GOOD OLD BOAT

THE SAILING MAGAZINE FOR THE *REST* OF US!

www.goodoldboat.com

Issue 70 January/February 2010

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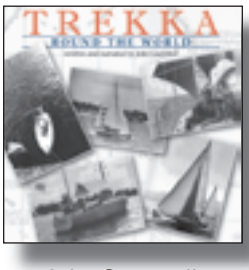
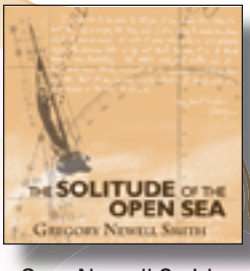
Circumnavigations and other true sailing tales!



John Guzzwell:
Trekka Round the World

Legendary sailor John Guzzwell narrates the adventures he had while circumnavigating in *Trekka*, the 20-foot yawl he built. This is a must-have release for all who now follow in his wake and those who dream of doing so.



Greg Newell Smith:
The Solitude of the Open Sea

In this series of narrative essays, Greg Newell Smith reflects upon the many adventures he had and discoveries he made during his world circumnavigation. *The Solitude of the Open Sea* takes you to the most unexpected places.

Dave and Jaja Martin:
Into the Light

Well-known circumnavigators, Dave and Jaja Martin possess the power to touch your heart and soul. The Martin family's true story of their travels in Iceland and Norway offers an honest look at life aboard in the best and in the worst of times.

Russell Doubleday:
A Year in a Yawl

A Year in a Yawl is a true tale of four young men traveling the Great Circle Route of the eastern United States over 100 years ago. Their youthful enthusiasm and resourcefulness make this a powerful and well-told classic.

Good Old Boat:
Bookends
50 View from Here and Last Tack columns

These musings about sailing and boat ownership from the editorial pages of *Good Old Boat* will entertain you whenever you miss being near your sailboat, as well as any time you're aboard or driving to the marina.

Joshua Slocum:
Sailing Alone Around the World

In 1895 at the age of 51, Joshua Slocum began a three-year circumnavigation aboard *Spray*. The first man to ever successfully complete a solo circumnavigation, he recounted the adventures he had along the way in this classic tale.

Have it your way!

Each book is available in CD format or, better yet, as a download from our site directly to your computer. In keeping with the do-it-yourself philosophy of *Good Old Boat*, we produced these audio tales ourselves. And we did it just for you, our readers. Each of our books is unabridged. Several are read by the authors.

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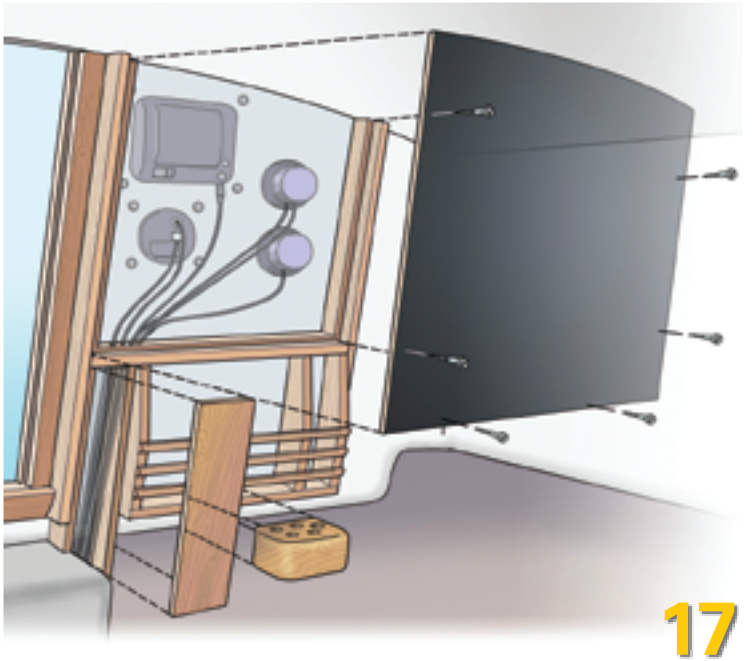
JANUARY/FEBRUARY 2010

For the love of sailboats

Speaking seriously



Thrills, Chills, & Suspense at Sea!

A Voyage Toward Vengeance
by Jule Miller

Missing persons, murder, sunken vessels, unlikely comrades, and a couple of real sociopaths will frighten and entertain the adult listener of this nautical fiction by Jule Miller. There are plenty of realistic sailing scenes and good nautical detail but not enough to prevent the non-sailor from appreciating the tale. All readers with vivid imaginations will find it difficult to sleep at night while listening to this one. An audiobook for adults only.

Telegram from the Palace
by Geoffrey Toye

Jack the Ripper in the 1880s. The sinking of the *Lusitania* during World War I. The British Royal family. Modern-day lovers enmeshed in a series of life-threatening events over which they have no control and of which they have even less comprehension. You won't be sure until the very end who the good guys are and what motivates the heroes and villains. Sail along with narrator Jeremy McGeary on this adrenaline-filled thriller by Geoffrey Toye.

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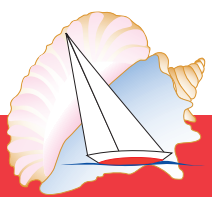

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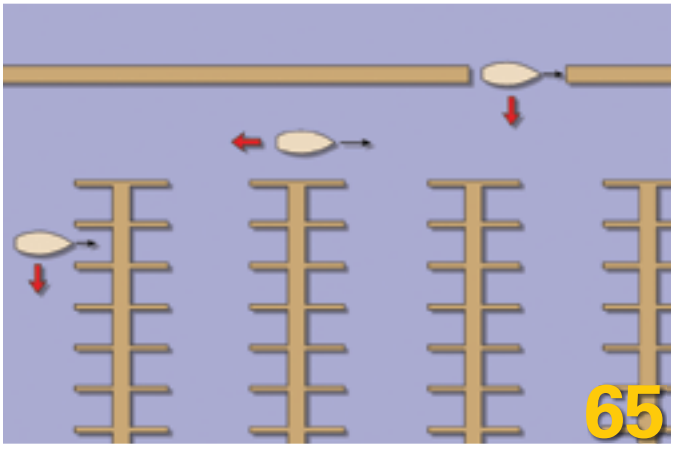


Just for fun

What's more

About the cover . . .
Photographer Dan Nolan recorded this quiet scene one September morning in Maine. *Ardea* is a Bill Crealock-designed Pacific Seacraft 37. For more of Dan's photography, go to <http://www.dannolansphotography.com>.

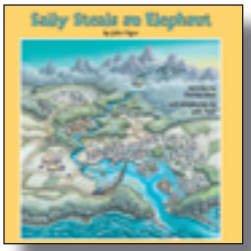
Great listening for young sailors!

John Vigor:
Danger, Dolphins, and Ginger Beer

Join Sally, Peter, and Andy Grant as they sail their way through the unpredictable waters of childhood. A great two-part series for children ages 8 to 12.

Danger, Dolphins, and Ginger Beer takes readers on an exciting romp across the islands of the Caribbean as the children save an injured dolphin and fight to save their own lives.

Sally Steals an Elephant finds the Grants in the South African jungle, where the children encounter a kindly elephant, her cruel circus owner, and even a witch doctor.



John Vigor:
Sally Steals an Elephant

John Vigor:
So Long, Foxtrot Charlie

Foxtrot Charlie just wants to get along with his foster family. But sometimes being an ordinary 13-year-old boy gets him into trouble — messes, explosions, accidents — the harder he tries, the more he fails. Just when he thought things couldn't possibly get any worse, Foxtrot is lost at sea with his foster father, foster sister, and a friend. With the lives of three other people in the balance, Fox is faced with a challenge that helps him understand what's really important.

Russell Doubleday:
A Year in a Yawl

Not long after Joshua Slocum completed his historic circumnavigation, four young men from Michigan set out on another adventure that had never been done before: the Great Circle Route of the eastern U.S. They built a boat and traveled down the Mississippi, around Florida, up the Eastern Seaboard, back through the Erie Canal, and home to the Great Lakes. Their youthful enthusiasm and resourcefulness make this classic true story of a century ago a powerful influence on youngsters today.

So let us read your young sailor a story!

Enjoyable listening with your children or grandchildren, whether you're on the boat or wishing you were there. Good for long road trips too.

Have it your way!

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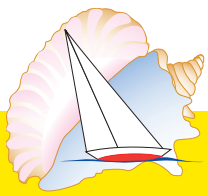

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GOOD OLD BOAT

FOUNDER/EDITOR
Karen Larson
karen@goodoldboat.com

FOUNDER/TECHNICAL EDITOR
Jerry Powlas
jerry@goodoldboat.com

PUBLISHER/ADVERTISING SALES DIRECTOR
Michael Facius
michael@goodoldboat.com • 612-605-8319

SENIOR EDITOR
Jeremy McGeary

ASSOCIATE EDITOR
Pat Morris

RESEARCH EDITOR
Dan Spurr

COPY EDITOR
John Vigor

EDITORIAL ASSISTANT
Tim Bauernfeind

CONTRIBUTING EDITORS
Ted Brewer • Donald Launer
Dave Martin • Gregg Nestor • Robert Perry
Paul Ring • Bill Sandifer • Richard Smith

CREATIVE DIRECTOR
Mary Endres

AD PRODUCTION
Elizabeth Whelan

CLASSIFIED ADS AND FINANCIAL MANAGER
Karla Sandness
karla@goodoldboat.com • 701-952-9433

DIRECTOR OF CIRCULATION/RETAIL
Mark Busta
mark@goodoldboat.com • 701-952-9433

WEBMASTER
Jerry Stearns
www.goodoldboat.com

TROUBADOUR
Tom Wells

AUDIOBOOKS
www.AudioSeaStories.com

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Phone: 701-952-9433 • Fax: 701-952-9434

BUSINESS OFFICE:
1501 8th Ave. N.W. • Jamestown, ND 58401
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No heroics

It's time to step *to the dock*

by Karen Larson

As I head rapidly toward my 60th birthday (and Jerry sees his 70th arriving in a few years), I have noticed that our attitudes about sailing are evolving to a different phase. That new way of thinking, I believe, is what will keep us sailing for another decade or more, God willing.

If we are entering a new stage of life, I would characterize it as "no heroics." When Jerry's docking the boat, for example, I'm the crew member who has been known to leap nimbly across broad chasms with the docklines. But these days I insist on being able to *step* to the dock. If I can't do that, we try again.

Jerry has great control over the boat, so why not get it right on the next pass? Or the one after that? In his plain-spoken way, he has pointed out that I will be more of a liability than an asset if I wind up in the water between the boat and the dock. At that point, rather than being of help I'll be in need of it.

So we're in agreement: I don't leap. No heroics. We'll take our time and get it right. The same goes for hauling up the anchor. Easy does it. Likewise, I don't feel the need to raise sail or make sail changes rapidly or flawlessly. When I'm the one standing at the halyard, I take my time. Nor do I feel the need to make a fast or perfect tack every time. No pulled muscles. No banged shins. No bruises. No heroics.

Taking more precautions

I have always owned a life jacket festooned with tools (flashlight, knife, signaling mirror, strobe, and flare) and I always wear it when we're under way. Nothing heroic there. Additionally, when we're sailing, I try to make sure that we remain warm, dry, fed, and rested. And we commit to fewer overnighters and nighttime arrivals in strange places than we once did.

> **"If we sail a bit more safely and risk less, we're likely to continue to sail longer."**

I'm not necessarily graceful when moving about on deck. In heavy weather, I crab and creep and squat in an attempt to keep my center of gravity low and maintain several points of contact on the boat at all times. It's not lovely. But it's safer. No heroics.

I don't fear death as much as I fear the pain or impairment resulting from an accident I could have prevented. I still want to live my life as fully as possible in the years that are left. In order to do that, I have to be thoughtful about my actions whenever I'm doing something active, such as sailing.

As I age, I am reminded that I do not control the *length* of my life, but I do have a great deal of control over its *quality*. If we sail a bit more safely and risk less, we're likely to continue to sail longer. Since having the ability to travel with wind power is one of the ways I define my quality of life, I'll do what it takes to continue doing so . . . but without heroics.

Publisher's responsibility,

Bearers of great responsibility

Karen, you as editor of *Good Old Boat*, bear the final responsibility for the November 2009 issue, and I found it darn good, dammit! I received my copy on Wednesday and promptly discovered it wonderful. Each article was better than the previous one, whetting my appetite to the point that I read it entirely in one sitting, even the ads! Thursday came complete with drizzle, cold, and total overcast. I just skimmed through the magazine page by page. Friday came bearing depressing similarity to Thursday, and with little going on I simply re-read the *Good Old Boat* line by line.

Saturday and Sunday, my wife was home. The honey-do list was extensive (but I achieved a reprieve for the Iowa and Packer football games with occasional switches to watch Brett Favre and the Vikes). Monday's sun-up phone ringing awakened me much too early but the sun is shining with possibilities of a 50+ degree day. I am going sailing! Right after a quick breakfast while thumbing through the latest issues of *Good Old Boat*.

I am now ready for the next issue! Please quit publishing such a high-quality magazine. I can't take the two-month delay between issues. I am on Paxil and Xanax primarily because of you and *Good Old Boat*. I no longer have the patience to wait that long! You *could* start a monthly edition!

For the record: the article, "Becoming *Elizabeth Ann*," on her metamorphosis, the piece on the fire aboard a boat, "Preparing to Cruise," and the item on boat cushions were particularly good. I even ran to the fabric shop to price out some material! I checked out several Internet ads including Noah's, IdaSailor, and TLTools. Remind your advertisers that people do read and check out their wares.

Let me be yet another sailor who totally misses your newsletter. It was unique, interesting, and something worthy of *Good Old Boat*. It contained "stuff" not in the more formal magazine nor found elsewhere in the sailing magazine world. While I firmly understand the cost issue (to say nothing of the hassles of writing and publishing), I miss it, and I found it wonderful. Under what conditions would you consider resurrecting the newsletter?

Great edition! Hurry up with the next issue.

– Doc Regan, Cedar Rapids, Iowa

Newsletter carries on

Doc, what a wonderful confirmation of what we're doing around here. Many thanks! Most important, however, the newsletter isn't *gone*. No! It just morphed into an online thing. We saved the printing and postage costs, but we're still investing the staff time to put it together. Heck, we even podcast (and read each issue to you) if you want it served up that way! Here's where you can find the current one: <http://www.goodoldboat.com/newsletter/09_decnews69.php>.

Hint: At the bottom of our home page there's a starburst that will always take you to the current issue of the newsletter. Once there, you can go to any of the back issues. So, depending upon how many you missed, maybe this will offer something to help you wait until the next issue of the magazine. Just for you, we're busily working on that issue right now.

– Karen Larson, Editor

Let's develop youth skills

I read this month's editorial (November 2009) with great interest and agree with you about developing skills early in life. A wonderful example can be found at Rocking the Boat, an inner-city Bronx, New York, based group that works with high school students helping them prepare for the real world. I've been a volunteer there for a number of years and can testify to the success of the programs.

Please take a look at <http://www.rockingtheboat.org>. You'll be very pleased to see that they mirror the thoughts expressed in your editorial.

– Mike Robinson, Bayside, N.Y.

Baby sister

I just picked up my September 2009 issue and dove into the article on Hinckley's Bermuda 40. Tripp's pretty vessel is not only a favorite of sailors for many years, but she's also a big sister to my 26-foot 3-inch Seafarer Polaris, another Tripp design. My Polaris, *Baker's Dozen* (a name given by the original owner to hull #13), was built in 1961 by Werf Gusto in the Netherlands. She may not be a Hinckley, but those Dutch builders made a stout and durable little boat. She'll be 49 next year, her 50th season. We've had charge of her since 1968.

The Polaris looks like a scaled-down B 40 in profile, except for the cabin trunk that is stepped on the Polaris. She has the same cutaway full keel, rectangular rudder, centerboard, and full bilges. Almost every time I'm aboard I get comments like "Wow, pretty boat!" from other sailors or dock walkers. She has varnished mahogany toerails, coamings, hatches, handrails, and trim. Her spars are varnished spruce.

youth skills, and timeliness

Bill Tripp must have liked wood trim strips along the cabin trunk because the Polaris has them too. After all these years, I'm adept at varnishing!

Seafarer sold over 250 of these and then more were sold as the Sailmaster 26. A later Sailmaster 26, the Mark II, had a modified underwater hull shape.

Performance is not up to modern standards for the same reasons as cited for the B 40. The shoal draft does make life easier in *Baker's Dozen*'s home waters, the shallow Saginaw Bay on the east side of lower Michigan. My other good old boat, a 1967 Cal 20, is as fast, but doesn't attract the same praise for her looks.

Good Old Boat would score a major coup if you could convince Brian Ackworth, Seafarer's founder, to give an interview about the history of his company. I have a long list of questions about Bill Tripp, the Dutch builders (his company used several Dutch yards), and other things.

– Chris Campbell, Traverse City, Mich.

The timeless Bermuda 40

The article by Paul Ring, in September 2009, about *Charisma*, the Hinckley Company, and the beauty of these classic boats is much appreciated by all of us who own, sail, and admire the 50-year-old design of the Bermuda 40.

So far as I know, the Chesapeake Bay Bermuda 40 Association is the only organization dedicated to the Bermuda 40, or any other Hinckley design for that matter. We are 32 years old and last month hosted a six-day, 50th anniversary cruise in the mid-Chesapeake area. B 40s from as far as the Bahamas, North Carolina, and South Carolina made the effort to attend this memorable event. The first B 40, *Huntress*, and the last built (*Highlander*, hull #203) were both in attendance.

Thank you for featuring the Bermuda 40, its timeless design, quality of construction, and the meticulous care provided by owners. I have yet to see a B 40 that has fallen on hard times.

– C. Barry Albert, St. Michaels, Md.

Capsize number and comfort ratio

In your November 2009 issue you have an article by Ted Brewer. Can you tell me how to calculate the capsize number and comfort ratio and also why can't I get the correct ratio on SA/Disp.? As an example, if I calculate the Ericson 31, the SA/Disp. at sail area 459/11,400, I get 0.040 not 14.5.

– Claus Morch, Clinton, Conn.

Ah yes, Ted's formulas . . .

We generally skip over the detailed explanations of capsize number and comfort ratio formulas because they distract from the discussion at hand. Ted Brewer explained these formulas long ago in a couple of articles in *Good Old Boat* and we have those articles posted on our site for those readers who weren't with us in our earliest years. Here are the addresses: <http://www.goodoldboat.com/reader_services/articles/Brewerformulas.php> and <http://www.goodoldboat.com/reader_services/articles/Helm_balance.php>.

– Editors

New Jersey: rich nautical environs

Please pass along to Karl Westman my thanks for his fine article, "Thanksgiving Cruise" (November 2009). It was a special pleasure for me. I lived 45 years in South Jersey and in the later of those years had a summer home in Ocean City. I wasn't a sailor then, having become one only since I moved to the Pacific Northwest and bought my Pacific Seacraft Dana 24, which we moor in Puget Sound.

I really enjoyed Karl's brief description of his passage across the bay, through the bridges, and up the Great Egg River. It brought back memories (I haven't heard of May Landing in years) and raised a question in my mind about why I lived in such rich nautical environs but never took advantage of that.

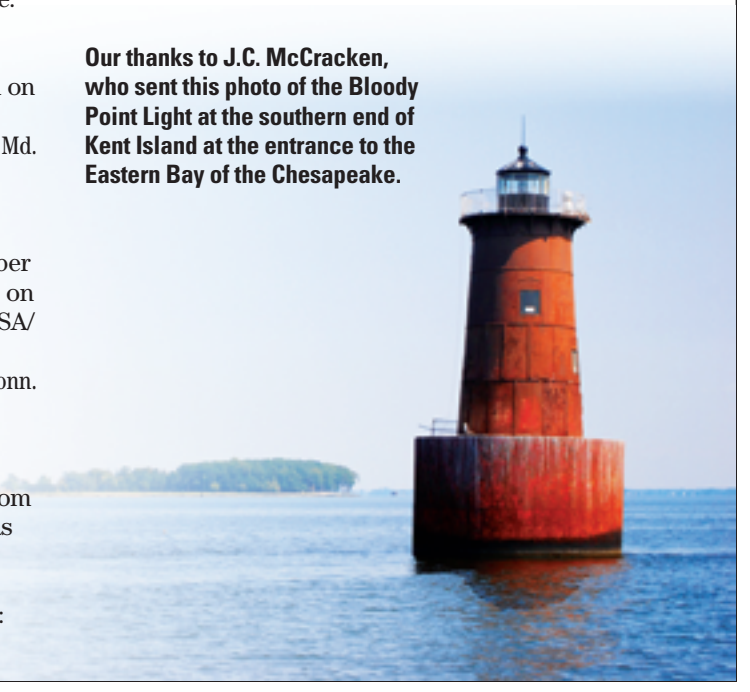
My thanks to him for reviving my memory of the Jersey Shore.

– Jerry Casby, Eugene, Ore.

Custom written just for you

Thanks for another great issue of *Good Old Boat*. There are always articles that seem to have been custom-written just for me! "Aftermath of a Fire on Board" (November 2009) is an example — a friend just recently experienced this calamity. "Preparing to Cruise," combined with the earlier articles by Beth Leonard, alone are worth the subscription price. Great work!

– Vern Hobbs, Cape Canaveral, Fla.



Our thanks to J.C. McCracken, who sent this photo of the Bloody Point Light at the southern end of Kent Island at the entrance to the Eastern Bay of the Chesapeake.

Eric Taylor took this photo one cloudy morning while sailing with his two youngest daughters, Erica and Jessica. He thinks it captures the excitement and intrigue of being on the water and moving under the power of the wind. We do too. Send your sailboat photos to jstearns@goodoldboat.com and we'll post them at <http://www.goodoldboat.com/reader_services/reader_photos.php>. If we publish yours here, we'll send you a good old T-shirt or ball cap.

Mina chose the perfect boat

The best thing about the "Cruising in Prime Time" (September 2009) story is how Mina chose her boat. She knew of the Tartan 33 from the experience of friends. She knew it would do the job. It was affordable. Without a lot of ado, she went out, bought one, and went cruising. It seems that she is doing a fine job of it too. It is impressive that she skipped the years of laborious boat searching and mind-numbing, numerical evaluations that we so often hear of voyagers enduring. A tip of the hat to Mina for getting up and going.

A Tartan 33 is a good boat for the task. The rigging problem she describes is fairly common to Caribbean cruising. From Florida to the Leeward Islands involves sailing a thousand miles hard on the wind. It is easily 90 full days of beating in a warm, lumpy seaway. Rigging takes a lot of strain under those conditions. The spreaders and lowers are at the highest stress points. Off-wind sailing is hard on rudders and goosenecks, but that is for the trip home.

I have been a yacht skipper in the Caribbean for many years. A Tartan 33 is my idea of an ideal vessel. It is pretty, small, inexpensive, and easy and fun to sail. Those are noteworthy benefits. Why so many folk choose boats in the 40- to 50-foot range remains a mystery. I observe the little boats are more often under way, exploring. The bigger boats are often immobilized, tied to the repair shop.

A can-do attitude and a good old boat will always have grand adventures.

– Norman Martin, Boston, Mass.

And thanks for the podcasts

Please find enclosed my check for a one-year subscription to your great magazine. I received my free copy last week and have enjoyed it immensely! I even went out and found the previous issue to see if it was as enjoyable and, well, I'm subscribing, right?

I also have already downloaded some of the podcasts and am enjoying listening to them as well.

– Sid Vance, Oceanside, Calif.

We're particularly glad you've found and enjoyed some of our podcasts, in which we read our Good Old Boat Newsletter *to you. For those who haven't yet discovered these newsletters, here's the where to look: <http://www.AudioSeaStories.net>.*

– Editors

Caribbean Compass available free online

The editors of *Caribbean Compass*, the best-read monthly sailing magazine in the Caribbean, have announced that the publication is now available online. It also includes a searchable back-issue archive. If you're planning a trip south or just dreaming this winter, you might want to take a look at <http://www.caribbeancompass.com>.

– Editors

Saving your time and $

I just received my free sample issue (July 2009). It came on the heels of our purchase of a vintage Catalina 27 that we are refitting as a weekend/vacation cruiser. I didn't get past page 6 before I had answers to three of my maintenance questions: dirty/dingy ropes, non-skid deck-paint recommendations, and electrical overloads for the shorepower! And, the more I read, the better it got! My brightwork was re-varnished by the previous owner without being removed . . . and it looks it. The varnish is flaking and there is varnish everywhere on the deck. So, the brightwork needs a "makeover" to make it last longer and to bring the topsides back to life.

As a non-master craftsman whose only mechanical skills involve the use of duct tape and superglue (my wife cringed when she witnessed me taking a handsaw out the other day), I know that *Good Old Boat* is going to save me time and money and make me look as if I know what I'm doing.

Thanks for being there for the rest of us who love our boats, but just need a "someone" looking over our shoulder to give us advice when we need it most. Can't wait for the next issue.

– Rich Botteri, Mount Bethel, Pa.

10 years of racing fun and no protests

For the Good Old Boat Regatta's 10th birthday, more than 70 skippers with 44 different designs, some from as far away as New Jersey, descended upon Annapolis, Maryland, to race and party. They came primarily to celebrate 10 years of this event dedicated to an under-served sailing segment: old boats and their owners who enjoy fun low-pressure racing.

Unfortunately, the wind gods didn't get the memo. The Saturday race was a blow-out with too much wind. Sunday morning brought flat seas and no wind, so the waiting-for-the-wind zaniness started with water-gun fights and mock motorized naval battles with water-bucket broadsides. Finally a light but consistent easterly filled in and the fleets took off.

At night, the parties lived up to the regatta's traditional standards with Good Old Boat Regatta (GOBR) musicians performing. On Saturday night, co-founders Charlie Husar and I saluted those who have contributed to the event's 10-year success. Heading the list were Karen Larson and Jerry Powlas, founders of primary sponsor *Good Old Boat* magazine, who, when hearing of the brand-new event 10 years ago, called and asked, "How can we help?"

Then, there was *SpinSheet* (an Annapolis-area sailing magazine), which has photographed the event and provided continual coverage and support. A big salute went to Bob and Cindi Gibson who have donated use of their home and marina for the many parties, along with host club Shearwater Sailing Club and Les Hester of Herr's Foods who has donated chips, pretzels, and snacks for several years.

But the biggest salute went to the GOBR entrants. In 10 years there hasn't been one protest. Yes, there have been fouls and rule violations . . . but in every instance, the offenders have taken a self-imposed penalty or voluntarily withdrawn. That type of attitude is what made the GOBR the enjoyable 10-year continuing success it is. For race details and results, visit the regatta's webpage: <http://www.goodold boat.com/resources_for_sailors/sponsored_regattas>.

– Don Frye, GOBR co-founder, Silver Spring, M

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

TOM SLITER

At the Good Old Boat Regatta, best friends are welcome as crew.

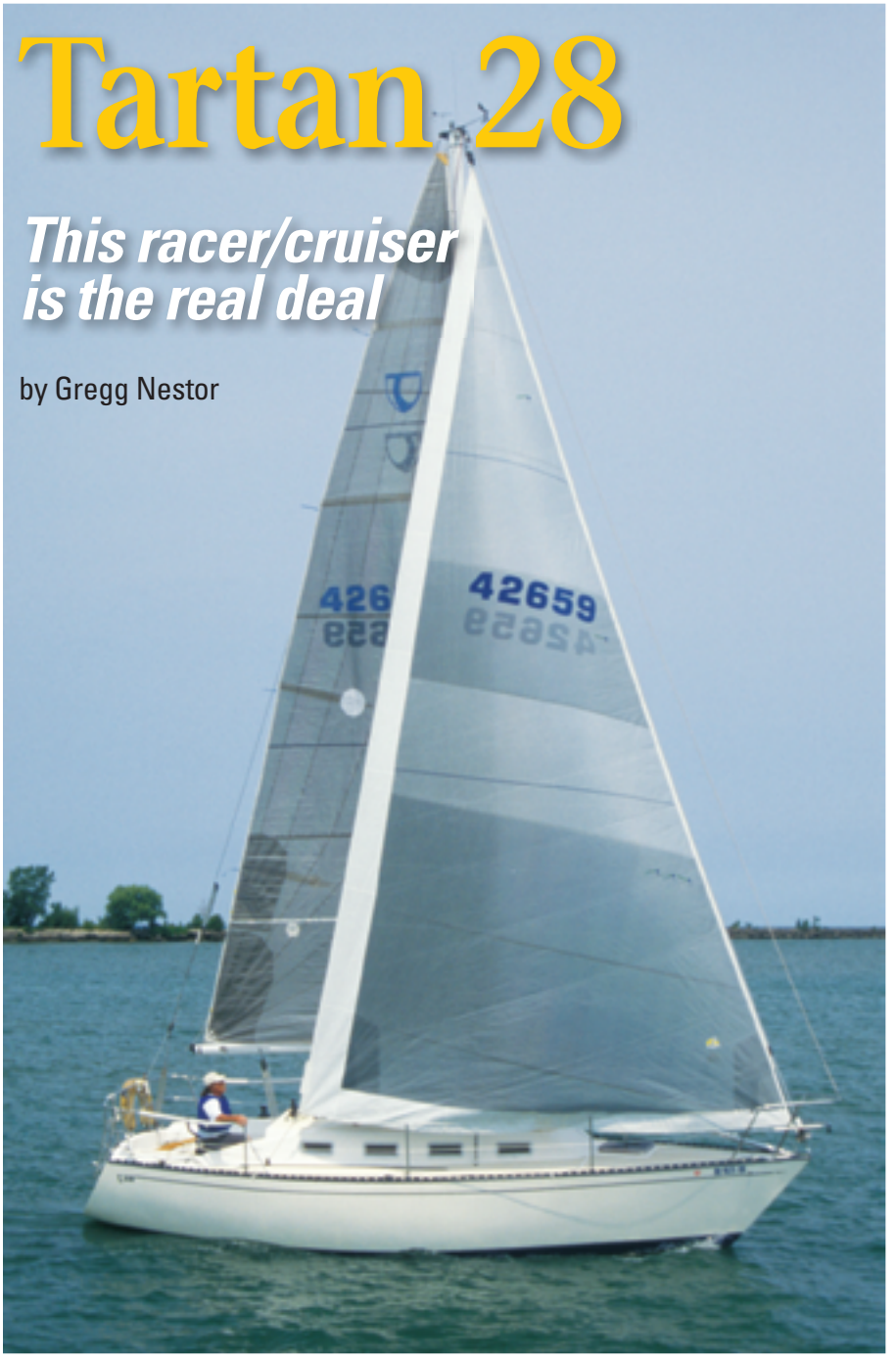
TOM SLITER

The only thing missing from GOBR #10 was a bit of good old wind.

Tartan 28

This racer/cruiser is the real deal

by Gregg Nestor



Tartans of the 1980s were popular among the racing crowd. The black sails on *Finnair*, Tartan 28 hull number 104, suggest that her owner, John Ollila of Mentor, Ohio, likes to keep her competitive today.

In 1971, the Grand River, Ohio, premises of the Douglas & McLeod Plastic Corporation, builder of the legendary Tartan 27, burned to the ground. The following year, Ray McLeod, Sr., died of cancer. It was at this juncture that Ray's partner, Charlie Britton, purchased the assets or, should I say, ashes of the former Douglas & McLeod Plastic Corporation. He changed the company's name to Tartan Marine and concentrated on producing a line of auxiliary sailboats.

While Charlie continued to build the highly successful Tartan 27 and Tartan 34C, he also expanded the line to include boats ranging from 26 to 48 feet. During the decade of the 1970s, the company built 10 different models, all exhibiting the classic good looks typical of Sparkman & Stephens designs.

