the tiller to width with a hand saw.

Alignment assured

When the glue was dry, we removed the clamps and smoothed the top surface of our new tiller with a plane. We then drew a centerline along the planed surface. By marking out the width from this centerline, we ensured that, when our new tiller was held amidships, the rudder would be straight.

The next step was to mark the bottom curve on one side. To create a fair curve, we flexed a thin wooden batten to a shape we liked and drew around it with a marker pen. For this technique to work well, it's essential that the batten have a regular cross-section and be free from knots. We then cut the curve using a jigsaw, and cut the width by hand.

We made the final shaping with a smoothing plane, spokeshave, and sandpaper. Wherever we could, we used the plane, as the length of its base helps to ensure a fair result without any dips and hollows. Where the curves were too severe for the plane, we used the spokeshave. We reserved the sandpaper for the final cleaning up.

Once the shaping and sanding was complete, we varnished the tiller before fitting it. Our tiller sits in a sort of U-shaped yoke on the rudder head and is secured with bolts. We drilled the bolt holes with the tiller in place, using the existing holes in the rudder head as guides and taking great care to hold the drill perpendicular to the rudder head. We drilled the holes in two stages — working from both sides of the rudder — to ensure that any slight mismatch would be in the center of the tiller.

We are delighted with our new tiller. We now have a simple, straightforward steering system that gives the helmsman plenty of feedback and, as we had hoped, the extra length makes the rudder far easier to manage. Having said that, with a boat of this size and weight, the helm can quickly become hard work if she is badly balanced. This encourages us to reef the mizzen early when the wind freshens and to think carefully about sail trim to keep her sailing well.

Richard Toyne and his partner, Magali Bellenger, live aboard Sigfrid *while they explore the western Mediterranean, financing their voyages by carpentry work, both ashore and on boats (Richard), writing for magazines, and by the sale of handmade jewelry produced on board (Magali).*

A proper boarding ladder

Creating confidence through a safe boarding experience

by Tony Allport

Few things complement the pleasure of boating like a proper boarding ladder. For children, parents, and grandparents alike, a safe boarding experience gives the confidence that is fundamental to enjoying the anticipation and memories of fun on the water.

A boarding ladder also accommodates a critical need on every boat, which is to have a reliable means of recovering someone from the water. It is not an optional piece of equipment in my book and it deserves to be well considered and integrated into the design of a boat. With this in mind, I adapted a classic boarding ladder design and built it for my boat. It looks and works great and, while not necessarily perfect for all boats, the process might be adaptable to your needs.

Classic yacht boarding ladders can still be seen occasionally but they're not readily available. My challenge was not to invent it but, rather, to adapt the concept for my boat.

Generally, this type of ladder is hung on metal brackets attached to the side of the hull or rail, but I have a 2-inch toerail molded into the deck edge that offers enough of a lip so it can be securely hooked on. I wanted to avoid using any kind of customized or hard-to-find hardware and also to keep the boat as clean and uncluttered as possible. I fashioned the ladder sides out of ¾-inch marine plywood, carefully fitting them to the hull side and toerail in a hooked shape that resembles a candy cane. I chose plywood because it provides the needed cross-grain strength across the hooked portion.

Fitted to the gate

I chose to fit my ladder to the starboard quarter of the boat because that is where the gate in the lifelines is and we're accustomed to boarding there. This involved a compromise, however. Given the rapidly changing hull shape at the ends of the boat, the two ladder legs have to be fitted to substantially different curves. This means that the ladder can only hang from this one place on the rail. If a ladder were to be fitted to the midship section of the hull where the shape is fairly consistent for a couple of feet, it might be interchangeable on either side of the boat. This could have the additional benefit of allowing the shrouds to be used as a handhold while climbing aboard.

Once I had chosen the location, I had to make a pattern of the shape of the hull and rail at that point. I used 4 x 5 file cards, a stapler, and scissors to quickly build a template that was a pretty good approximation of the correct shape. Next, I traced the inside shape of the ladder leg on a piece of cardboard and sketched in the outside shape. I made the legs wide enough to accommodate a 2¼-inch-deep tread on the main rungs and about the same on the folding section. This keeps the total depth of the ladder at about 4½ inches and allows me to use 6-inch-diameter fenders on either side of the ladder to protect it from the dinghy.

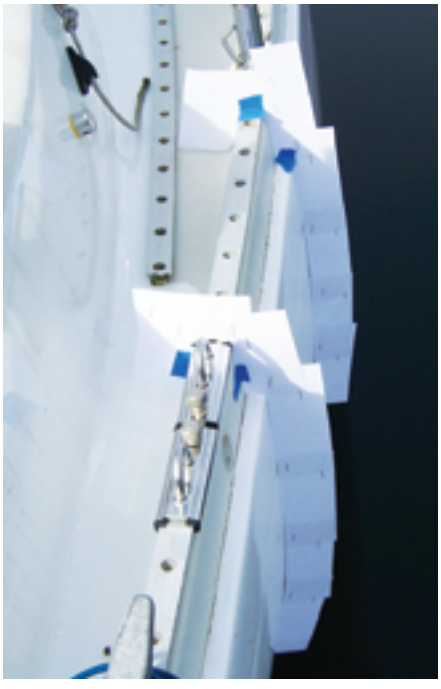
Establishing the shape of the forward leg was straightforward, but the after leg was more complicated because it has to conform simultaneously to the geometric plane of the ladder and the receding curve of the hull.

The solid feel of a hull-hugging ladder gives boarders a firm leg up, above. It starts with a simple pattern, at right.

