

GOOD OLD BOAT

Still sailing after all these years!

NOVEMBER/DECEMBER 1999



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This Issue



GOOD OLD BOAT

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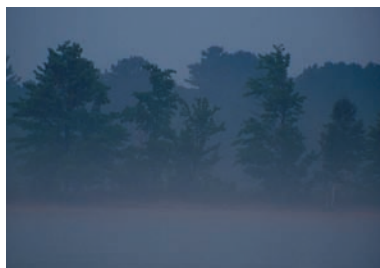
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Creating a community

Good Old Boat magazine is about:

Creating a community of sailors – Through our directory of sailing
organizations and contacts, we're developing links between sailors.

Offering a resource – By pooling the knowledge of our readers, we're
creating a directory of the suppliers of parts and services we all need.

Keeping our boats afloat – Our technical articles focus on
maintenance and upgrade issues and give them the space they deserve.

Celebrating older-model sailboats – We emphasize pride of
ownership.

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Welcome aboard!

About the cover...



Scott Kennedy
created the cover,
depicting the hall at
the Herreshoff
Museum in Bristol,
R.I., and the art on
Pages 42-43.
Painting and travel
have been synon-
ymous for Scott since
1965 when he began
going on location to
bring accuracy to
pen-and-ink drawings, water colors, and oil
paintings. Scott does commissions for private
yachts. Call 949-675-5395 or visit his website:
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the view from here



This magazine is a group project; consider yourself part of our group!

As I write this, I have just spent the better part of an afternoon crawling on my hands and knees (and scooting with other parts of my anatomy) on the floor of our office. There's no table quite large enough for this job; I occupy every inch of floor space in the process.


This job, in spite of being a bit tough on an aging back, is a pleasure, really. It's the time at the end of our production cycle when I have boxes of brand-new copies of the latest issue of *Good Old Boat*. I'm always eager to show it off, and the writers who have contributed to its pages are among its most eager recipients. So I send each of them copies of their work.

I always have mailing labels ready in advance, but still it's time-consuming work . . . partly because there are so many writers, artists, and photographers . . . and partly because this is also the time that I collect and return the photos, slides, and drawings they've sent us. I write notes, insert several copies of the magazine (extras for their mothers, I figure), weigh envelopes, lick the seals, and stick stamps on them.

by Karen Larson

Our contributors have been paid in advance of publication, but this part is more gratifying for both of us, I imagine. I expect every writer, no matter how many times published, thinks it's fun to see the results of his creativity completed and enjoys knowing others will see and appreciate these efforts also.

As the piles of fat envelopes grow in heaps around me, a sense of deep satisfaction prevails. I realize how lucky we are to have surrounded ourselves with such a talented community of sailors. Once again, all of us — working together — have brought forth an issue we can be proud of.

Whether you're writing letters to the editor, sending notes and email with suggestions and encouragement, or participating as writers, book reviewers, artists, and photographers, we thank each of you for being part of this very vital and interesting group. When it's time for your voice to be added to the wealth of experience that we are able to collect and share, please do so with our sincere encouragement and gratitude. 

Wish I'd thought of that

After reading "Up The Mast"

(September 1999) Timothy Fitzmaurice emailed me with his own mast-climbing variation, which is clever enough that I wish I had known about and included it in the article. Like many sailors, he attaches the jib halyard to a bosun's chair and the spinnaker halyard to a chest safety harness as a backup, with both halyards led through sheet stoppers to winches. But what he does next is neat.

He ties a loop in the spinnaker halyard that reaches just a few inches above the deck while he is standing on deck. His crew raises the loop (spinnaker halyard) 18 inches, and Timothy steps up into the loop. Next his crew takes in the slack on the chair (jib halyard). After he sits down in the chair, the loop on the spinnaker halyard can be raised another 18 inches, and the process can be repeated.

This variation has the benefit of using leg power to do the climbing (like the inchworm method) without the need for much gear. The downside is that

it can't be done solo, and requires an experienced crewmember to work efficiently.

But if you want to use leg power, and don't want to invest in all the mountaineering equipment, you might want to give Timothy's method a try.

Steve
Christensen
Midland, Mich.

Additions to medical kit

Being an ER doc and sailor myself, I was pleased with your medical articles in the July issue — both were very well written. I

do, however, have a few "kibitzes" to add to Bob Keller's article. I never use Dermabond for a scalp wound, as you have to get the area *blood free* before using the stuff, and that is virtually impossible in the scalp. It is great stuff for face or other lacerations where there is no tension on the wound. (*Maybe I read it wrong, or maybe Bob has a technique I don't know about — if so, please tell me.*) For scalps, a pre-packaged sterile staple gun comes loaded with up to 35 staples, is quick and easy to use, and gives excellent results with minimal skill required. These staple guns can be used just about anywhere, but cosmetic results *do* depend on skill at aligning tissue planes, etc.

To Jim Hatch's article I would add some cardiac drugs to the kit, as that is an emergency those of us who sail good old boats may well be in the age group to experience. Therefore, I would add:

- **Nitroglycerine** — the spray keeps better than the bottle of pills, but the pills are OK if never opened. Also get some nitro-paste for sustained effect during a heart attack.
- **LoPressor (or another beta blocker)** — this should be given as early as possible in a heart attack.
- **Lasix** — a very useful diuretic for acute congestive heart failure (CHF) that sometimes accompanies a heart attack or can occur on its own.

And a few more:

- **Albuterol MDI** (metered dose inhaler) for asthma attacks.
- **Actifed** is my favorite for motion sickness. It is now available over the counter. This was used by NASA back in the days of Apollo for weightlessness sickness.
- **Injectable controlled drugs** (narcotics) — some might argue with carrying these, but if I break an arm or leg, I certainly would rather have injected morphine than a pill. Morphine can be given subcutaneously, intramuscularly, or intravenously, so it is hard to go wrong. I keep a rack of ampules on the boat and exchange them at my hospital pharmacy as they near outdating. Yes, there is paperwork involved, but actually for *non-MDs* it is easier. Get your family doc to give

you a script for two or three ampules. When they go out of date, bring them to your doctor's office and let him or her see you waste them. Then get a script for new ones.

- **Ativan** — I would also advise carrying injectable Ativan, which is both a sedative and an excellent drug for seizures (in case that head injury is really causing problems).

Obviously, none of these drugs should be administered without guidance from a physician, but if you don't have them on board, you can't give them if they are recommended by your VHF consultant.