After a decade at the helm, Charlie sold Tartan Marine to the partnership of James Briggs and John Richards. It was after this change in ownership that the Tartan 28 was introduced.

In the years that followed, the company changed hands several more times. In 1996, its production facility was relocated across the river to Fairport Harbor, Ohio, and in 1997, Tartan acquired the assets of C&C Yachts. Today, Tartan Yachts builds about 100 boats per year, all of which are designed by Tim Jackett, president and chief designer.

Design

The popularity of the International Offshore Rule (IOR) was waning when the Sparkman & Stephens-designed Tartan 28 was introduced in 1984. This is of some interest, since the famed naval architect Olin Stephens was instrumental in developing the IOR, which had a dramatic influence on yacht design from about 1968 to the late 1980s.

The influence of the IOR, which designers exploited by giving hulls pinched ends and tumblehome in the topsides, is clearly evident in the Tartan 28's sharp entry and full midsections. However, the boat's after sections are wider and flatter than the earlier IOR archetype that would normally have a very narrow stern.

The Tartan 28 is a racer/cruiser and was the direct replacement for the aging Tartan 27. It was in production for six years, and 136 were built. In 1990, the boat was redesigned and designated the Tartan Piper 28. The major difference between the two is that the Piper version is lighter by about 1,000 pounds. Most of the weight reduction came from switching from a fin keel to a beavertail design (a fin with a large ballast bulb that gave it a shape similar to a beaver's tail). This decreased the boat's draft to 3 feet 11 inches. The rig also was shortened, reducing the sail area to about 385 square feet, and the boat's rudder was slightly enlarged. The "Piperized" version of the Tartan 28 continued in production until 1994.

Construction

According to Art Averell, Tartan's aftermarket sales manager, the Tartan 28 was built "like a tank." The majority of the hull above and below the waterline is solid fiberglass and is hand laid-up with mat and unidirectional rovings. Those areas of the hull above the waterline from the forward bulkhead to the stem are cored with a combination of end-grain balsa and Coremat. Coremat is the trade name for a microsphere-filled, random-laid, chopped-fiber polyester fabric that, because of its good conformability, is used as a bulking and print-control mat and is ideal for adding stiffness to laminates. The boat's gelcoat is NPG/ISO polyester resin. It's backed by vinylester resin for blister and chemical resistance.

The deck is a hand-laid, balsa-cored laminate with a non-skid pattern molded into all horizontal surfaces. In high-stress areas, such as beneath mooring cleats and winches, the balsa core is replaced with reinforcements of solid fiberglass.

The Tartan 28's deck lands on an inward-facing flange on the hull. This lap joint is bedded with butyl rubber. Beneath it is a ¼-inch aluminum backing plate through which the joint, along with the slotted aluminum toerail, is bolted every 4 inches with ¼-inch stainless-steel bolts.

In the hull, a molded liner or pan forms an integrated floor-timber structure that provides strength and rigidity. There's also an overhead liner. In the saloon, this liner has removable panels with teak battens hiding the seams.

The standard keel for the Tartan 28 is a fin that gives the boat a draft of 4-foot-11-inches. This external ballast, comprised of 3,200 pounds of cast lead alloyed with antimony, is fastened to the hull with stainless-steel keel bolts, faired with epoxy and microballoons,

and finished with an epoxy coating. Other keels include an optional Scheel keel and the Piper's beavertail, both drawing 3 feet 11 inches. Completing the underwater picture is a balanced spade rudder. The Tartan 28's standard underwater configuration gives the boat a displacement/LWL ratio of 265 and a ballast/displacement ratio of 43 percent.

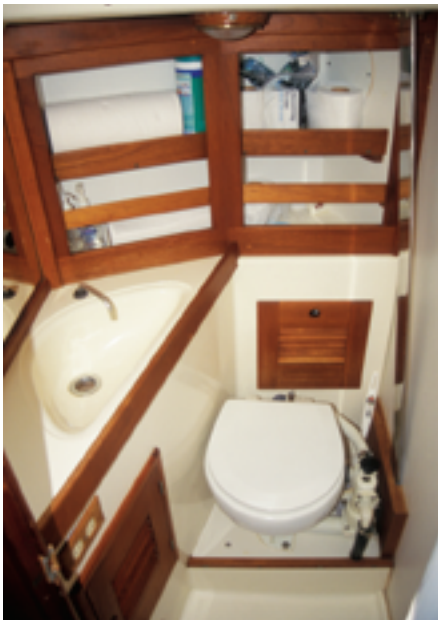
All deck hardware is of good quality and is through-bolted with appropriate backing plates. All through-hulls below the waterline are fitted with stainless-steel-and-bronze ball valves.

Deck features

Slotted aluminum toerails run the full length of the boat and terminate at hefty mooring cleats forward and aft (midships cleats were an option). The boat's perimeter is secured by double-rail bow and stern pulpits and through-bolted stanchions supporting ⅜-inch vinyl-coated lifelines.

Wide sidedecks, shrouds attached to inboard chainplates, and the absence of a foredeck anchor locker allow reasonably unobstructed movement on deck. The coachroof features eight 5 x 15-inch opening portlights with screens, a molded-in sea hood, and two pairs of teak grabrails. Just forward of it is a 19-inch-square aluminum-framed hatch.

The Tartan 28's modified T-shaped cockpit is 7 feet long. Standard steering gear is a varnished ash and



The cockpit, top left, is straightforward and clean, with seats long enough to lie down on, tiller steering standard, and a mechanical backstay adjuster. Halyards are led aft through turning blocks and a sea hood protects the forward side of the companionway hatch, top right. In the forward cabin, an insert cushion completes the V-berth, at right. Like the rest of the interior, the head is nicely trimmed in oiled teak, far right.

This view from the companionway shows the bulkhead-mounted table set up for use, at left. The U-shaped galley is quite complete for a 28-footer with stovetop, sink, icebox, and more-than-expected stowage, at right. High-quality joinerwork is evident throughout the boat.

mahogany laminated tiller. A pedestal with a 28-inch wheel was optional. The cockpit coamings are reasonably high and, along with the seat bottoms, are properly sloped and comfortable. Beneath the port seat is a cavernous sail locker and farther aft is the panel and controls for the engine. Water drains through a pair of 2-inch cockpit scuppers. A manual bilge pump is fitted within easy reach of the helm.

Belowdecks

Even though the cabin layout of the Tartan 28 is predictable, its all-teak interior and cabinet joinery is impressive and exudes a salty charm.

With its insert in place, the V-berth forms a reasonably comfortable double. Beneath it is stowage and a 14-gallon holding tank. Following aft is a hanging locker with a bureau to port and the head compartment to starboard. A louvered door encloses the locker; a solid wooden door creates privacy in the head. The head is fitted with a marine toilet, a counter-molded sink with a freshwater foot pump, and a fair amount of stowage. Hot and cold pressurized water and a shower were options.

In the saloon, opposing settees face a bulkhead-mounted drop-leaf table. The short port settee, while designed mainly for seating, can be employed as a child's single berth. Sliding out the lower portion of the starboard settee converts it to a double. Its padded seatback can be repositioned to function as a padded leeboard. Over the starboard settee there's a bookshelf, and a fold-down navigation station with additional storage is fitted above the port one. The 17-gallon aluminum fuel tank is housed beneath the port settee and the 30-gallon polyethylene water tank beneath the starboard settee.

The U-shaped galley is aft and to port. It includes a 4-cubic-foot icebox, a two-burner gimbaled alcohol stovetop, and a single deep stainless-steel sink with a foot pump for fresh water. When the cooktop's cutting board is in place, counter space improves from adequate to good. Stowage for provisions and galley utensils is convenient and plentiful. Mechanical refrigeration, hot and cold pressurized water, and a CNG stove with oven were optional.

Aft on the starboard side is a large quarter berth with stowage below. Removing the quarter berth's inboard panel gives access to the propeller shaft and packing gland.

The sole is teak and holly, and all the cabin woodwork is finished in hand-rubbed oil. This includes the two pairs of teak handrails that are mounted at shoulder/deck height. Headroom is a comfortable 6 feet 1 inch.

The rig

The Tartan 28 is a masthead sloop; the keel-stepped mast has a bridge clearance of 42 feet. All standing rigging is 1 x 19 stainless-steel wire and consists of a headstay, a split backstay with four-part tackle, a pair of cap shrouds, and a single pair of lowers. There's also a baby stay, which is an effective aid in bending the double-airfoil-spreader mast for racing or for getting the best performance while cruising. Sail area of 408 square feet gives a sporty 17.1 sail area/displacement ratio.

A removable panel inboard of the quarter berth on the starboard side gives access to the propeller shaft and packing gland, right. The companionway and engine box can be removed to reveal the engine and its service points, far right.

The port-side saloon settee is short, to allow room for the galley. Above the settee, the outboard locker door swings down to become a chart table. The fiddled shelf holds the navigator's tools and John Ollila has installed a VHF radio in the locker. The switch panel is forward of this nav center.

All halyards (main, genoa, and spinnaker) are internal, meaning they run through sheaves inside the mast. Sail controls are led aft through line stoppers positioned forward of two Barient #18 winches mounted aft on the cabintop. This convenient arrangement allows the crew to stay in the cockpit most of the time.

Headsail sheets can be led aft through tracks with cars mounted on the sidedecks or through toerail-mounted snatch blocks. Once the sheets have been properly directed aft, Barient #22 self-tailing winches are used to trim them. These winches are positioned outboard of the coamings within easy reach of the helm. The ratcheting 5:1 mainsheet terminates at a Lewmar traveler situated on a narrow ledge just aft of the companionway.

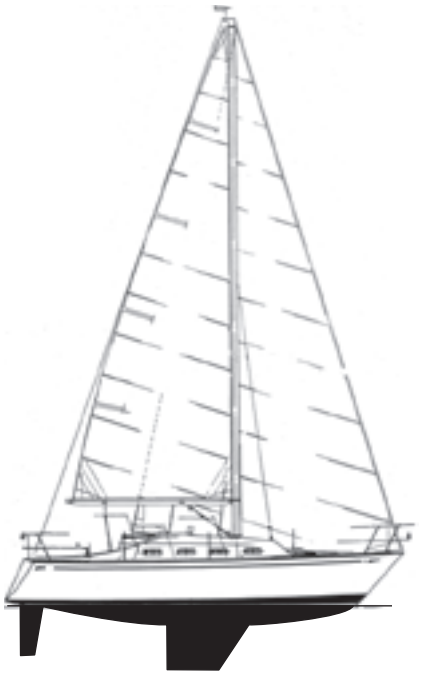
All running rigging is double-braided polyester, stainless-steel, or pre-stretched polyester where appropriate. Hardware is brand-name and adequately sized.

Under way

The Tartan 28 is a well-behaved racer/cruiser. It performs well to weather and its upwind ability increases as the wind picks up. Its refined underwater shape makes the boat easy to steer and very maneuverable. The hull's wide and flat aft sections add to the boat's already formidable stability.

At 174 seconds per mile, the Tartan 28's PHRF rating is the same as several fleets of J/27s and the largest fleet of C&C 27s in the country.

Auxiliary propulsion is a freshwater-cooled 18-hp Yanmar 2GM diesel. It's coupled to a ¾-inch stainless-steel shaft via a 2:1 reduction gear and turns a 12-inch, 2-bladed propeller. This package easily powers the boat. Access to the engine for routine maintenance and inspection is very good.



Tartan 28

Designer: Sparkman & Stephens
LOA: 28 feet 3 inches
LWL: 23 feet 3 inches
Beam: 9 feet 10 inches
Draft: 4 feet 11 inches
Displacement: 7,450 pounds
Ballast: 3,200 pounds
Sail area: 408 square feet
Disp./LWL ratio: 265
Sail area/disp. ratio: 17.1

Things to check out

Since the deck and the forward portions of the Tartan 28's hull are cored with balsa, it's important to have a professional surveyor determine if water has soaked the core or if the fiberglass skins have delaminated from the core. Potential areas of concern are around deck fittings, such as stanchions and cleats.

Examine the base of the mast below the cabin sole where it is supported by the keel and look for signs of corrosion.

Many Tartan 28s have been raced pretty hard. Look over both the standing and running rigging carefully. Pay particular attention to the turnbuckles and chainplates.

Because the engine control panel is mounted low in the cockpit, it's subject to physical and water damage. Check it out.

Conclusion

The Sparkman & Stephens pedigree is first-class, combining a fast and agile underbody with classic Tartan interior and exterior. The deck plan is efficient and amenities rival those of much larger yachts. The boat is a racer/cruiser, with the emphasis on "racer." Be prepared to pay $30,000 to $38,000 for a reasonably well equipped and maintained Tartan 28.

Gregg Nestor, a contributing editor with Good Old Boat, *has had a lifelong interest in all things aquatic. Having recently sold both their Pearson 28-2 and O'Day 222, Gregg and his wife, Joyce, find themselves boatless. They are currently searching for that perfect good old boat. Gregg's third book,* The Trailer Sailer Owner's Manual: Buy-Outfit-Trail-Maintain, *was released in 2009.*

Stern talk

A boat's back end speaks volumes about its character

by Robert Perry

In the previous issue (November 2009), I discussed how the shape of a sailboat's bow affects performance and handling. Now we'll turn our attention to the stern with a focus on the typical shapes found on the sterns of boats built in the last 30 years.

Stern overhang is very different from bow overhang. While we do our best to reduce the resistance at the bow by making it fine, at the stern we have the freedom to make the boat narrow or broad. We can put a point on it but, by filling it out, we can get it to "push" down on the stern wave, which brings some benefits. Hopefully, you will not have to push the stern *through* the water in any kind of weather.

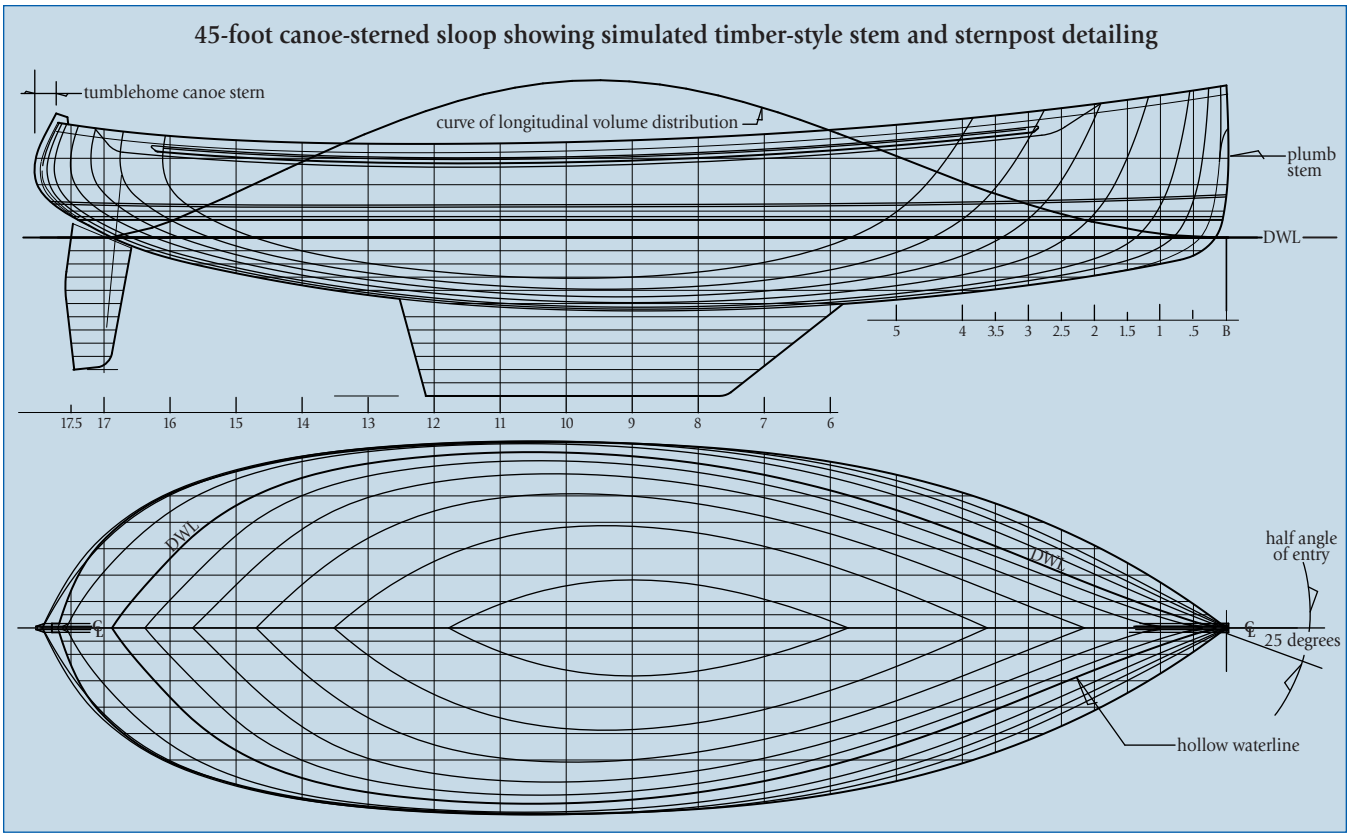
As the stern gets wider, the sectional shape can be configured so the hull volume is pushed outboard where it will quickly immerse once the boat heels over. This can significantly increase the prismatic coefficient (Cp) of the boat. As the Cp goes up, the potential hull speed goes up but, at the same time, the amount of energy required to push the boat to hull speed also goes up.

Generally speaking, it's not good to have a stern shape that drags the corner of the transom around at any heel angle. However, the huge rigs we see on today's high-performance boats clearly have the horsepower to overcome that small amount of drag.

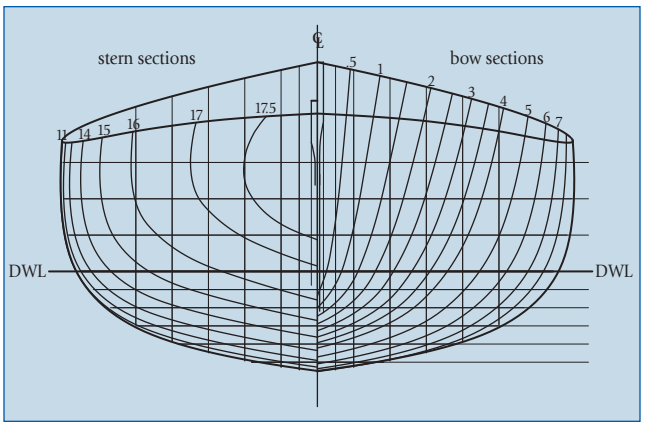
If you have a stern shape that does not immerse the transom when heeled, you have a nice clean shape for good light-to-medium-air performance where you will be operating at less than hull speed. But now you face the same problem we looked at in the last issue's article on the bow. In order for stern overhang to add to your sailing length, you have to immerse it so it can do some "work" by altering the longitudinal distribution of the boat's volume.

Look at the typical double-ender, a shape that is near and dear to my heart. When the stern ends in a point, you cannot drag the transom — there is no "transom." The stern always leaves a relatively clean wake, but because there is no volume aft to immerse, your typical double-ender, say a Westsail 32, will forever sail with its sailing length essentially being its static waterline length.

I addressed this when I designed the Valiant 40. I tried to pull volume aft and outboard so the buttocks were flattened and there was significant volume to immerse as



Robert Perry has used the canoe stern on several of his designs. In this example, he has filled out the sections in the stern a little by flattening the buttocks and "fattening" the waterlines. This allows the hull to gain immersed volume aft and outboard as it heels, giving the boat more "power" to carry sail.



the boat heeled. You can see another designer's efforts to do something similar in Bill Crealock's Pacific Seacraft series. This is the essential difference between the canoe stern and the double-ender of the Westsail type. All canoe-stern boats are double-enders, but not all double-enders have canoe sterns. I'm not going to get into the seakeeping characteristics of double-enders. I've never figured it out other than what I have read and what the old salts told me.

The case for volume aft

Volume aft is volume aft. If you want volume aft, the best way to get it is with a transom. If you bring your boat to a point on deck at the stern, you are going to give up volume aft. Today's designs, in which designers try to squeeze more and more accommodations into a given length overall (LOA), are all about volume aft. I think those broad sterns are more about accommodation volume than performance.

Volume aft also adds stability to the boat. When you heel and immerse volume aft, you add to the boat's "righting arm." The farther outboard you push that volume, the greater the additional righting arm. Sometimes we refer to this as "power" in the stern. For some boats with modest draft and low ballast-to-displacement ratios, this additional righting arm can be an important addition to the boat's "form stability," or stability derived from the hull shape.

If you have a carbon 40-footer that draws 9 feet with a big T-fin-and-bulb combination, you probably don't need any help with form stability. In those cases, the wide and flat sterns we see on today's high-performance boats are intended to add sailing length. In fact the chines (corners) you see aft on these sterns appear to be an effort to get maximum volume aft and outboard where it will do work. Then the hull is cut off abruptly with a sharp chine. This type of shape adds wetted surface aft, but these modern racers have big enough rigs to get to hull speed very quickly and, once you get above about half your hull speed, wetted surface is not so important.

If you want to see great examples of designers making stern overhang work, take a look at film footage of the last few years of America's Cup designs sailing. It almost looks as if the boats were launched with extended sterns and sailed heeled over while someone hung over the stern to leeward with a piece of chalk and drew a line exactly where the water left the hull. There is not an inch of unused additional overhang and the water leaves the hull cleanly. We don't want a bone in the tail any more than we want a bone in the teeth. Those old boats from the 1920s that sailed along with 8 feet of stern overhang hanging in the air were beautiful, but that stern overhang didn't help boat speed.

In my cruising designs, I like to keep some deadrise aft at the stern. A flat stern section can be fast when the boat is heeled, but at the dock or on the hook in some chops or wakes, a flat stern can provide a surface that waves will slap against. This can happen with alarming force and is not pleasant. Both Bill Lee and Carl Schumacher used some deadrise aft and their designs were famous for fast off-the-wind speeds. Bill Lapworth's Cal 40, famous for its ability to surf, has 16 degrees of deadrise at the buttwater.

The effects of heel

The challenge in designing sailing yachts is to combine shapes that will work well when the boat is upright, that is, running downwind or sailing in very light air, and when the boat is heeled over. As some boats heel, the water will see a wide change in hull shape and distribution of volume. The wider the stern, the more the heeled hull shape changes from the upright shape. Combined with broad beam, say length-to-beam ratios (L/Bs) less than 3.5, this can result in a boat that shows a change in helm balance as the heel angle changes.

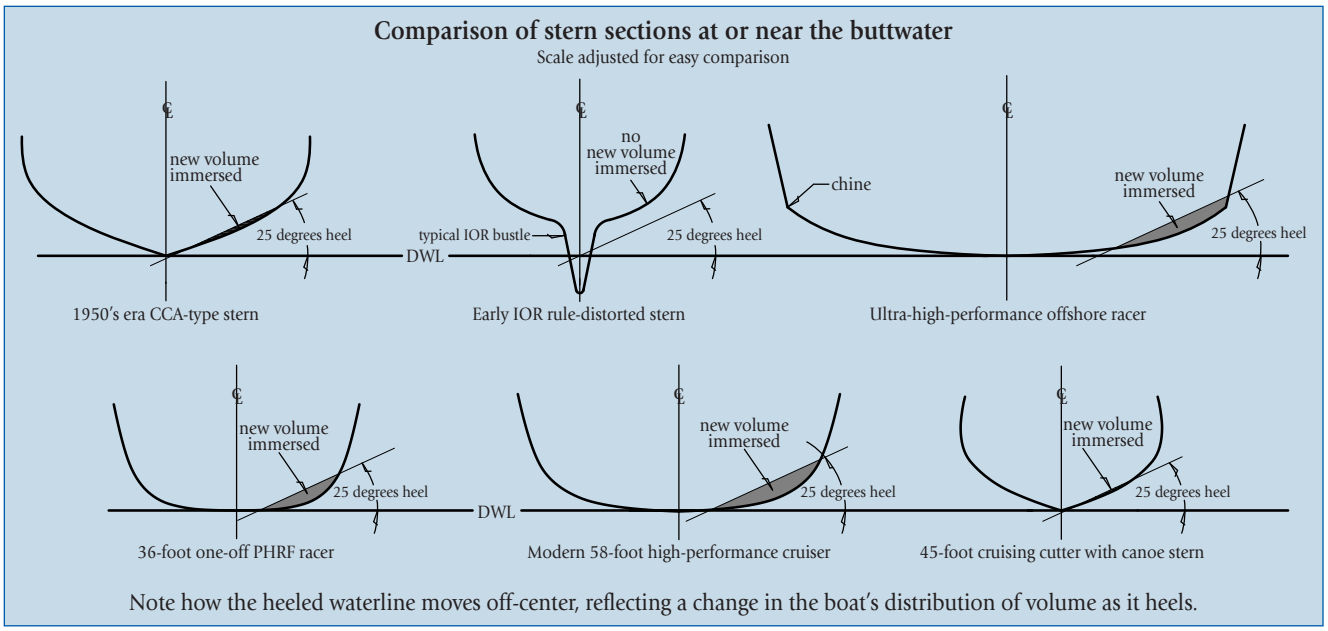
Wide sterns also tend to lift a centerline-hung rudder out of the water so that in extreme or near-extreme conditions the rudder can suck air down its low-pressure side and stall. Sometimes we call this "ventilating." When it occurs, the rudder loses its grip on the water and the boat usually will round up quickly. Modern wide-stern racers combat this by having two rudders. With a rudder well outboard on each side of the boat, even at heel angles of 25 degrees or more, one rudder will be well immersed and still taking advantage of the "end plate" effect of the hull to help keep the flow attached to the rudder blade. Today we are seeing more and more high-performance boats with twin rudders.

Some double-enders will retain an almost static longitudinal distribution of volume through a wide range of heel angles. I refer to these boats as having "balanced" waterlines. The helm pressure at 5 degrees heel will be almost the same as at 25 degrees.

A trade-off of traits

For cruisers, a broad stern can mean the advantage of having a nice big swim platform that makes getting in and out of the dinghy much easier than climbing over the rail. It can also mean a lot more room in the cockpit and more volume in the lazarette. Look at how many of today's mass-produced boats have double quarter berths port and starboard. You cannot do this without a very broad stern.

Of course, there is a subjective element at both ends of the boat. While a near-plumb stem may be the best way to



Note how the heeled waterline moves off-center, reflecting a change in the boat's distribution of volume as it heels.

exploit a restricted LOA, and while production builders generally organize their models around specific market-target LOAs, the client may aesthetically prefer some overhang forward. The nice old spoon-bow profile of the Carl Alberg and Phil Rhodes designs may not be fast but it can be very attractive.

While bow profiles must reflect the sectional shapes forward and a logical termination of those shapes, stern profiles are pretty much a function of transom treatment and rake and, in most cases, that's driven by aesthetics or pragmatism.

> **"What's important is to appreciate the boat you have and understand how its hull shape works."**

The angle you use to cut the transom off may be strictly aesthetic or it may be a way of maximizing sailing length while minimizing weight. Maybe it's pragmatic, as the designer tries to squeeze in a swim platform aft or get more length to the cockpit. The client may insist on a double-ender. I happen to think a nice canoe stern is the prettiest way to end the hull. While the canoe stern may not be the epitome of the shape of speed, it certainly looks right to my eye and, over the years, for whatever reason you choose to believe, double-enders have earned a reputation as excellent sea boats.

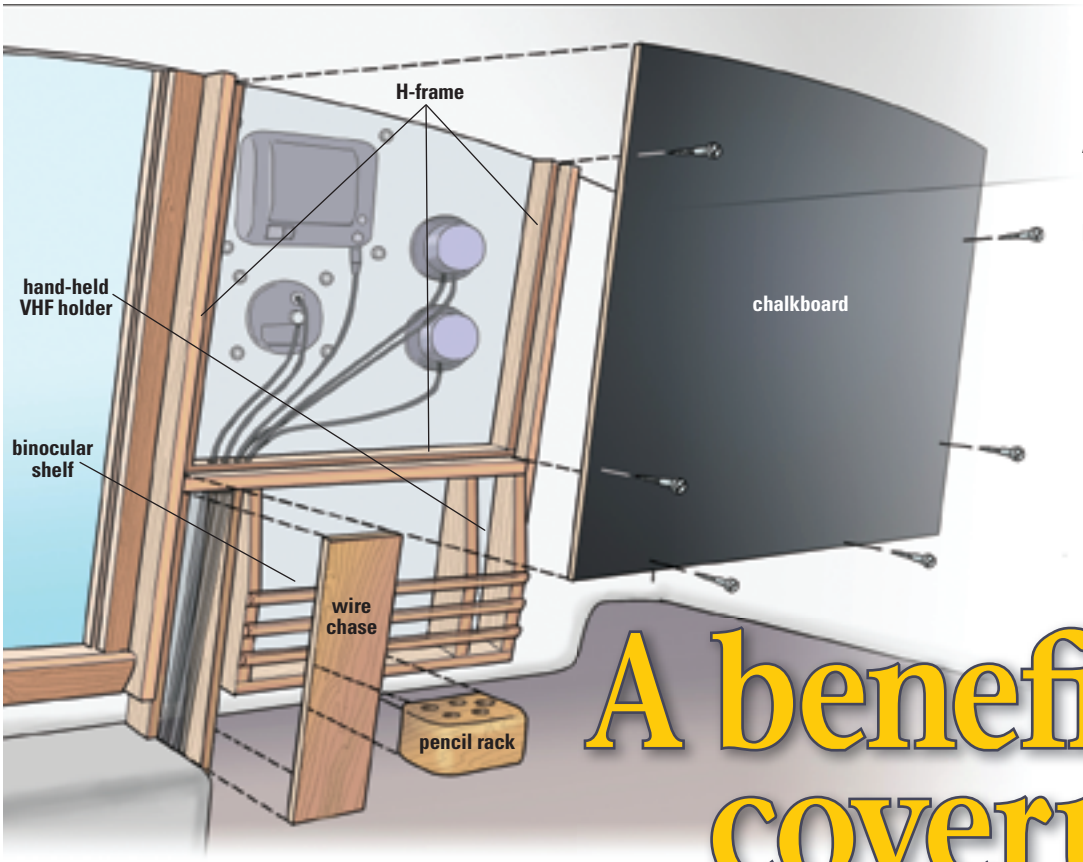
The long stern overhangs of the designs from the years prior to the 1960s will always look great to my eye. The Phil Rhodes 1955 design, *Carina*, remains for me one of the most beautiful boats ever designed. With an overall length of 53 feet 6 inches, *Carina* has 36 feet 3 inches on the waterline, for a total of 17 feet 3 inches of overhang. At the time, this DWL was considered "generous."

Sterns and design goals

Different design targets can drive different designs and determine their proportions. Rating or handicapping rules can have a big influence on a cruising fleet that wants to give the "impression" of high performance. It's a bit like putting a spoiler on the trunk lid of your Toyota. The designer needs to know what the design is intended for and how it will likely be sailed. Some people scream when they heel more than 15 degrees, so what good is stern overhang going to do them? Some sailors will never or seldom push their boat beyond hull speed, so why have a big, powerful stern? Maybe a double-ender with its more predictable helm balance would better serve that sailor. The family that sails on San Francisco Bay should want a boat with a high Cp for the heavy air and improved hull speed. The sailor on Puget Sound, with its light and fluky air, would be better off with a low-Cp boat and enjoy the gains in light air. All these factors should be taken into consideration.

It's not as if there is a "right" or a "wrong" in any of the various treatments of bows or sterns. I love the diversity of shapes I see when I look through old magazines. One of my all-time favorite boats has a totally bizarre hull shape but I still think the boat is beautiful. I even miss the early IOR days when, as designers worked out how to best take advantage of the demanding new rule, some of the boats were outright pigs. I believe what's important is to appreciate the boat you have and understand how its hull shape works. This way you will sail more effectively in all conditions and learn how to make your boat go in sympathy with its genetic proclivities.