A perfectionist might dial this in with successive patterns approximating the desired result. Or you can do what I did and make your best guess to start with and shim it.

Tread spacing and freeboard

After test-fitting the cardboard patterns to the boat and making any needed



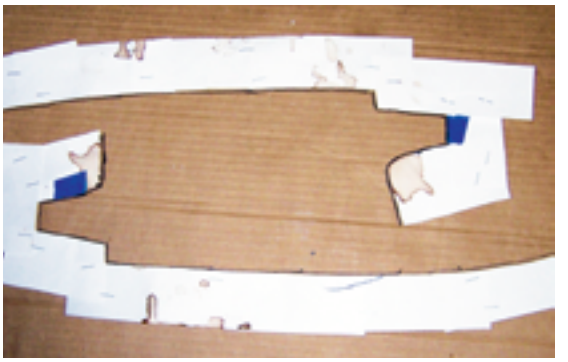
adjustments, I had to consider the height and spacing of the steps. Several factors come into play here and they will be different for every boat. The treads should be evenly spaced to divide the boat's freeboard into comfortable steps. The height of the lowest step above the water should be approximately that of the freeboard of the boat's dinghy. The folding swim-step portion should be configured so the treads match up when it is folded up, and the bottom step should be at least 12 inches below the surface when it is folded down — as much as 20 inches is better.

When determining the width of the ladder, I took into consideration comfort of use and the limitations of the storage space available. The width of a likely spot in the cockpit locker determined a ladder width of 15 inches, which works well in practice.

I built the treads and the entire fold-down section out of ¾-inch mahogany. I used solid lumber because plywood cannot provide the required stiffness to resist bending. I joined the two sections together with a pair of ladder hinges and attached a hook and eye to keep the folding section in place.

Making a classic ladder like this is not a difficult project. Once you have determined the overall dimensions and shape of the side pieces, the construction is very straightforward.

Tony Allport is a SAMS marine surveyor. He lives on Anderson Island in southern Puget Sound and sails extensively with his family in their Swedish classic 30-foot Albin Ballad sloop. Tony is known on the island as a skilled cabinetmaker and for his excellent pies. See <www.marinesurveyor.com/allport>.



From index cards stapled together, Tony made cardboard patterns, top. Then he made the plywood upper stiles for the ladder, above.

The solid-mahogany lower section hinges upward clear of the water and the treads of the two sections line up.

Resources

Ladder hinges and hook-and-eye hardware are available from:

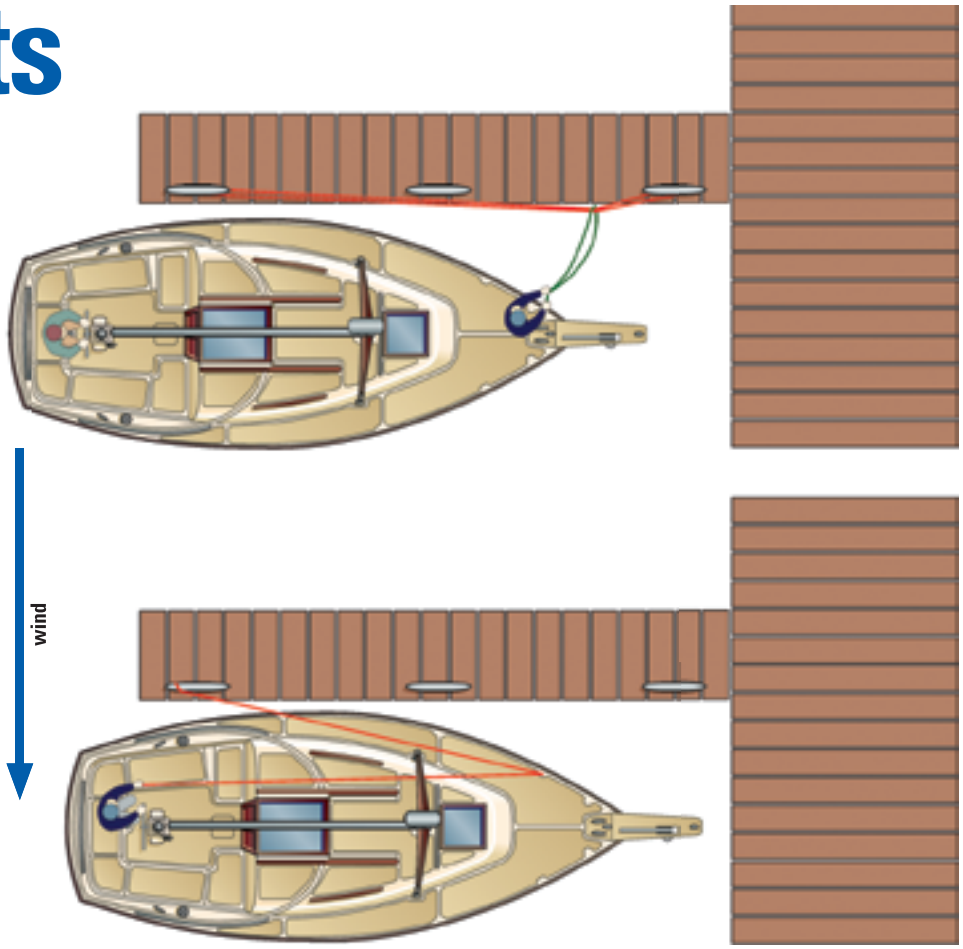
Fisheries Supply
www.fisheriessupply.com

Jamestown Distributors
www.jamestowndistributors.com

Slip exits without angst

Employ virtual dock hands to control your boat's bow

by Jess Gregory



ILLUSTRATIONS BY TEDD TOLLEFSON

To guide the boat's bow as you exit the slip, loop a dockline around a "pier banister" — a line tied at both ends of a finger pier, top. A solo sailor can make a "bow walker" by leading a springline through a block at the bow and back to the cockpit, bottom.