Two final minor points:

hydrocortisone cream is 1 percent as listed in the chart, not 0.1 percent as printed in the text. (*Oops! This didn't come to us from Jim Hatch this way. Our error. -Ed.*) And the medications chart has several near duplicates. I assume the intent is to provide a list to choose from, not to suggest that you get every single drug listed. (*Yes, that was the intent. -Ed*) All in all, two great articles. Keep up the good work!

Mark Parker
Hancock, N.H.

Diesel questions

My project involves fitting a Yanmar IGM diesel in my '74 Columbia 26 Mk II. Inboard power was offered as an option on this vessel, and it has rails that appear to be specifically for motor mounting along with intake and outlet thru-hull fittings (but no stern box built in). I contacted my local Yanmar dealer who told me it wouldn't be worth the cost, (\$8-10 grand in labor?) I'm sure that this can't be *that* big of a deal, even though it involves putting a rather large hole in her hull. Any help you can give or recommendations for someone who does quality work of this nature at reasonable fees would be appreciated.

Ted Thomas
Ft. Lauderdale, Fla.

Ted,

I just finished putting a new diesel in our boat. It was built with an Atomic 4 and converted to a Bukh Pilot 20 in 1980. The engine is in good shape but beyond (economical) repair now. We put in a Beta 722. (See photos on Pages 10 and 12.)

The task involved one person-month of my time. That seems to be the norm

when owners/amateurs do the work. A person-month at \$35-45 per hour is a big ticket. Professionals may be twice as efficient. It took me seven 12- to 14-hour days just to do the installation. The boat had a stern tube already, and I never touched it.

The boat also had a fuel inlet filter, a raw water filter and supply, an exhaust system, a charging system, a starting system, controls and gauges, and an engine bed. All had to be modified to fit the new engine. Even the prop was oriented in the wrong rotation. I also added an oil catchment system (required these days).

All this can get pretty involved. I didn't have a sense of it before I started. It is not uncommon for the yard labor bill to be equal to the cost of the engine. And I'd say that, in most cases, the folks in the yards probably earn every cent.

The actual installation of a stern tube could be pretty challenging. It must be in very close alignment with the engine beds with a drop or rise to allow for the type of engine.

Yanmar makes a saildrive for the 1GM. It is a little like an inboard/outboard, except the drive strut just punches through the bottom of the boat. This is a fairly well-refined system. Many new boats use it. It is probably the better way to add an engine to a sailboat. The bed that comes with the drive more or less eliminates alignment problems because it's all there. Cut a hole in the bottom and glass in the new bed.

Flag response

My thanks to readers who brought to our joint attention the nautical error of the improper display of the national ensign at the spreader on the July cover of *Good Old Boat*.

As a nautical photographer, I always try to submit beautiful, but also nautically correct, photographs. For example, I would never submit a photo of a boat under way with its fenders hanging over, one with its sheets trailing over the side, or one of children on the foredeck with no PFDs on.

An old mariner once told me that "when you think you know it all, it's time to quit boating." The good mariner (or photographer) is never "there" and is always learning. This is my lesson to learn *this* time, and rest assured the mistake will never be repeated.

Mary Jane Hayes
Hanover, Mass.

On flags and weather helm

With regard to the letter in the September issue about weather helm, weather helm is caused by the asymmetrical shape of the heeled hull. While this contributes to weather helm, it is not the main cause, and Sven Donaldson's explanation in the July issue is essentially correct.

Double-enders with well-rounded hulls can have quite symmetrical waterlines even when heeled, but still can develop a fierce weather helm if the center of effort of the sails is not well forward of the center of lateral plane of the hull. I trust my article on helm balance (in this issue on Page 61) will shed a bit more light on the subject.

About the flag on the cover of that issue, I did notice the discrepancy, but it is still a grand photo of Old Glory, so I thought it best not to stir up a hornet's nest. Still, I'm glad that others noticed it also.

Ted Brewer
Gabriola Island, British Columbia

Does the Walker Bay tow?

Great article on the Walker Bay dinghy. I went right out and bought one on the strength of the review. I love it. We just finished a three-week cruising vacation in Washington state and towed this little dinghy a lot. It tows great (even better when you bring the tow rope up from the bow eye through the hole in the bow rim, which causes it to track like a train). It rows great, too. These guys are the Henry Fords of the dinghy world. Every marina we stopped at in Washington already had four or five of these Walker Bays attached to boats.

Once again, *Good Old Boat* has justified its incredibly high subscription price.

Ron Chappell
Hamilton, Colo.

Of course she tows!

I bought a Walker Bay 8 (ordered it actually) the day I read about it in your magazine. We were leaving the following Saturday for a two-week cruise, and I wasn't looking forward to another season with our ancient Achilles deflatable. I'm very pleased with my decision. The Walker Bay is a great little boat. It tows very well, always staying in line with the towing boat and adding little, if any, drag. It's a bit noisy under tow; each of the lapstrake lines sets up a little

"waterfall." If you like the sound of a babbling brook, you'll love having this boat behind you. Of course, you can just drop the boat further back, but it seems to ride best right up close where the water is smooth and it gets a bit of a boost from riding the stern wave.

We also used the boat with a motor. It does not have enough water surface to come up onto a plane so it's slower than an inflatable with a good motor. With two people, you need to trim up carefully, but once arranged properly, it's stable and capable of taking small waves and wakes without problem. The engine I have has very tight steering, and we could steer the boat by leaning a little in the opposite direction. This way you can let go of the engine handle and ride comfortably, adjusting your course with a bit of "English."

My only complaint is that it is a little boat and has a limited capacity. That's not the fault of the boat itself or its design, of course. Your article indicated that Walker Bay 9 and 11 versions are in the works. These may be even nicer than the current model.

Homer Shannon
Windham, N.H.

Last word on runaway engines

We weren't aware of your wonderful magazine and just received a copy from Roy Gnirke, a new boating friend. He couldn't say enough about your magazine and produced a copy for us the next day.

Now anchored out in Prince Creek, the most beautiful anchorage we've been in yet, there's time to read and catch up on email. When I read part of this letter to my husband, a retired railroad diesel "wizard," who was also an engine man in the Navy and power plant operator in the Bahamas in the early '60s, his immediate comment was, "The water going into the engine could have done extensive engine damage, such as crack pistons or bend rods, because water cannot be compressed."