Robert Perry is the principal of Robert H. Perry Yacht Designers in Seattle, Washington. His best-known production designs include the Valiant 40, Tayana 37, and Passport 40. He has written numerous articles for various sailing magazines.



FRITZ SEEGERS

A little ingenuity, a few scraps of lumber, and some quality time with tools turned an ugly bulkhead into a tidy repository for the navigator's notes and necessities.

A beneficial coverup

A hide-all that doubles as a handy holder

by Tony Allport

The previous owner of our 1973 Albin Ballad had installed an array of brand-new electronic instruments ranging from a fishfinder to a chart plotter and multi-function wind and depth instruments. They certainly add to the ease and safety of sailing and we enjoy them. The tradeoff was that they were mounted on the cockpit bulkhead, and the ambience of the cabin was marred by the unsightly holes cut in the bulkhead and a rat's nest of wires draped over the chart table. After considerable procrastination and reflection, I crafted a multi-purpose solution.

The result is a shallow frame that supports a panel screening the backs of the instruments, a rack for our binoculars and hand-held VHF radio, a hidden wire chase to conceal the rat's nest, and a handy place to keep writing implements and dividers. The screening panel began as a nicely finished piece of wood to match the rest of the cabin, but it evolved into a chalkboard on which we post useful bits of information about tides and currents or reminders of things to do.

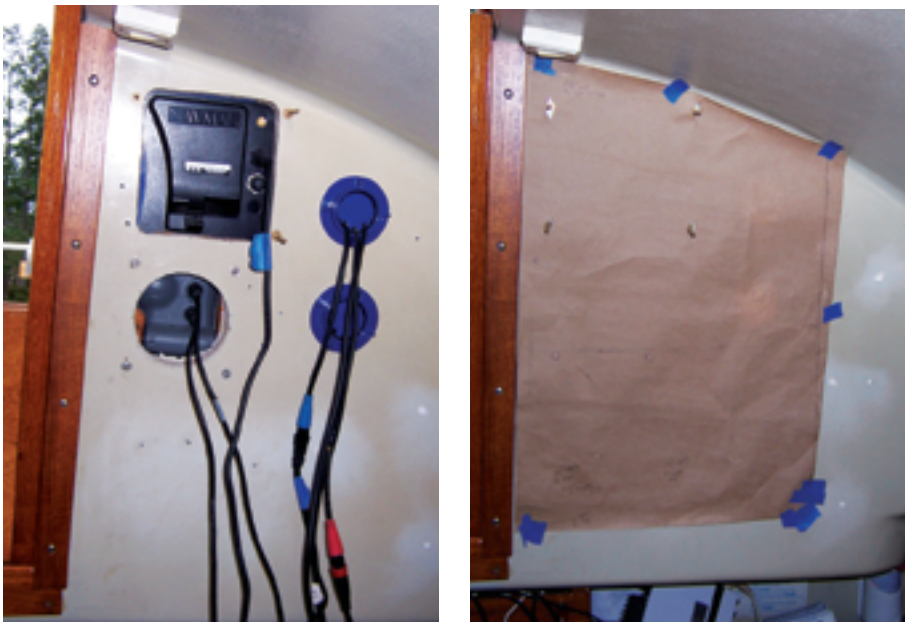
Naturally, what I built for my boat is not a one-size-fits-all solution. The best arrangement for your boat will depend on the size and shape of the space in question and the number and configuration of instruments installed. But a description of the process I used will go a long way toward facilitating a similar project for your boat.

Reviewing the situation

My first step was to figure out what was possible in the existing space. I disconnected the wires from the backs of the instruments and removed all the instruments that protruded from the inside face of the bulkhead. I then taped a piece of brown kraft paper to the bulkhead, aligning one edge with the side of the companionway and creasing it into the curve where the bulkhead meets the cabintop. After I cut on this crease, the paper fit the critical parameters of the space and extended far enough down and outboard to allow for planning. Using my fingertips, I located the cutouts in the bulkhead and marked them on the paper. This defined the area that had to be screened from view.

I then stepped back and visualized the outboard edge of the assembly.

Lovely boat that she is, *Pleiades* has no right angles or vertical lines, so I chose to place the outside edge at an angle between that of the flare of the companionway and the camber of the cabin side. I drew this line on the kraft paper, allowing for the thickness of the construction material and the proximity of any fasteners or locking rings used to install the instruments. I decided to roughly align the bottom of the assembly with the sill of the companionway, making it horizontal. I now had a portable template the overall size and shape of what I intended to build that I could use as a "floor plan" on which to subdivide the space into useful sections.



This view of the backs of electronic navigation devices detracted from the cabin's ambiance. Tony's plan for concealing them began with a piece of kraft paper on which he marked critical dimensions and the locations of the instruments and their wires.

Laying out the spaces

I drew on the template a horizontal crosspiece at the lower limits of the instrument cluster, then considered the best way to route the wires that connect to them. This gave me an H-shaped plan with the wires running along the inside of the inboard lower leg. The screening function of the back panel was now defined and I could begin to work additional functions into the remaining space.

I chose to make a permanent home for the things I reach for frequently from the cockpit and that generally clutter up the chart table: my binoculars and hand-held VHF, along with various pens, pencils, and dividers. Before heading back to the shop, I noted the depth I'd need behind the panel to accommodate plugs sticking out from the backs of instruments as well as the sizes of items to be housed in the assembly.

I began construction with an H-shaped frame consisting of two vertical side pieces and a central cross piece. I used ½-inch-thick mahogany 1½ inches wide. I left the side pieces a little too long at the top — about 2 inches worked for me — to allow for scribing them into the radiused corner where the bulkhead meets the cabintop. The angles between the horizontal crosspiece and the sides were slightly off square in this project. I measured them off the template with a protractor and cut them with a chop saw. They only varied from square by 1 or 2 degrees. If you don't want to deal with this subtlety, you can eliminate it in your design by keeping angles square and not following the camber of the cabin side or flare of the companionway.

Assembled on the template

I glued the H-frame with epoxy, nailed it together with a couple of brads, and set it on the template while the glue cured to ensure it was an exact match. I used a pneumatic brad nailer, but you could also hand-nail or screw the parts together if you don't have access to nail guns.

The frame was fragile at this point, so I glued in and nailed secondary recessed blocking to support the upper panel. This consisted of ½-inch mahogany, cut to 1$^{3}/_{16}$ inches wide, glued to the insides of the upper "U" of the "H." I left it short at the top to avoid having to scribe it. This secondary blocking was not only to support the upper panel but would also be drilled and countersunk to discreetly fasten the framework to the bulkhead. Once the glue had set and the frame was strong, I took it to the boat to check its fit and to scribe the tops of the vertical pieces to fit against the cabintop.

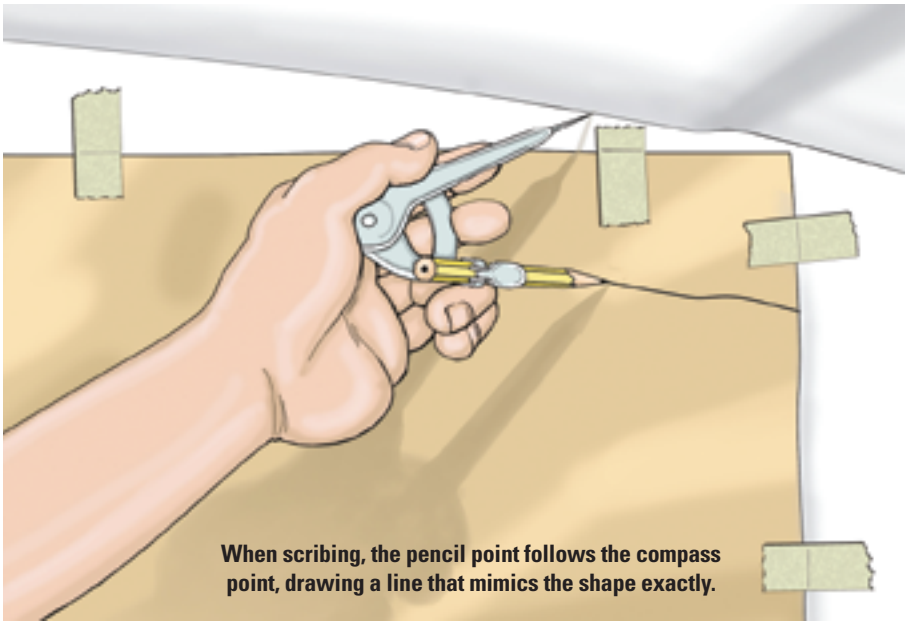
The art of scribing

Scribing is a procedure used before cutting a piece of wood so it will fit tightly against another irregular surface. It is used to ensure a close fit between planks on the hull of a wooden boat and when installing built-in cabinets against a wall.

While you can do it in a variety of ways, the method I used employs a drawing compass. Set the compass to match the width of the largest gap observed when you hold the two edges together for a trial fit. Then, holding the point of the compass against the cabintop and the pencil point against the wood, draw a line on the wood. As long as you hold the pencil point directly opposite the compass point, it will draw a line that's consistently parallel with every curve or wobble of the mating surface.

Scribe the tops of both side pieces with the same compass setting before you cut. That way both side pieces will be in the proper relationship with each other. Cut to this line and trim as necessary with a sharp block plane, file, or

> "This project calls for some creativity and a little bit of skill and results in a dramatic improvement."



FRITZ SEEGERS

When scribing, the pencil point follows the compass point, drawing a line that mimics the shape exactly.

sandpaper for a near-perfect fit. Only the outside faces of the sides will be visible; don't worry about the inside faces that will be covered by the upper panel.

Attaching the frame

Pleiades' bulkhead is of typical construction: a composite of fiberglass on the inside and outside with foam or balsa in between. With the frame fitted and held in place, I drilled through the secondary blocking and through the inside layer of fiberglass using a 9/64-inch drill bit, then used an 8 x 32 tap to thread the hole in the fiberglass. I then enlarged the holes through the secondary blocking to 11/64 inch, countersunk them, and attached the frame to the bulkhead with 1½-inch 8 x 32 flathead machine screws (stainless steel or bronze work equally well). I used a total of three screws.

For the upper flat panel, I used ¼-inch plywood painted with Valspar chalkboard paint purchased at Lowe's, but it can be anything you like. Varnished wood, Formica, and white vinyl are possibilities. I recommend you start with a sacrificial panel or piece of cardboard to get the size and shape dialed in by scribing. I attached the panel with #6 x ¾-inch oval-head bronze woodscrews.

For the wire chase, I used a ¾-inch x 3-inch piece of mahogany long enough to extend below the bottom of the bridge deck. I hollowed out the back by making multiple passes on a table saw with a shallow blade setting. Again, I had to cut a slight 2-degree angle on the end where it touches the crosspiece of the "H." I left the chase long and marked it for length after installing the assembly.

The stowage bonus

The rack for the binoculars and the VHF radio needed to be deeper than the rest of the frame: 2¾ inch as opposed to 1½ inch. I tapered back the vertical pieces of this sub-assembly at the top to match the depth of the overall frame. I nailed the side pieces into the inside edge of the wire chase and the inside lower outboard leg. Once again, this called for slight angle adjustments at the top. I applied the bottom next, then installed the partition. Finally, I nailed three slats, evenly spaced, onto the face of the sub-assembly.

I drilled a small block with various sized holes to accommodate pens, pencils, and other instruments and glued this to the wire chase. I sanded and rounded off all the sharp corners and edges and finished the wood with Interlux #42 brown mahogany stain and three coats of Interlux #60 Goldspar satin varnish.

As the economy falters, I have found more time but have had less money for boat projects. This project fits that scenario perfectly. It calls for some creativity and a little bit of skill and results in a dramatic organizational and aesthetic improvement. I built it over one weekend with scrap wood. It's a good-looking upgrade that can be accomplished easily by anyone familiar with woodworking techniques. While building it, I developed a satisfying sense of the true value of things.

Tony Allport is a SAMS marine surveyor. He lives on Anderson Island in southern Puget Sound and sails extensively with his wife, Ann, and children Alden and Claire. Their boat, Pleiades, *is a Swedish classic 30-foot Albin Ballad sloop. Tony's known on the island as a skilled cabinetmaker and for his excellent pies. See <http://www.marinesurveyor.com/allport>.*

Minimal materials

A nice feature of this project is that it makes the most of a very small amount of material. I used 1 x 4 mahogany window casements salvaged from a home remodeling project. In fact, the quantities are so small I urge you to draw from your scrap pile, or someone else's, before you go to the lumber dealer or home-improvement center. Altogether, I used a single 8-foot board ½-inch thick by 3½ inches wide, a 16-inch length of nominal 1 x 4 (¾ inch x 3½ inches), a 14-inch square piece of ½-inch plywood, and a 2 x 3-inch block 1½ inches thick.

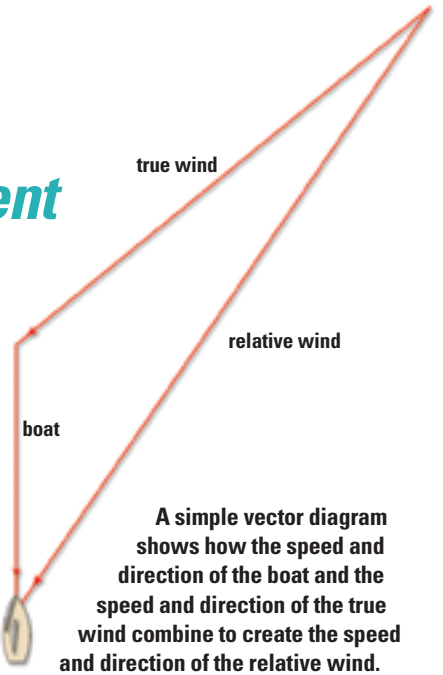
Ideally, if you have to buy wood, get a 10-foot 1 x 4 and cut 2 feet off the end. Then plane the remaining 8 feet to a ½-inch board with a thickness planer. If this is not possible, find someone who can plane it for you; otherwise, buy it pre-milled. Half-inch-thick stock is generally available in a variety of species from hardwood dealers, often sold as drawer-side material. It's always good to have a little extra wood, so be realistic without getting too obsessed with frugality.

In the interest of full disclosure, I used a full range of professional power tools to build this project, but the only one that was an absolute necessity was the table saw. This is not a big job and it's well within the abilities of someone with average woodworking skills.

Doing the twist

Trimming your sails to the wind gradient

by Jerry Powlas



A simple vector diagram shows how the speed and direction of the boat and the speed and direction of the true wind combine to create the speed and direction of the relative wind.

TED TOLLEFSON

You can have a very happy life and never understand sail twist. You can even be a reasonably good sail trimmer without understanding all aspects of sail twist. On the other hand, it *is* an interesting phenomenon, and a better understanding is certain to improve your sail-trimming abilities.

If the wind blew from the same direction and at the same speed all the way from the water to the top of your rig, you wouldn't need any sail twist. You may be familiar with the idea that upper winds — hundreds or even thousands of feet up — blow at higher velocities and often from different directions than the surface wind. This weather phenomenon, however, is not what causes the need for twist in your sails. For this discussion, we are interested only in the speed and direction of the wind from the water to the top of your mast. The characteristics of the wind in this zone are not shaped so much by gross weather patterns as they are by some simple laws of physics.

A clue to understanding this stuff is to remember that you can't characterize the wind unless you speak of both the speed and the direction of the wind at a given location. If you try to separate speed from direction in your thinking, you'll lose the concept.

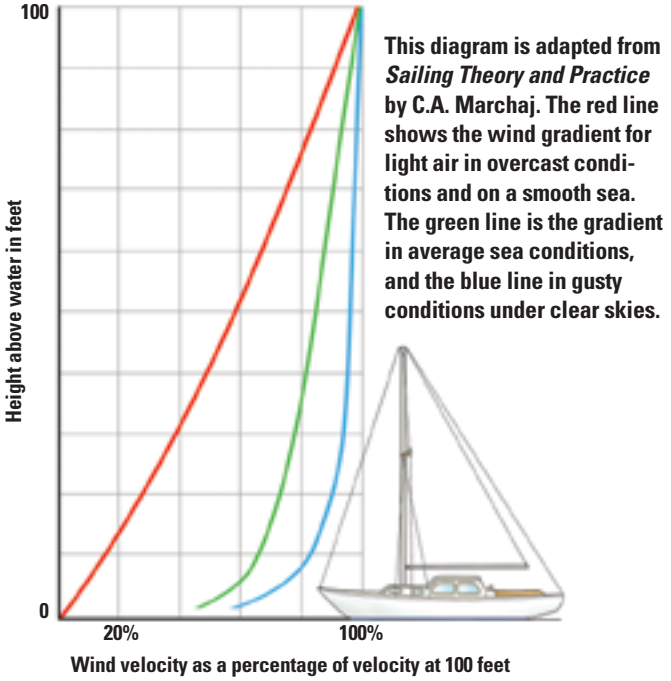
Another clue is that you are dealing with true wind, boat motion, and relative wind. The interaction between these three makes for some interesting events and leads to the need for sail twist.

Relative wind

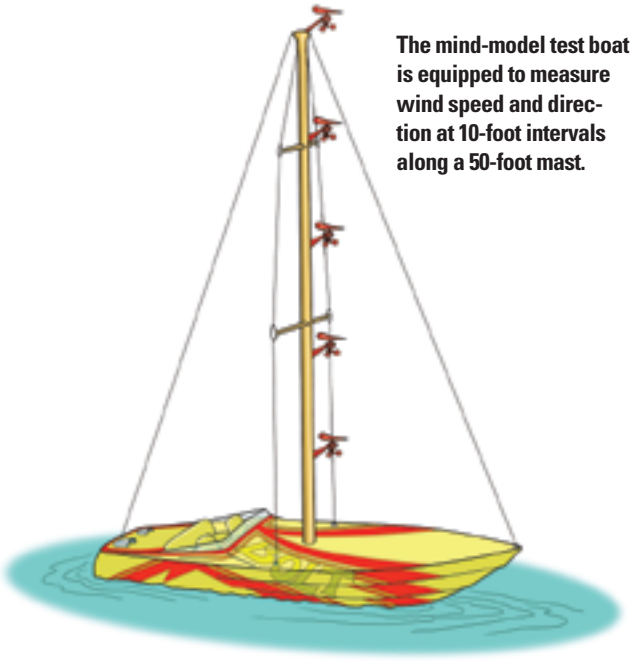
When you're sailing, the only wind you experience is the relative wind, often referred to as apparent wind. Someone sailing on a faster or slower boat, or just sailing in a different direction, will experience a different relative wind.

The true wind is driving both experiences, but the motion of the two boats modifies the true wind and makes for different experiences on each boat.

Compounding the problem is that, even within the true wind, there is a variation in speed from the water to the top of the mast and perhaps a small variation in direction. For this discussion, let's ignore the small variation in direction in the true wind from the water to the top of your mast. The significant



This diagram is adapted from *Sailing Theory and Practice* by C.A. Marchaj. The red line shows the wind gradient for light air in overcast conditions and on a smooth sea. The green line is the gradient in average sea conditions, and the blue line in gusty conditions under clear skies.



The mind-model test boat is equipped to measure wind speed and direction at 10-foot intervals along a 50-foot mast.

variable is the *speed* of the true wind as it varies with height. The speed is slower at the water and increases as the height above the water increases.

This variation in wind speed with height is called wind shear, or wind gradient, and it is caused by the drag of the water on the air flowing over it. At the water level, the drag is caused by . . . well, the surface of the water. The air just above the air at water level experiences drag from the air at the water level. The air above that experiences drag from the air below it, and tra-la-la as the amount of drag decreases all the way up your mast and beyond. So, the general condition is that the wind speed increases as the height increases above the water. This is not a weather thing; it's just the physics of fluid flow.

Let's do a little mind model with this. Let's build a nice tall mast, say 50 feet. While we're at it, let's put anemometers and wind arrows on the mast at 10-foot intervals, so we can see the wind speed and direction at different heights. We'll put the mast on a speedboat. Remember, we can do whatever we want, since this is a mind model.

First, with the boat stopped, we observe that the wind is blowing from the north, as shown by all the wind arrows. In addition, we observe that there is some wind shear: 5 knots at water level, 10 knots at 20 feet, and 20 knots at 50 feet. The wind is blowing from the same direction but at different speeds, with the speed increasing with height.

Now, if we motor the boat dead upwind to the north at 5 knots, the wind direction (now relative wind and, in fact, the *only* kind of wind we can observe unless we stop the boat) is still from the north. But now each observation point on the mast shows an increased wind speed with an additional 5 knots being displayed by each anemometer. If we motor south, dead downwind at 5 knots, the relative wind will be 5 knots less than the true wind we recorded with the boat stopped. The wind direction is still from the north, but there is less velocity. So far this makes perfect sense and is very intuitive.

> **"The faster the wind blows from a given direction, the less the motion of the boat affects its relative direction."**

Stretching the mind

The reason for mind models is to stretch the mind, so now we're going to motor south, at 20 knots. That's why I chose a powerboat.

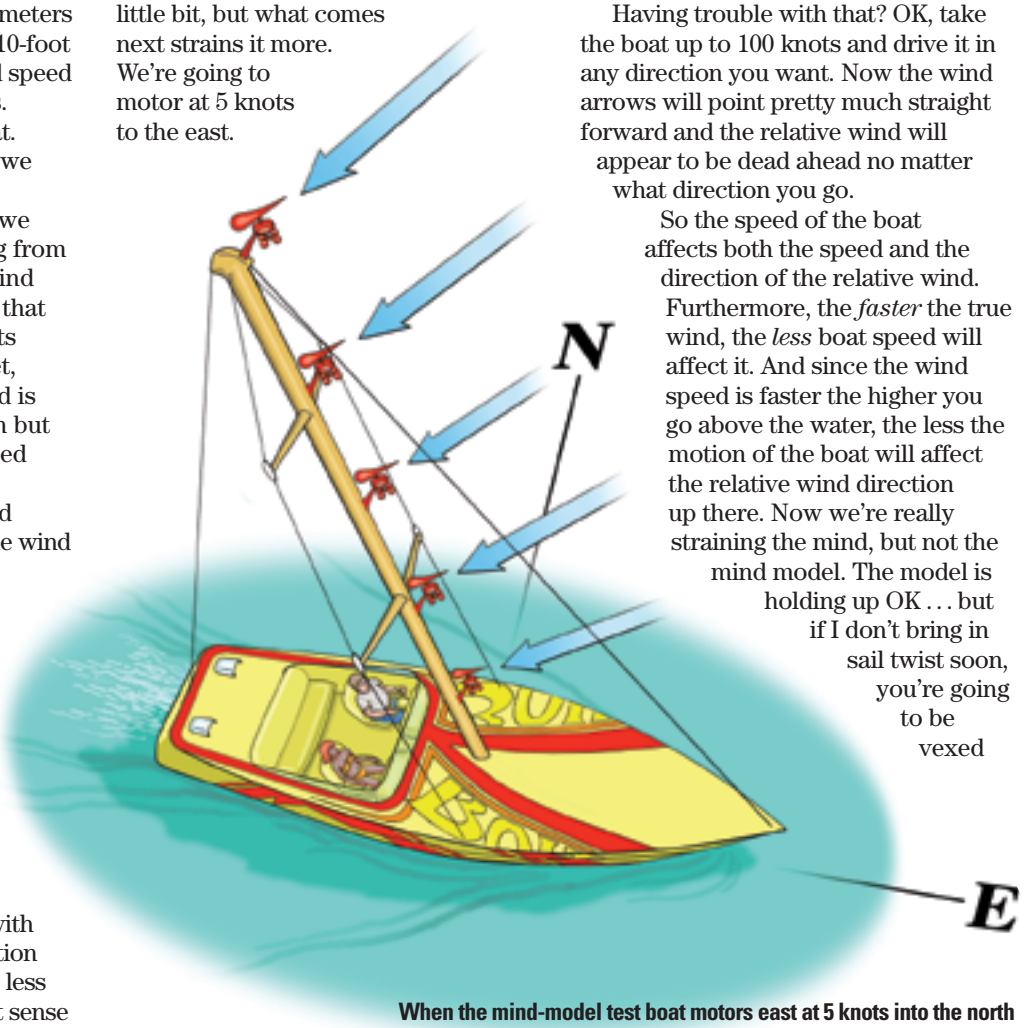
Now we observe that the relative wind is mainly from the south. In fact, it is 15 knots from the south at the water and falls off to no wind at all at the masthead. Things are getting a little trickier here, but you can see that the *speed* of the boat can affect the *direction* of the relative wind, even making the relative wind blow in the opposite direction from the true wind.

That strains the mind a little bit, but what comes next strains it more. We're going to motor at 5 knots to the east.

Now we see that the wind arrows on the mast no longer show the wind blowing from the same direction. This is not all that intuitive, but that's the way it works. The relative wind direction at the water is northeast while the wind arrows show the wind blowing from an increasingly northerly direction the higher up they are. What we are seeing is that variations in wind speed at various heights have a different effect on the relative wind. The faster the wind blows from a given direction, the less the motion of the boat affects it, or rather, the less the motion of the boat affects its apparent or relative direction.

Having trouble with that? OK, take the boat up to 100 knots and drive it in any direction you want. Now the wind arrows will point pretty much straight forward and the relative wind will appear to be dead ahead no matter what direction you go.

So the speed of the boat affects both the speed and the direction of the relative wind. Furthermore, the *faster* the true wind, the *less* boat speed will affect it. And since the wind speed is faster the higher you go above the water, the less the motion of the boat will affect the relative wind direction up there. Now we're really straining the mind, but not the mind model. The model is holding up OK . . . but if I don't bring in sail twist soon, you're going to be vexed



When the mind-model test boat motors east at 5 knots into the north wind, the relative wind is different at each station up the mast.

ILLUSTRATIONS BY FRITZ SEEGERS

for having been dragged through this. Remember, I said you can have a happy life without understanding this.

Variable angle of attack

For a given foil (read: sail of a certain shape) there is a fairly narrow range of angles of attack that will give you good effect (high lift, low drag, and other aerodynamic terms of merit). If the angle of attack is outside that range, the sail will perform badly and, at extremes, will luff or stall. So you need to set your sail at the correct angle to the wind. That would be easy enough if the relative wind blew from the same direction all up and down your mast, but you have seen in the mind model that it does not. In fact, what you need to do is have a slightly different angle of attack at each height of the sail.

Luckily for us, modern sails have a tendency to twist a little with increasing height, and that is exactly what we need. Not quite so lucky for us is that the amount of twist needed varies with conditions. Fortunately, those who've gone before us have discovered the need for twist and how to either induce it in a sail or take most of it out of a sail. They have also discovered how to read telltales to trim sails with just about the right amount of twist.

> "Those who've gone before us have discovered the need for twist and how to either induce it in a sail or take most of it out."

Telltales just abaft the leading edge of a jib and on the trailing edge of a mainsail will tell the sail trimmer if he needs more or less twist. Move the jib fairlead block forward to decrease twist, aft to increase twist. You want the lead farther forward when reaching (so it pulls down on the leech) than when sailing close-hauled.

Also, if you don't move the sheet lead forward whenever you partially roller-furl the sail, your twist will be way off. You have probably noticed novice sailors who, knowing nothing of handling a roller-furling jib, just leave the block set for full sail. Then, after furling a significant portion of the jib, they have so much twist in the sail the poor thing is flogging at the masthead. That's why the sun cover won't survive more than a couple of seasons.

Adjusting twist in the mainsail involves moving the traveler and adjusting the mainsheet so the telltales on the trailing edge stream aft, instead of being stalled. For more twist, move the traveler more to windward and ease the sheet.

Control with vangs

In theory, tightening a centerline vang will reduce twist and, in fact, this sail control does help considerably when sailing well off the wind. Unfortunately, it's very difficult to mount a centerline vang so it has sufficient strength and mechanical advantage. For this reason, centerline vangs are nearly useless for fine control of sail twist on beats and reaches. This is particularly true for most cruising boats where the centerline vang gets stuffed into a small space close to the gooseneck. This is not a good place for a centerline vang, but it is often the only place left to put one.

The radial vang seen on scows and other all-out racers does an excellent job of controlling twist, but these controls are seldom seen on cruising boats.

The off-center vang, sometimes called the double vang or vang/preventer, is amazingly effective in controlling twist. This controversial control is so effective that it virtually eliminates the need for a traveler. We have had one on our boat for 15 years. After the first year of sailing with this rig, I removed the frail and aging traveler and never missed it.

Opinion is divided on the vang/preventer. One group considers it to be a risk to the rig when used offwind as a preventer in a heavy sea. Their contention is that the boom may dip into the sea, thus suffering breakage and possibly taking the mast down. The other group is having none of this. They reason that the ability to quickly set up a preventer from the helm more than compensates for any risk of dipping the boom and taking the rig down.

I'm in the second group. In 18 years of sailing on Lake Superior I've never gone downwind in conditions that bad. If we ever encounter such large seas while sailing downwind, my plan is to strike the main and replace it with our storm trysail, or just sail downwind under the jib alone.

Some general rules

To put precise values on all this, you *could* make true and relative wind observations up and down the mast and map out a bunch of vector diagram solutions and suchlike, but I won't hold you to it. Here are some general rules to help you deal with the need for sail twist.

1. When you're moving, the only wind you can observe and the only wind

affecting your boat and sails is the relative wind. It is as real as any wind can be. It is as real as the true wind, which you could think of as the relative wind for a stopped boat.

2. Except for when you are going dead upwind or dead downwind:

   a. The relative wind is always forward of the true wind.

   b. The relative wind direction will be closer to the true wind direction the higher up the mast you measure it.

3. You need the most twist in light air, and less as the wind speed increases.

4. Moving jib leads forward compensates for partial furling and also removes excessive twist when reaching.

5. Moving the traveler more to windward increases mainsail twist, as does easing the sheet.

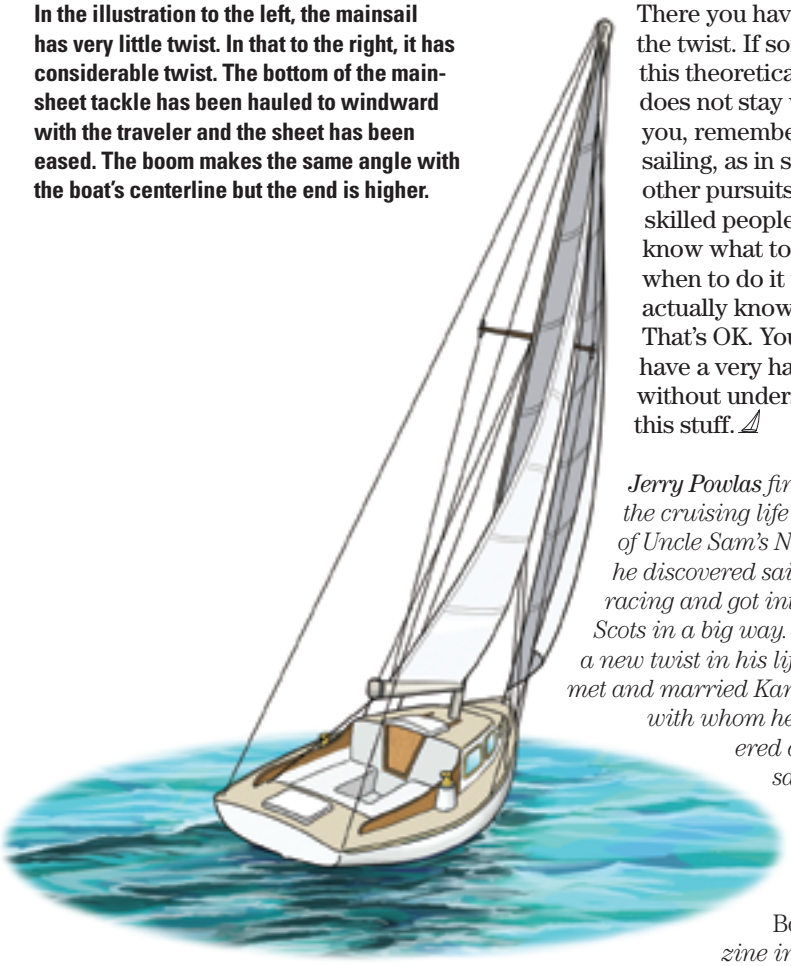
6. Local conditions will vary the amount of twist you need, but your boat's telltales are always right.