At our marina, the finger piers are aligned north and south but the winds are generally easterly or westerly. On most days, therefore, half the boats face the problem, when arriving or leaving, of the wind blowing their bows away from the dock.

For owners of powerboats and sailors with newer sailboats with fin keels and effective blade rudders, this is not too much of a problem, but for those of us "of fuller keel," it can be. When leaving the dock, the bow of our boat may swing downwind to the point where we have to back out the full length of the channel, to the amusement of our neighbors. When returning, we get one chance at snagging the springline or bow line before our boat nudges "hello" to our next-door neighbor.

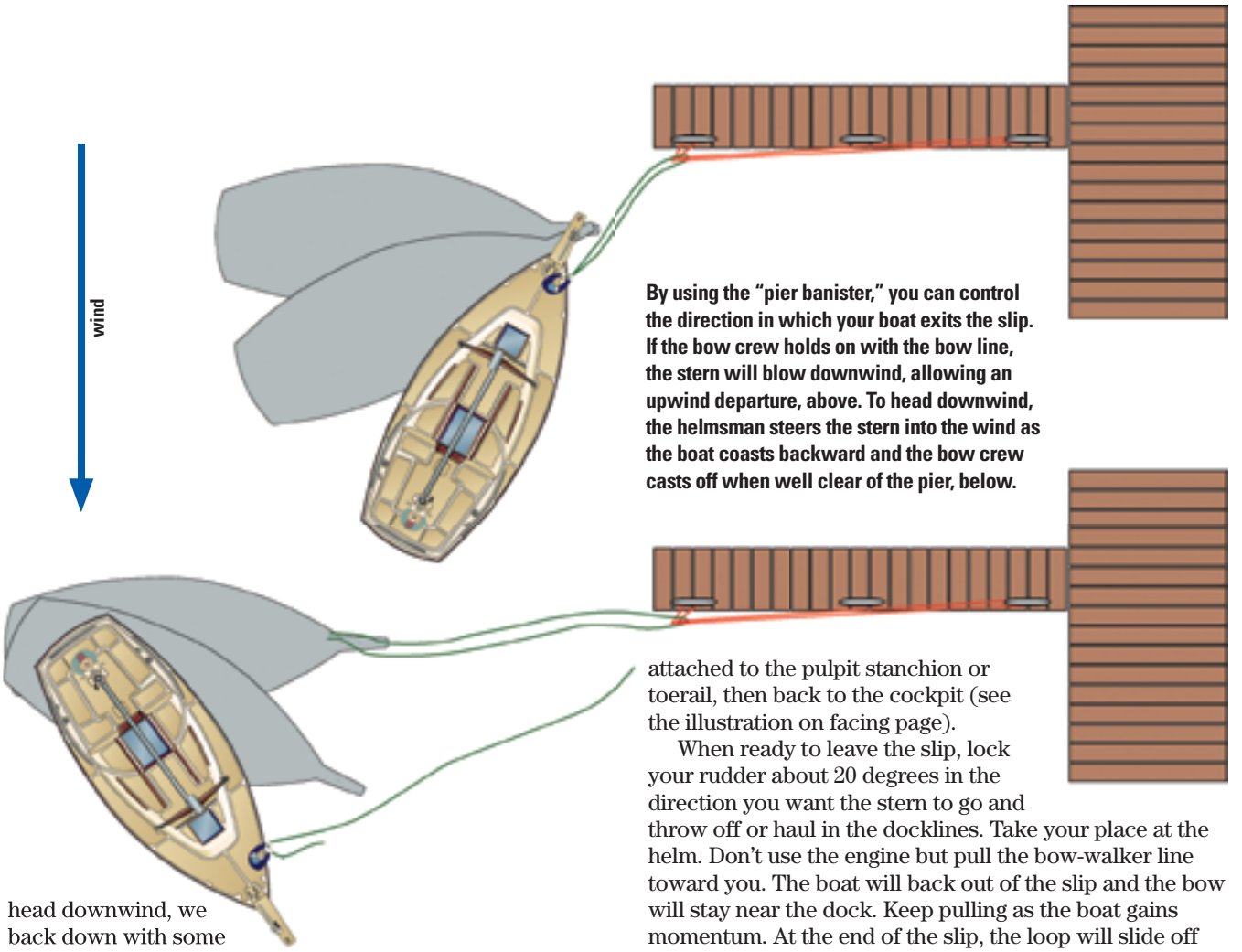
When we see friends leaving in these conditions, we walk over and volunteer to walk their bow to the edge and give them a nudge upwind as they depart. On their return, we saunter over and stand by to grab their bow line (or hand it to them depending on how they rig their docklines). They do the same for us.

But there are times when nobody is around and, because of that, we've worked out two techniques that you, too, might find useful when the wind doesn't cooperate.

The pier banister

We tie a line from the first horn cleat on the finger pier to the last one at the end. This line forms a seamless "pier banister," or handy grab line, the length of the pier. When leaving, we loop the bow line, or any spare line, through the banister and the crewmember at the bow holds both ends. As we back the boat out of the slip, the line slides along the banister while holding the bow near the finger pier. It works exactly like a friend walking along the slip holding the bow line. When the bow reaches the end of the slip, the crewmember at the bow releases one end of the line and pulls it aboard from the other.