I hadn't finished reading the letter, but asked him how the engine *could* have been stopped. His reply: A diesel engine is a burning engine, not a combustion engine. Anything combustible that you can put in it, providing it can get into the cylinders, will provide the fuel to burn to operate

Continued on Page 66



Minimum crui

*What's the Flicka got
that makes otherwise rational
deepsea sailors
haul out their checkbooks?*

we want. We don't actually have to cross an ocean in her. Knowing she can any time we want her to is good enough. That, and knowing our neighbors at the marina know she can.

There is also a good deal of reassurance in the fact that the designer of this boat, Bruce Bingham, lived and sailed on her for two years. He and

Katy Burke cruised 6,000

miles in a Flicka called *Sabrina*, traveling down the eastern seaboard of the United States and crossing into the Bahamas. But, even before that, *Sabrina* took part in the 200-mile race around Long Island, New York, only four days after she'd been delivered. She finished fourth in the cruising class, according to the publicity people at Pacific Seacraft Corporation (PS), builders of the Flicka.

What PS neglects to say is how many entries there were in the cruising class. Four, maybe? No, we're being too cynical. We must give them the benefit of the doubt, and presume the annual race attracts dozens of cruisers. Which means the tiny 20-foot tot is interestingly light on her toes, too, but not exactly fast. According to the handicap ratings, she's 6 seconds a mile slower than the Cal 20, another 20-footer reviewed in the July issue of *Good Old Boat*. But if you're seriously concerned about 6 seconds a mile, it's obvious that you're not fit to own a Flicka yet. Your priorities are wrong. Please have your head examined and come back when you're better.

Basic design

The art of yacht design lies in intelligent compromise, and if you want to create a lot of space on a short waterline, you have to sacrifice looks or performance or a bit of both. Bingham took a small chance on performance and a bigger chance on looks by designing the Flicka with a hefty beam, tall topsides, and a high coachroof. She's tubby, and she's boxy, but somehow, although she has all the potential elements of a bathtub toy, she manages to avoid the sort of stomach-churning ugliness that repels you in mid-stride. Perhaps it's because her sterling character shines through her plain-Jane looks. Perhaps it's because she's pug-ugly. Whatever it is, the word that most frequently comes to people's lips is "cute." And in this case, cute on deck translates into palatial accommodations down below, including headroom of 5 feet 11 inches and three full-sized berths.

She's a heavy-displacement, Bermudian-rigged sloop or cutter (your choice) with a masthead rig and a headsail set from a short bowsprit. Her hull is solid fiberglass, and her fiberglass decks are cored with balsa, but there's solid plywood where deck hardware is attached. She is

fitted out in the usual PS tradition, that is to say, with no expense spared regarding materials or workmanship.

Her bow, like that of the Dana 24, is distinctively plumb. In fact, it is even more than plumb — the very top bends aft slightly, the better to please the eye. Each Flicka, incidentally, has a very fancy curlicue molded in each side of the bow, joined by a cove line to a smaller one at the stern.

by John Vigor

Rod Bruckdorfer

You can't hold a sensible discussion about small seagoing sailboats without mentioning the Flicka 20. Who, you might ask, would willingly pay \$60,000 to \$70,000 to go to sea on a boat only 20 feet long on deck — about the length of three bathtubs?

The answer to that question is hundreds of people. At least 400 so far. So the next question is: Why? What's this snub-nosed midget got that makes otherwise rational deepsea sailors haul out their checkbooks and scribble their signatures in mad anticipation? The short answer is that she has charms that become more apparent and more beguiling the closer you get to her. She is also, in many ways, a dream boat.

She appeals to the adventurous spirit that erupts in all of us from time to time, even the armchair sailors. She's capable of crossing oceans in safety. She's our magic carpet, ready to waft us to the virgin white sands of desert islands where the palm trees rustle in the gentle trade winds, and warm blue waters murmur against the reef. And yet we can bring her home on a trailer and store her in the garage for winter, if

ser, maximum charm

She has a full keel that gathers depth increasingly as it sweeps toward the rudder, making her maximum draft just 3 feet 3 inches. Her 1,800 pounds of ballast is encapsulated well forward in the hull and forms about 30 percent of her total displacement of about 6,000 pounds.

The Flicka is well endowed with beam — 8 feet (the same as a Cape Dory 25D) on a waterline of only 18 feet 2 inches — that slows her progress through the water but gives her spacious accommodations and greater initial stability.

Her rudder is fixed to the flat transom and keel, a very seamanlike way of doing things. It's strong, simple, easy to get at, and easy to remove for repairs if necessary.

The decks are surrounded by raised bulwarks with a heavy teak caprail — the true sign of a bluewater voyager. The sidedecks are fairly narrow, allowing rather restricted access to the mast and foredeck. Luckily, it takes only a couple of steps to get anywhere on this boat.

The self-draining cockpit is small, but adequate for two, and is uncluttered by the mainsheet, whose traveler attaches to the pulpit railing aft. A watertight hatch in the cockpit sole affords excellent access to the optional inboard engine, and a high-capacity

manual bilge pump is mounted handy to the helm.

The Flicka carries 20 gallons of fresh water in a tank under the quarterberth. You might want to take an extra supply in stowable jugs when you do cross that ocean. The head holding tank has a capacity of 8 gallons, and the diesel fuel tank, which lives up forward under the V-berth, quite divorced from the engine, also holds 8 gallons.

If you have an outboard engine, which is the choice of many Flicka owners, you can use the fuel tank for extra drinking water, of course. You'll also have a lot of extra space aft of the companionway steps.

The standard inboard engine is the ubiquitous Yanmar 1GM10, a single-cylinder diesel of 9 horsepower, fitted with a 35-amp alternator. It's a good match for this boat and very economical.

Accommodations

As you step below on the Flicka, you gain the reward for her "cute" exterior. The interior is absolutely huge for a 20-footer, warm, and inviting. PS has used interior molds, bonded to the skin, but has covered much of the white

fiberglass with honey-colored, hand-rubbed teak — enough to create an impression of classy workmanship and opulence, but not so much as to turn the interior dark and uninteresting.

The portlights are of solid bronze, and all six open to give as much through-ventilation as you're ever likely to need. Overhead, the white vinyl headliner is zipped in place for easy removal.

This is another boat with an open-plan interior; that is to say, there is no bulkhead separating the forepeak from the main cabin. A beefed-up deckbeam takes the thrust of the deck-stepped mast, and apparently passes some of it down to the keel via an off-center compression post at the forward corner of the galley.