7. An old dinghy-sailor's trick is to induce more twist than is needed, to depower the rig. This makes the upper parts of the sail unload first, which reduces heel. Use this trick sparingly.

8. In heavy seas, the helmsman will have trouble holding the boat tightly "in the groove" (pointed at the best angle to the wind). Adding a little more twist than might be needed in flat conditions will allow some part of the sail to be at the ideal angle of attack as the heading varies.

9. In bendy fractional rigs, increasing mast bend by tensioning the backstay will increase mainsail twist.

In the illustration to the left, the mainsail has very little twist. In that to the right, it has considerable twist. The bottom of the mainsheet tackle has been hauled to windward with the traveler and the sheet has been eased. The boom makes the same angle with the boat's centerline but the end is higher.



There you have it. Do the twist. If some of this theoretical stuff does not stay with you, remember that in sailing, as in so many other pursuits, good skilled people often know what to do and when to do it without actually knowing *why*. That's OK. You can have a very happy life without understanding this stuff.

Jerry Powlas first tasted the cruising life courtesy of Uncle Sam's Navy. Later he discovered sailboat racing and got into Flying Scots in a big way. He gained a new twist in his life when he met and married Karen Larson, with whom he discovered cruising sailboats. Together, these two founded Good Old Boat *magazine in 1997.*

Getting over it

How racing cured one woman's fear of sailing

by Leah Warankie

Ever since I was 11, my goal has been to sail around the world. A few years ago, when I was 29, my husband, James, and I bought our first boat, a C&C 27. I had never sailed before, but with this as a goal, *not* liking sailing was not an option. I was going to learn and I was going to love it — no matter what. James had never sailed before either, but he shared my dream and was as determined as I to learn.

"She's a good boat," was a common reaction from folks around the yacht club who heard we had bought *White Caps*. They were to be comforting words to me over the course of the next three summers; I would frequently think back to them as I sat huddled in the cockpit, scared stiff, on many of our first sails.

During the first summer we had the boat, Lake Ontario was uncharacteristically calm. Many times when we motored out of the channel into the lake, there was not even a breath of wind. The lake was crystal clear and as blue as the sky. On days like that, we motored out just a mile or so and didn't even need to drop the anchor. We'd fire up the barbecue, turn up the music, and swim and suntan all day long. Those days were idyllic and stick in my memory as some of the best ever.

Not all of our days on the lake were idyllic, however. It was during our third or fourth time out that I began to be afraid of sailing. It was an iffy day to begin with, but we didn't know enough then to be concerned. Besides, a lot of other boats were out that day. The wind was probably blowing about 15 to 20 knots and the sky was gray and looked a bit ominous to the southwest, so we didn't venture very far. We noticed on our way back to the marina that the waves started to get bigger closer to shore and the wind had picked up a bit.

Knew no better

As we sailed toward the lighthouse at the entrance to the channel, we noticed that all of the other boats were heading in as well, but under bare poles. Not knowing any better, we had both main and jib up and were moving at a pretty good clip. We were heeled a bit, but our rail was nowhere near the water. As neither James nor I had ever experienced heeling before owning *White Caps*, neither of us was accustomed to it at that point. Suddenly, a big gust of wind came up out of nowhere and knocked the boat on her ear.

"We're overpowered!" I cried. "Get the jib down!" James released the halyard as I scrambled up to the bow to pull down the hanked-on jib. I knelt in the wet folds of the sail and hooked my elbow on the bow pulpit. The bow was rising and falling with each swell. I had to hold on tightly to avoid being thrown overboard. I grabbed a handful of sail and fed it back into the open hatch behind me. I crawled across the slippery deck to close the hatch. As I made my way back to the cockpit, it started to rain.

Through the rain we could see the entrance to the channel, but there was still a lot of water between that safe harbor and our boat. The lake had turned murky. I could see waves breaking on the beach in the distance. James fired up the engine while I pulled down the mainsail in the pouring rain. Once I had secured the sail, I skulked below in the warmth and safety of the cabin. I was scared. And I would be scared every time we went sailing thereafter.

No real reason for fear

Thinking back, I realize I had no reason to be afraid. My husband, his brother, and all three kids aboard that day were happy, excited, and having a great time. Other than at the time of the knockdown, I was outwardly calm. It was important to me that the kids not be afraid of sailing. Today they aren't afraid at all. If only I could have said the same for myself!

After that day, the thought of going out for a sail would both excite and terrify me. I loved the water and couldn't wait to get out on it. I tried to not let on to James how scared I was. I was tired of hearing about how much scarier the ocean was going to be and how did I expect to sail around the world if I couldn't even handle the lake?

The drive to the marina took 40 minutes, so I had lots of time to think about what could happen to us on the lake. If the *Edmund Fitzgerald* could sink on one of the Great Lakes, then what about our tiny sailboat?

As we drove closer and closer to the marina, the knot in my stomach would twist tighter and tighter. I would look out my window and anxiously scan the sky for signs of clouds.

Leah and the crew that helped her overcome her fear hold a memento of this turning point in her sailing life.

I would scrutinize every tree branch, trying to judge how windy it was. As soon as we got on the boat, I would flick on the VHF radio and listen to the robotic voice announce the weather for the day. What size were the waves going to be? What direction would the wind be coming from? How fast was the wind blowing? No amount of reassurance from my husband would unclench the knot in my stomach. I wouldn't calm down until I was on the lake and could see that it was calm. Then I could relax and enjoy myself.

Still afraid

"What's the worst that can happen?" James would ask if I begged him to turn the boat around if I saw anything but a flat lake at the end of the channel.

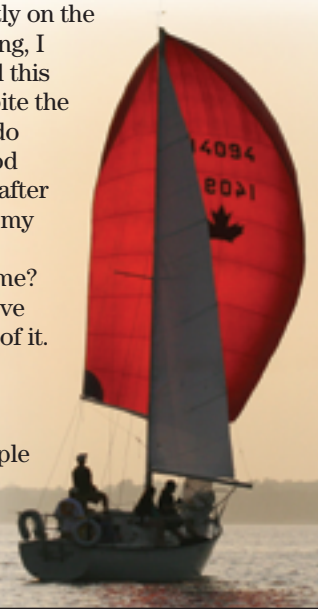
What *was* the worst that could happen? What *was* I so afraid of? I loved the water. I had a good, solid seaworthy boat. Was it my inexperience? Possibly, but even after two summers, my fear did not recede at all.

When people on the docks heard of my fear and my determination to overcome it, they inevitably suggested I try racing. James had gained a lot of experience crewing on other boats over the course of two seasons, but I just couldn't work up the nerve. At least when we were on our boat, we could always turn around and head back in if the lake was too rough. Turning back was not an option on race night, especially on someone else's boat.

By our second season, we'd decided to move *White Caps* to Lake Erie to be closer to our new house. Lake Erie is much shallower than Lake Ontario, which means more waves. Also, in our corner of the lake, the prevailing winds are from the southwest, making for consistently choppy water.

"You won't see many fair-weather sailors here," was a comment I heard frequently on the dock. That was a good thing, I thought. If I wanted to sail this summer I would have to bite the bullet . . . just get out and do it, waves or no waves, good weather or bad. But even after another season of sailing, my fear remained strong.

What was wrong with me? I desperately wanted to love sailing, but I was terrified of it.



A breakthrough

Then I started racing.

"She's a fast boat," people often said when we told them we had a C&C 27. She had been raced by two of her previous owners and so was already rigged for racing. We never planned to race *White Caps*, but when the crew of another boat was displaced after the owner of their usual raceboat decided not to launch his boat that season, we decided to give it a try. The crew was pretty tight-knit; these sailors had raced together for several summers. James had raced with them a couple times and enjoyed their style of racing. They were serious and competitive, but fun was their number-one priority — after winning, of course.

I knew I was in good hands from the first race. The waves were 3 to 4 feet and the wind was blowing 20 to 25 knots. These were conditions in which I normally wouldn't even *think* of heading out, but here we were motoring past the lighthouse straight into some of the biggest waves I had ever been in. As *White Caps*' bow slammed down off the wave crests, my crew continued to laugh and talk and move around the boat as if the lake were flat and the wind were calm. I searched their faces and saw not fear, but joy, exhilaration, and exuberance.

As we motored out to the racecourse, I felt my fear subside. These guys are *loving* this, I thought. What's to be afraid of? I have a life jacket and insurance. What's the worst that can happen? Slowly I began to relax, laugh, and talk, and — amazingly — I found myself wishing the waves were bigger!

A personal victory

We didn't win the race that day; we didn't even come close. But it didn't matter to me. I won my own victory. I was well on my way toward getting over my fear. Over the course of the summer, something changed inside me. I saw my little boat prevail in what I thought was some of the worst weather she would ever be out in. I saw my husband and our crew confidently handle her and bring her back safely to her slip again and again. I realized that the weather I feared was the same weather that a lot of sailors (racers, at least) love the most. It is the weather that I now love the most!

After the first Wednesday-night race, I continued to crew with James, Joe, Steve, and Martin. The season culminated with our crew taking a second-place finish in a regatta that saw us racing in 8-foot swells. With my fear behind me, I'm thoroughly enjoying this year's racing season.

Leah Warankie grew up between lakes Erie and Ontario but didn't discover sailing until age 11 when she read All in the Same Boat *by Fiona McCall and Paul Howard. This book led her to declare that she wanted to sail around the world. She and her husband, James, are planning their first cruise — to the Caribbean — in a few years.*

Travelers 101

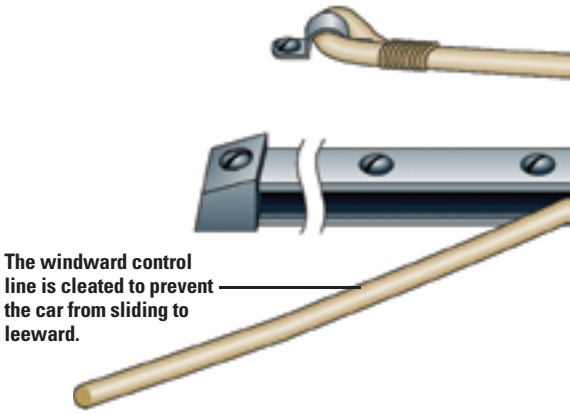
Primary tools for controlling sail shape

by Don Launer

On a sailboat, the sheet that controls the mainsail boom can be adjusted through a block or blocks that are attached directly to the deck. A more common configuration is to connect the sheet to a traveler.

A traveler is a system in which a sheet block is attached to a car that runs along a track. The car's position can be adjusted, thereby providing a means to fine-tune the shape of the mainsail. A traveler is indispensable to the racing sailor and is also very useful to the cruising sailor who appreciates proper sail shape.

Travelers may be used on jibs and foresails but are seen most often on mainsails.



> "The traveler can be used to increase twist in the sail without changing its angle of attack."

Travelers and twist

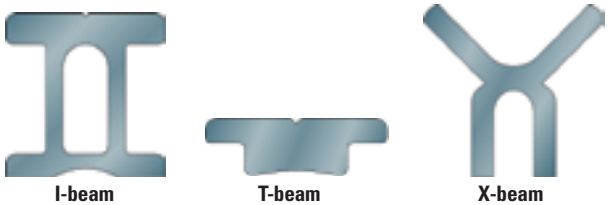
Both the traveler and the mainsheet control the position of the boom and the amount of twist in the mainsail, but the sail responds differently to these two controls.

On a beat or close reach, where the boom is well inboard, adjusting the mainsheet will always change both the horizontal and the vertical position of the boom end. Thus, easing the mainsheet will always reduce the angle of attack of the sail and also increase sail twist (see "Doing the twist" on page 20). The mainsail responds differently to the traveler. Easing the traveler will allow the boom to fall off to leeward, but the boom end will not rise, so the angle of attack of the sail will be reduced, but the twist will not increase.

The traveler can also be used to increase twist in the sail without changing its angle of attack. In light air, the traveler can be hauled more to windward while the mainsheet is eased. When the controls are used together in this way, the boom's horizontal angle is held constant but its end is allowed to rise, increasing twist.

Usually, less twist is desired in the mainsail in heavier air. As the wind gets stronger, the traveler is eased more and more to leeward and the mainsheet tightened a corresponding amount. This effectively decreases the angle of attack and also decreases twist as the pull of the mainsheet becomes more vertical. This is the opposite of what happens if a mainsheet is used with no traveler.

When beating to windward, the car should be readjusted on each change of tack.



Traveler tracks are made in a variety of cross-sectional shapes.

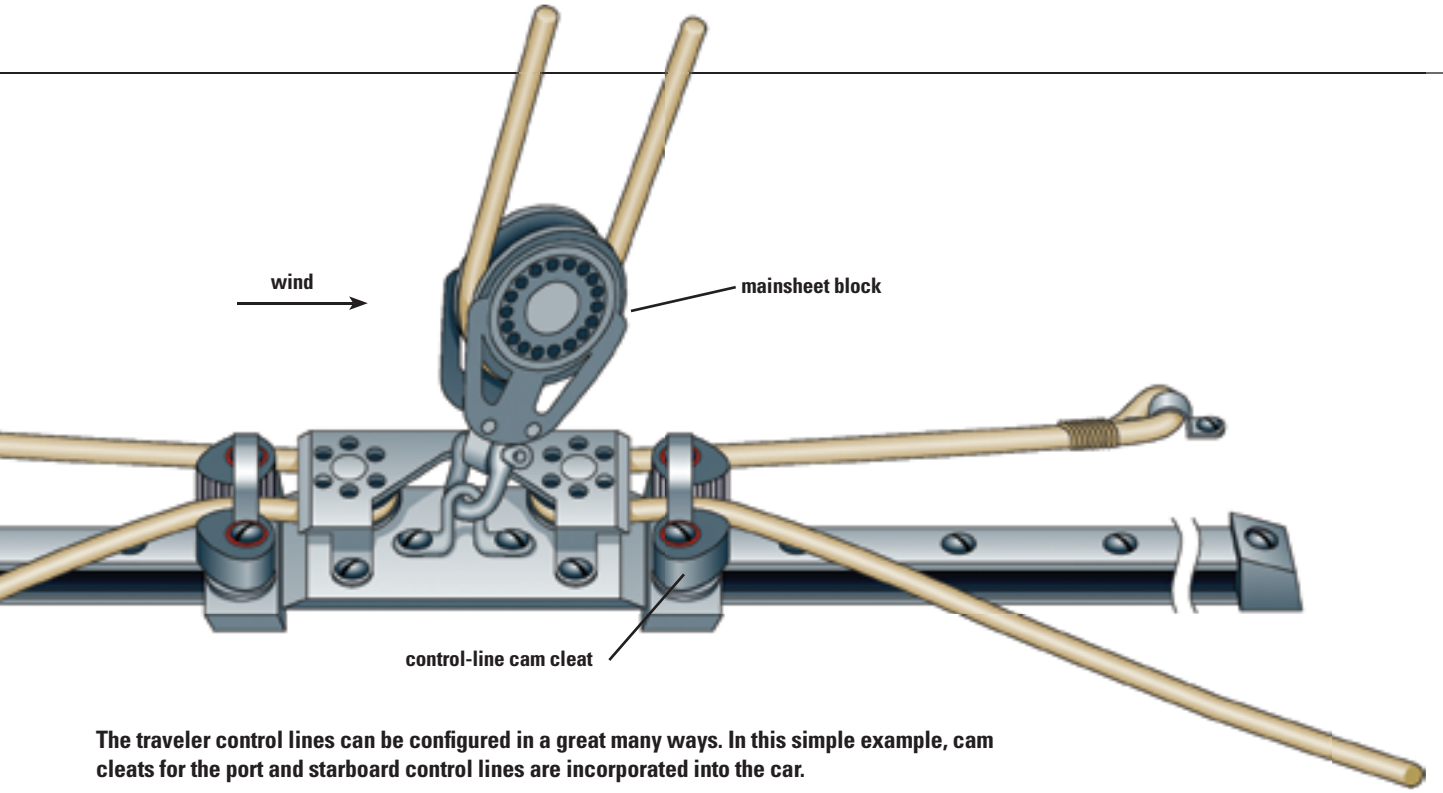
The old-style travelers used a T-track, sometimes with port and starboard adjustable stops and sometimes with a stop incorporated in the car, as here. The cars did not run on ball bearings and were difficult or even impossible to adjust when under load from the mainsheet. This type of track and car is not used in new mainsheet systems but is still used for adjusting the leads for headsails.

Traveler technology

Early travelers consisted of a simple T-shaped track with moveable stops, port and starboard, and a car with no ball bearings. These systems were inefficient because the car tended to bind under load and could not be moved easily.

In modern traveler systems, the car is adjusted athwartships by lines that can pull it to port or starboard. These lines are typically secured with cam cleats. Ball bearings in the car allow it to run smoothly along the track even under high tension. On small-boat travelers, these bearings are usually made of black or white Delrin. On large boats, where the loads are very high, the bearings in the cars are generally made of Torlon, which is greenish-brown.

Traveler tracks are manufactured in a variety of cross sections and each type and size of track must be matched



The traveler control lines can be configured in a great many ways. In this simple example, cam cleats for the port and starboard control lines are incorporated into the car.

LAYOUT AND ILLUSTRATIONS BY TED TOLLEFSON

with a specifically designed traveler car. The most common tracks come in T-, X-, or I-beam cross sections. The top of the cross section, which bears the upward load, must be sturdily constructed and, since the load on the track can be very heavy, the track must be strongly bolted in place with a backing plate to distribute the stress.

Tracks attached to the deck can be custom-bent to the shape of the deck contour; they may also be on bridges that span gaps or other deck gear.

A long traveler track allows the boom to be pulled down hard to remove twist even when it's quite far off center. The same length track used with a mid-boom mainsheet results in a greater range of control than one on an end-boom mainsheet. However, the mid-boom location also means the sheet, traveler, and boom will be more heavily loaded and more power will be required to trim the sail. The location of the sheet on the boom ultimately depends on the boat's design and purpose and can be anywhere from forward of the companionway to the end of the boom.

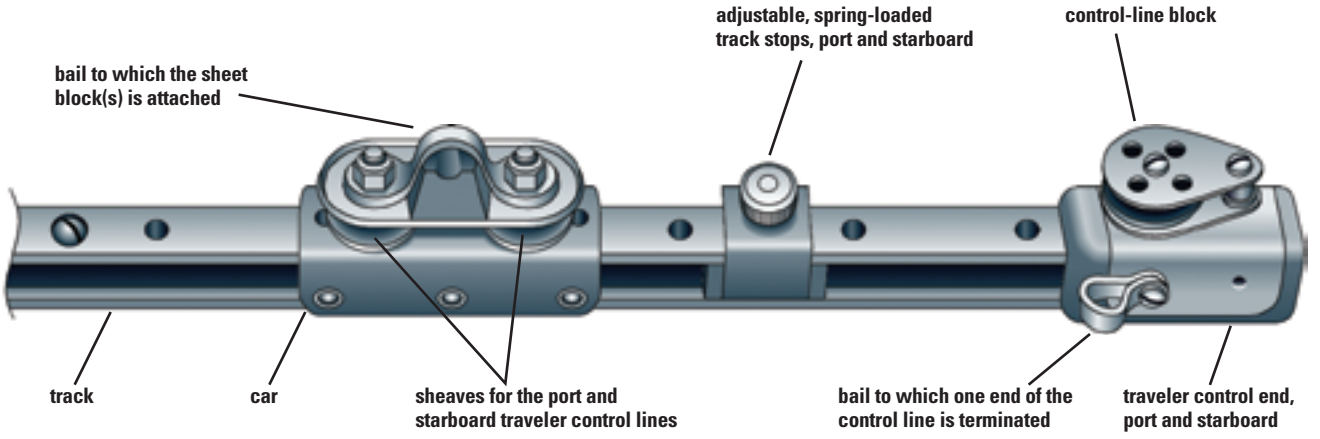
Traveler maintenance

Travelers with ball-bearing cars should never be sprayed with a lubricant. This can cause the ball bearings to slide instead of roll and they will wear unevenly. Some lubricants will attract dirt and dust and accelerate the deterioration of the ball bearings. Instead, the traveler track and car should be flushed frequently with fresh water, especially in a saltwater environment. It's also a good idea to occasionally squirt a solution of water and detergent into the car, run it back and forth on the track to distribute the solution, then flush it with fresh water.

If the car doesn't run smoothly on the track, inspect the track for corrosion. If the track doesn't show corrosion, it probably needs a good soap and freshwater cleaning.

Don Launer, a Good Old Boat *contributing editor, has held a USCG captain's license for more than 20 years and has sailed the East Coast from Canada to the Caribbean. His newest book is* The Galley: How Things Work.

Parts of a traveler



From steel mono to

Reappraising cruising possibilities led to a radical change in platform

by Dave Martin

BILLY BLACK

In this, the first of two articles, Dave Martin examines the reasoning behind his choosing a multihull as his next boat, his rationale for building it at home, and how he selected the design.

In the summer of 2008, I converted our garage into a boat shop and began building a 30-foot James Wharram-designed catamaran out of plywood and epoxy.

The impetus for this project came when a slew of catamarans and trimarans sailed, as if on cue, into our local harbor in Maine. Their arrival in Round Pond Harbor rekindled my dormant interest in unique-looking craft and inspired me to research designs and play the "what if?" game. The decision to build a boat from scratch evolved slowly. But the process of actually getting from first thought to first cut tested my patience and threatened to smother the enthusiasm that inspired the idea in the first place.

Why the radical switch from *Driver*, our 9-ton, 33-foot steel sloop, to a lightweight wooden craft? For starters, I had begun feeling a tad bored with *Driver*. I've never sailed a safer boat, but her overfed, stately gait no longer gave me a thrill. Predictability is a fine attribute in any boat but, for me, as I race through my 40s toward that line marking 50, I realized that predictability was unsettling. Call it a mid-life crisis. I was hankering for a new challenge.

A different adventure

The concept of a catamaran with a large open deck floating upon slim, shoal-draft hulls put me in a tropical state of mind. Conversely, *Driver* represented storms, ice in the rigging, and northern lights. Contemplating a new boat for a different sort of adventure gave me that kid-like tremor of excitement that took me back to my childhood and the fleet of homemade model boats I launched in succession each summer on Seattle's Lake Washington.

The mental transition from tortoise to cat was initially difficult, since catamarans defy everything I have always believed a boat should be: bulletproof, the proverbial oak-barrel-over-Niagara Falls kind of tough; a vessel that could be slammed by wind and waves of any dimension and survive right side up. Once I accepted the parameters and limitations of the catamaran form, I

Dave and Jaja Martin circumnavigated in *Direction*, a Cal 25, above, and moved up to the 33-foot *Driver*, at right, with the arrival of their third child. With their children growing up, the Martins have taken a new direction with their built-at-home Wharram Tiki 30, above right.

plywood multi

PART ONE

began my long journey researching catamaran designs, reading personal accounts and, finally, preparing my sales pitch to my wife, Jaja.

Multihulls are fascinating craft. It's puzzling why any seafarer would sail a boat that only achieves ultimate stability when upside down. (My childhood models reinforced this concept repeatedly.) But many of the innovations we take for granted involve an element of risk. Bicycles are most stable lying on their sides. We imagine that the yellow stripe down the center of the highway will protect our car from oncoming traffic. And there are people who will gladly jump out of airplanes, trusting that the aerodynamic scraps of nylon material strapped to their backs will open up and do their job.

Within any realm there is risk, but there is always a window of safety built in. Jaja (who has skydived) was slightly skeptical about catamarans but open to further discussion.

The sales pitch

At the dinner table, I exalted the advantages of multihulls. Compared to monohulls, they are difficult to sink. A monohull has tons of weight — ballast — bolted to its hull that is continually trying to drag the boat to the bottom of the sea. The slightest hole can lead to catastrophe; life rafts are carried aboard for this reason. On the other hand, the unballasted multihull structure is inert and, with the addition of a few watertight collision chambers, the craft will float high even with a gaping hole in it. The odds are that only one hull will be damaged in a collision. If the cat should flip over, it's possible to live in the inverted hulls, a scenario that seems better than bobbing around in a rubber life raft.

In one of the key conversations behind accepting the idea of a catamaran, we contemplated our immediate sailing plans. Where were we planning to sail in the next five years? Did we really need a storm-proof monohull? As our kids grow older and head toward high school and college, it has become important for us to stay closer to home. Heading off to the far corners of the earth is not a consideration right now. Coastal sailing is our venue; summer vacations and perhaps a winter dash down to the Bahamas while home-schooling Teiga, our youngest child. *Driver* is much more boat than we need for these plans. Besides, a catamaran with two feet of draft would be a perfect boat for the shallow banks of the Bahamas or the many shoal harbors in our home waters of Maine.

We put *Driver* on the market and sold her to a fellow from New Hampshire.

Scaling down the dream

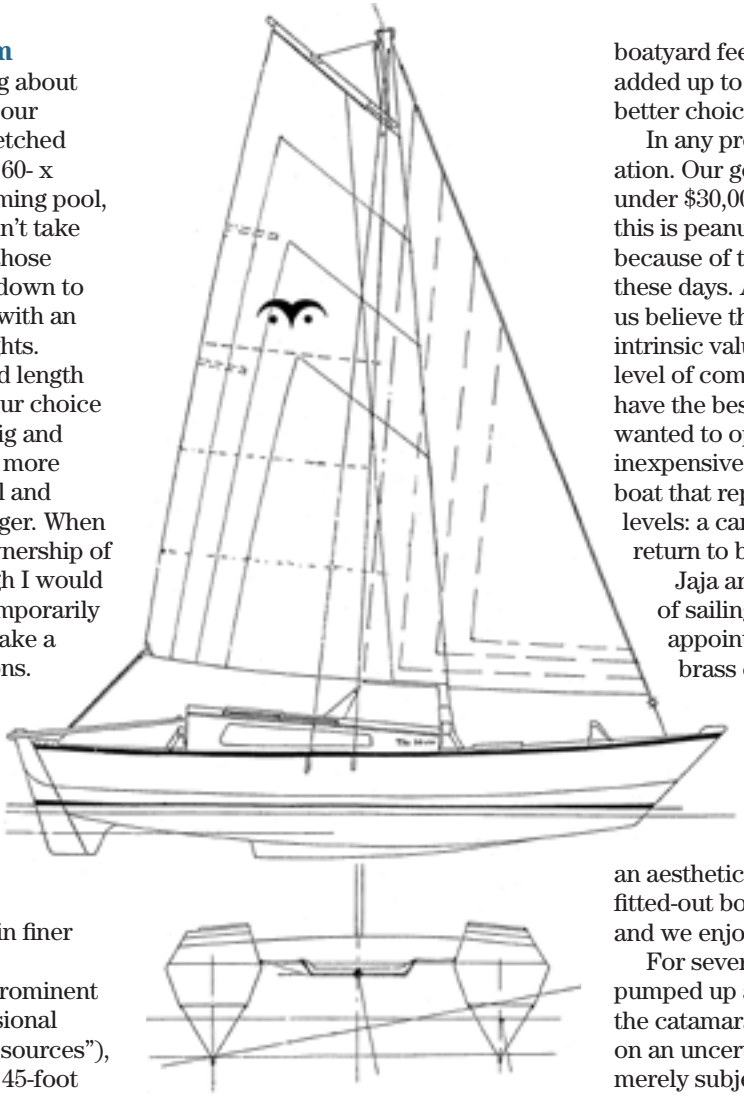
When we first began dreaming about a house, six years ago, we let our imaginations run wild. We sketched a design that had 20 rooms, a 60- x 40-foot outdoor heated swimming pool, and a curved glass roof. It didn't take long to figure out the cost of those dreams. We scaled our plans down to a 1,900-square-foot structure with an outdoor shower and 11 skylights.

Choosing a boat design and length presented many parallels to our choice of house design. We started big and pared it down. For me, this is more productive than starting small and wishing the boat could be bigger. When I allow myself to fantasize ownership of a monstrous boat, even though I would never be able to afford it, I temporarily get over the envy divide and take a critical look at the ramifications. Big boat: big systems, big failures, big headaches. Of course, big boats have big spaces, plenty of storage, faster speeds, and extreme levels of creature comfort. Money does not buy happiness but it does allow one to be seasick in finer surroundings.

Based on a consensus of prominent multihull cruisers and professional skippers (see the sidebar, "Resources"), it is generally accepted that a 45-foot catamaran is the minimum size to safely battle open ocean storms in the temperate zones and provide the overall comfort required to achieve a cruiser's nirvana — whatever that is.

But something of 45 feet (or larger) is an expensive boat. Catamarans need two of almost everything: two hulls, double the hatches, twice the wire and lights. All that equates to nearly twice the cost for labor. Big cats need twin engines in order to have any maneuverability under power. Maintaining one engine is a nightmare. Imagine maintaining two: two fuel tanks, two filters, two intake strainers, twice the oil, twice the fuel. And, I wondered, "Where am I supposed to park one of these beasts?" Boatyards and marinas charge by width as well as length. Safe or not, a 45-foot cat was out of our league.

From my research, I also concluded that even the big cats run into problems during storms while there are plenty of small cats that have survived horrific conditions.



James Wharram was inspired by indigenous Polynesian craft. His designs are tailored so amateurs can build them.

Narrowing it down

My criteria for the project were simple. I wanted to build the boat myself out of wood. By using my garage as a workshop, I could bypass paying rent somewhere else and eliminate a commute. Also, I wanted a cat that could be powered by a single outboard engine. That put the boat in the 30- to 32-foot range. Under 30 feet, catamaran hulls become too narrow for a double berth, and they are less able to accommodate an excess of provisions and extra gear. Lastly, I wanted a boat I could put on a trailer and park in my driveway to avoid hiring trucking companies and paying boatyard fees. All these particulars added up to a smaller boat being the better choice.

In any project, money is a consideration. Our goal was to keep the price under $30,000. In catamaran-speak, this is peanuts. Maybe this is partly because of the trend yachting is taking these days. Advertisers would have us believe that for a boat to have any intrinsic value and for it to have the level of comfort we deserve, it must have the best of everything on board. I wanted to oppose this idea and build an inexpensive, structurally sound craft, a boat that represented economy on all levels: a camping trip on the water . . . a return to basics.

Jaja and I were after the thrill of sailing, not the thrill of a finely appointed interior with shiny brass cabin lights, a wine rack, wool-blend cushions, pressurized hot water, and an electric flush toilet. I don't mean to belittle a cozy interior. In fact, there is nothing as pleasing as an aesthetically proportioned and well-fitted-out boat. We had that on *Driver*, and we enjoyed it.

For several months, I would awake pumped up and excited contemplating the catamaran idea, only to end the day on an uncertain note. Isn't simplicity merely subjective? Was our desire for boating purgatory a counterpoint for too much easy living in our spacious home? Why not continue to enjoy some boating luxury like we had on *Driver*? On the other hand, why not do with even less? Why not build a couple of kayaks and call it even? Or get a dry suit and swim? Now *that* would be basic.

Which design to choose?