We've found that if this crewmember holds a little longer as the boat backs beyond the finger pier, the stern will swing downwind leaving the bow facing the wind. If we want to



By using the "pier banister," you can control the direction in which your boat exits the slip. If the bow crew holds on with the bow line, the stern will blow downwind, allowing an upwind departure, above. To head downwind, the helmsman steers the stern into the wind as the boat coasts backward and the bow crew casts off when well clear of the pier, below.

head downwind, we back down with some force, set the rudder to steer the stern upwind, and coast so there's no prop walk. The crewmember then releases the line after we are well clear of the end of the pier and the wind blows the bow in the direction we want to head: downwind.

If you worry that the line might get wedged somehow when you try to pull it aboard, put a ring or a carabiner on the banister line and run the bow line through that. Alternatively, take a length of a high-strength line that floats, such as Amsteel, and attach a loop of it to the banister. After you've used it to guide your boat out, let it go, and it'll be waiting there to guide you in when you return.

We leave our banister on the dock all the time. It's easy to grab with a boathook from any spot on the boat . . . much easier than trying to get a dependable hold on a horn cleat.

A bow walker for the soloist

Leaving a slip with the wind blowing your bow off the dock can be particularly dicey if you're a solo sailor. You have to cast off the bow line, springline, and stern line. By the time you reach the throttle, the bow is swinging fast toward that 50-foot Hinckley in the next slip. To avoid a costly crunch, you need a solo bow walker. Try the solution that works for us.

Tie a loop in one end of a long line. Hook the loop around the outside of the horn cleat at the outside end of the pier, run the line up to the bow and reeve it through a spare block attached to the pulpit stanchion or toerail, then back to the cockpit (see the illustration on facing page).

When ready to leave the slip, lock your rudder about 20 degrees in the direction you want the stern to go and throw off or haul in the docklines. Take your place at the helm. Don't use the engine but pull the bow-walker line toward you. The boat will back out of the slip and the bow will stay near the dock. Keep pulling as the boat gains momentum. At the end of the slip, the loop will slide off the horn of the cleat and you'll be on your way and facing the right direction.

Jess Gregory is a former Navy weatherman, then journalist, then PR and advertising guy. He now coastal cruises and dabbles in inventions, most notably the FinDelta at-anchor riding sail. His company website is <www.bannerbaymarine.com>.

Checking your batteries

Ascertain their state of charge the eBay way

by Tim Nye

I suspect most good old boats are used infrequently and, when they're used, the engine is run just long enough to get to and from the slip or mooring. The load on a battery, not to mention the self-discharge rate, just isn't made up by the engine's alternator. We need to periodically top up the batteries' charge, but the question is, when?

Some battery monitors sell for hundreds of dollars. They're computerized devices that tally up the number of amp-hours going into and out of the batteries and indicate the state of charge. For cruisers, these devices are justified. But they're overkill for occasional daysailors and weekenders.

A simpler, although limited, indicator of battery charge is its voltage after it has been resting (having no loads or charging) for several hours. This is best measured before any electrical load is applied after that period of rest as any current draw from the cabin lights or water pump, for example, will depress the voltage slightly.

The accompanying tables, developed by battery companies, offer a conversion between measured voltage and the state of a battery's charge. The particular lead alloy used in battery plates can lead to slightly different voltages for a given amount of charge, which may explain the slightly different values for lead-acid batteries from the two companies.

The $5 battery tester from Harbor Freight would have been a good solution if it could accurately show the 50-percent charge condition.

Measuring options

A digital multimeter can be used to measure battery voltage but I wanted something a little more elegant attached to my electrical panel. I found two inexpensive options.

Harbor Freight sells a battery and alternator tester (item #65928) for $5. You push the test button and LEDs light up to indicate poor, fair, or good condition. Another LED lights up to indicate the alternator is good when the engine is running. I put a unit to the test and found the "poor" LED lights came on at 11.4 volts (which would mean fully discharged), the "fair" lights at 11.95 volts (about 20 to 40 percent charge, depending on the battery) and the "good" LED lights at 12.6 volts (about 90 percent charge).

Unfortunately, this unit simply can't differentiate between a battery that's fully charged and one that is almost dead. Batteries should be kept above 50 percent charge to maximize life, and this device won't tell us where that point is.

The second device is a liquid crystal display (LCD) digital voltmeter I bought on eBay. It was $10 including shipping and arrived in two weeks. Overall it's about 1½ x 3 inches with digits about ¾ inch high.

These devices are generically known as digital panel meters and are offered by a number of vendors. The vast majority, however, require a power supply that is isolated from the voltage to be measured. That means you need a separate battery to power the meter. To avoid that hassle, find a meter that the vendor explicitly states can measure its own power source. My meter has only two wires, so it can only measure the voltage of its power supply. (I liked it enough that I later bought a matching 50-amp ammeter and

Tim tested the $10 eBay LCD voltmeter in the laboratory. It passed.

shunt for $20 from the same vendor. Naturally, I didn't follow my own advice. I assumed if one model it sold could measure its own power supply, others from the same vendor would do likewise. Wrong. The ammeter requires an isolated power supply, so it looks like I will have the hassle of adding a 9-volt battery and switch to power it. Live and learn . . .)

To test the meter's accuracy, I compared it to a good-quality lab voltmeter. They agree well, with the inexpensive meter consistently reading 0.02 volts high, which isn't a problem. The power draw on this unit was 7.5 milliamps (in other words, it will take 133 hours to use 1 amp-hour from the battery). We always turn the master battery switch off before leaving the boat, so I can wire this meter permanently into the electrical panel and not worry about it draining the battery.