The happy result is the appearance of abundant space, starting up forward with the V-berth, whose size obviously benefits from the boat's generous beam. In what would normally be the main cabin, Bingham has provided a settee, a galley with a two-burner stove, a sink, and an icebox, and — wait for it — an enclosed head compartment and hanging locker to starboard of the companionway steps. To port, aft of the galley, is the third full-size berth, a quarterberth running under the cockpit. At sea, this will often be the only habitable berth, of course, but for two



Formerly owned by Tom Buzzi, Becky Ann, at far left, flies her drifter on Galveston Bay, Texas. This page, African Queen, previously owned by Bodi Lukasewyah, shows off the flexibility of her open interior and the scrollwork at the bow. According to Flicka owner Tom Davidson, galleys on Flickas differ. Some have built-in stoves, others have an open countertop running to the port hull.





**Tim and April Kring's
Valentine, a 1980
Flicka, sails Lake
Lanier north of
Atlanta, Ga.**

people working watch and watch about, that won't cause problems. There may be occasions, however, when both crewmembers are below in heavy weather, and in that case one of them is going to have to sleep on the cabin sole. But that is surely a small penalty to pay for owning such a "cute" boat.

The rig

With spars and sails hardly bigger than a dinghy's, there's nothing complicated about this rig. You can turn the basic sloop into a cutter, if you are so disposed, but there really isn't much of an advantage to splitting up such a tiny rig, and there may even be a disadvantage in the extra windage created by the inner forestay and its associated halyard and sheets.

Both mast and boom are made of aluminum, painted with twin-pack polyurethane paint. The mast is stayed at the truck and has a single spreader,

from whose roots spring fore and aft lower shrouds on each side. The backstay is made fast to the transom without any need for a boomkin. All the turnbuckles are of the forged bronze type, with open bodies.

The mainsail has an area of 106 square feet, and the working jib is a little bigger at 137 square feet. The mainsail has two rows of reef points built in, and by the time you've pulled down the second reef, there's hardly enough canvas left to blow your nose on. Very snug.



Performance

Almost everything you say about the Flicka has to be qualified by the phrase "for her size." She's dry for her size. She's reasonably stiff for her size. She's quite fast for her size. But you have to remember that her size is small.

Her generous freeboard will certainly keep her decks dry when she's running or reaching, but when she's driving to windward in heavy weather, she will quickly start the spray flying aft to the cockpit. It's not her fault. She's only little.

Similarly, her beam makes her stiff for a 20-footer, but she's not going to be able to fly all her working sail in 25 knots, as a Folkboat might. And while her initial stability is comparatively good, her ultimate stability cannot match that of a Contessa or a Nicholson 32.

It really doesn't help much to compare this boat with others. Her performance depends on where you take her and how you sail her. "Long passages of a 5-knot average and better are not uncommon," says the PS brochure. Well, you can't ask for much better than that. And if you count interior space and comfort as a measure of cruising performance, as you should, the Flicka suddenly emerges into a realm of her own.

Besides, Flicka owners "tend to be independent and thoughtful" according to the observant staff at Pacific Seacraft. Just the kind of sailors who don't give a damn what anybody else thinks about their boats, good or bad.

Known weaknesses

- Smallness. Size is not the major factor in seaworthiness, and a small boat used with common sense and great caution can be reasonably safe at sea. Nevertheless, it would be foolhardy to attempt to cross an ocean in a boat as small as this without a solid knowledge of sailing and a fair amount of experience. That said, it must be acknowledged that many boats less seaworthy than the Flicka have crossed oceans and even sailed around the world. In the long run, it's the combination of boat and sailor that counts.
- The difficulty of carrying a shore tender. Even a rolled-up inflatable takes up a lot of room below on a boat this size.
- Despite her wide beam, owners report that she's quite tender initially. She'll quickly heel over to about 15 degrees, and then stubbornly dig right in.
- The stove is not gimbaled.



Above left and center, Yarns, a 1978 Flicka, is owned by Karen Peterson, who sails her in the Pacific Northwest. Enclosed heads became standard by 1980. Phil and Trudy Cunningham's Esperanza, above right, with the classy reading material, and at left with the impressive dock partner, sails out of Dana Point, Calif.

Owner's opinion

One of the most famous owners of a Flicka is John Welch, who is retired and lives in Hawaii. He has sailed *Betty Jane* from California to Hawaii, and from Hawaii to Tahiti and back. He has also made a trip from Hawaii to Palmyra Island.

During the outward trip to Palmyra, he experienced fine weather with steady northeasterly winds of 20 to 25 knots. *Betty Jane* wore her best working clothes with one reef in the main most of the way and flew along under perfect balance. Her best day's run was 123 miles, and she managed to average more than 100 miles a day over the whole passage.

But the return trip to Hawaii was another matter altogether. "In one day it would go from becalmed to 45-knot

squalls," Welch recalls, "absolutely the most adverse weather conditions possible." It made for a lot of work and many sail changes, but the Flicka never gave him pause for concern. "She really proved herself," he says.

"Early on we were warned that people would call our boat 'cute' and sure enough, while transiting through the Ballard Locks, a teenage girl called out, 'Hey, ya gotta cute boat!' Tattoos, nose ring, and bad grammar notwithstanding, this young lady clearly had a unique appreciation for classic yacht design."

— John Calhoon

owner of *American Pie*, 1979 Flicka

Tom Messick also is the famous owner of a Flicka, but he's famous for a different reason. He and his teenage daughter, Mitzi, went aground in their

boat, *Tondelayo*, during a lightning storm in Tampa Bay, Fla.

After pounding on the sands of Egmont Key in fading light, *Tondelayo* was swept into the Gulf of Mexico and fetched up in the surf several hundred yards short of the ruins of an old fort. For hours the Flicka pounded in the surf on an incoming tide, lashed by steady rain driven by a 40-knot wind.

"Finally the lightning abated and we went on deck," Messick said. "We were able, in time, to turn her bow away from the beach. With the winch and the engine, we slowly began to make some progress, but we were paying an agonizing price as she would gain a foot, and then slam hard on the bottom



Bill and Janice Strop's Baby Grand above and at top right, shows a love of beautiful ports and exquisite detail. Notice the beveled glass port above and the hatch inset. Bill says, "She's ash inside — no teak gloom," and adds, "She's just about as close to 'yar' as I can make her." She sails near Kansas City, Mo. Not to be outdone, Corsair, at right, formerly owned by John Wolstenholme and Jan Allen, shows a stained-glass window in her galley.



again. In about an hour we finally came free."