I scoured the web for designs. Then I started to vacillate and began looking at monohulls. Once again, I found myself trying to justify a larger boat that was suited for world voyaging in case we decided to set out long-distance one day. Or perhaps we should build a 45-foot cat and just deal with it. Perhaps we should have kept *Driver* in mothballs in case we wanted to go high-latitude cruising again.

In the end, I remembered that, when we set off around the world on our 25-foot *Direction*, we were told

> **“The Tiki 30 can be disassembled, loaded onto a legal-width trailer, and towed behind a car.”**

the boat was too small. During our circumnavigation, I found that it wasn't the physical boat that dictated the overall safety of the voyage; it was often the decisions and competence of the crew. Understanding the limitations of a small boat is imperative. With that in mind, I figured that 30 feet of boat would be perfect.

Throughout all this turmoil, I kept returning to the James Wharram website. His catamarans have been around for 50 years. Over the decades, I have seen his boats in every corner of the globe. The 30-foot Tiki design, the largest that is trailerable, seemed to be the answer to my wishes even though it mutinied against my visceral impulses. The critical difference between Jim Wharram's boats versus almost any other catamaran built is that the beams that connect the hulls are either lashed on with rope or mechanically fastened. This means the boat can be built at home, then transported to the coast on a trailer. After a few hours of assembly, you're ready for a season of sailing.

Most other cats are fabricated as a single solid unit. If built at home, this means transporting a very wide boat to the coast. It also requires a huge workspace. While it is possible to build all the separate components of a fixed catamaran at home in a small shop miles from the coast, a workspace near the water is still necessary for hundreds of hours of final assembly.

By comparison, the Tiki 30 can be disassembled, loaded onto a legal-width trailer, and towed behind a car. Once launched, the hulls are positioned and the cross-beams are fastened in place. Jim Wharram's philosophy embraces building all parts of the boat from scratch to avoid the purchase of expensive fittings. This helps keeps the price low and produces a feeling of satisfaction with the finished product. I was hooked.

Accepting the decision

When planning an offshore passage, it is always a scramble to get prepared. In fact, it can be difficult to remain focused on the coming adventure. Lines are eventually cast off and the boat heads for the open horizon. The unknown is all that lies ahead. For me, there is always a moment, as the land fades away, when doubts creep into my psyche. I have to take a deep breath and reassure myself that, yes, this is a good idea. I am prepared. Similar feelings washed over me when I pushed the “Buy” button for the Tiki 30 plans. There was no turning back now. Anyway, this was going to be fun.

In part two, Dave will discuss choosing tools, the advantages of plywood (versus fiberglass) construction for the homebuilder, interpreting study plans and building plans, calculating costs, and equipping a garage for boat construction.

Dave Martin is a contributing editor with Good Old Boat. *He and his wife, Jaja, live in Bremen, Maine in their self-built solar-electric house. To learn more about the Martins and their book,* Into the Light, *and their DVD,* Ice Blink, *visit their website <http://www.iceblinksail.com>. An audio version of the book is available at <http://www.audioseastories.com>.*

Resources

James Wharram Designs
James Wharram design book
James Wharram Tiki 30 study plans
www.wharram.com

Richard Woods Designs
Richard Woods “Romany” study plans
www.sailingcatamarans.com

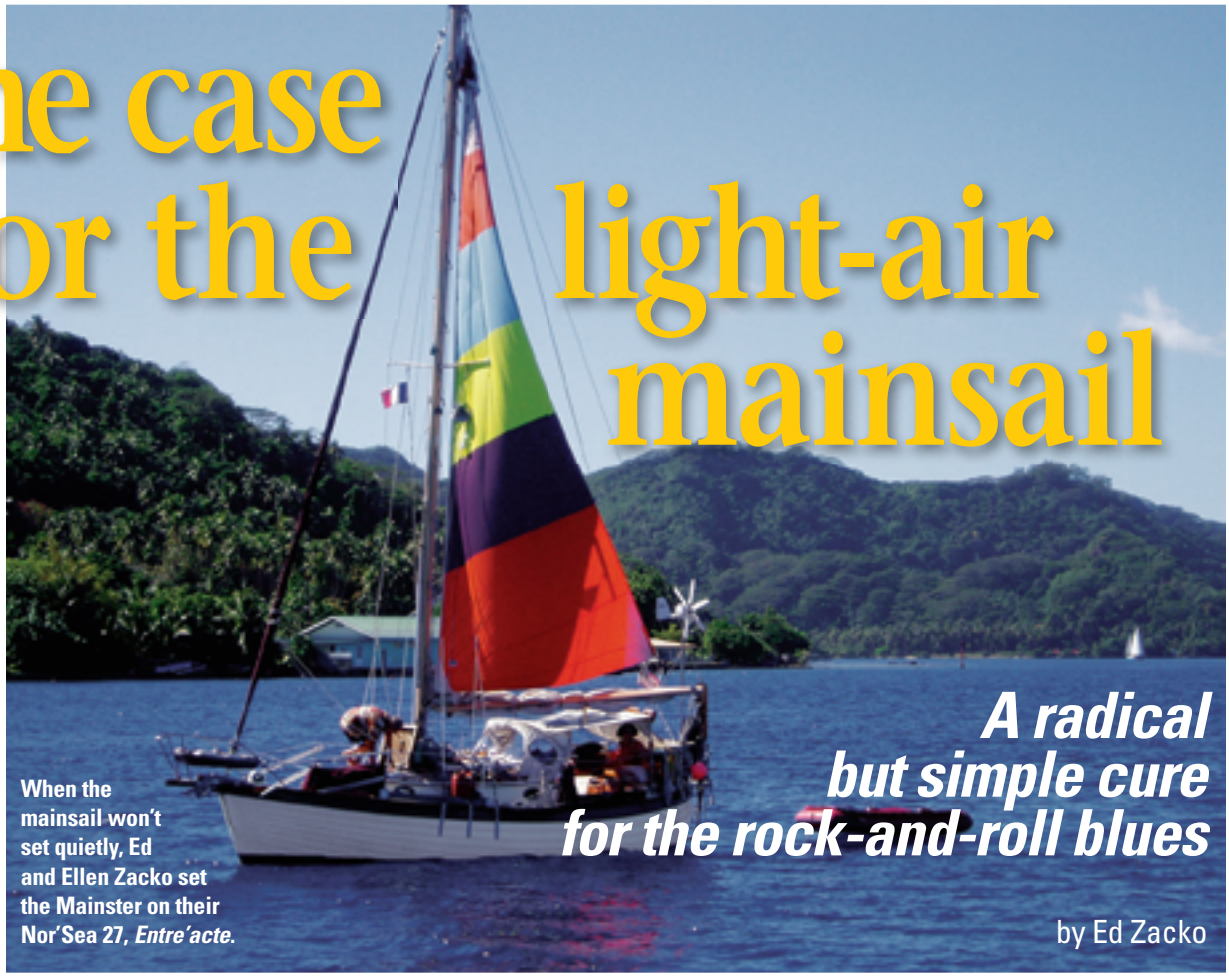
John Shuttleworth Designs
www.john-shuttleworth.com

Dudley Dix Yacht Designs
www.dixdesign.com/radply.htm

***Multihulls* magazine**

Surviving the Storm
by Steve and Linda Dashew
Chapters on multihulls; Beowulf Press, www.setsail.com

The case for the light-air mainsail



When the mainsail won't set quietly, Ed and Ellen Zacko set the Mainster on their Nor'Sea 27, *Entre'acte*.

A radical but simple cure for the rock-and-roll blues

by Ed Zacko

"The sails flapped and banged — about the ugliest sound a sailor can hear. Apart from nearly driving me crazy, the conditions were hard on the sail seams."
– Excerpt from *Dove* by Robin Lee Graham

Cruising books admonish us to carry clouds of sail for light air. They go on at great length describing large genoas, drifters, and cruising spinnakers. But, other than describing vangs and preventers, they seldom suggest a solution to the mainsail problem.

Countless words have been written about "the violence of calms," warning that more instances of rigging failure, dismasting, and torn sails occur during calms than in storms.

Sails work efficiently only when full and drawing quietly but it takes surprisingly little swell to start the mainsail slatting. Not only does this stop the sail from working properly, the noise it makes is unnerving and the damage from the slatting is cumulative and insidious. Because the material does not give, a slatting Dacron sail imparts severe shock impacts, on itself and on the rig. Each time that sail snaps, several things happen.

First, when sails slat, the cloth works and jerks on its seams. This working and jerking enlarges the holes around the stitching, wears out the sailcloth, and weakens the thread. The less a sail slats, the longer it lives.

Second, repetitive shock loads are transferred to the standing rigging. Chainplates, mast tangs, turnbuckles, and rigging wire are all affected. Swage fittings and fully battened mainsails are particularly vulnerable to these shocks. Like sails, the standing rigging is designed to withstand constant steady stress rather than sudden violent shock loads. The stainless steel will work-harden over time and break when you least expect it to.

Third, as you're already in a calm and not moving well, if at all, the slatting makes things worse. In any swell, as the boat begins to roll, the mainsail winds up like a pitcher on the mound. The momentum of the impact, along with the leverage of the boom, causes the boat to roll down farther in the opposite direction. As this process repeats, each cycle further hampers your forward progress.

Fourth, the constant rolling compromises the headsail you're flying. Large genoas will also slat and bang, imparting tremendous side loads to the forestay at the terminal fittings and contributing further to the problem. Nylon drifters and spinnakers will eliminate this shock but, when working alone without the mainsail, their effectiveness is severely compromised.

As offshore cruisers, we have tried all the known solutions over the years. Sheeting in the full main will not quiet the sail because of its draft. Tying in a double reef will flatten the main, and

sheeting it amidships can stop the slatting, but it also eliminates a major portion of the boat's horsepower. To make any real progress in light air, we need to fly as much sail as possible.

Enter the nylon mainsail

Our introduction to the nylon mainsail came through Dean Wixom, the father of the Nor'Sea 27. Dean carried one on his Nor'Sea 27, *Chinook*, for several years and loved it. On one of his visits to our home, he elaborated on the merits of this sail. But we argued against it, mainly due to lack of space on board. Frankly, it seemed like a wacky idea. Dean was not offended. He just smiled and went on his way. Subject closed. Or not quite!

On his next visit, Dean arrived at the airport weighed down with several sail bags. He brought all of his light-air sails for us to try on our upcoming Bahamas cruise. We resisted, but Dean persisted until we gave in. Weeks later in the Bahamas, as we sat with little wind, the noise and frustration overcame our reticence and we set the light-air mainsail. After only 10 minutes, we agreed: "We must have this!" Throughout the summer, we played with the rest of Dean's light-air sails as well, but the nylon mainsail completely absorbed us.

The concept of a light-air mainsail is simple. How could sailors as a group have missed something so logical? Aside from Dean, we know of no other person who has ever had and used one. Strangely, every sailor or cruising writer we've talked to has refused to discuss it. Just as we did in the beginning, others tune us out when we broach the subject.

Meet the Mainster

The sail that we've affectionately named the Mainster is very simple. The *idea*, by the way, is open to anyone, but the *name* belongs to us. Our Mainster is built of 1.5-ounce ripstop spinnaker cloth. It has simple broad-seaming, a wire luff, and drawstrings to shape the luff, foot, and leech. It is set "flying." That is, it's attached only at the

The Mainster, stowed in its sock in its own sailbag, takes up very little space.

On passage, the sailbag is lashed to the deck and Ed (or Ellen) hoists the sail directly from it.

In light air, working at the mast is no problem.

The Mainster's wire luff hooks to a snap-shackle attached to the gooseneck.

A downhaul controls luff tension.

Foot and leech lines allow for infinite variations in sail shape.

The clew outhaul stays rigged through its cheek block on the boom, always ready for action.

PHOTOS BY ELLEN ZACKO

The working mainsail is ready to be hoisted at any time and the Mainster can be doused with its sock on short notice. Moreover, the Mainster's flexibility allows it to be flown with a variety of light-air headsails; a cruising spinnaker, above left, or a hanked-on nylon genoa, above right.

head, tack, and clew. It can be hoisted with the main halyard or a dedicated spare. The tack is fastened to the boom gooseneck with a snapshackle and the clew is run out along the boom with an outhaul that runs through a cheek block at the end. Everything happens at the base of the mast. The topping lift supports the weight of the boom and allows for some basic sail shape. A vang prevents the boom from hopping around in the swell. Gross trim is accomplished with the mainsheet, fine trim with the outhaul and drawstrings.

Over our past eight years of cruising, we have refined our system. The main halyard remains attached to the mainsail on the starboard side of the boat while we hoist the Mainster with its own halyard on the port side. My wife, Ellen, has made a spinnaker sock that greatly simplifies the process.We stow the Mainster in its sock in a bag attached to the main hatch, always ready for use. We hoist the Mainster directly from the bag, sometimes even before lowering the main. As the Mainster unrolls, we connect the tack and clew to the snapshackles and simultaneously pull on the sock line and clew outhaul.

Instant silence! As soon as we raise the Mainster, it blankets and silences the working main. Once the Mainster is drawing, we lower and furl the mainsail.

The procedure for dousing the Mainster can take many forms, depending on conditions. In an emergency, the fastest way is to cast off the clew outhaul and pull on the sock downhaul. We don't recommend this method as the very thin cloth can become fouled on spreaders, shrouds, and mast steps. Fortunately, there is usually sufficient warning to make such a maneuver unnecessary. A better way is to ease the clew a little while pulling on the sock downhaul. We simply let the sail hang enclosed, like a sausage, until the worst passes. At that point, we can either open the sail once more or lower it completely.

As we ease the halyard, we roll the sail from the bottom up. This makes for easy and compact storage and prepares it for the next deployment. The beauty of the Mainster is that it's a one-person sail. One person can make the change from mainsail to Mainster or the reverse in less than three minutes. Snuffing the sail in an emergency takes less than 20 seconds.

It tacks and jibes silently and takes up almost no space on deck or below. The nylon cloth has a lot of stretch and absorbs the shock of slatting. Instead of the dreaded crash, all we hear is an occasional gentle "phump" with no shock or banging.

Unlike a spinnaker, a light-air mainsail is constrained by the mast, tack, and boom, so it can't get out of control as the boat swings in the swell. Another advantage over a spinnaker is that the center of effort remains constant as the boat moves around, so our windvane and autopilot love it.

"When the wind is on the beam, the combination of the Mainster and cruising spinnaker is dazzling."

We have no fear of flying the Mainster at night, as it can be doused in seconds. Coupled with our large hanked-on nylon genoa, it brings us as close to a "set it and forget it" light-air rig as we can get. When the wind is on the beam, the combination of the Mainster and cruising spinnaker is dazzling. As I write this, we have been sailing wing-and-wing for two weeks with the Mainster set to port and the drifter poled out to starboard. We have not touched the tiller, sheet, or halyard in 14 days. Yes, we still move about in the swell but both sails are driving. In this light air, we are moving slower than a worm, but we *are* making progress and it's *quiet*.

It takes very little wind to keep nylon asleep, and the tension in the sailcloth is quite apparent, above left. Having both sails drawing reduces roll and contributes mightily to balance and drive. In this light air and in this sea state, a Dacron mainsail would never sleep, above right.

Drawbacks

There are only two problems with the Mainster. The first leap, it seems after watching other sailors wrestle with the concept, is to *accept the idea* in the first place. We sailors seem to be slow to accept any radically new idea that has not been heavily advertised and hyped.

Once past that hurdle, the second problem is finding someone who will build one for you. We were turned down flat by seven sailmakers, one with a resounding "No!" as he slammed his clipboard onto the table. Fortunately, Dave Thompson of Eggers Sails in South Amboy, New Jersey, inspected Dean's sail, listened to our idea and, though skeptical, agreed to build such a sail for us if we would accept all responsibility for the result. No problem there, since we had already spent a summer using one just like it and had no worries. The results were wonderful; we could not be more pleased.

The only complication that we can foresee for some rigs is with the use of lazy-jacks or a Dutchman system. With these systems, you *can* use a Mainster but you will have to snuff the sail whenever you come about and re-deploy it on the other tack outside the lazy-jacks. Some lazy-jack systems allow you to detach the lines and lead them forward and out of the way. With a little creativity, it would be easy to set up a clew outhaul that would work on either tack outside of these lines.

The Mainster is not a substitute for a working mainsail. It is designed for specific conditions that we encounter all too regularly: a swell together with a breeze so light you can barely feel its presence and much too light to fill your working main. For one thing, you will not be able to point high with *any* nylon sail. As the sail fills, the stretch of the nylon will cause the draft to move aft and the luff to sag to leeward. These factors are detrimental to windward performance but, at about 50 degrees apparent wind and greater, you will have two sails driving the boat. So, if the mainsail will fill and draw quietly,

continued on page 75

The wind generator is still, but the Mainster and cruising spinnaker are full and pulling hard enough to give *Entre'acte* a bone in her teeth.

Resources

Dave Thompson, John Eggers Sailmakers
7076 Highway 35 N, South Amboy, NJ 08879
732-721-4667; www.johneggers.com

Making *Magnolia* more seaworthy

How one owner designed and built a sturdy sea hood

by Paul Ring

When finished and fitted, *Magnolia*'s sea hood looked as though it was part of the boat's original design.

Magnolia, my 1970 Cheoy Lee Offshore 27, came from the builder without a sea hood, either as an oversight or a budget decision; probably the latter. A walk on the docks of any marina or yacht club reveals that *Magnolia* was in good company: other boats of the same vintage also lacked sea hoods.

A sea hood has two advantages. First, in brisk weather, a sea hood prevents boarding seas or heavy spray from finding its way under the forward edge of the companionway slide and into the cabin. Second, a sea hood provides an attachment point for the forward edge of a dodger, an item that further contributes to keeping things dry below. In fact, a properly designed dodger allows the companionway slider to remain open in most weather. Because offshore sailing figured in my cruising plans for *Magnolia*, I added a sea hood to the projects list for her refit.

It was natural to think first of building my sea hood by laying up fiberglass in a mold — because that's how fiberglass boats are built. That would be a two-step process: make a mold; mold a sea hood. Then it occurred to me that I could eliminate one step if the mold itself could be the sea hood.

Conforming to curves

I wanted the sea hood to be strong and aesthetically pleasing, and to look as though it came with the boat. *Magnolia*'s cabintop and companionway hatch have the same curvature, and I felt the sea hood should follow suit.

I've seen boats with crowned cabintops and flat companionway hatches or cabintops with one curvature and a hatch with another. Owners of these boats would have to decide whether to make the sea hood follow the curvature of the cabintop or that of the hatch. If, for the sake of simplicity, you are tempted to build a flat sea hood, remember that a flat top must be much more heavily built to have the same strength as a curved one.

When the hatch is open, the hatch slide has to clear the inside of the sea hood, so the critical measurements are the length and width of the hatch and its height above the cabintop at its corners. I found there was a difference in height between the forward and after corners for, while the track was straight, *Magnolia*'s cabintop curved slightly downward at its forward end. I allowed for this difference in my design. These measurements determined the inside dimensions of the sea hood, to which I added ¼ inch for clearance.

Attachment options

During my ruminations about design, I thought about three methods for attaching the sea hood to the cabintop. In the method I eventually used, the sea hood is glued to the cabintop with epoxy and a fillet added between the sea hood and the cabintop for strength and appearance. However, this is the preferred method only if the cabintop and new sea hood are going to be painted as part of the project, which I planned to do. Otherwise, the transition between the painted sea hood and the gelcoated

cabintop at the fillet edge would be obvious and unattractive.

The other two methods I contemplated both offer solutions to the painted sea hood/gelcoated cabintop problem. One forms a sharp angle between the sea hood sides and the cabintop that would disguise the paint line and slight differences in color and gloss because light would strike the two surfaces at different angles. The other employs a flange that makes the sea hood removable.

Assembling the sea hood

I used mahogany for the sides of my sea hood because I had some on hand, but any decent hardwood is suitable. I tapered the side and end pieces from bottom to top at an angle to agree with the slope of the cabin sides. To shape the top and bottom edges of the end piece, I first made a pattern by "spiling" the curve of the cabintop onto a board (see "An old carpenter's trick," page 38). The corners are simple butt joints held together with epoxy, with dowels to hold things in alignment while the epoxy cured.

I laminated the top using two layers of ¼-inch marine plywood. (A third layer could be used if the span is great and/or there is little curvature.) Since a sea hood has only three sides, I needed a temporary aft end in order to make the plywood conform to the desired curvature. I also found that a temporary center beam was necessary to make the plywood conform properly. I attached these temporary components to the sides with small angle brackets so I could easily remove them later.

To ensure the plywood wouldn't stick to the temporary frames, I covered their tops and ends with waxed paper. I glued the first plywood layer to the sides and end piece with epoxy and held it in place with small panhead sheet-metal screws. After the epoxy had cured, I removed the screws. Here's a trick: I heated the heads of a couple of stubborn screws with a soldering iron to melt the surrounding epoxy and make their removal easier.

I attached the second layer of plywood to the first using screws spaced about 3 inches apart. To make sure the top layer would be drawn down tightly to the first, I made sure that the screw holes (pilot holes) in the top layer were large enough so the screw threads didn't bite.

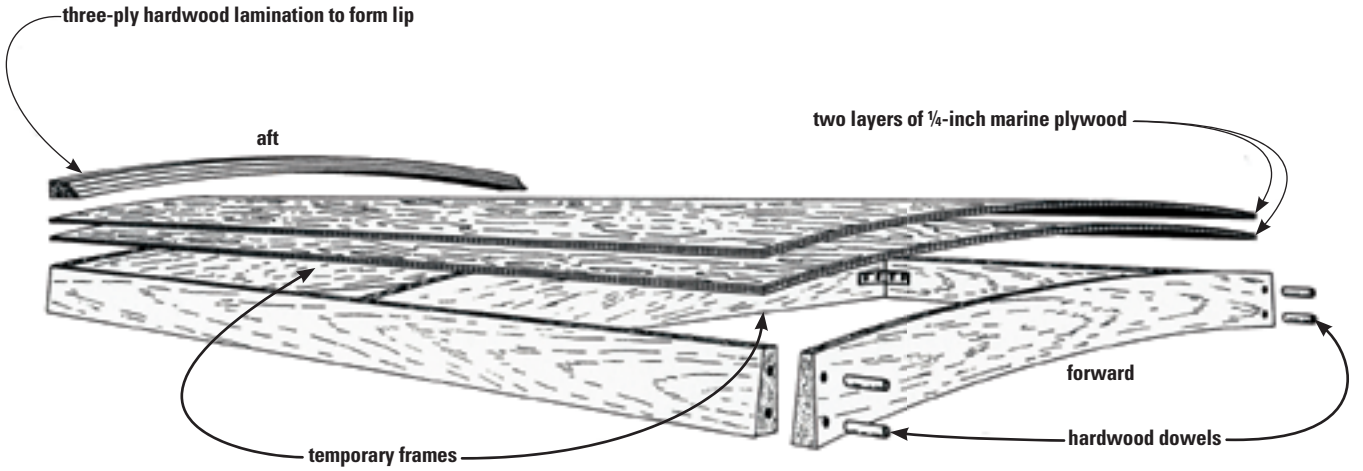
> **"I used mahogany for the sides of my sea hood because I had some on hand, but any decent hardwood is suitable."**

After doing a dry fit, I liberally coated the matching plywood faces with unthickened epoxy and allowed it to soak in for about five minutes. Next, I recoated any dry spots that appeared. I then thickened a batch of epoxy with colloidal silica just enough so it wouldn't run and spread a generous coat on one of the adjoining faces. After aligning the top layer of plywood over the bottom layer, I drove in the screws in the center fore-and-aft row. Alternating from side to side, I then drove screws in rows parallel to the center row, working from the center toward the edges. In this way, the epoxy was squeezed from the top center to the edges without trapping air. I immediately scraped away the squeezed-out epoxy to avoid having to sand it away later.

Filleting the inside corners

After the epoxy cured, I removed the temporary frames so I could finish the inside of the sea hood. First, I applied an epoxy mush fillet along all the inside corners. Since this fillet is structural, I made the mush by thickening the epoxy with microfibers (cotton fibers). After wetting out the corners with unthickened epoxy, I dabbed the mush into place with a Popsicle stick. Then I dragged a tongue depressor, held at a 45-degree angle, along each corner, smoothing the epoxy mush into a uniform fillet. I scraped up the excess mush forced out on either side of the tongue depressor with a second tongue depressor sanded to the shape of a chisel. I did a good cleanup job to avoid the laborious task of sanding cured epoxy later.

When the fillet had cured, I scrubbed it thoroughly with a wet washcloth to remove the amine



Construction of the sea hood is straightforward — it consists of two sides, an end piece, a top, and a lip. The two temporary frames held in place with angle brackets are needed to ensure the plywood layers take up the desired curvature during the lamination process.

ILLUSTRATIONS BY PARUL RING

“Because intuitive engineering told me two were better than one, but a third was unnecessary, I applied two layers of 6-ounce cloth.”

blush while trying to avoid excessively wetting the uncoated parts of the wood. (Amine blush forms on the surface of epoxy as a by-product of the curing process. If not removed, it will inhibit adhesion of additional coatings, such as epoxy, paint, and varnish. Fortunately, it’s water-soluble and easily scrubbed away.)

I then sanded off the gloss and removed any irregularities with 80-grit sandpaper wrapped around a dowel.

Glass for strength

For extra strength, I lined the inside of the sea hood with a layer of 6-ounce fiberglass cloth, which I dry-fitted, cutting slits in the corners to allow the cloth to conform and overlap at the corners. Satisfied with the fit, I wet the cloth out with epoxy resin using a disposable brush. I wet the cloth out thoroughly but was careful not to apply too much resin, since this would cause the cloth to “float away” from the wood.

An old carpenter’s trick

A pattern of the curvature of the cabintop can be made by “spiling” (also called scribing). This is depicted in the photograph by my “hand model,” Gary Moore. For this picture, Gary held a 1 x 4-inch board on edge against the forward edge of the companionway hatch. Then, with the point leg of a pencil compass riding along the cabintop, he scribed the curvature of the cabintop onto the face of the board with the pencil. He was careful to hold the compass so the legs remained vertical during the entire scribe, rather than radiating out from the cabintop. When Gary was finished, I carefully cut along this scribed line with my band saw (a saber saw would work), tested for fit, and made minor adjustments with a rasp.

When the epoxy was partially cured, I trimmed away the overhangs with a sharp utility knife and applied a second coat of resin. (If additional coats of epoxy are applied after previous coats have only partially cured, no amine blush will have yet formed and a full chemical bond between coats will occur. That makes the washing and sanding step described previously unnecessary.)

Reinstalling the frames

After the epoxy had fully cured, I reinstalled the temporary frames because the laminated top had sprung back somewhat at the open end. Of course, I had to trim the frames to allow for the corner fillets. Next, I trimmed the plywood top until it was flush with the sides and rounded all the outside corners using a sharp block plane followed by sandpaper wrapped around a block of wood, the idea being to create a shape that complimented the style of the cabin. I then filled all the screw holes made during the laminating process with a putty of epoxy and microballoons. After the putty had cured, I sanded it flush with the plywood surface.

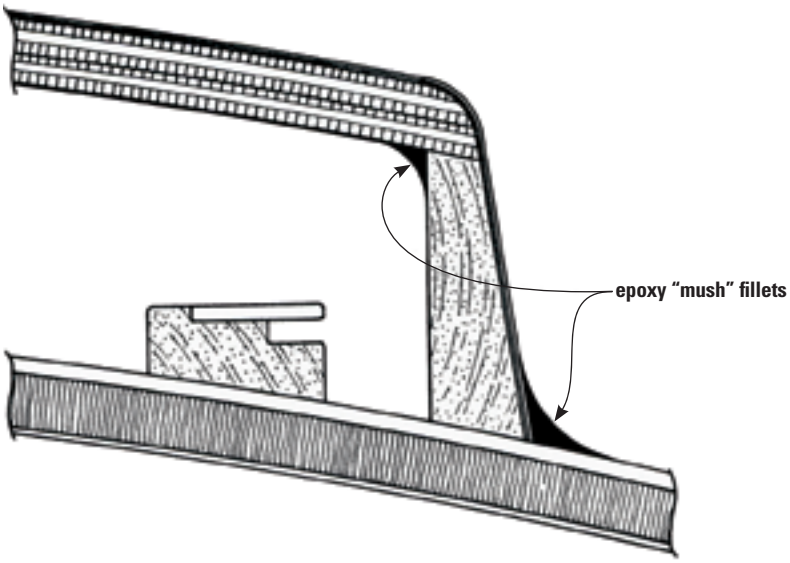
Because intuitive engineering told me two were better than one, but a third was unnecessary, I applied two layers of 6-ounce cloth. I applied these in one continuous operation, trimming away the excess cloth when the resin had partially cured. I followed this with an additional coat of resin to fill the weave of the cloth. As before, I cut the cloth at the corners so it would drape smoothly. After an overnight cure, I sanded the outside of the sea hood to remove any lumps and bumps. I filled low spots with epoxy putty made with microballoons. After this had cured, I sanded it to a smooth, fair finish.

Finishing details

My cabintop is lower forward than aft, which meant that water would become trapped under the forward end of the sea hood. To prevent that, I drilled ⅜-inch limber holes in each forward corner of the sea hood at the bottom edge. In order to control the location of the hole exactly, I drilled a guide hole in a wood scrap and clamped the scrap to the sea hood side with the guide hole in the exact position I wanted. Then, to maintain a seal on the wood, I carefully coated the limber holes with epoxy.

I wanted a lip on the aft top edge of my sea hood for two reasons: it would give me a place to attach a dodger and it would strengthen the otherwise unsupported aft edge. Oh, and for one more reason: I felt it would look good.

I made my lip by laminating three ¼-inch layers to the top of the aft edge. Laminating in three layers rather than bending a single piece of wood to the sea hood would help to maintain the curvature in the sea hood top and be stronger. To give the lip an attractive shape, I made the top layer narrower than the second and the second narrower than the bottom. I beveled the forward edge of each



The cross section drawing, at left above, shows how Paul envisioned the construction elements of his sea hood. The photo, above, shows the finished product. For the sake of appearance, Paul shaped the ends of the lip on his sea hood to form an ogee (an S-shaped curve). Also visible are the ¼-inch clearance between the hatch and the sea hood, the tapered shape of the side, and the fillet between the sides of the sea hood and the cabintop that make them look all of a piece.

layer 45 degrees, so that the three layers formed a continuous slope when stacked. To make assembly easier, I dry-fitted the layers to the sea hood and screwed them in place so they couldn't slip and slide around. I then disassembled them, applied epoxy to the adjoining surfaces, and screwed them back in place. After the epoxy had cured, I removed the screws, filled the screw holes with epoxy putty, and sanded the lip to shape. I formed an ogee shape (an S-shaped curve) at the ends of the lip and sanded a shallow cove in the taper where the forward edge joins the sea hood top, using a dowel wrapped in sandpaper. I slightly rounded all other edges, then sealed the lip and after edges of the sea hood with three coats of epoxy.

Next, I removed the temporary frames and sealed the screw holes with epoxy. I noticed there was a little "spring-back" in the after edge of the sea hood. To restore the proper shape for attachment to the cabintop, I cut away enough of the aft temporary frame to allow it to be C-clamped back in place during the mounting process.

Fitting the sea hood in place

First, I thoroughly sanded the cabintop where the sea hood would be attached. I then carefully set the sea hood in its proper position on the cabintop and, at the corners, drew location lines on the cabintop. Next, I turned the sea hood upside down and coated the entire bottom edge, as well as the cabintop where the sea hood would join it, with unthickened epoxy.

I made an epoxy mush by adding colloidal silica to my remaining epoxy and applied it to the bottom edge of the sea hood. I was careful to use enough for a continuous seal but not so much that an excessive amount would squeeze out on the inside edge where it could not be cleaned away. I set the sea hood in place, guided by the location lines on the cabintop, and weighed it down by placing a bucket of water on top. I cleaned away the epoxy that squeezed out along the inside edge of the sea hood as far as I could reach by using a tongue depressor shaped like a chisel.