So we have our solution. Mounting this $10 digital meter permanently on the electrical panel and posting a copy of the charge-vs-voltage table nearby makes it easy to keep an eye on the state of the batteries.

Tim Nye teaches mechanical engineering and in his spare time drags home and resurrects derelict machinery. After meeting and marrying Elizabeth, a sailor, he's switched to dragging home and resurrecting good old sailboats. Their current boat is a 1976 Grampian G2-34, Sea Rose, *mostly complete and sailed out of Hamilton, Ontario.*

Percent of charge	Flooded lead-acid volts
100%	12.73
90%	12.62
80%	12.50
70%	12.37
60%	12.24
50%	12.10
40%	11.96
30%	11.81
20%	11.66
10%	11.51

Source: Trojan Battery Company, Battery User's Guide

Percent of charge	Sealed or flooded lead-acid volts	Gel battery volts	AGM battery volts
100%	12.70+	12.85+	12.80+
75%	12.40	12.65	12.60
50%	12.20	12.35	12.30
25%	12.00	12.00	12.00
0%	11.80	11.80	11.80

Source: East Penn Manufacturing Co., Deka Marine Battery Technical Manual

Noises in my head

Vegetable oil fixed one, the other remains

by Bill Van Allen

My usual motto, "If it ain't broke, don't fix it," has served me well in many life experiences but has never been the best strategy to use in relation to boats. Comprised as it is of a series of interdependent systems, every sailboat requires a continuous preventive maintenance schedule to provide trouble-free service.

I have spent the past four seasons learning how to maintain the various systems on our 1981 Bayfield 32, *Ocypete*: propulsion, rigging, hull, plumbing, and electrical. As for our Jabsco marine head, except for winterizing it with RV antifreeze at haulout time, I had taken it for granted and neglected to perform any regular maintenance on it.

Early in the season, my first mate, Emily, brought it to my attention that our normally reliable head was making high-pitched squealing sounds when the flushing handle was pumped. I surmised that rubber gaskets were probably drying out and the squealing noises were the result of friction against the pump's metal piston rod. My research in do-it-yourself magazines and books explaining how to dismantle and service a marine head suggested that this job would be another boating adventure to remember.

During a recent visit with boating friends, I mentioned my situation. The other skipper informed me that a cup of vegetable oil would solve my problem. On my next trip to the boat, I soaked a folded piece of toilet tissue with vegetable oil and lubricated the piston rod of the pumping handle when it was in the elevated position. I poured the rest of the oil into the head and flushed it through. The relief was instantaneous. This ritual will now be added to my annual list of maintenance tasks to perform each spring. If you choose to do likewise, use vegetable oil; petroleum oil will degrade the rubber gaskets.

Now, if I could only get rid of the noise in my other head — the one that keeps urging me to get a bigger boat.

Bill Van Allen and his first mate, Emily, began trailersailing on inland lakes in central Ontario. After progressing from a 24 to a 26 MacGregor, they now sail a Bayfield 32 out of Penetanguishene on Lake Huron's Georgian Bay.

A little lubrication keeps rubber parts supple so they don't protest when pressed into service.

Turnbuckle locks revisited

Self-adhesive Velcro offers improvement

by Devin Ross

I was surprised to see the article about Velcro turnbuckle locks in the March 2010 issue. Perhaps, in the rough waters of Erie off Presque Isle, sailors naturally think alike. It's probable that I have waved to author Joe Orinko in passing. His boat's name, *Unicorn*, rings a bell. And yet I independently developed a similar solution to a similar problem.

During a Lake Erie crossing in July 2007 that was filled with lessons, I noticed that the shroud turnbuckles had wiggled dangerously loose on my O'Day 25, *Huguenot*. After a harrowing experience tightening them in 5- to 6-foot waves, I resolved to find a way to prevent that problem from recurring. In my work, I use a fair amount of self-adhesive Velcro, so that material came to mind.

Since I have to remove *Huguenot*'s rig every winter, I wind up making multiple adjustments to the turnbuckles during the sailing season (trying to finally "get it just right"). Because of my ongoing tweaks, cotter pins and rigging tape seemed wasteful and awkward. My solution offers some advantages over Joe's.

My idea was to bend a rod of 1/16-inch stainless-steel (308L) welding filler rod to serve as a backing structure and keeper pin to poke into the hole in the turnbuckle screw. To join it to the Velcro, I poked this keeper pin through from the adhesive side of a strip of "hooked" Velcro to the hooked side and embedded the pin's backing structure in the adhesive. I then bonded the adhesive side of that Velcro strip to the adhesive side of a strip of "fuzzy" Velcro, sandwiching the backing structure of the pin between the two adhesive strips.

The final product is very similar to Joe's, with the added advantages that there is no cotter pin stub to spread apart, no glue or epoxy to deal with, and little risk of the pin separating from the Velcro (by pulling through or breaking off).

The key to bending the stainless-steel filler rod is to bend the backing structure with needle-nosed pliers, making use of the curved outside of the jaws to help form the shape of the filler rod. Once the backing structure is done, a 90-degree bend is easy to make by holding the newly made base with the pliers and bending along the side of the pliers' jaw. It's easy to cut the pin to the exact length desired.