Messick motored *Tondelayo* to an anchorage, checking the bilge all the way, but discovered it was bone-dry. "I could hardly believe my eyes," he said. At first light he checked for underwater damage and found nothing structural — just some scratch marks on the paint.

He summed up his experience succinctly: "I have to conclude that our Flicka is one very tough lady."

Conclusion

The Flicka is high quality in a small package with a large price tag. But you have to remember that she offers the accommodations (if not the performance) of a boat 6 or 8 feet longer. For a cruising couple, that's snug, but ample.

Because she is a cult boat, and because she is strongly and sensibly constructed, the Flicka retains her value very well on the second-hand market. She ages well, and there is very little to go wrong. The price of a used Flicka will be substantially lower than that of a new boat, of course, but there

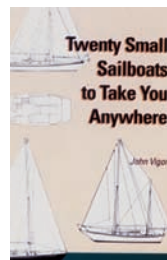
are very few basement bargains unless you happen to come across one of the pre-1978 originals, built by an amateur from a finished hull or a kit.

Flickas built by Pacific Seacraft are rugged, solid craft, with top-quality cabinetry, finish, and detailing. There isn't another production boat of her size in the U.S. that rivals her interior space and ocean-going capabilities. She's small enough to handle easily, but big enough to live in comfortably. For the price of a new Flicka, you could buy a used larger boat of another make, just as seaworthy and a whole lot faster and more comfortable. Hundreds of Flicka owners know that full well, but they're not tempted. This little spellbinder is all they've ever sought, and all they'll ever need.



© John Vigor

After much anticipation, John's new book, Twenty Small Sailboats to Take You Anywhere, is now available from Paradise Cay (800-736-4509).



In short

Flicka 20

Designer: Bruce Bingham

LOA: 24 feet 0 inches

LOD: 20 feet 0 inches

LWL: 18 feet 2 inches

Beam: 8 feet 0 inches

Draft: 3 feet 3 inches

Displacement: 6,000 pounds

Sail area: 243 square feet

Ballast: Encapsulated lead, 1,800 pounds

Spars: Painted aluminum

Auxiliary: Outboard or Yanmar 9-hp diesel inboard

Designed as: Pocket ocean cruiser

In comparison

- **Safety-at-sea factor:** 6 (Rated out of 10, with 10 being the safest.)
- **Speed rating:** Not fast. Reputed PHRF rating 300.
- **Ocean comfort level:** One or two adults in comfort, at least for most of the time.



Resources for Flicka sailors

Website

Rod Bruckdorfer

410-727-3618

Seagypsy@worldnet.att.net

<<http://home.att.net/~seagypsy/index.html>>

Flicka Friends Newsletter

Dennis Pratt

847-299-5744

Dennis1492@aol.com

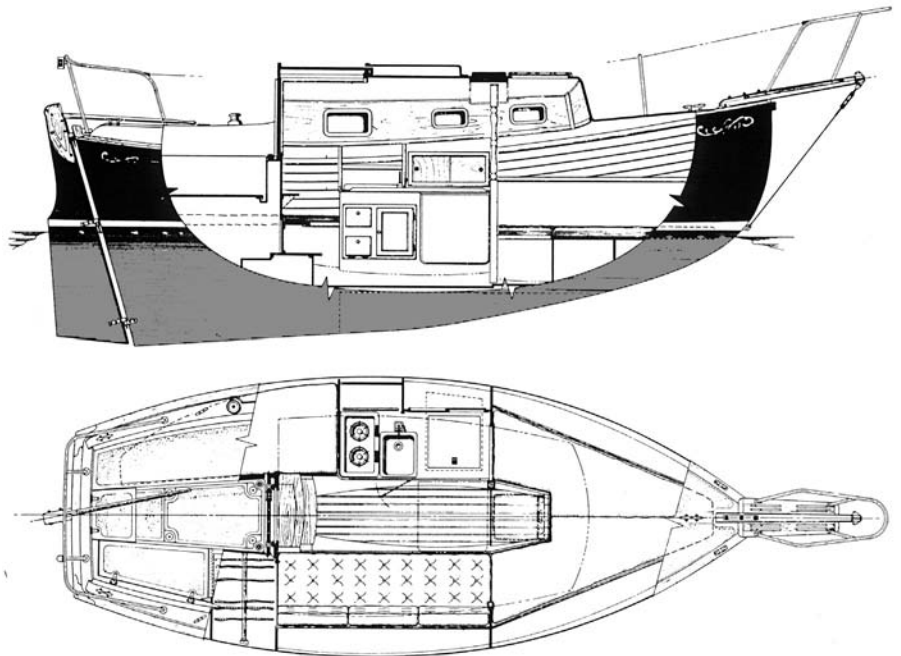
Sea Talk Newsletter (Northwest Pacific Seacraft Owners Association)

Gary Kreis

253-840-6916

passages20@aol.com

Don Breazeal's Erika shows a roomy cockpit and her traditional underwater lines. Erika plies North Pacific coastal waters.



"On the way back I took a swing through the massive anchorage, counting 27 cruising boats of all designs, sizes, and flags . . .

Kawabunga was by far the smallest, and by my eye, the most charming craft anchored in Taiohae Bay."

— Charles Dewell

Kawabunga's South Seas Adventure

Flickas show up in all the best places. Above, Mike Nelson's Eventide in Lake Huron's North Channel and, at right, Charles and Margaret Dewell's Kawabunga at the Bora Bora Yacht Club in the South Pacific. For more about this trip, refer to the book reviews on Page 74.





Repowering

What you need to know before removing the old engine

more often, the replacement has to do with either the cost or availability of parts for the old engine. My own experience is a case in point.

Our old boat, an Allied Seawind, came from the factory with a 20-horsepower Albin AD-2, a Swedish diesel as dependable as a St. Bernard and as rugged as stone. But after 30 years of service, the time for a major overhaul was at hand.

In common with a lot of other European diesels of the same

era, Albin has almost disappeared in America. There was no place that I was willing to take the engine for a rebuild. And even if I could get the job done in a monastery workshop, then what? Already I had seen water-pump impellers out of stock for nearly a year. If I couldn't get the most common replacement part now, what were the odds of getting a rocker arm in Trinidad five years from now? All things considered, a new engine promised to be the better choice.

How much power?