On the outside, I added additional epoxy thickened with microfibers (for strength) to form a fillet between the sea hood side and the cabintop. To shape the fillet, I dragged a short piece of PVC pipe through the epoxy mush and cleaned up the squeezed-out excess with my tongue depressor. To protect the limber holes, I inserted a ¼-inch dowel which I had rolled up in waxed paper. It was a little bit difficult to form the fillet around the dowel, but I dabbed a little extra mush around it and sanded it to shape later.

When the fillet had cured, I sanded it to remove irregularities. I found some imperfections that needed filling. For these, I mixed a putty of epoxy and microballons which, as well as being easier to sand, also spreads more smoothly. When that had cured, I sanded it with sandpaper wrapped around a piece of PVC pipe. Satisfied with the shape, I then coated it with unthickened epoxy. After this had cured, I sanded it smooth to create a paintable surface. For now, the project was finished awaiting subsequent painting of the entire boat.

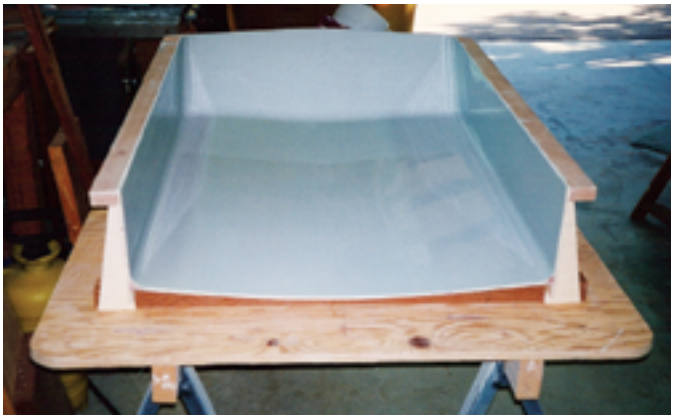
Paul Ring is a contributing editor with Good Old Boat. *He has sailed, repaired, modified, restored, and built boats for the past 42 years.* Magnolia, *his restored Cheoy Lee Offshore 27, graced the cover of Don Casey's book,* This Old Boat. *Paul currently sails his Nonsuch 260 with first mate, Barbara Brown, on Mobile Bay. He has written many how-to articles for sailing publications.*

More online . . . Paul Ring describes alternative methods of attaching the sea hood to the cabintop at <http://www.goodoldboat.com/reader_services/more_online/seahood.php>.

Molding a new sea hood

A venerable Triton gets a valuable upgrade

by Rob Squire



Rob constructed the mold for his sea hood out of wood, at top. After filleting the inside corners and coating the surfaces with filled epoxy, he sanded everything smooth, then applied Brightside polyurethane paint to create a gloss surface that would accept mold release polish, above left. After pulling the sea hood from the mold, Rob attached the rail to the aft end, above right.

One of the enjoyable aspects of owning a good old boat is exercising your creativity to make it it your own. My boat, a 1960 Pearson Triton, had been all but abandoned for five years when I found her. While the old Pearson fiberglass was generally in good shape, she needed nearly everything else. This presented a big challenge. Even my wife, who is used to my shenanigans, just shook her head, convinced that my affinity for the diamond in the rough had finally met its match.

To help get the project rolling, I started looking at boats — from daysailers to ocean cruisers — from a different perspective. I came to the conclusion that most boatowners have their own ideas regarding what's right and proper and what's attractive. My task was to decide which of these views would help me define my direction.

The venerable Pearson Triton is a classically styled boat. I wanted mine to have a "cruisy" feel and, as a part of that, I felt the boat needed a dodger. After looking at a lot of dodgers, I recognized that styling was as important to functionality as to appearance. The Triton is not a large boat and a dodger's size and shape should not distract the eye from the balance of the original design. At the same time, it should successfully deflect spray and keep the cockpit dry.

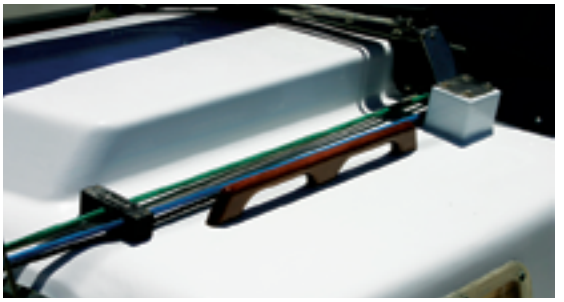
The Triton's companionway slide was designed to open along the cabintop. I decided that a sea hood over the slide would provide a structure on which to mount the forward edge of the dodger. Properly designed, it would add to the finished look and it would also assist in providing a reasonable seal from the weather. Since no such unit was available commercially, I set out to make one.

Harmonizing the design

As with the dodger, I felt the design of the sea hood should add balance to the overall appearance of the boat and harmonize with the curves and angles already there. I wanted the finished project to look as if it had been molded in place as part of the original design for the Triton that had come from Carl Alberg's pen.

Constructing the sea hood in fiberglass seemed to allow the most flexibility in its design without adding unneeded bulk. To achieve the result I had in mind, it was going to have to be molded.

I hadn't planned to build a mold and didn't know how or where to start. I sketched what I thought the final sea hood should look like and, with a scrap of ¾-inch plywood as a base, some ¼-inch birch ply, and a few blocks of scrap, I began building a mold: the sea hood in reverse.



In its final coat of primer, the sea hood awaits installation, far left. Finished and fitted, the sea hood has become part of the Triton's cabintop, near left.

From every angle, the sea hood blends into the boat's original lines. Its crown follows that of the cabintop, far left, and its forward face follows the slope of the step in the cabin, near left.

I filleted the inside corners using epoxy mixed with sandable filler, shaping the fillets with a piece of an old windsurfer mast to create a uniform inside radius throughout the mold. I sealed the pores in the wood with more epoxy-and-filler mix and sanded this to a smooth finish. Finally, I painted the inside of the mold with Brightside one-part polyurethane to give it a clean, shiny, waxable surface.

Before attempting to make the sea hood itself, I molded a proof-of-concept prototype that I could try on the boat, trim to fit, and use to further define the finished product. I laid a couple of layers of lightweight cloth in the mold and set them with epoxy. Then, it was out to the boat to see if all my planning and work were right. A little trimming established the final height, after which I carried the prototype back to the garage where I marked the mold for the final size.

I recalled from the story of the Pearsons' development of the Triton that laying fiberglass in alternate layers of mat and roving was stronger. Since I wasn't savvy enough to know the minimum number of layers, I figured "several" ought to be enough. At around nine layers, the sea hood was near ⅛ inch in thickness and I figured that to be about right to support my weight with minimal deflection.

After removing the sea hood from the mold, I layered in strips in the back of the mold to mimic the aft edge of the hood. I used the strips to create a jig on which to form an aft rail to stiffen the opening of the sea hood and to provide a point of attachment for the dodger. I formed the aft rail by cold molding it with very thin strips of wood that I coated with epoxy and clamped over the jig. After sculpting, filling, and sanding it, I attached the rail to the hood, then used more epoxy and sandable filler to refine its appearance.

Mounting the hood to the cabintop so it looked as if it had been there all along meant making it permanent. This was a notion I initially had some difficulty with, but I couldn't otherwise accomplish the look I'd envisioned at the outset.

I mounted a couple of parallel strips to the cabintop, just outside the companionway slide, slid the hood down over the strips, and glued and screwed it in place. I then filleted the joint, using the windsurfer mast again to make all the rounded edges consistent. All that was left to do was to give the sea hood a final sanding and paint it.

In the end, this sea hood does what I set out to do on the broader scale. The dodger attaches to the rail and water stays out. Whether it's artful, who knows? But I remember Don Casey talking about boats and saying something like, "When you leave the dock at the end of the day and you steal a glance back at your boat, it should make your heart skip a beat."

So far, I'm still getting that feeling.

Rob Squire loves classic boats and old cars. He has been sailing for 25 years on San Francisco Bay and the California Delta and, while he enjoys some racing, he is a cruiser at heart with a special affection for pocket cruisers. When not tinkering on his Triton, he makes a living flying for American Airlines on its worldwide network.

Once neglected, *Sinfonietta*, a modest Cal 25, now has a richly finished interior that has many details found usually in bigger, more luxurious vessels.

Glorious, luxurious *Sinfonietta*

Could she be the classiest Cal 25 ever?

by Chris Roberts

I have always loved boats, the sea, and being by water. I dreamed of one day owning a classy sailing vessel that would have a luxurious, rich, homey feel but I never thought I could afford such a boat.

A man with boat fever spends a lot of time in marinas and eventually I came upon a boat whose lines caught my eye. She was for sale at a most reasonable price. *Sinfonietta* is a 1969 Cal 25. She was scum-covered and grungy but sound and seaworthy. I was told the owner had been trying to sell her for several years and was "highly motivated," so I arranged for further inspection and a sea trial.

When my sons Corey and Larry and I went below for the first time, we knew instantly she was for us. Her thick fiberglass hull, solid mahogany interior, and comfortable layout immediately welcomed us with a feeling of warmth and coziness. She seemed to beg us to stay aboard and give her a new life. Her interior was in good shape. Now here, we agreed, is a "real boat" with the potential to be special. We fell head-over-bank-account in love with each other.

I struck a sweet deal with the owner. I then had to move her over three mountain passes and down more than 700 miles of highway from the West Coast, but by the end of September 2000, she was docked in her new home in Dayton, Montana. Over the next few summers, I cleaned her up and worked on improving my boathandling abilities. Since I spent much of my time teaching the Scouts of Camp Melita Island as they earned their sailing merit badges, true reconditioning didn't begin until the fall of 2003 when I obtained a trailer that enabled me to haul *Sinfonietta* 90 miles south to my personal boatyard at my Missoula home.

The project list begins

First, I went over the entire boat making a project list. Fortunately, except for some wood rot in the pop top and companionway, she was structurally sound. After some Internet travels, I arrived at a color scheme. It entailed changing her boot-stripe and sheer-stripe trim from sky blue to deep sapphire blue. But her bottom was a neglected mess of old paint and blisters so, first, we scraped, sanded, and filled holes, then applied a barrier coat followed by a red Teflon-based bottom paint.

Her aluminum mast was down and we buffed it using a scouring pad on a disc sander then brought it to a shine with metal polish. I was able to effectively and inexpensively clean her bronze fittings with a cleanser suggested by a former Navy man. He referred to it as "Atomic Joy Juice." It's made of lemon-flavored Kool-Aid mixed into a paste with a little water and vinegar.

I re-bedded her leaky windows using RV putty from the local RV supply store. This was very effective; the windows have not leaked in the five years since they were re-bedded. I also re-bedded all her fittings with Dolphinite.

Instead of painting her topsides, I decided to recondition her gelcoat

Chris started his upgrades to *Sinfonietta* on the outside. He scraped off her old bottom paint, above left, filled blister holes, above right, and polished her topsides and repainted her sheer stripe, at right.

using a technique I read about. It involved multiple wet sandings using several grades of sandpaper, starting at 400-grit and ending with 1,500-grit. This was followed by power buffing with rubbing compound and finishing to a bright shine with wax and Seapower Super Poly Boat Polish.

All this hands-on work bonded me with my boat, and my love continued to grow. I removed, stripped, and finely sanded her exterior wood. I then applied teak oil and allowed it to dry. Over the winter, I added up to 11 coats of varnish following the guidance Rebecca Wittman gives in her *Brightwork, the Art of Finishing Wood*.

The nonskid was so worn that I chose to paint the deck and cockpit area with gray deck paint to compliment the blue trim. During the four years that have passed since that project was completed, the deck has received three coats of paint in total and shows little wear, although it has been well used.

I replaced all the standing rigging the first year. Then, over the course of the next three years, I replaced the running rigging, using solid blue, white, and some red line to add a vibrant splash to the color scheme. A final addition was a brand-new mainsail.

Reflecting on her interior

While redoing the exterior is straightforward, upgrading the interior is another matter entirely. I wanted *Sinfonietta* to have a luxurious ambiance in her cabin. But what exactly does this entail? I did extensive online research, particularly on Yachtworld.com, looking at every Cal 25 I could locate, gathering ideas for interior improvements.

Using the boat for three summers prior to renovation also gave me a good idea of what changes made sense and what amenities I wanted. That first fall, I exchanged the old pumped-overboard head for a Porta Potti — Flathead Lake is too pristine to risk an accidental discharge. I plugged the through-hull permanently.

As I used her, I learned that my sailing habits primarily involve daysailing and the occasional weekend aboard. Because it worked for my lifestyle, I removed the freshwater bladders under the V-berth and chose to carry 5 gallons of drinking water on board. I tend to wash what few dishes I dirty in a bucket of lake water. I freeze water in milk jugs and keep them with the perishables and beverages in a carry-aboard cooler that fits neatly under the companionway step. This eliminates draining and gives me great dry-food storage in the old icebox in the galley.

Instead of the alcohol stove, I use a simple one-burner propane camp stove in the cockpit or on the galley top when it's cool.

When I'd slept aboard, I learned that the tired foam didn't cushion me satisfactorily and, in our warmer Montana summers, the vinyl upholstery was tacky and stuck to my skin. As I used the boat, I noted ideas for changes in my growing project list.

Inspiration from the classics

My primary sources of inspiration for redoing *Sinfonietta*'s interior are yacht-style books I've pored over and added to my library. Volumes 1 and 2 of *The World's Best Sailboats* by Ferenc Máté, *Classic Yacht Interiors* by Jill Bobrow and Dana Jinkins, and *Welcome Aboard: Inside the World's Great Classic Yachts* by Matthew Walker have been particularly helpful. With their aid, I chose upholstery and wood as the basis for her décor. I considered color first. While viewing the classics, I noted that emerald green blends with brass and rich wood in a very pleasing and relaxing manner. I determined that the upholstery should set the tone while tied into additional cabinetry designed for utilitarian purposes and effect.

Choosing fabric is a long, involved, touchy-feely process. The color and

The Cal 25's galley was basic, above left. Chris removed the stove and mocked up cabinets to surround the countertop, above right. The finished galley, with its tiled top, glows, at left.

effect have to be just right. I wound up using three different fabrics in the same color scheme. For the saloon/dinette fabric, I chose a stain-resistant velveteen velour for its soft smoothness. The seat cushions are tucked and buttoned on their vertical surfaces only, so the flat areas won't collect dirt. The V-berth fabric is more substantial. It's water-resistant and its pile doesn't allow bedding to slip. To cover a section of the starboard quarter berth, which is also the floor of the sail locker, I chose vinyl. I eliminated the port quarter berth and converted that area into a substantial cockpit locker. I replaced all the cushions with thicker closed-cell foam.

After the upholstery phase was complete, I made cardboard mockups of cabinetry for the starboard galley top and to go alongside the port-side dinette table. I added stowage capability and class to these with a brass-and-wood fiddle rail. My neighbor Jeff Schroeder is a kitchen refinisher and he fabricated them for me, as my abilities are limited to finish work. Together, we looked at wood and chose lyptus for its grain and coloration and for its similarity to the wood that was already aboard. A year after completion of the saloon/galley cabinets, Jeff built *Sinfonietta* a new dinette table and cabinets for the companionway bulkhead. I designed the cabinets to hide instrument backs and to be easily accessible for cockpit items like sunglasses, lotion, and binoculars. We chose lyptus once more for the cabinets, and white maple with lyptus edging for the table to better reflect light and brighten the cabin.

The next project was the galley top. We put a new cabinet where the old alcohol stove had been. Since I didn't need the sink, I removed its plumbing and cut a hole in the center to mount the single-burner bottle-propane unit. When I need it, I attach the stove's bottle from behind a sink cabinet access door. When it's not in use, I hide the burner under a fitted chopping-block insert.

After more research with kitchen remodelers and suppliers, I chose polished porcelain tiles from Brazil for the top surface because of their durability and sea-foam-green color. These tiles are extremely hard, non-porous, impervious to heat or cold, and cannot be scratched by sharp knives. The surface is easy to wipe clean and will not stain or absorb oils. Since I was covering such a limited area, the steep cost of the tiles was not an issue. Small is beautiful when dealing with high-priced luxury items.

After the cabinets and galley top were installed, I gave the remaining interior wood fresh coats of varnish. I took all removable items, such as doors, drawers, and trim, indoors over the winter months so I could strip and render them as brightwork. I lined the drawers with green felt for extra classiness and for the heck of it. I repainted all white interior surfaces with water-based, mold-resistant paint. I used bright-white topside or bilge paint for ease of cleaning and to provide light in the interiors of lockers, storage areas, cubbies, and bilges. I replaced old screw-in light-bulb fixtures in the V-berth, head, and galley with halogen reading lights and added wood trim strips spaced across the cabintop to create a more expansive feel within the cabin.

Several years went by and, as the majority of the work neared completion, I looked for refinements with which to add "icing to the cake." There was nice carpet on the cabin floor, but all those classic yachts were graced with teak-and-holly soles. *Sinfonietta* needed a sole too. In my travels to the West Coast, I found a teak-and-holly veneered plywood. Jeff carefully fit and reinforced the five sole pieces for me and I finished them with 11 coats of varnish before installing them. *Sinfonietta*'s sole now shines brightly below.

As I used the boat, I found that the interior was a bit dark unless I raised the pop-top. Newer boats are fitted with clear ventilation hatches to add light, but these are pricey to retrofit to an older craft. My easy, inexpensive fix was to mount and seal a clear acrylic panel into a cutout in the forward hatch. Voilà! Not only does it provide ample light, but I can see the stars at night while lying in my berth.

Artworks in a work of art

Wherever I have wandered I have found treasures, such as artwork or books, to bring home. I treat *Sinfonietta* herself as a work of art and embellish her with objects that speak to my appreciation of creativity. Mounted on her port saloon bulkhead is a bronze Tibetan gargoyle face, a Northwest-coast salmon carving, a framed boat print procured at the Port Townsend Wooden Boat Festival, and a matching brass barometer and clock. Wood and stone carvings live among cups and crystal behind the fiddle rail. I search for vintage silverware and ceramics to outfit her galley. The V-berth holds home-crafted cushions, each uniquely hand-stitched.

Other than the cost of new cabinets, upholstery, and rigging the upgrades were relatively inexpensive since they mainly involved my time and labor. However, there is no point in trying to total hours, as they need not be tracked. Time devoted to family members or energy expended in "mucking about in boats" is not to be tallied. *Sinfonietta* is a cherished family member, whether she is sailing on the water or resting at home in my yard.

"I have transformed a classic Cal 25 into the luxury boat of my dreams. I am content with a job well done."

All in all, the return for this devotion to a dream comes in pride of ownership. The sense of relaxation and enjoyment she gives my family and those who encounter her provides me with plenty of pleasure and reward. To see visitors light up with awe, appreciation, and surprise as they step into her cabin tells me I have transformed a classic Cal 25 into the luxury boat of my dreams. I am content with a job well done.

Insatiable boat fever

As I completed the project, my boat fever did not subside. It was amplified. My desire to have a "place by the sea" fueled an increased drive to walk the docks and cruise the Internet searching for another right boat at the right price. This one was to be my "home away from home." My boys insist that I must have checked out more than 300 boats since finding *Sinfonietta*. Yet they also agreed that this due diligence ultimately paid off.

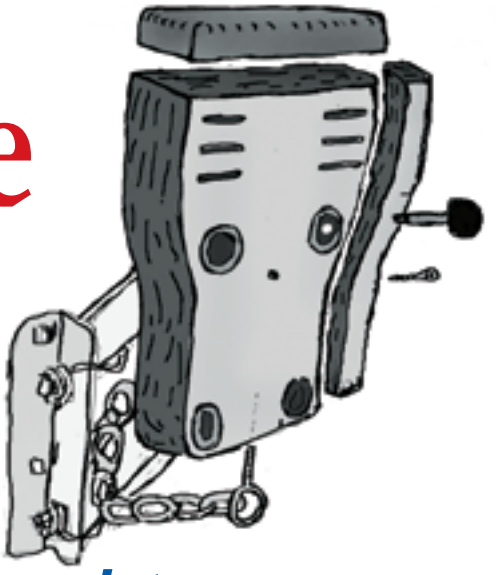
In 2007, I acquired another boat that seemed right for my family. She, too, is a classic plastic craft and kin to my Montana boat. She is a 1969 Cal Cruising 36. She was a bit haggard, weather worn, and wanting care when I lucked upon her. But, this time, I knew what I desire in a boat and what my capabilities are.

I am employing the expertise I gained with *Sinfonietta* to recondition and upgrade her bigger sister in a similar fashion. We've christened the 36 *Sognare*, which translates from Italian as "to dream." A labor of love has begun once again. However, this is another story.

Chris Roberts is a nationally known photographer of American Indian powwows. He is a traditional dancer and has been a powwow participant for more than 40 years. He lives in Missoula, Montana, where he is a Sea Scout skipper and teaches sailing using Sinfonietta *during the summer season on Flathead Lake. Chris also enjoys photographing and writing about maritime subjects. His company, Meadowlark Media <http://www.meadowlarkmovies.com>, offers a large variety of American Indian DVDs, books, and calendars as well as a broad assortment of DVDs on maritime topics.*

To fit Chris's vision for *Sinfonietta*, the blue vinyl had to go, far left. He reupholstered the dinette with velour and had a new table made, near left.

A go-anywhere outboard motor mount



MARLIN BREE

Get more years from an aging backing plate

by Marlin Bree

Most outboard motor-mount backing plates these days are made of plastic. For decades, however, those on most boats were a thick hunk of sturdy plywood that deteriorated over the years, cracking around the edges, and delaminating. With a little shaping, fitting, and a few special touches, though, you can fix up your old plywood outboard motor mount to make it stronger, better looking, lighter in weight, and ultimately, more secure as a mount for your engine.

I had a special reason to fix up mine. Because *Persistence*, my 20-foot custom wood/epoxy sloop, would be going into service on Lake Superior — an often boisterous body of water — I had ordered an extra-large swing-down motor mount good for up to 15 horsepower. The aluminum swing arms were big and sturdy, as I wanted, and looked fine on the boat, but the 2-inch plywood backing plate was all wrong for my 5-hp outboard. It was way too big and out of scale — the plate stuck out from around the engine like Dumbo's ears.

To begin the fitting process, I mounted my outboard on the plywood plate on the boat and, with a marking pen, drew the actual area I wanted to retain. This would lighten the unit a little but, most important, it would slice away the ugly extra plywood that stuck out on each side and just didn't look very nautical or do much for the boat's aesthetics. I also checked for the depth of the outboard's prop, following the manufacturer's recommendations of about 2 inches of water above the outboard's baffle plate.

Trimming off the excess

After taking off the engine, I unbolted the four stainless-steel bolts that held the mounting board to the aluminum lifting bracket and cut off the excess plywood with a saber saw. I also trimmed the top — this is where the plywood goes bad anyway after a few years and begins delaminating — and epoxied on a 1-inch-thick piece of mahogany. This would protect the open edges of the plywood and also provide a little room to later on adjust the depth I wanted my prop to be in the water.

I also marked the areas on the forward face of the mounting board where the engine's two clampdowns

screwed against the ply to hold the engine to the mount. I hollowed these clamping areas to a depth of about ⅛ inch so the outboard's clamps would fit inside the board's recessed areas and could not slide out. I also marked the aft face of the plate where the outboard's frame pressed against it and lightly recessed this area for a better fit.

I stepped back, feeling good. Now I had the outboard fitting really well and slightly inside the mounting plate, rather than simply resting on it. It would not slide around.

I continued my customization. On some outboards, the swivel bracket has a metal plate running horizontally across its aft section with a small hole in the center. Mine did. I marked the hole's position on the plywood and drilled a hole for a stainless-steel screw. After working the screw in and out, I swabbed epoxy into the hole to wet out the fibers and let it dry. This waterproofed the hole. When I mounted my outboard, I inserted the screw into the horizontal bracket and screwed the bracket tight to the mounting board. This gave the engine one more mounting point and some extra protection from vibrating off. I am certain it will also frustrate thieves who do not know this trick.

Padlocked and chained

For heavy-duty theft protection, I planned to chain my outboard to the bracket. To do this, I epoxied a ⅜-inch eyebolt up through the bottom of the

plywood plate. I whacked off a goodly length of my anchor chain (the good stuff) and secured that through the epoxied-in eyebolt at the bottom of the ply. A padlock at the top through the outboard's frame secures the chain. This chain-and-padlock combination looks massive and it is. Does it work? Well, I haven't had my outboard stolen yet.

After I had worked out all the details on the custom motor mount, I took off the mounting board and fittings and ground off the old varnish. I then coated it twice with epoxy and swabbed on a couple of coats of UV-resistant varnish. The plywood still looks good after 25 years of service and the mahogany top piece looks outstanding. From time to time, I've tossed a new coat of varnish on to protect the wood.

The end result looks good and is highly functional. I have recommended my technique to other sailors whose plywood outboard backing plates have become weathered and begun delaminating at the top.

My own system has also survived storms and high waves on Lake Superior. One storm in particular, called the "Green Storm," had *Persistence* in the grip of its 100 mph-plus downbursts, with the outboard almost sideways to the water, straining mightily. Between bursts, the sloop would right herself and the screaming prop would slam into the water, making the outboard bracket groan with the torque. I never worried, at least, not about my outboard — it was on for keeps.

Marlin Bree built his own 20-foot boat, Persistence, *and has sailed her extensively on Lake Superior, chronicling his adventures in magazine articles, for which he has twice won (in 2004 and 2008) the West Marine Writers Award from Boating Writers International, and books, which include* Wake of the Green Storm. *Visit his website at <http://www.marlinbree.com>.*

Cut down and prettied up, facing page, a standard outboard bracket is a perfect fit aboard *Persistence*, at left.

Three steps to

A successful circumnavigator

My wife, Carol, and I have been bumbling ever westward for the last 20 years in our good old boat, *Mary T*, an Offshore 40 built in 1970 by Cheoy Lee. In that time, while we have made our share of mistakes and suffered a few bruises, we've found that someone was always there to help us. Others taught us valuable lessons that kept us out of even more trouble. We owe a lot to those who generously shared their experience and we feel obliged to pass it along. I love to tell stories, particularly ones that convey ideas or attitudes that have survival value. Following are three of my favorites.

1. Take only what you need

Years ago, I prowled the boat shows emptying my wallet and filling my boat with stuff I thought it impossible to sail without. I loved to troll the boat-show aisles gathering, I thought, nuggets of wisdom but, instead, filling my head with sales hype.

The Long Beach boat show was as chaotic as Newport Beach at spring break. The one island of calm was the Perkins Engines booth, presided over by a distinguished gentleman with graying temples, blazer, and regimental tie. He had the cultivated plummy voice that inspires confidence. I asked him what spare parts I should carry for my Perkins 4-107 on a six-month shakedown cruise to Mexico in our Offshore 40. He provided me with a colorful brochure listing recommended spares and wrote a long list of additional items.

Innocent and grateful, I took those lists to Don Peters, my diesel guru, at S&W Diesel in Wilmington, California. Don studied the list thoughtfully and observed, "You list well over $2,000 worth of parts here." He paused, then asked, "Do you happen to have a 50-ton hydraulic arbor press on board?"

"No. Why?" I asked.

"You have on your list an impeller for the freshwater circulating pump. First, you need a press to remove and reinstall the impeller. Second, they rarely fail, and the mode of failure is a slow drip, not sudden and catastrophic. You can run a long time with that, so you take either the whole pump or nothing at all."

He continued, "You have tubing for high-pressure fuel lines on your list. Do you have the hydraulic equipment on board to bend and swage the tubing? In 33 years, I have replaced many fuel lines but never seen one broken. Besides, you can run for a while on three cylinders. If you need one, just have any automotive brake shop fabricate what you need from hydraulic brake lines."

A gradual awakening

I was beginning to catch on as he observed, "You list four injector tips. Picture this: it's three in the morning, bucketing down rain, blowing like stink, and you are off a lee shore. Are you going to disassemble and rebuild the injector, with its tiny and delicate parts, while the boat is standing on its head? I'll give you a complete rebuilt injector in a jar of clean kerosene. It will be clean, protected from corrosion, and filled with fuel, ready to instantly re-start.

"You have on your list a hand crank. That is a 40-horse diesel engine with no compression release. King Kong couldn't hand-start that engine! Take along an extra-long (½-inch drive, 24- to 36-inch) ratchet wrench with a socket to fit the nut at the end of the crankshaft. You can use that to turn over the engine, to determine the presence of water and clear the cylinders after bad weather and following seas. You will also use it for doing the valves, timing, and other operations. Most important of all, have on board the factory shop manual and illustrated parts list. Even if you intend to hire out all the work, it will help you communicate with overseas mechanics."

Don went down the list item by item, in much the same way. "You will delay major repairs until you can sail to a safe haven with telephone and airport, or at least bus service," he continued. "I can airfreight parts to you anywhere in the world. I do it every day for the tuna clippers, rig-tenders, and fishing boats."

Don had a few more gems. "Always, always, use your Baja filter to clean all fuel. Carry enough lube oil and oil filters for at least four oil changes, in case you flood the engine with seawater.

"Never, ever use ether starting fluid. It dries the cylinder walls. It can blow a hole in a piston, stretch or break head bolts, or blow the head off the engine. But don't leave home without it. When you need it, don't squirt it into the air intake. Spray a little on a rag and then wave the rag in front of the air intake, while cranking.

"Carry several raw-water pump impellers as well as spare V-belts. Failure of these items can disable the boat. Install an electric lift pump to polish fuel and to purge air from the fuel system."

ILLUSTRATIONS BY CLEVEN "GOODIE" GOUDEAU

simplified sailing

passes on lessons learned

by Sig Baardsen

Don saved me a lot of money. He finished with, "Keep your money in your pocket. Do you know what's the most versatile spare part you can carry on board? It's cash!"

As I left, he waved and called out, "Take a case of fuel filters and have a good time."

I did.

Don was right. Over the years of pelagic cruising, we have found that 30 percent of our spares corroded to uselessness, 30 percent we gave away to cruisers in need, 20 percent we still have, and only 10 per cent did we ever use.

2. Fix it yourself

This lesson in the full, unedited version is: accept the responsibility of fixing it yourself and help others to do so too. Welcome it as an opportunity for invaluable on-the-job training. You have nothing to lose. Miles Smeeton was fond of saying, "When I pay someone to do a job, at the end of the day, I am not smarter, just poorer." In my own cruising I have found that 40 to 50 percent of the work I hired out, I wound up doing over again anyway. That applies equally to first-world and to third-world countries.

Tio Alvino, as he was known to the Mexicans, was the best delivery skipper on the West Coast. To my knowledge, in 1959 he was the *only* one. I was privileged to go on a delivery with him, from Newport Beach, California, to La Paz, Mexico, and back, in the motor vessel *Fengshui*, a beautiful, 55-foot, all-teak, motor yacht custom-built for Dick Stuart.

On the trip south, we had a nasty night off Magdalena Bay. Fuel jugs and any loose gear were washed over the side and we suffered some minor damage. During my midnight-to-4 a.m. watch, the sweep on the radar quit. I logged the event and noted our position. For safety's sake, I altered course 5 degrees to carry us farther offshore.

I was upset about losing the radar because Baja California was then, and remains, a wild, dangerous, and remote coast. We had the latest charts available, made by USNS *Narragansett* in 1855. They had been updated in 1885 by USNS *Ranger*, so they were not as accurate as we would have liked.

On the whole 2,500-mile cruise, we saw only one functional lighthouse. The only electric light on the whole coast was at the cannery at Cabo San Lucas. Although now a mega-resort, at the time, Cabo San Lucas consisted of an abandoned sardine cannery and a few mud huts. The airstrip was a straight patch of dirt road guarded by buzzards. The radar had been a great comfort on that wild and often foggy coast.