Devin Ross sailed his O'Day 25, Huguenot, *on Lake Erie for three years before moving her to Lake Arthur in Moraine State Park, Pennsylvania, to allow for easy day trips (and many more sailing days).* Huguenot *is the current boat in a progression: a Hobie 16, an Erie 17, and a South Coast 22.*

A simple turnbuckle lock can be made from a short length of wire and sticky-back Velcro, at top. The pin end of the wire pokes through the "hooked" Velcro and the loop holds it in position, at center. When the "fuzzy" Velcro is applied, the loop is held fast, at bottom. The combined Velcro strip sticks to itself when wrapped around the turnbuckle, holding the pin in the screw.

Boats

Tartan 37C
1976 Sparkman & Stephens design. Westerbeke 40, Link 10, inverter, wind gen, solar, radar, SSB, Raymarine 6002 AP, windlass, hot water, 5 fans, SS opening ports, '08 FB main, Profurl, Dodger, '06 forward hatch, Alpenglow lights, fridge, Force 10 3-burner stove/oven, propane heater. CB broken off by previous owner after circumnavigation, removed, glassed over. Still a sweet-sailing S&S design. Pasadena, MD. $35,000.
John DeFoe
301-974-2620
jcdefoe52@yahoo.com

Mystic River Sloop
1978. Good cond. LOA 18'1", LOD 15', Beam 7'. Classic daysailer by Peter Legnos w/ registered trailer. Fiberglass hull; wooden mast, gaff, boom, and bowsprit. She draws so little with the CB up she'll sail in wet grass. Very stable boat. Electric trolling motor w/new battery as auxiliary. Red Creek, NY. $10,500 OBO.
William MacArthur
315 754-8885
rcmac4@localnet.com

Soverel 28
1962 classic yawl. Comfortable sailing boat. Everything new or updated. 20-hp Westerbeke diesel, new mainsail, sailcovers and cockpit cushions in '08. Sleeps 4, head, galley, 6' headroom in cabin. Lots of sails. Marine radio, AM/FM radio w/CD player. New carpeting and toilet, '09. In the yard at Point Bay Marina, Charlotte, VT. $8,900.
Bill & Nancy Brogden
802-436-2785
nancybrogden@vermontel.net

Alberg 37
1972 MK2 Sloop rig. Full electronics, low hours on new Westerbeke. Force 10 diesel heater. Sails in exc cond. Radar, wheel steering, dodger. Too many toys. Ready to put in the water. West Newbury, MA. $35,000.
Dan Lord
978-462-1112
dlord@abf.com

Bristol 35
1975 yawl. Alden design w/ numerous upgrades since 2006, electrical, electronics, refrigeration, new main, Bimini, AP, the list goes on. Sailed from Maine to Deltaville, VA, on Chesapeake Bay. Deltaville, VA. $33,000.
Edward "Kip" Brundage
540-808-7486
kip@kipbrundage.com

Lecomte Medalist 33
1967. One owner, freshwater boat. Turnkey boat with modern sails, full equipment, bottom redone. Menominee, MI. $25,000.
Isaac Stephenson
231-343-2518
ike.stephenson@gmail.com

Sea Bird Yawl 26
1970. Yawl built to 1901 design by Tom Day, former editor *Rudder* magazine and C. D. Mower, naval architect. Fiberglass sheathed wooden hull, 8-hp Yanmar diesel, RF genoa, marine head, small galley, sleeps 2. Sound cond. In Myer Creek, Lancaster County, VA. Selling reluctantly, getting too old and clumsy. $5,500.
Wiley Wright
804-462-7100

Hinckley Bermuda 40
1964 yawl. Great-running 1989 Westerbeke 46-hp w/1,805 hrs. Set up for singlehanding. Dark blue, recent sails/covers, radar, AP w/remote, new windlass w/ remote, H/C pressure water, solid-fuel fireplace, 3rd owner. Upgraded annually. Trade for "comfy cat" in de islands. $98,500. Ocean City, NJ. http://tinyurl.com/kqzmsb. YouTube video: http://www.youtube.com/watch?v=1EUWlmi2PJg.
Joe Scafario
609-398-8400
homeportoc@aol.com

Bavaria 8.9 meter
1984 sloop. 2009 survey. Great cond. Fully equipped. Volvo 18-hp, new fuel pump and separator. Lake Champlain. (Slightly smaller) trade considered. $23,500.
Phil Lambertucci
514-703-5002
plamb202@hotmail.com

Nimble 30
1986 fiberglass sloop. Ted Brewer design, built in Florida. 18-hp Yanmar. 4'6" draft. Simple boat w/standing headroom, ideal for two people. We have lived aboard *Madrigal* for several months each summer and have visited most ports and anchorages between New York City and Bar Harbor, Maine. Bought a larger sailboat. Branford, CT. Specs and more pictures available via email. $29,000.
Steve Bailey
860-673-1708
stephenbailey@earthlink.net

C&C 38 Mk III
1986 racer/cruiser sloop. Classic C&C design. Original sails, extra jib, gennaker. Completely refurbished interior. DuPont Imron plus clear-coat protection on hull. B&G instruments. Upgraded electrical, high-amp alternator and inverter. Electrically operated head, handheld shower. Galley w/Hillerange propane stove, fridge/freezer, double sinks, plenty of storage. Exc liveaboard and/or racing boat. Little River, SC. $59,900 OBO.
Lewis Gravis
704-896-9735
indgov@bellsouth.net

Ranger 28
Gilded Lily. 1979. Feature boat Sep/Oct '06 issue. Extensive upgrades include deck hardware, winches, engine update (A4), traveler, interior, etc. New bottom paint. On the hard ready for inspection and transport. Atlanta, GA. Price reduced to $12,500.
Walt Hodge
770-498-1678
walt@wingnwing.com
www.wingnwing.com