The first step in selecting an engine is determining horsepower requirements. *Skene's Elements of Yacht Design*, by Francis Kiney, and Dave Gerr's *Propeller Handbook* both contain formulas that allow you to estimate power requirements based on displacement and waterline length, but

it is important not to overvalue such calculations. They only tell you the theoretical horsepower needed to push your boat through smooth water. Punching through waves requires additional power. So does motoring against a breeze. Or overcoming a foul bottom. If the displacement amount doesn't include the weight of equipment, supplies, and crew, the calculations understate power requirements. And they assume a propeller with more surface area than you may want to drag around under sail.

The truth is these formulas are a migraine you don't need. They are going to tell you that you need about 2 horsepower per 1,000 pounds of displacement. (*Editor's note: We used Dave Gerr's formulas for calculating our own power requirements when repowering. We found them to be useful and comforting. In the end, we selected an engine with about 2 horsepower per 1,000 pounds of all-up cruising weight.*) How can I know that in advance?

Because the game is fixed. The only variable is the speed-length ratio, and virtually all displacement sailboats have a theoretical speed-length ratio of about 1.3.

Since you are repowering, you can also deduce your power requirement empirically. How satisfactory was the old engine? If, for example, the old engine was anemic against a breeze, you need a bit more horsepower this time. On the other hand, if you never saw the tachometer above 2,000 rpm, a look at the engine's output curve (example on next page) will show how much horsepower you have been getting along with.

In our case, the 2-horsepower rule yielded 24 horsepower, but I already knew that 20 would push us along

A 20-hp Beta swings into a C&C 30.

This is first of a two-part series by well-known boating author Don Casey. Here he tells exactly how he extracted an Albin diesel from his good old boat.

The engine and shaft must be in precise alignment. This is the only hard, fast rule for installing a new engine in an old boat. Everything else you make up as you go along.

I pass this on to you with the authority of having just repowered our own good old boat. I am also pleased to tell you the process turned out to offer fewer opportunities for disaster than I had imagined.

Why repower?

Until recently, repowering a sailboat nearly always meant replacing a gasoline-fueled engine with a diesel. Today, the engine coming out is nearly as likely to be a diesel. Sometimes the owner simply wants more power, but

by Don Casey

smartly in smooth water. A few times, extra ponies would have been reassuring, but the rest of the time a bigger engine would be loafing. Because diesel engines do better under load, I felt reluctant to add power, but

“Until recently, repowering a sailboat nearly always meant replacing a gasoline-fueled engine with a diesel. Today, the engine coming out is nearly as likely to be a diesel.”

the particular engine I wanted was available in either a 16-horsepower, 2-cylinder version, or as a 24-horsepower, 3 cylinder. (Note: These are continuous horsepower ratings. Advertised ratings often are intermittent horsepower — meaning you can run the engine at that load for no more than one hour. Intermittent horsepower is typically 10 to 15 percent higher than continuous horsepower.)

Ultimately, I settled on the 24-horsepower motor, and my somewhat convoluted logic might be helpful. The primary issue for me was idling, not powering. For years, we had run the old engine at anchor for up to two hours a day to keep the batteries charged and the holding plates frozen. A smaller engine would better tolerate this light load, and had we intended to continue accumulating most of our engine hours at anchor, I would have installed the smaller engine.

However, we have abandoned the main engine for refrigeration and primary charging, using it only for propulsion. With no compressor belted off the new engine, 16 horsepower still

would likely have been adequate—just. However, the one-time-only opportunity of banking 50 percent more power for an additional investment of about a grand carried the day.

It is common practice to factor in additional horsepower for engine-driven accessories such as a high-output alternator, a refrigeration compressor, or a water-maker. This, I think, is unnecessary and

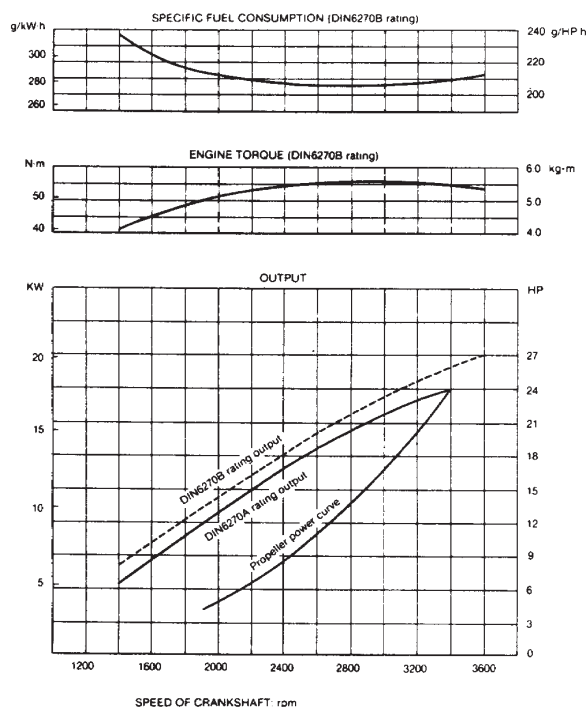
probably even undesirable, except for engines under 10 horsepower. At less than full throttle, the propeller absorbs considerably less horsepower than the engine can produce, so plenty of extra power is available. You can determine how much from the spread between the engine power curve and the one for the propeller. Or, if your old engine is a diesel, multiply your average fuel consumption (in gallons per hour) times 16 to arrive at the average load on the engine in horsepower. (We can make this calculation because 1 gallon of diesel fuel will produce around 16 horsepower for 1 hour.) If, for example, your usual consumption is 0.5 gallon per hour, you are using only about 8 horsepower. The

difference between this number and the continuous horsepower rating of the engine is unused capacity. It just makes sense to make use of this excess before adding dedicated capacity.

Loading the engine more heavily more of the time also extends its life. On those rare occasions when you want all the engine's power available at the prop, it is a simple matter to turn off the auxiliary loads. For those unswayed

YANMAR

Performance Curves 3GM30(F)(V) Fresh Water Cooled Version



$$\text{grams/hp hr} \times .0003096 = \text{gallons/hp hr}$$

$$\text{nm} \times .738 = \text{lb ft}$$



A 240-pound engine is hoisted in using the boat's running rigging. The mainsheet tackle is connected to the main halyard, and the vang tackle pulls the engine toward the boom end. NOTHING hangs from the middle of this boom. Check the safe working load of your gear before you do this.

by this logic, in the absence of specific power requirements for these auxiliary loads, a 2-horsepower allowance for each won't be far off.

Which engine?

After you arrive at the target horsepower, the next choice is whose engine to buy. Here the primary issue may be fit, but probably not size. Today's engines are nearly all smaller than older engines of similar or slightly less horsepower. The main fit issue is the location of the output flange.