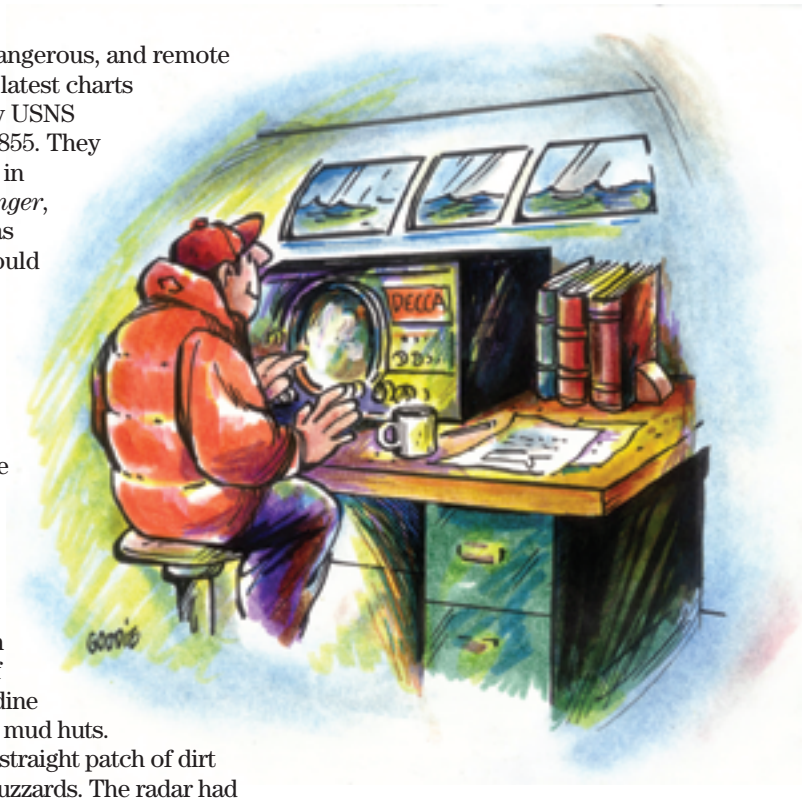
As I came on watch the next morning, Tio greeted me with: "Sig, fetch my toolbox. We're gonna fix that radar."

I protested, "Tio, you can't do that. That radar cost more than our combined wages for the next 10 years."

At that time, only a few freighters and no fishing boats or yachts had radar. That 40-mile Decca was the pride and joy of the owner. Panicked, I pleaded, "Tio, if you break that radar, we'll both lose our jobs." Always laconic and seldom grammatical, he replied, "How can I break it? It don't work now, do it?"

Dismantling the Decca

His first act of apparent insanity was to remove the rear cover from the set and poke around inside with a huge screwdriver, the same one we used for setting the valves on the GMC 6-71 diesel main engine.



There was a blinding flash and a report that sounded like a .45-caliber pistol. I fled to the upper deck in panic. When the dust cleared and Tio quit laughing, he explained that he was discharging static electricity in the cathode ray tube and capacitors.

He proceeded to dismantle the machine, carefully examining and numbering each piece as he went. We recorded the disassembly sequence and location of every piece for reference on reassembly. Today, I use a digital camera for the same purpose.

By noon, the set was stripped down to its empty chassis and the saloon table was covered with numbered components. I was convinced that there was no way he would get that thing put back together. A grunt of satisfaction announced that he had found the fault. One of the four bearings supporting the rotating sweep-collar was worn flat. "It'll run just fine with three," he said, as he wrapped and labeled the

offending part as a sample for eventual replacement at the tractor-supply house in Ciudad de Constitucion.

By sunset, the thing was up and running again. That radar ran continuously, without fault, for the remaining 33 days of the voyage and possibly years longer.

"How can I break it? It don't work now, do it?" Over the years, those wise words have encouraged me to undertake the most astonishing repair challenges.

3. Choose simplicity

It was a clear crisp autumn morning. Sam and Nancy were coming down the dock, each pushing a cart piled high with cartons of new electronic gear for their big cruise. They stopped to chat. With pride and great enthusiasm Sam explained, "With this unit we can monitor and display boat course and speed; GPS position; VMG; CTX; chart plotter display; radar display; water depth and temperature; wind speed, direction, and air temperature; weather charts and GRIB files; engine RPM; lube-oil pressure and temperature; bilge water levels; as well as fuel, water, and battery levels . . . " Sam went on, waxing rhapsodic about the virtues of the new system.

It seemed inappropriate, at just that moment, to point out that they were operating a 40-foot sailboat, not a jet fighter aircraft at 49,000 feet in cold, clean dry air. With the writing of a check, they were throwing themselves upon the mercy of equipment that relied upon the boat's electrical system, the most unreliable system on board.

I didn't dare to suggest just then that they would be depending upon equipment they did not fully understand. I didn't mention that they could find themselves waiting months for parts and replacements for equipment they could not repair by themselves or have repaired in remote places. Worse, they exposed themselves to extortionate shipping and import fees, visa overstays, and losing favorable weather windows.

While I was lost in these thoughts, Nancy brightly chirped, "We bought all this stuff at the boat-show prices, for just under $7,000." I didn't have the heart to tell her how many months they could cruise in third-world countries for that kind of money.

Caught in the throes of cruise preparations, Sam and Nancy had not considered that their whole system could be knocked out by a nearby lightning strike, a voltage surge from the engine starter motor, a voltage spike from the alternator, or a deck leak that soaked the circuitry.

Reality check

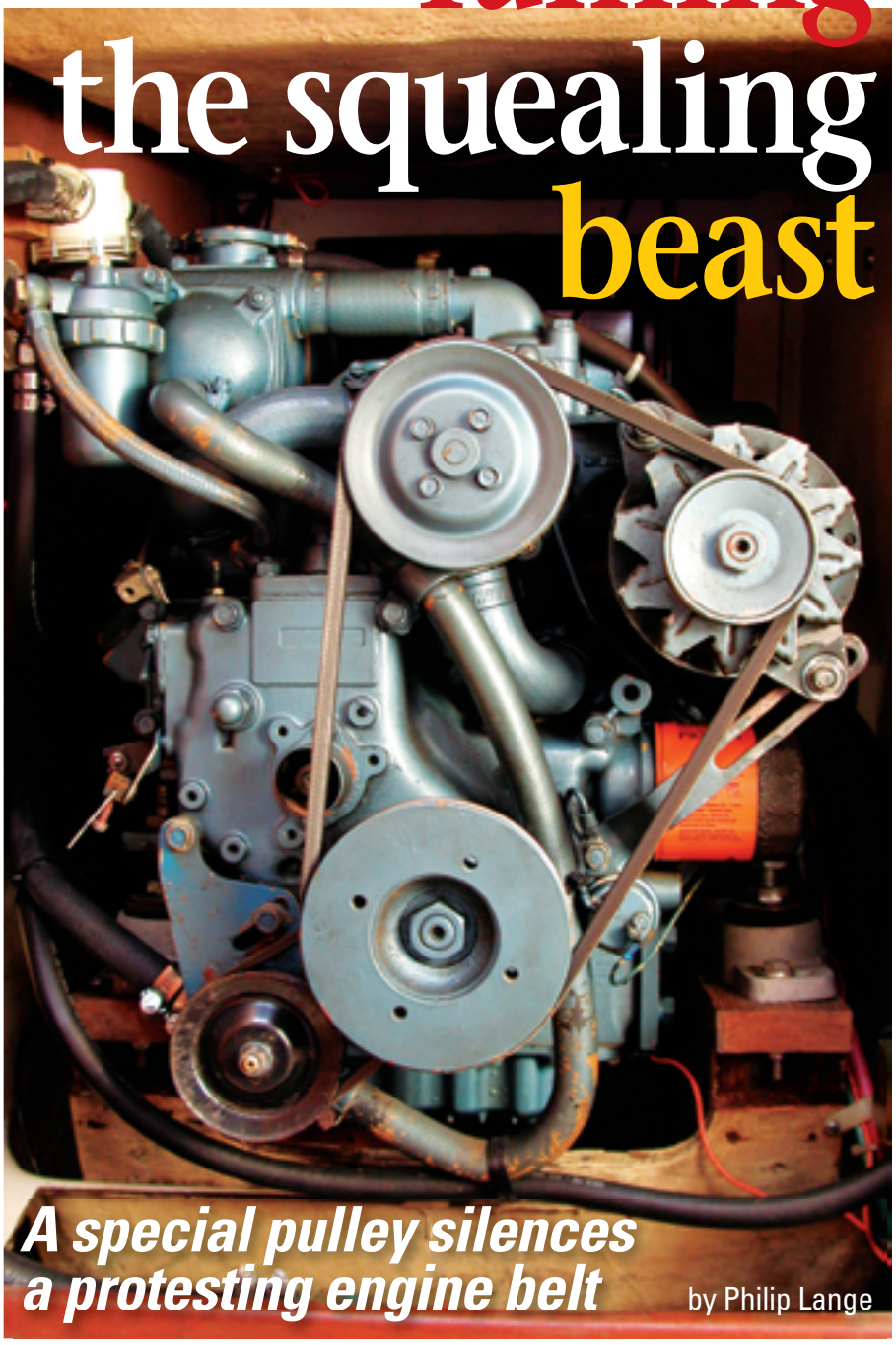
That evening, I recounted for them how once, years ago, I watched helplessly as white smoke leaked out of our Magnavox Sat-Nav. A short circuit in the remote speed sensor sent full battery current back into the set, destroying it and rendering useless all its sensors and ancillary equipment. That was not a problem 1,200 miles out in the Pacific, as we had our sextant and sight-reduction tables. In close quarters in darkness or bad weather, however, that could have led to disaster.

Nancy reacted in horror, "You mean, if this one unit goes down, all our other navigational systems could go down too?"

Nancy is beginning to realize the meaning of independent redundancy and the importance of simplicity. Sam and Nancy will be fine. They are figuring it out.

Sig Baardsen bought Mary T, *a Cheoy Lee Offshore 40 yawl, in 1987. A year later, he and his wife, Carol, sailed south from San Pedro, California, and on to a 17-year circumnavigation.*

Taming the squealing beast



A special pulley silences a protesting engine belt

by Philip Lange

In its original configuration, the drive belt on Philip's engine complained noisily because it couldn't deliver the oomph needed to turn the high-powered alternator.

My wife clapped her hands over her ears. "What *is* that awful noise?" she exclaimed. I *knew* what it was. I had just flipped the field switch on our new Balmar high-output alternator and the tortured belt was protesting under the sudden burden.

"Not to worry, Marilyn. Just a bit of belt slippage. I'll tighten it a little and that'll quiet things down."

I idled the engine, opened the engine box, and looked down at the dancing diesel beneath my feet. I could tighten the belt again, or maybe put a little soap on it to quiet it down, but I knew that would not solve the problem. The problem was that the belt could not deliver the extra power the new 85-amp alternator demanded.

My engine was a two-cylinder Yanmar (2GM20FC) and, like the one- and three-cylinder freshwater-cooled GM series, it used a small belt to drive the raw-water pump and a separate ½-inch belt to drive both the freshwater recirculating pump and the alternator. This worked reasonably well with the alternator supplied with the engine, but the added load of an 85-amp, hot-rated alternator exceeded its limits.

As I thought about tightening the belt, I considered the water-pump bearings and the extra heavy loads I would be placing on them, as well as on the front main bearings. Maybe for occasional use it would pass, but *Kuan Yin* was a cruiser, so the system would be under heavy loads and frequent use. Dealing with a bearing failure at sea or in some remote part of the world is not on my list of fun things to do.

Pinpointing the problem

This was a problem that demanded a solution, but first I had to determine just *what* was the problem. I did a little research into the power-handling capacities of the belt. I found that the ½-inch belt is capable of delivering the power required by the alternator, but it has to be wrapped a minimum of 160 degrees around the alternator's pulley to do it. I looked at the alternator and made a guesstimate of 120 degrees. The three points of the belt path simply did not wrap the alternator pulley sufficiently to give enough contact area for the belt to do its job.

I considered a larger pulley for the alternator, but that would require higher engine RPM and still wouldn't solve the problem. The solution was to give the alternator more belt wrap. I could do that easily by simply running a belt from the power-take-off pulley (PTO) on the front of the engine. I would then have about 170 degrees. But if I did that, I would not have any way to drive the cooling-water recirculating pump. I looked into purchasing the optional PTO sheave from Yanmar but, without

a way to tension the belt between it and the fixed water pump, that would not work. What I needed was a way to tension a second belt between the PTO and the freshwater pump. An idler? An undesirable solution. Besides, there was no place to mount one.

Then it struck me. How about using an adjustable, variable-pitch sheave mounted on the PTO? As it would be driving only the water pump, the load would be relatively light for its size and belt wrap. If I sized the new pulley correctly, the pump would run close to the same speed. Here's how I did it.

Variable-pitch pulley

I looked in the Yellow Pages for a distributor of bearings and other power transmission-related hardware. I found what I needed at Dixie Bearings in Jacksonville, Florida. I bought a Browning Model #1 -VP6-016, a variable-pitch pulley with an outside diameter of 6 inches. That comes very close to the outside diameter of the engine PTO. Although the suggested list price was more than $100, I paid about $25 for mine and have seen them online for less than $20.

When you have it in your hands, you will observe that the two cheeks of the sheave unscrew. One half has the hub; the other screws onto it and uses a setscrew to lock it into place. The pitch-diameter of the pulley is determined by how far the other side is screwed onto the hub. As you can see, this is a perfect way to adjust the distance between two fixed points and tension a lightly loaded belt.

Measure twice, cut once

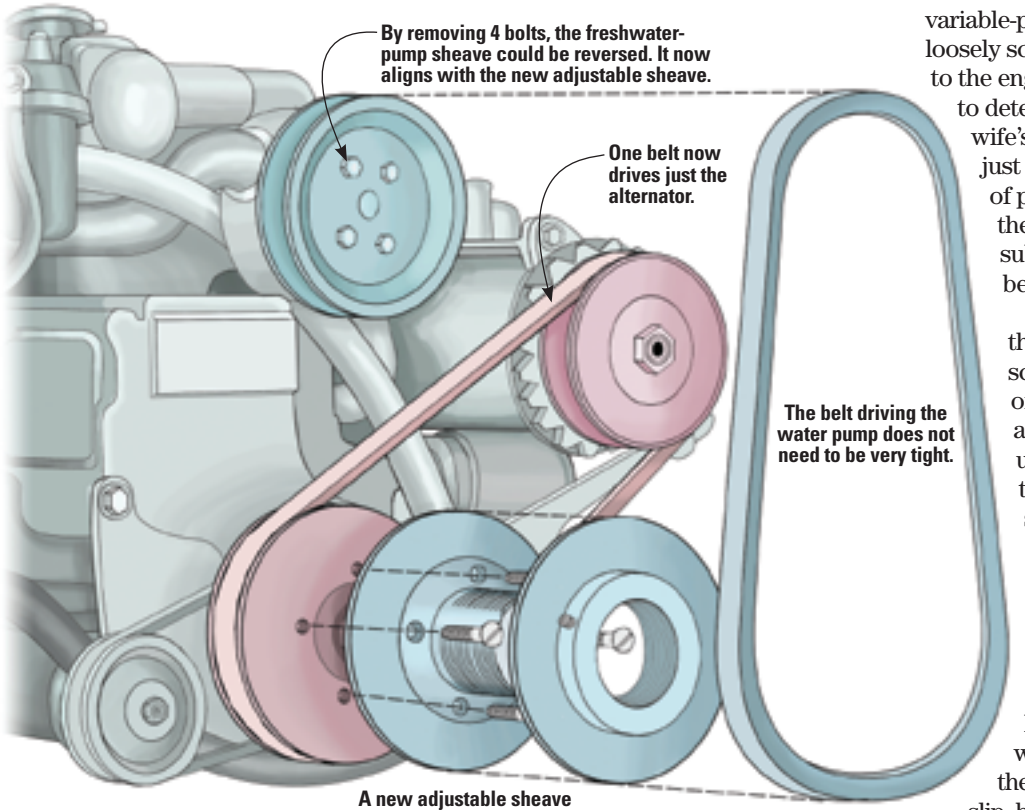
Two features of the Yanmar GM series engine made this job possible and easy to accomplish. The first is that Yanmar has drilled and tapped its PTO for four 8 x 1.5 mm machine screws on a pitch circle of 82.5 mm. (Yanmar recommends a Grade 8 bolt with a torque of 20 to 21 foot pounds. That's about as tight as you can get them with a regular screwdriver.)

I like to check to make sure the drawing in the manual agrees with the reality. I made a paper pattern of these holes, checked them with a caliper, then checked the accuracy by making a cardboard pattern. I went through this trouble because on my installation the PTO is within 6 inches of a bulkhead and I could not easily check the dimensions on the PTO.

I considered drilling the holes myself, but because I did not have a drill press, and accuracy and precision would be required for the pulley to run true, I took the fixed half to a machinist. He precisely drilled and countersunk four 9 mm holes. (A little slop to make lining up the holes easier.) I tightened the flathead machine screws in the usual cross pattern with a dab of red Loctite on the threads.

The second stroke of good luck is found in the dished sheave that drives the water pump. When the four bolts holding it to its mount are removed and that sheave turned front to back, the pulley aligns precisely with your new adjustable sheave on the PTO. You can check yours by stretching a piece of string over the rear face of both pulleys. It should line up perfectly without any distortion in the string.

With the freshwater pump in the loop, the drive belt didn't have enough "wrap" around the alternator pulley to deliver the power demanded by the alternator. Philip solved this by leading a new belt directly from the crankshaft pulley and rigging a separate belt to drive the pump.



FRITZ SEEGERS

Measure for the belts

After bolting the fixed half of the variable-pitch pulley to the PTO and loosely screwing on the adjustable half to the engine, all that remained was to determine the new belt sizes. My wife's fabric measuring tape worked just fine for this task. For both sets of pulleys, I measured around the outsides of the pulleys and subtracted twice the height of the belt (about a half inch).

I slipped the new belts on. For the water pump belt, I simply screwed the adjustable portion of the sheave (a bit of fussing and wiggling is necessary here) until I'd removed the slack from the belt. I then tightened the setscrew. (Some blue Loctite here is a good idea.)

I used a flat bar (my windlass handle) as a lever to tension the new alternator belt. The bar makes it easier to hold the tension on the belt with one hand as you tighten the bolts with the other. You want to get the belt tight enough so it doesn't slip, but not so tight you overload the bearings: ⅜ to ½ inch of belt movement in

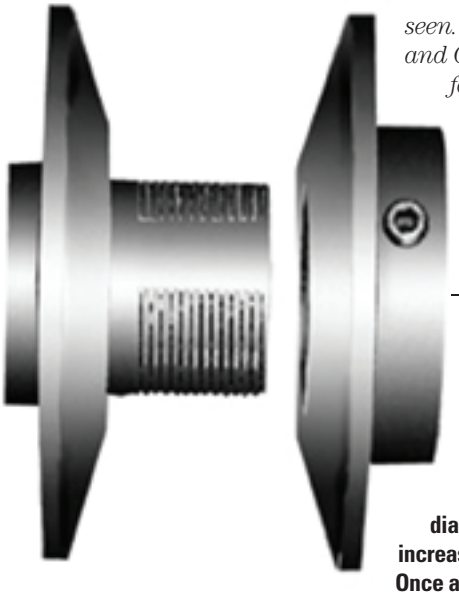
the center with moderate finger pressure is about right. When you pluck the belt, think bass, not banjo.

The screaming beast has been tamed. My wife is happy and so am I. Now when I start the engine and flip the alternator field switch, the only sound we hear is the lugging down of the engine as it goes to work.

More observations

- The new pulley gave me a slightly smaller pitch diameter than the original setup. That meant that the water pump would spin a bit slower. I was concerned at first; however, for years I have run my engine at 3,250 rpm all day long in the tropics and in the summer in the Chesapeake and have not experienced any problems with overheating under any load conditions.
- I have more than 2,000 hours and eight years on the engine since performing this modification. Same belts. Zero problems. I do, however, recommend having an extra set of belts on board. When you are sure you have the right size, buy another set for the spares locker.
- Be sure you have the power removed from the alternator before starting this or any other job that involves the alternator. The sorrow of alternator repair will outweigh the joy of watching the pretty sparks. Diode replacement is not cheap. Exploding batteries are dangerous, messy, and expensive to replace.
- Running the engine strictly for battery charging and other light-load applications has been the cause of maintenance problems requiring expensive repair on many a diesel engine. We used our high-output charging system only on the rare occasions when our solar system could not make up the power deficit. This occurred after sailing at night while using our radar, running lights, and autopilot and being greeted at dawn by a bleak sky. Even then, it isn't necessary to bring the batteries up to full charge. A few cycles to 80 percent of full charge won't cause any problems that cannot be undone with an equalizing charge at a more convenient time.

"The screaming beast has been tamed. Now . . . the only sound we hear is the lugging down of the engine as it goes to work."



The hub of a variable-pitch pulley, on the left, is fixed to the crankshaft PTO. As the flange, on the right, is threaded on to it, the effective diameter of the pulley increases, tightening the belt. Once adjusted, the flange is secured with a setscrew.

Philip Lange was educated as a mechanical engineer. He's been on the water and messing about in boats since 1969. With his wife, Marilyn, Phil built what Jim Brown (its designer) considered the best Sea Runner 37 he'd seen. They cruised South and Central America for 12 years and are currently rebuilding a 35-foot Crowther catamaran with hopes of cruising once more.

Just sailin', Mon

Cruisers learn to race — Bahamas style

by Zora Aiken

DAVID AIKEN

We were with cruising friends, enjoying a lazy morning of harbor-watching in Nassau, where the parade always included a number of native sloops, or "smacks," the brightly painted sailing workboats we all thought would be such fun to sail.

"Anyone for a smack race?"

The question came from a young man who'd approached us on the dock. *Anyone*? Most likely *everyone*! We could hardly believe our good luck.

On Sundays, the workboats we so admired became raceboats. This Sunday, the race was special. As one of a series of elimination races, it would help to determine which boats would be used in an upcoming regatta pitting American racing skippers against Bahamian captains, all of them sailing island smacks. Our recruiter told us where to gather and when, then left us with a bit of friendly advice: "Oh . . . better not bring anything you don't want to get wet."

The comment was *way* more than a hint of what to expect, but we happy cruisers were so flattered about being asked to crew, it was easy to ignore its implications. It didn't even bother us to know we'd been picked randomly for our bulk and not our sailing sense. Thus prepared, our three large captains and two small mates changed into crew clothes and marched our collective ballast toward the designated dock.

In the short time it took to walk a few blocks, we learned that even ordinary smack racing was far more than a Sunday pastime for the sailors. All along the waterfront, conversations centered on the boats and their captains. Emphatic voices carried the good-natured teasing and the not-so-good-natured bickering, all expressing themes familiar to racers everywhere: which are the hot boats and which the also-rans, who are the smart skippers, and who the wannabes.

Small boat, big sail

We found our smack. *Clara Naomi* was only 28 feet on deck but, as a typical island sloop, she carried a mainsail that seemed better suited to a 40-some footer. By comparison, the tiny jib appeared mis-rigged. The boat had no cockpit or cabin to speak of, just a flush deck over a nearly empty cargo hold.

When all the crew had assembled, 18 of us stepped aboard. We were shorthanded at that, as the usual crew numbered 22. A few quick instructions stressed the most important thing to remember: when the boat tacks, move to the high side. What could be easier? Small-boat sailors already know that. We were ready.

As the boat headed for the channel, we heard suggestions (orders?) from many sources and wondered which voice we should actually pay attention to. Much of the shouting related to the immediate goal of heading for the channel, a pre-race challenge in itself, as the smack had no auxiliary. Wind and current in Nassau Harbour are notorious for disrupting the best-laid plans. Yet, of necessity, the sailing plans for these boats are governed by wind and current.

> **"This boat didn't fit a typical raceboat profile, nor did she have a typical crew hierarchy."**

From the time we drifted out of the slip, every move sparked multiple discussions . . . not an ideal way to handle onboard discipline. But this boat didn't fit a typical raceboat profile, nor did she have a typical crew hierarchy. This was

a family boat. On this day, the father and two sons were on board and, except for our group, the rest of the crew were regulars. Everyone wanted — and apparently got — a say in tactical decisions. Though often distracting, this variation on captaining was accompanied by a contagious good humor that kept us all in the upbeat mood of race day.

We'd been the last boat to the leave the dock but we were first to have a man overboard. While attempting to untangle the jibsheets, one crewmember absentmindedly stepped off the foredeck, quietly slipping into the water with hardly a splash. The right combination of laughter and helping hands brought him back aboard with what was probably the speed of much practice. He was hardly even wet. With all crew aboard and again at the ready, we could now try a few tacks. And so the fun began!

Scrambling under the boom

Well, not everyone sees fun the same way. As guest crew, we soon found our part in the basic tacking procedure to be a bit more involved than gracefully shifting to the other side as the boat smoothly came about. There was the long, low boom to consider. Close to the mast, there was not enough room for even a small person to fit under the boom, so tacking time prompted a mass scramble. Everyone had to get to a place on deck where he or she would fit, then scoot under as quickly as possible by whatever means seemed doable. Some opted to slide on their backs, while others tried a belly glide; either way, grace was a forgotten factor. Timing was truly crucial. Too soon, and a belly-glider would be rudely startled by a face-full of seawater. Too late, and a back-slider might get ungracefully swept off the suddenly low side.

Arriving last at the starting line, we dropped the sails and also the grappling hook that was our anchor. Here was a unique way to start a race. No stopwatch timing of pre-race tacks to assess speed and ensure the best starting-line position — this was easy. Wait for the gun, raise anchor and sails, and away.

A hang-up at the start

The gun fired and the onboard confusion reached a new peak. Boat after boat moved out but, while our anchor-pullers heaved smartly, nothing happened. More hands, more pulls, more shouts, and finally, the hook broke free enough to be dragged aboard — bearing an unwelcome gift. Caught in its grapples was a huge tangle of rusty cable that no doubt weighed more than the anchor itself. More orders (not exactly cheerful ones) and the cable was released to trap another unlucky race-starter.

Now that we were the last boat to start, we needed all the speed we could muster. A fast trimming of sails and out came the pry, a long plank that is pushed out over the windward side to serve as a platform for as much weight as may be needed to balance the boat. (For those familiar with log-canoe racing, the smacks share some of the canoes' traits, though it's debatable which boats are the more tender.) With pry in place, three crewmembers moved gingerly out toward the outboard end, so "this boat can stand up and walk."

Close call with a party

Stand up she did but she didn't walk — she ran. The boat was sailing beautifully, aimed straight for a small dock on shore where an outdoor patio party was in full swing. Onlookers were smiling and waving as the boat sailed on, closer and closer to the happy partygoers.

"Now we're movin', Dad," called one of our skippers. "Come on, come on, just keep this boat movin'!"

"And what you think I'm doin', Mon? You think you can do better, you come on back here and do it!"

The exchange continued, each side extolling the moving capabilities of this boat relative to which skipper was steering, all of which had the predictable but unfortunate side effect of lessening concentration at the helm.

"Tack, Mon, TACK!" and the 18-person scramble ensued as we crawled, kicked, and wiggled our way to the high side while that long boom seemed to sweep over the small dock, the sloop's proximity scattering the no-longer-smiling onlookers.

> **"A sharp cracking sound was followed almost immediately by three loud splashing sounds."**

"OK, now, we're gainin', Mon, now just keep gainin'!"

"Mon, you think I'm sleepin' back here? I been steerin' these boats since long before you came along . . ."

Suddenly, with no prior command as warning, the boat turned into the wind. The smack stood up. The pry went down. A sharp cracking sound was followed almost immediately by three loud splashing sounds.

Smack racing rules are very strict about some things, one being that the boat must return from a race with the same crew that was on board for the start — all of them — or it loses points. Now that the pry no longer existed, the value of the pry-riders, particularly that of the lone tourist in the trio, could reasonably be in question but, thanks to the rules, all three splashes were retrieved with remarkable speed.

Seeking a better breeze

Now, with no other boats in our vicinity, the captain decided to head off on a different tack, literally. If we found that proverbial better breeze, we might be able to catch the fleet at the next mark. For a time it did seem that our position was improving, though it would never be clear if this impression was based on actual gain or misplaced optimism. And then the wind began to fade.

"Time to lighten the boat," announced the skipper. Our curiosity definitely aroused, we watched as a deck hatch was pushed aside to reveal a number of filled sandbags. Eager hands reached in, hauled the bags out, and emptied the contents overboard. Once more we were grateful for smack-racing rules.

"Hey look, Mon, we're goin' to meet some boats at the mark. We won't be first in this race, but maybe now we won't be last either."

A surge of renewed spirit ran through the crew. Now when we tacked, we all side-slid to the high side like a sailor's chorus line; kicking was kept to the barest minimum. "Get ready!" was the command as we closed on the mark with two other boats.

At this stage in a smack race, we were told, anything goes. The screaming, the shoving, even the colliding were all acceptable methods of rounding the mark in good smack-like fashion. And it did put us back in the race — still last, but close enough to be considered back in anyway.

"This boat, she really goes downwind, Mon. Now we have a good chance of not being skunked."

The crew was distributed amidships with great care to balance the boat for maximum downwind performance. The huge main was let out . . . and out . . . and out. Everyone watched nervously for what could be a total, deck-sweeping jibe. No one sat up very straight.

"Everyone watched nervously for what could be a total, deck-sweeping jibe. No one sat up very straight."

Speeding to the finish

"We're doin' it, Mon, we're passing David!"

This time, enthusiasm grew to real excitement as *Clara Naomi* continued to pick up speed. It was hard for the ballast to sit still as we moved steadily past the red transom . . . then the mast . . . then the bow. It was true — we had done it! We had passed another boat.

After the committee boat acknowledged our crossing the finish line, we rounded up to wait. Jeering at the last boat was one of the unwritten rules we intended to obey. However, our exuberant shouts were quickly silenced by the sight of a broken stay flogging in the breeze.

"We had to take it easy," said the red-boat skipper, nodding toward the reason.

A long and awkward pause was finally broken. "Were we last after all?"

Another pause.

Then Dad spoke. "Well, I'll tell you what I think. When you can sail a boat like this, on a day like this, in a place like this, then you don't need to worry about being first or last. You're just sailin', Mon."

Zora and David ***Aiken*** *have been meandering by boat since 1974, finding inspiration for painting and gathering material for writing. Their books include* Good Boatkeeping, Second Edition, Cruising, the Basics, *and* Fiberglass Repair: Polyester or Epoxy. *"Home" since 1978 has been a good old, now classic, 1963 Chris-Craft sloop,* Atelier.

Seeking the

Boat number one, the Cabo Rico 38, at left, required so much work Susan and Hale never did get to take her cruising. They did sail their second boat, the Pacific Seacraft 32, to the Bahamas, but she proved to be too small, opposite page.

Sitting in the oyster bar in Key West, four wannabes and an old salt debated the merits of sailboats for cruising: "You *must* have a heavy displacement hull" . . . "I won't go back out until I have *two* hulls under me" . . . "You *need* a performance boat so you can outrun the weather."

Hale and I planned to become full-time sailors and we were working through our list of preparations. This step was our liveaboard bluewater-sailing course. Our fellow students, Mark and Brad, already owned boats; our instructor, Jeff, had been cruising for years.

Since the only boats we had ever owned were sea kayaks, Hale and I regarded the other three as oracles and we soaked up all they said. We also read all the books and magazine articles, studied the reviews, and looked at our savings. We determined the size and quality of the boat we thought would suit us best and the budget needed to acquire and equip it. Those factors dictated the year and condition of the sailboat we would buy. We were both in our early 30s and anxious to get "out there." The sensible option — buying a starter boat for coastal cruising — did not appeal to us and, in our antsy state of mind, chartering different boats to get a feel for options felt like a waste of money.