Nonsuch 36
1984 Hinterhoeller. Freshwater boat. Well-loved, cared for by proud owner. Single-sail rig w/ wishbone-type boom makes the Nonsuch 36 perhaps the easiest sailing boat ever built. Westerbeke 58 w/600 hrs. Many new features added since '02. Included, uninstalled: new propane cabin heater and new electric sail winch. Additional photos available by email. In Muskegon, MI. $106,000. Timing is everything!
Edward Kress
231-766-2561
amyjohn1218@comcast.net

Custom 35 Ketch
1965. Victor Harasty design, G.W. Noble-built classic double-ended ketch. Hard chine, center cockpit, aft cabin. Hull is 1" mahogany on 3" mahogany frames. Spruce spars. Sails and Furlex new in '04. Isotherm fridge installed '08. Palmer marine gas engine rebuilt '10. Cradle and dinghy. Parry Sound, ON. $27,900.

Chuck Noble
905-853-1231
chucknoble@rogers.com

Crosby 26
1980 pocket cruiser. 7-knot vacations on the water. BMW Marine 45-hp diesel. Captain's cabin for 2 w/enclosed electric head. Wheelhouse for 360-degree water views. Full height. All nav equipment plus A/C and heat. Rear deck for delightful evening sunsets. New Orleans, LA. $33,000.

Paul Nelson
504-899-1279
pnelson42@gmail.com

Pearson 35
Classic 1970. Bristol cond, continually upgraded, freshwater, always stored inside, astounding complement of sails, RF jib, Monitor windvane, Edson WS, Garmin GPS, inflatable w/5 hp, dodger w/SS frame. Impeccable teak interior, full headroom, new cushions, fridge, Force-10 propane stove, vacuum head, pressure water. 3 anchors, full-hull rubrails, upgraded Atomic 4, ready for extended cruising. 7 jack stands. Owner retiring. Beaver Island, MI. $25,000.

Gray Sweeney
480-483-9456
Gray@asu.edu

Orion 27
1982. A beautiful pocket voyager. Built to the highest standards by Pacific Seacraft. Many upgrades. '98 20-hp Yanmar w/ low hours. Voyager windvane steering, radar, new sails and canvas '05, and much more. A proper little ship, ready to go. You choose the destination. Ocean City, NJ. $54,900.

Karl Westman
917-969-6682

Vancouver 25
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Greg Indrysek
219-617-4572

Kaiser 26
1972 full-keel sloop. Well built, limited production. LOA 27'6", LOD 26', beam 7'10", draft 4', displ 6,200 lb, ballast 2,700 lb, SA 296-385 sq ft. Sleeps 4 w/6' headroom. Enclosed head, small galley, original diesel. Survey 6/09 in good cond. Needs some upgrading but a real sweet sailor. Brookville, ME. $8,500.

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Bruno & Stillman 30
1971 Friendship Sloop. Gaff-rigged classic. Fiberglass, Bimini, solar, Engel portable fridge. 2-burner propane stove. Many spares including sails and sailing dinghy. Recent haulout. 1995 Volvo Penta. Jacksonville, FL. $22,000.

Peter McColl
831-801-1419
rillamccoll@yahoo.com

Chesapeake Light Craft
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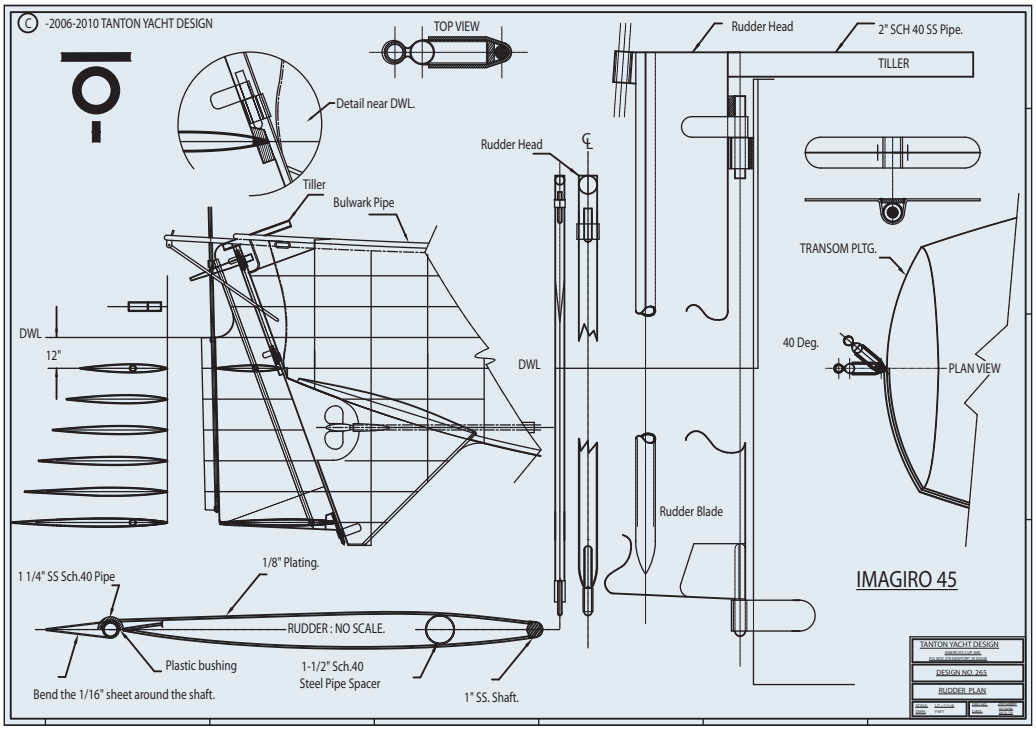
The rudiments of rudders, continued from page 17

provides a good portion (though not all) of the 'feel' that most experienced sailors rely upon to effectively drive a boat through the water through the intentional manipulation of rudder angle (along with sail trim and crew/ballast position). Therefore, it is important to match the rudder foil design to the intended use of the vessel and to the typical driver's skill level."