The engine and shaft must be in precise alignment.

With battens, a tape measure, and a few body contortions, you should be able to determine the height of the shaft

relative to the engine bed. While you are bent like that, also measure the length, individual width, and center-to-center width of the bed stringers. Wait, don't straighten out yet. How far below the stringers can the engine extend? How much room do you have above the stringers? Now get all these dimensions on paper, and you are ready to qualify or rule out any engine you may be considering.

Access is another concern. If you can only get to one side of the engine, you want filters, pumps, and dipsticks on that side. Will you be able to service the starter without removing the engine? Will there be room above the valve cover for an upturned oil container?

If your budget has you contemplating a seawater-cooled engine,

snap out of it. Unless you use the engine only in fresh water, seawater cooling is a bad idea. Scale will form in the cooling passages, eventually leading to overheating. Running the engine at lower temperatures to retard scaling only postpones the inevitable, and it reduces the engine's efficiency. Freshwater cooling has become the norm for good reason.

Because a diesel doesn't require electricity to run, hand-starting is an attractive feature. Dead battery? Get out the crank. It's a nice fantasy, but the reality is that sailboat installations rarely allow adequate room to spin the crank safely. Make sure yours does before fretting over the absence of this feature. An extra battery or a small

generator in the lazarette accomplishes the same thing without the risk of broken bones.

The fact that I was replacing an engine perfectly capable of delivering another 30 years of reliable service, if parts for it were still available and/or affordable, colored my decision from the start. I wanted an engine that had already been installed by the thousands, by the tens of thousands, reasoning that this was our best assurance of wide and long parts availability. For our size boat, that engine was the Yanmar GM series.

Reliability was equally important, so I made inquiries. No owner I talked with had a single negative thing to say about the engine. This should not be construed to suggest that Yanmar engines are more reliable than competitive brands, but it did give me assurance that they are no less reliable. Once I was satisfied that the engine would fit, my choice was pretty well set.

Price, by the way, played no part in my choice. I reasoned that \$1,000 difference one way or the other, amortized over 30 years, works out to \$33 a year. That was insufficient for me to make any compromises. That did not, however, keep me from negotiating the best price I could on the engine I wanted.

Buy the book

With the project still months down the road, there was no need to make a firm commitment, but I was sure enough about the Yanmar that I decided to ask about the availability of an installation manual.

Early on I had the good fortune of meeting Mike Muessel, president of Oldport Marine Services in Newport, R.I. Taking unfair advantage of Mike's enthusiastic nature, I had committed him to become my technical advisor. (Both my engine installation and this article have benefited greatly from Mike's wise and willing advice.) So I called Mike to inquire about getting an installation manual in advance.

"Good plan," Mike said. "And Yanmar's is a good one."

That turned out to be an understatement. The well-illustrated step-by-step instructions were not only clear but reassuring. In addition, the 250-page manual was a treasure-trove of helpful information, providing specific shaft and prop recommendations, detailed engine specifications, and complete wiring diagrams. Only twice during the project did this manual fail to answer every question that popped into my buzzing brain. These were resolved with quick email messages to Mike.

Whatever engine you select, buy the installation manual in advance; then, with a yellow highlighter in hand, read it cover to cover. It will save you the discomfort of uncertainty and maybe the misery of error.

Repowering afloat

It is quite possible to repower at the dock and, having the “ground” more or less at deck level, makes it relatively easy to transfer the engines to and from shore using the boat’s blocks, winches, and lines. Wrap the boom directly above the companionway with a carpet scrap or beach towel, and attach both the main halyard and the topping lift to a strop around the boom at this location. Put both masthead lines under tension to support the boom.

A chain hoist, or, with care, a multipart tackle (the main sheet) rigged beneath the boom to the strop lets you lift the engine out of the cabin and swing it into the cockpit or onto the cabintop. If you are using a tackle, take the tail through a turning block to a winch. When the engine is on deck, reposition the strop farther aft, and you should be able to use the boom to swing the engine ashore onto a waiting dolly. Reverse the process to get the new engine aboard.

Dockside repowering has less appeal when you have to remove the prop shaft. This generally involves a

diver extracting the shaft while a helper inside slips a dowel or capped pipe into the stuffing box to plug the hole. This can work as long as the new shaft is the same diameter as the old one, but if you are adding horsepower, you may need a larger shaft diameter. That means a new Cutless bearing and a new stuffing box, changes you don’t want to make in the water.

I think there are significant advantages to having the boat out of the water when repowering, regardless. Why?

The engine and shaft must be in precise alignment.

The process of aligning the engine is easier and infinitely more accurate if you can use a centering line that passes through the stern tube. I am going to explain this technique in detail, but it virtually assures a near-perfect alignment right out of the box, saving

“When I extracted the lag screws fastening the engine mounts to the bed stringers, the engine was free. Unfortunately, I still had to get its 500-pound bulk from under the cockpit sole out into the main cabin, where it could be lifted out of the boat.”

hours of tedious adjustment.

A second reason to have the boat out of the water is to thwart human nature. Engineering advances have resulted in shorter transmissions, so the weight of the engine moves aft if you bolt it to the existing shaft. It is almost always better to move the weight toward the center of the boat by positioning the engine as far forward as possible, but this requires a new, longer shaft. A larger-diameter shaft may also be



500 pounds of Swedish cast iron walks the plank.

indicated if the new engine is more powerful than the old one. Having the boat in the water makes it more likely that you will resist shaft replacement.

Even if the new engine mates perfectly with the old shaft, you still should pull the shaft and inspect it for wear and corrosion. And while the shaft is out anyway, it’s a good time to replace the Cutless bearing and repack the stuffing box. You may also want to replace the hose that connects the stuffing box to the stern tube. You won’t do any of these if the boat is in the water.

Removing the shaft

I decided to do the job high and dry in the boatyard. Step One was to extract the shaft. The prop had to come off first, so I borrowed a puller from the yard. Never try to flail the prop off with a hammer, but a few love taps on the center of the tensioned puller where it is pushing against the shaft can be effective at breaking the prop free from the taper. I put an indelible mark

around the shaft where it exited the hull so I would be able to reposition it later.

Inside the boat, I backed off the adjustment nut on the stuffing box so the shaft would slide more easily. I also put another positioning mark on the shaft, this one where it disappeared into the coupling. To prevent the shaft key or anything else from dropping into the bilge, I spread a towel beneath the coupling. Then I freed the shaft from the coupling. There is a trick to this that, barring complications from corrosion, makes it a snap.