Armed with a book on evaluating used boats, and with more enthusiasm than turned out to be good for us, we set out to buy our dream boat. While oblivious to the fact that we knew nothing about boats, fiberglass, or leaks beyond what we'd gleaned from typed words, we were confident in our ability to find a good deal. Cabo Rico 38s, with their pretty clipper bows and stunning teak interiors, felt salty and right to us. We looked at only two and chose what we were sure was the better one. Despite our distrust of the broker, our dislike of the seller, and the warnings of "a lot of hard work" from the surveyor, we signed on the dotted line and she was ours. Who were we to be afraid of a labor of love?

Flaws revealed

On the trip home, her batteries leaked noxious fumes and liquid, her leaks appeared with a vengeance, and her engine showed its reluctance to give even one more hour of service. Determined, we set to work on her at the dock and later in a boatyard. A year and a half later, the most endearing part of the experience was my undying adoration for the boatyard Rottweiler. We had found holes drilled through the holding tank, soggy cabin sides and deck, and countless problems too embarrassing to list. We'd learned an amazing amount about ripping up teak decks and soles, cutting up fiberglass, and re-coring with foam.

We'd discovered that the true love of Florida lovebugs is not other lovebugs but uncured epoxy, into which they would joyously dive. We'd ground, sanded, and primed every exterior inch of the hull and topsides. We'd bought more power tools than a carpenter. We'd realized that we were not experts at setting up watertight canopies or really at anything that had to do with restoring a boat. We'd stripped half her bottom to gelcoat in preparation for a new primer coat using a bit of each method suggested by every one of the 100 or so boatyard experts who had stopped by with words of

> **"We felt torn and unable to make a decision, so we continued rebuilding — long weekend by long weekend."**

wisdom. And we'd done all of this on weekends and vacations while traveling the world working our 70-hours-a-week information-technology jobs.

One rainy day, sitting in the boatyard, Hale wrote down everything that remained for us to do for the boat to be ready to sail. He divided that into out-of-the-water jobs and once-launched jobs. The hours and costs involved were daunting and, given our high-pressure careers, did not make sense.

A demoralizing prospect

By this time, even with the southwest-Florida humidity, the no-see-um bites, and the steps backward, I had developed a bond with this boat that was just as strong as the looming work was intimidating. Looking at our options was demoralizing. To continue with the work might break us financially and psychologically. If we sold her at this point, we would incur a huge financial loss because we were determined to be brutally honest with prospective buyers. We would also face

perfect compromise

Their third boat met their elusive ideal

by Susan Merriman

an emotional loss. I have never been a quitter, and that prospect was an even bigger obstacle for me than the finances. Keeping her would sit better with my spirit but would be a commitment to the boat over ourselves. We felt torn and unable to make a decision, so we continued rebuilding — long weekend by long weekend.

Around that time, our neighbors, with whom we had shared dreams of the cruising life, returned after six weeks into what was to have been an indefinite stint in the islands. They immediately put their boat on the market. They had quickly learned that living aboard not only didn't make them happy, it made them *unhappy*.

This was the impetus that forced us to face reality. We were looking at another five years of working every weekend and vacation before we could even launch our boat. This might have been acceptable if we had known we would love the reward. But what if we didn't? As much as it pained my soul to give up, we did just that. But we were giving up on this particular boat so as *not* to give up our cruising dreams. That conclusion allowed us to sell her. Tears streamed down my face as we passed the papers to a couple even younger than we were and wished them well.

Smaller, newer, and ready for sea

We now knew what we needed: a boat built solid enough to take whatever the ocean threw at us but newer and in pristine condition. This meant a much smaller boat, of course, since our budget had hardly grown during the financial bath we took on our first try.

We found her: a beautiful Pacific Seacraft 32 for sale by an immediately trustworthy man who owned her, a flats boat, and a Hatteras sportfisher. Did I mention the employee who did nothing but look after his boats? *Far Tortuga* was truly a creampuff and we were suddenly the type of people we'd always secretly hated: those who came into the boatyard on a Friday and left the next Monday.

After a three-month trial cruise in the Florida Keys and the Bahamas, we were hooked. Cruising was definitely in our blood. We knew we wanted to make this lifestyle ours for as long as possible. About two months into the cruise, however, we admitted to each other that we had overstepped in our reaction to the first boat experience. *Far Tortuga* was perfect for this type of cruise but too small for the two of us and all the stuff we felt necessary for life aboard once we sold our home.

Certainly this was a personal determination. Many couples live happily in much smaller boats, but we acknowledged that we are not the type to minimize on spares, books, or provisions. Again we fell into tormented questioning. Would we ever be satisfied with a boat? Were we being too picky? Was something holding us back from fully embracing the cruising life? We decided it was none of those things. We simply still did not have the right boat.

Another quest

We were back at square one but, finally, with the experience we needed. We knew all about good old boats, a little about sailing full time, and a lot more about ourselves. With *Far Tortuga* on the market and a summer stretching ahead of us, we got down to work. Hadn't I been an excellent manager of data in my career? Couldn't I apply the same decision-making processes here? My Finding the Perfect Boat spreadsheet had 65 columns, 170 rows, and 22 formulas. In truth, this did nothing to relieve the stress of buying a boat, but it did open our eyes to possibilities we had not considered and it prevented us from ignoring facts when our heartstrings tugged.

Somewhere in the middle of hurricane season, we sold *Far Tortuga* to a meticulous doctor who would care for her as we had. Another goodbye tore at my heart as Hale set off with the new owner on the week-long delivery trip. Now, we were free to concentrate on our search.

We put more than 7,000 miles on our car as we criss-crossed the country examining boats. We saw dream boats and boats of wrecked dreams. We met helpful brokers and

dishonest brokers. We encountered owners desperate to sell and owners blind to reality. We had several close calls and quite a few calamities. Eventually we found her on landlocked, man-made Lake Lanier in Georgia. As karma would have it, this was the same lake on which we had taken our first sailing lessons, belonged to our first sailing club, and woven our dream as we floated aimlessly on windless days.

Bigger, older, and experienced

Our Kelly-Peterson 44 was similar in many ways to our first boat: heavy fiberglass construction, built in 1979, susceptible to wet decks, and with an aura of faraway places. But now we knew the difference between *good* old boat and simply *old* boat. She'd been sailed hard and put away wet by her first owner, but her second owner had devoted four years to bringing her back to her original glory. He'd addressed the known issues, re-cored the deck, and updated the systems. A lightning strike had helped by ensuring new wiring and electronics throughout the boat. The sparkling paint, brand-new tanks, and shining brightwork had more in common with our creampuff than our boatyard boat. Finally, we had realized the perfect marriage of quality, care, and cost.

We made an offer within a day of seeing her, slept on her that night, and owned her just a week later.

The Kelly-Peterson 44 was created by racing designer Doug Peterson and broker Jack Kelly and combines the qualities of a performance design with the comforts of a roomy liveaboard. Her 30,000-pound displacement in 38.8 feet of waterline makes her a moderate-displacement sailer, and she has a sail-area-to-displacement ratio of 16.5. A long fin keel and cutaway forefoot reduce wetted surface to gain speed but the husky skeg-hung rudder and completely protected propeller keep us from feeling too exposed on the underside. Our particular boat has a removable inner forestay that we fitted with a small staysail for heavy-weather sailing. We

A third search for the "perfect boat" turned up a Kelly-Peterson 44. In an onboard ceremony, Susan and Hale christened her *Cayuga*, facing page. This boat has taken them to destinations they had long dreamed of, at right.

find we use it just as often for assistance in pointing upwind.

The Kelly-Peterson has a well-balanced rig, sails well on virtually every point of sail, and is capable of 8.3 knots hull speed. Its cockpit is comfortable for life at anchor and also provides secure corners when we're under way — and the aft deck is perfect for fishing. The roomy interior has dual staterooms and plenty of ventilation while the teak and Taiwanese craftsmanship give our boat the ambiance of a classic yacht.

Of course we had work to do. We outfitted her with solar and wind generators to be ready for the alternative energy lifestyle to which we aspired. We built a new dodger/Bimini and added a staysail. We supplemented gear to upgrade her from lake boat to ocean-cruising boat. And we changed her name to reflect our first sailing experience together on Cayuga Lake in upstate New York. The two Native American meanings of *Cayuga* were perfect in their representation of our boating journey. "From the land of swampy waters" and "starting place" fit our horizons both behind and ahead.

Cruising at last

We are now in our third year of sailing the islands aboard *Cayuga* and every day we are grateful for this boat. She carries us through storms that shake our confidence in ourselves but not in her, she is a warm and welcoming home each evening, she earns accolades from those we meet, and we still had the funds after purchasing her to be out here living our dream life. The lessons we learned in our boat-buying process help us every day. We tackle fiberglass jobs with little more thought than that required when putting on a coat of wax. We quickly made alterations to add conveniences that we enjoyed on our modern boat. We know how to find leaks. We know how to make things fit into small spaces. And we certainly know the truth of the overused statement that all boats are compromises.

When a Cabo Rico or Pacific Seacraft floats next to us in a tropical anchorage, my heart fills with mixed emotions. The owners of those boats must wonder why my eyes are unnaturally bright when I dinghy over to say, "Beautiful boat. We used to own one." Our journey to our ideal boat has left me with great appreciation for the unique rightness of each boat to its individual cruising owner.

Susan Merriman has been cruising full time with her partner, Hale Bartholomew, since leaving her career in information technology education. Aboard Cayuga, *their Kelly-Peterson 44, Susan and Hale have traveled the Bahamas, the U.S. Eastern Seaboard from the Florida Keys to Maine, the Dominican Republic, Puerto Rico, and the eastern and southern Caribbean. Susan is temporarily back on land in the U.S. while she works to refill the cruising kitty.*

Docklines identified

Color-coded coils take stress out of docking

by Steve Christensen

When cruising, it helps to have aboard an assortment of docklines of various lengths so you can secure your boat in a variety of transient docks with lines that are well suited to the task at hand. Sure, you could simply carry six lines that were each 1½ times the length of your boat, but that would mean you'd often be handling and coiling yards of unnecessary cordage, since all you need most of the time are 15-footers.

On our Ericson 38, *Rag Doll*, we traveled with four 15-foot, four 25-foot, two 40-foot, and two 60-foot lines, all stored in milk crates in the lazarette. This gave us the ability to use just the length of line we needed for any situation, but how could we tell them apart? Once all the coils were tossed together, all we could see was a mass of three-strand. When approaching the fuel dock, for example, we wanted to be able to find two 25-foot lines quickly — without having to sort through all of them.

Three-strand docklines look much alike when stowed together in one place. Steve tagged the ends of his with colored tape according to their lengths.

My solution was to mark the tails of the lines with different colored electrical tape to indicate their length: green for 15-footers, yellow for 25-footers, red for 40-footers, and double red for 60-footers.

A little rummaging among the coils in the crate was all it took to find the color marking the right length of line. We always found docking the boat a bit stressful, so anything that made the preparation smoother was worth the effort.

Steve Christensen, a research chemist, sailed his Ericson 38, Rag Doll, *for many years on Lake Huron and spent each August cruising the North Channel. He sold* Rag Doll *when he took a new job farther inland but looks forward to owning another good old boat to sail in retirement.*

Ariel's scuttlebutt

A modern adaptation of an old tradition

by David VanDenburgh

David's grandson Jake demonstrates how a height-challenged but nimble crewmember obtains a draught of fresh water from the communal scuttlebutt aboard *Ariel*.

On sailing ships, an opened cask, or butt, of water was often placed near the galley scuttle. This "scuttlebutt" was where the crew could get a drink of water, and the term came to mean "gossip" because the crew would exchange gossip while hanging around the butt, the precursor of today's office water cooler.

We have a scuttlebutt on *Ariel*, our Cape Dory 36. It's a 2-gallon insulated jug with a faucet filled with fresh drinking water and fastened to an accessible spot in the galley. An ordinary picnic jug works fine.

We keep the scuttlebutt filled with good water from a series of 1-gallon plastic milk jugs that we fill whenever we get the chance to replenish our drinking-water supply. To ensure the water that goes into these plastic jugs is clean and tastes good, we pass it first through a filter made for refrigerator ice and drinking-water dispensers.

These filters, which can be purchased for less than $10 at most hardware and appliance stores, have one-way push-in female connectors at each end that accept ¼-inch polyethylene tubing (the typical line to an icemaker). At the outlet end of the filter, we use a short piece of tubing — long enough to conveniently go into a 1-gallon jug.

At the inlet end of the filter, we attach a length of tubing that also has a garden hose fitting. This enables us to attach the tubing/filter/tubing combination to a hose or hydrant typically found in a marina. The water that comes out of this filter is pure and tasteless.

We never use the water from the boat's water tanks for drinking. This practice lets us carry a higher concentration of chlorine in the tanks than we would want to drink, ensuring that nasty things don't grow in the tanks. (***Note:*** *Too much chlorine can be hard on some plumbing fittings and ruinous when used in metal tanks.* ***–Eds.***)

We made *Ariel*'s water filter in a few minutes from materials purchased at our local Lowe's store for less than $20.

Here's what you need:

- An adapter that will attach to your garden hose or hydrant at one end and ¼-inch polyethylene tubing at the other.
- ¼-inch polyethylene tubing of the type used to connect a refrigerator icemaker to the house water supply.
- A refrigerator filter, preferably with push-in-and-lock connections for ¼-inch tubing.

If you can't find these items locally, try <http://www.freshwatersystems.com>.

David VanDenburgh started sailing on New York's Finger Lakes. He has a master's license and skippered a medical missionary vessel that brought volunteer medical aid to Pacific islanders. He and his son (also David) and their families sail Ariel, *a Cape Dory 36, on Lake Michigan.*

Oil-filter pliers

Getting a grip on a slippery problem

by Rich Finzer

Long handles give the oil-filter pliers good leverage and the slip joint allows them to fit a wide range of filter housings.

Just as Imelda Marcos was addicted to footwear, I confess I'm addicted to tools. And not just any tools, either. I'm addicted to pliers. At last count, between my onboard toolbox, my workshop, and the toolkit in my truck, I used to own 30 pairs.

I say "used to" because I just bought another pair that has already assumed permanent residence in my toolbox aboard *Pleiades*. I was driven to this latest purchase by a problem I experienced while changing the oil in my diesel. (With the possible exception of removing my own appendix using nothing but a grapefruit spoon and my rigger's knife, there is no task I look forward to less.)

I'd managed to suck the old oil from the crankcase and replace it with fresh, but I couldn't unscrew the old filter. First, the space in which the manufacturer had so "thoughtfully" located the thing was so small my hand barely fit into it. And second, because both my hands and the painted housing on the filter were slick with a film of oil, once I did cram my digits in there, I couldn't get a decent grip anyway. The solution: oil-filter pliers.

I found mine at a farm-supply store. With tax, they were $10.25. The jaws are slip-jointed, like

Oil-filter pliers are slender enough to fit into spaces that are inaccessible to, and hazardous to, the human hand.

Channellocks, and expand from 2½ to 4⅝ inches to accommodate a wide range of filter diameters. Some might argue that a strap wrench will work, but trying to get that vinyl strap to grip a filter coated with a film of oil would be like eating Jell-O with chopsticks. For my money, a tool specifically designed to grip and loosen a stubborn oil filter is a better solution.

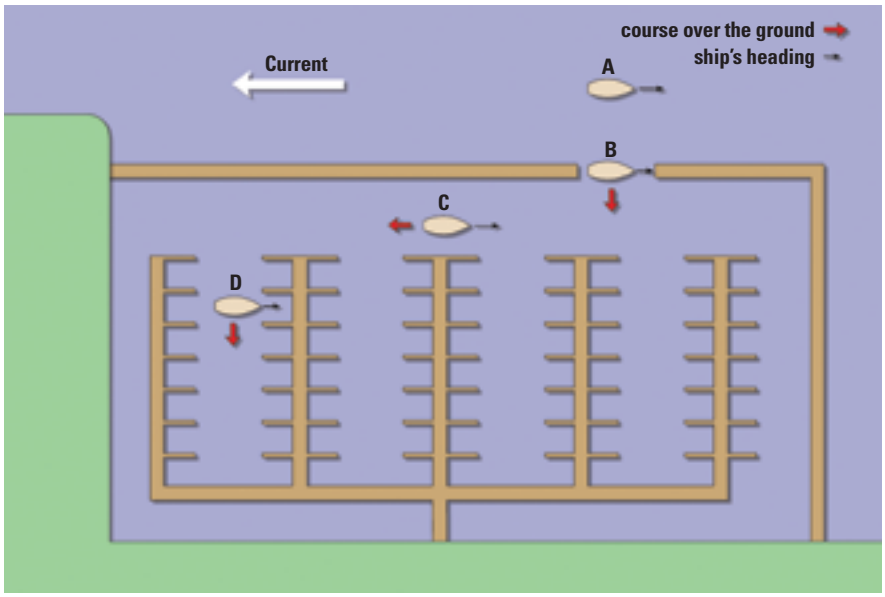
The jaws are curved, offset, and have opposing sets of teeth. The offset jaws make it easy to see what you're doing and, when clamped around the base of the filter gripping the little dimples located there, the teeth make solid contact. They have just enough give to prevent crushing or puncturing the old filter. Best of all, the handles are nearly 12 inches long and provide plenty of leverage. Once I'd slipped them around my oily little filter, one good push loosened it to where I could spin it off by hand. And no, you can't borrow mine. Plan on getting a pair of your own.

Rich Finzer earned his powerboat operator's license in 1960 at age 11. He began sailing in 1966 and is an accomplished racing sailor. He runs a winter boat-storage business and cruises Lake Ontario in his Hunter 34, Pleiades, *supporting his aquatic addiction as a freelance technical writer.*

Ferry gliding

Maneuvering with the help of a current

by Richard Toyne



TED TOLLEFSON

A strong current running across a marina entrance can make a direct entry tricky. Ferry gliding turns the current into a positive force that makes precise maneuvering possible at slow speed.

Maneuvering a boat in a marina with a strong current running through it often seems fraught with difficulty. A vessel heading across the flow of water moves downstream at an alarming rate, making it difficult to judge the space required to turn it into a berth. And, if you're swept sideways onto other boats, it's extremely hard to get under control again. By using a technique called ferry gliding, however, and by planning carefully before you begin, you can actually use the current to help you make a safe and seamanlike maneuver.

I learned about ferry gliding when I was working in the North Sea, where I saw the technique used to bring a fast rescue craft alongside a moving ship.

While the ship maintained its speed and heading, the coxswain of the small boat brought his craft up beside the larger one on a parallel heading and about 20 feet away and adjusted his speed until the two vessels were stationary relative to each other. Then, by making small alterations in course, the coxswain made the rescue craft "glide" back or forth across the gap, moving sideways relative to the ship.

In this example, both boats were moving through the water, but the technique is equally effective when, due to a current, the water is moving past the land.

The principle underlying the maneuver is that a vessel is controllable and can be steered as long as it is moving through the water. It follows that, if a boat is headed directly against a current and its speed is adjusted to match that of the water, it will remain stationary relative to the land. Any slight alteration in course will then make it move sideways across the flow of water.

Entering a marina

I can illustrate how this technique can be used to bring a boat into its berth by describing the way in which my partner, Magali, and I recently maneuvered *Sigfrid*, our 34-foot 6-inch steel ketch, into a marina near the mouth of the Rio Guadiana in Portugal. At the time, the tide was rising and the current was running at about 2 knots.

Outside the marina entrance, and a comfortable distance away from it, we turned *Sigfrid* to face the current and carefully adjusted our speed until we were motionless relative to the pontoons (position A on the diagram).

After giving ourselves a few minutes to get the feel of the boat and ensure that we were properly in control, we altered course a few degrees to starboard. This alteration was just enough to make *Sigfrid* glide across the current and through the gap in the pontoons that forms the marina entrance (position B).

Inside the marina, we stabilized her heading again before dropping the engine revolutions slightly. As *Sigfrid* slowed down, although she still had steerageway ahead, she began to move stern first between the pontoons (position C).

At this stage, we had to be patient. All the adjustments to engine speed had to be slight and we had to allow plenty of time for the boat to respond. A large drop in speed could have resulted in our losing steerageway and, with it, our ability to properly control the boat.

When *Sigfrid* was beside the gap in the pontoons where our allocated berth lay, we increased speed until she was once again stationary relative to the land. In the same manner as before, we changed the heading slightly to make her glide down the gap (position D).

Once she was directly down-current from our berth, it became a simple matter to stabilize her heading again. A tiny increase in speed then made *Sigfrid* nose forward once more.

Once we were inside the confines of the marina, we never adjusted the heading by more than a few degrees and, although we actually moved astern relative to the land, we always had steerageway ahead. It's also important to remember that, while you perform this maneuver, the boat is never pointed toward your destination unless it happens to be directly upstream.

Richard Toyne and his partner, Magali Bellenger, have been exploring the western Mediterranean aboard Sigfrid, *a 34-foot 6-inch steel ketch, for 10 years. They finance their voyages through Richard's carpentry work, writing for magazines, and by the sale of handmade jewelry, which Magali produces on board.*

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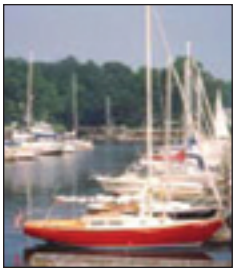

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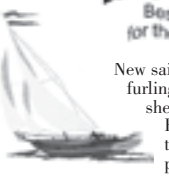

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The Mainster has lines in its luff, leech, and foot with which to make the sail full or flat. Luff sag is not a problem when sailing off the wind.

we use it. If it fails to draw and begins to slat, we fall off and use the Mainster. Our philosophy is to keep the boat moving as comfortably as possible.

Make your own

This sail is simple enough that you could make one yourself, provided you have the basic skills, inclination, and a machine that will handle V-69 thread.

When you measure, use the topping lift to set the boom at a working height that will allow you to tack and jibe easily. Make certain that your boom will clear any boom gallows, and dinghies stowed on your cabintop.

If we were to make a new Mainster, the only changes we can think of would be to substitute one of the new non-stretch ropes, such as Amsteel or Spectra, for the wire luff and to relocate the foot-line Clamcleat from the clew to the tack. This way, the halyard tension, luff, and foot shape could all be set from one place at the base of the mast.

For eight years, the Mainster has been our first line of defense in the battle of the calms. At the first slap, up it goes. The cloth is rated up to 20 knots and, while we have never tested it to that extreme, when the wind returns we continue to fly it as long as we are comfortable. We often leave a first reef tied in the mainsail. If a squall threatens, we douse the Mainster with the sock, raise the already reefed mainsail, and let the sock hang in the lee of the main until we decide what to do next — very civilized.

The Mainster is perfect for those conditions when the headsail is blanketed by the main and fails to draw. In those conditions, the motion of our boat is much better with the Mainster alone than with a poled-out headsail. We have also enjoyed great success on a reach with the Mainster coupled with our large drifter sheeted to the end of the main boom.

In light air, nylon is king. With a light-air mainsail you can carry maximum sail and, while the swell will not go away, at least be moving in comfort.

Light air is indeed a challenge. Light-air sailing tests your ingenuity and patience, but these last two weeks aboard *Entr'acte* have been an absolute delight. Even if we had enough fuel to motor the vast distance involved, the sound of the engine would destroy this special experience. It's true that we are moving only as fast as a baby can crawl, but it is in these calms that the ocean comes alive. There's an astonishing variety of activity in the sea that we often miss because of the wind, waves, and motion. But when the wind and sea die down, we truly slow down, relax, and witness everything.

Ed Zacko, a drummer, met violinist Ellen while playing in the orchestra of a short-lived Broadway musical. Their own show is still running after 32 years. They built their Nor'Sea 27, Entr'acte, *from a bare hull and, since 1980, have crossed the Atlantic to Europe and back four times. Their current voyage has taken them through the Panama Canal and across the Pacific. Follow them at <http://www.enezacko.com>.*

From *Entr'acte's* log

With two sails drawing, *Entr'acte* has more horsepower, and also presents a colorful sight.

Thursday, January 6, 2006. Latitude 14° 43' N, longitude 47° 51' W. Speed 1.5 knots. Day 25. Destination: Trinidad.

For the past two weeks, the wind has been non-existent with only the long slow ocean swell to remind us that we are, indeed, at sea and not sitting in a boatyard. We departed Santa Cruz in the Canary Islands mentally geared for a very fast trade-wind passage, but the usually steady trade winds have disappeared. It seems as if every bit of wind in the world has disappeared.

The SSB radio is alive with tales of spinnakers wrapping and mainsails slatting, banging, and finally furled to prevent self-destruction. There are complaints of drifters unable to provide power as they try to work without the mainsail. Few are moving as they're low on fuel with more than 1,000 miles to go. Everyone is irritable from lack of sleep and the slow progress.

On board *Entr'acte*, things are different. With the slightest breath of breeze, barely enough for steerage, *Entr'acte* has been knocking off a steady 40 miles a day for 14 days. All ports and hatches are open, and Ellen is happily sewing clothes in the cockpit. Max, our Aires windvane, is steering faultlessly. The sea is absolutely flat. Not a ripple disturbs the water, save that long ocean swell. We have had long conversations with turtles as they swim with us. Our big treat is the family of dorado that has been accompanying us for 10 days. Mom and Dad are teaching Junior how to fish, and today the little guy managed to score his own meal. As we cheer in the midst of this absolute silence, Dad dorado actually makes eye contact with us; the water is that calm and clear. Who would believe that these conditions are possible in mid-ocean and for so long?

All is perfection, at least for us. *Entr'acte* is moving along steadily and comfortably, albeit very slowly, with the secret weapon we have affectionately dubbed the Mainster.

Perfidious paradise

A cruising dream ends on a Caribbean reef

by Micheal Mathews

We were at the eastern end of the Sir Francis Drake Channel in the Virgin Islands and dusk was descending quickly. Ahead of the boat rose the steep hills of Virgin Gorda and around us was a small handful of cruising boats. We had spent a beautiful day wandering The Baths with friends and now we were simply enjoying another perfect tropical evening.

As we enjoyed our sundowners on deck, the low rumble of diesel engines broke the stillness. All the other cruisers and one windjammer rested quietly at anchor, their masts motionless silhouettes that gave no hint of who was under way so close to sunset. Then, from around the point to the north, came a workboat pulling hard against a warp that trailed off the stern. In the growing darkness we could just make out the yellow inflation bags used to float a salvage. Above the bags, a ketch rig, all that was visible above the sunken hull, stood against the inky northeastern sky. We watched in silence as a tragedy slowly slid by.

Talk on the radio that day had been about a boat that had gone aground on the reefs around Necker Island. We knew which boat this had to be. The 40-foot ketch had set out earlier on a passage to the anchorage we now occupied. That passage turned out to be the end of a cruise and a dream for a sailing couple.

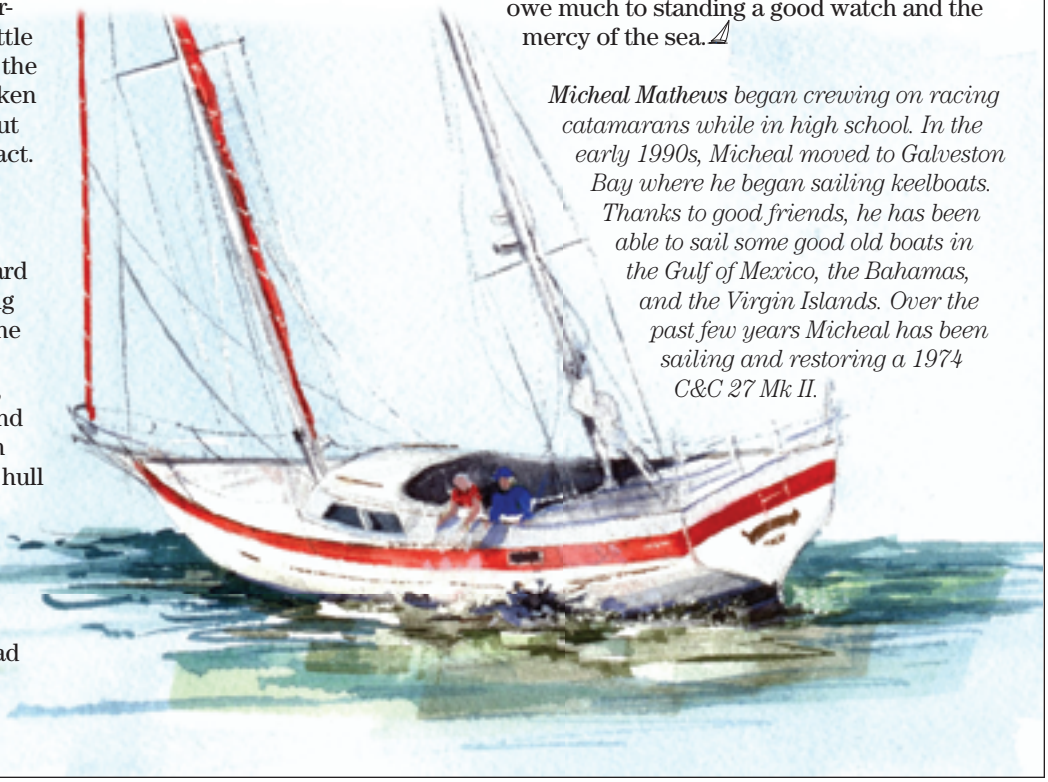
The next morning before breakfast we were in the dinghy, headed for the yacht harbor. We walked through the open gate and over to the boat hanging in the travel lift. Viewing it from the starboard side, we could see little indication of the pounding the boat had received — a broken shroud, a limp lifeline — but the hull appeared to be intact. Then we walked around the stern.

The hull on the port side was missing from the forward head to the aft cabin, leaving a jagged hole that opened the entire saloon and galley to our view. On the cabin sole, foul weather gear, books, and magazines were mixed with broken shards of fiberglass hull and interior woodwork. On the starboard side, still in their places, hung undamaged coffee cups. Drawers and cabinet doors were closed as if nothing had happened.

Shock and empathy settled over me as I recalled how late one night a year before I had clawed upwind for an hour to clear a rusty bulkhead on a lee shore. It was a hard lesson in the quality of my nighttime navigation skills in Galveston Bay, a place very familiar to me. I recalled how I felt when the jagged metal bulkhead was just a few yards away and the engine was dead, wondering how I could ask my not-so-athletic wife to time her leap to shore over that rusty knife. What did the sailors on this boat think when they felt that first sickening thud of hull against reef? What was it like watching each wave coming toward them, ready to grind more of their boat into the sea?

A few months later, scuttlebutt suggested the boat had been on autopilot guided by the GPS. But that's scuttlebutt. Still, every incident like this should serve to remind us we are all fallible, as is the technology we sometimes too readily rely on to keep us safe. While those tiny man-made orbiting "stars" are able to tell us exactly where we are in relation to where they are, the techniques in use when the waters were surveyed and the charts prepared were less precise.

My heart goes out to those sailors whose Caribbean cruise ended abruptly that day. The word on the cruisers' net was that both escaped unharmed — itself a major victory. I salute them for taking the risk to go cruising in the first place, all the time recognizing in my own experience what little separates those of us who sail. We all have made our navigation errors and, as sailors, we owe much to standing a good watch and the mercy of the sea.



DAVID AIKEN

Micheal Mathews began crewing on racing catamarans while in high school. In the early 1990s, Micheal moved to Galveston Bay where he began sailing keelboats. Thanks to good friends, he has been able to sail some good old boats in the Gulf of Mexico, the Bahamas, and the Virgin Islands. Over the past few years Micheal has been sailing and restoring a 1974 C&C 27 Mk II.

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