Greg says, "Advances in carbon-fiber materials and construction methods have allowed much lighter rudders to be built in the last 15 years."



We have looked at a wide range of rudder types and evaluated them. Maybe with this information, the next time your boat is hauled out you can inspect its rudder and see what can be done to it to improve efficiency. Or maybe you can just look at your rudder and say, "So that's how it works," and go sailing.

Robert Perry is a Good Old Boat *contributing editor. He has designed a lot of rudders in the course of a long career as one of the world's leading designers of sailboats.*

For the Imagiro 45, a rugged steel cruising boat, Yves-Marie Tanton designed an outboard rudder supported on a robust skeg, above. *Ptarmigan*, a Nelson/Marek 52 was built to race. Her high-aspect-ratio spade rudder takes advantage of her deep draft, at right.

Cruising on sufferance

Is it really good for the soul?

by John Vigor

I have a confession to make. I have booked a passage to Alaska on a cruise ship. I'm confessing because for years I've been saying to anyone within earshot that I would never, ever, set foot aboard one of those hideous floating luxury apartment blocks. Never, ever.

I first started hating cruise ships when I sailed my 31-footer, *Freelance*, from South Africa to the United States. We came across cruise ships in the Caribbean Sea at night. They were little islands of blazing light wandering slowly in large vague circles, just passing time between ports 20 miles apart and giving their passengers the impression of ocean passagemaking before shuttling them ashore the next morning to empty their wallets in a town with one main street and 50 jewelers' stores, all owned by the shipping company.

We hated them because of the difficulty of dodging them. Their running lights were lost among the hundreds of bright white lights on board, so when we came upon them it was difficult to estimate their course in relationship to ours. Then we discovered that their courses were changing all the time as they cruised in big circles.

Years later we came across more cruise ships in the Pacific Northwest. My wife, June, and I would scoff as they squeezed past us on British Columbia's Inside Passage on their way to Alaska. We'd sit in the cockpit of our 27-foot sloop and assure each other that those aloof, touristy people sitting high up there behind their walls of glass couldn't possibly experience the "real" sea. With their cocktails in their hands and half a dozen stewards at their beck and call, they could know nothing of the natural wonders of Nature at sea level. They weren't going to sea to get away from it all. They were bringing it all with them. The whole problem, we said, wiping the cold rain from our faces, was that they weren't suffering enough. Suffering is good. Suffering makes you appreciate the subtleties and mysteries of Nature.

Coming to visit

And then, one day, my sister announced that she was coming to visit us from South Africa. She and her husband wanted to see glaciers in Alaska. Could we take them on our boat?

No way, we said. Too crowded, too wet, too cold, too miserable, and too long to get there and back.

"How about a cruise ship, then?" said my sister.

We told her how we felt about cruise ships.

"You're just yachting snobs," she said. "Does suffering really increase enjoyment or appreciation or anything? Does fear or hunger or freezing rain really whet your senses and provide something extra to your experience?"

I was taken aback by this. Her diatribe caused us to reconsider. Doesn't an iceberg seen from the deck of a cruise ship look and feel and smell the same as an iceberg seen from the cockpit of a 27-foot Cape Dory? Are we really guilty of snobbishness, we wondered. Who says a beer-swilling landlubber in his fancy RV doesn't get as much enjoyment from Yosemite as a Spartan climber camped out on a cliff face? Is there such a thing as intellectual snobbishness? Does physical suffering really bring some spiritual addition to pleasure? Is it truly good for the soul?

June said the point was that the person who suffers is testing himself. People on cruise ships are not testing themselves.

"That may be true," I said, "but do we need to test ourselves, and if so, why? Does a 'normal' well-adjusted person need to test himself? I don't need to test myself. I don't need to sail around the world singlehanded just to prove something."

"Nor I," said June. "I just want to see glaciers in Alaska."

That did it. Our epiphany was complete. We booked our cruise-ship passages the next day. But we did it our way. We deliberately chose the cheapest cabins on the ship, way down in steerage, right next to the thumping propellers and the rudder machinery. It will probably be as awful as we always suspected it would be. Seven days of sleepless hell. But we know within ourselves that the suffering will surely make the glaciers look better.

John Vigor is Good Old Boat*'s copy editor and the author of 12 boating books and scores of articles in boating magazines on three continents. He is a sailing and navigation instructor accredited by the American Sailing Association and national winner of the prestigious John Southam Award for the book* Things I Wish I'd Known Before I Started Sailing.

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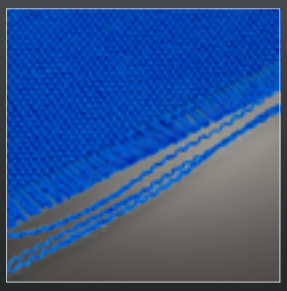
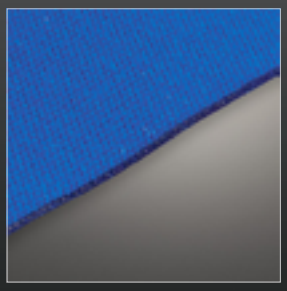

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