Loosen the clamp bolts or remove the setscrews and/or tap out the pin holding the shaft in the coupling. You can try to slide the shaft out of the coupling, but chances are it won't budge. Mark both flanges so you can reassemble them with the same orientation, then unbolt the coupling and take it apart, sliding the shaft aft. Tape a strong spacer — a nut or a bolt — to the center of the transmission flange, then reassemble the coupling and tighten the bolts evenly. As the coupling bolts pull the shaft flange forward, the spacer prevents the shaft from coming with it, thus pressing the shaft out of the flange. Replace each spacer with a longer one — I eventually used sockets — until the shaft drops out of the coupling.

With the shaft free, I slid it out of the boat and set it aside for later. I also released the clamps around the stuffing box hose and twisted the hose free of the stern tube.

Freeing the engine

The next step is to disconnect the old engine from its web of attached cables, wires, and hoses. To avoid unwanted drama, start by unclamping the positive battery cable(s) and removing it (them) from the battery post(s).

I disconnected the exhaust hose next, to gain better access. Since I wanted the engine space to be totally empty for cleaning and painting, I also unclamped the exhaust system from the hull fitting and removed it in its entirety.

The only water connection was a hose to the raw water pump. On the other end of that hose was a screen filter with a glass housing, long on my list for replacement. I removed the filter, unclamped the thru-hull

connection, and tossed the whole mess.

Moving on to the fuel connection, I disconnected it first from the tank so it wouldn't set up a siphon. For the same reason, I also disconnected the output side of the primary filter, using an old towel to catch the inevitable dribble from the line. Only then did I disconnect the feed to the engine. Using old fuel lines struck me as a bad way to save 20 bucks, so I dumped them. Yanmar promised a new Racor primary filter, so I removed the old cartridge-style Fram, drained it into a plastic jug, and gave the housing away. By the way, your preparation for repowering will have to include locating an appropriate disposal site for fuel and oil.

Control cables were next. The old controls were not compatible with the new engine, so as I disconnected each from the engine. I also detached it from the boat, removing all associated clamps, supports, and mechanisms. That left me with a few abandoned holes in the cockpit, which I closed with fiberglass patches.

The old engine had an amazing number of wires connected to it — starter and alternator connections, engine condition sensors, grounding wires, and a few unidentified interlopers. At first, I labeled each as I disconnected it, but I quickly came to my senses. The Yanmar installation manual showed a plug-together harness connecting the new engine to its accompanying instrument panel. The only existing wires that would be reconnected to the new engine were the battery cables. So out came the wire cutter, and I clipped the engine free of its wires in a matter of minutes. As it turned out, they all lead, one way or another, to the old instrument panel or ignition switch, and when I removed those, the engine space ended up empty of all wiring.

One word of caution: If you are using a smart regulator or have add-on meters, you will need to identify, label, and save the hook-ups for those items.

Out with the old

When I extracted the lag screws fastening the engine mounts to the bed stringers, the engine was free. Unfortunately, I still had to get its 500-pound bulk from under the cockpit sole out into the main cabin, where it could be lifted out of the boat.

Before I started moving the engine, I emptied the oil from the engine and the transmission, and I drained out the coolant. I expected that I would need to turn the engine on end to pass it through the companionway, and I was hoping to avoid a messy spill. The alternator also had to come off for the engine to fit through the engine hatch.

Next, I commandeered a 10-foot length of 2 x 12 the yard had lying around for scaffolding. I slid it between the engine rails and pushed it back until the aft end rode up on the hull as far as it would go. Lifting the board against the bottom of the engine, I used a small bottle jack to raise the forward end just enough to lift the mounts. With the board securely blocked at this attitude, it was a simple matter to drag the engine out into the main cabin with a come-along, taking care to keep the engine centered on the board.

When the crane came to unstep the masts (I was also rerigging), the accommodating operator also lifted the engine up through the companionway. The removal part of the job was done.



(Next issue: Insiders' tricks for installing the new engine, shaft, and propeller — how to avoid a hernia and many other setbacks on the way to that magic moment when you turn the key, hit the starter, and fire up for the first time.)

Don Casey abandoned a career in banking in 1983 to devote more time to cruising and writing. His work combining these two passions has appeared in many popular sailing magazines. He and his wife, Olga, cruise aboard their 30-year old Allied Seawind. They like to point out that they've done all the work themselves with no adult supervision. Don co-authored Sensible Cruising: The Thoreau Approach and became the authority on boat fix-it projects with his book, This Old Boat. He is the author of a series of how-to books in the International Marine Sailboat Library Series. He recently returned to the subject of cruising with the book, Dragged Aboard — A Cruising Guide for the Reluctant Mate.



Vessel *in the fog*



We delayed our departure from Loon Harbor as long as we could. It is among our favorite anchoring holes along the raw and secluded Canadian north shore of Lake Superior. We went ashore to sit and admire the serenity and take some photos of *Kiwa* with her brilliant red hull in contrast to the subtle shades of green, gray and brown of the islands. Perhaps our next Christmas card would result.

Finally, we wrestled the anchor from the thick blue clay and motored out. It could be a long slog. As usual, what wind there was was on the nose. We beat in light air for nearly an hour before giving up and turning on the motor.

We had a choice. We could go inside past Number 10 light. If there was no fog, the obstructions are easily avoided. Or we could pass outside and probably make some long tacks when the wind picked up. There were fewer obstacles if fog should set in. We chose the outside route — and the winds did pick up.

We had some of the best sailing of the trip as we approached Porphyry Light. The winds were 15 to 20 with moderate seas. We were close-hauled, but could hold a good course without tacking. Once we rounded Porphyry, we intended to find Horseshoe Cove where we would set a stern anchor and tie the bow to a tree.

But as we approached Porphyry, we sailed into a fog that thickened as we held our course. We lost sight of landmarks. We both fell immediately into our customary roles. Judy took over navigation; I stayed at the helm and kept a close watch “and listen.”

Judy began to plot Loran fixes, watch the depth sounder, and take an

occasional compass bearing during brief periods of lighter fog. She also handed me the little brass fog horn to blow announcing our presence to any other vessels negotiating the fog. I blew hard, hung it around my neck then took the wheel and stared into the fog and listened.

The fog thickened as we rounded Porphyry — too close for Judy’s liking. I was ordered to tack immediately to avoid the reef lying off the point. I tacked, blew my horn, steered, glanced at the compass, and stared into the nothingness that surrounded us. Again I blew, stared, and listened. The wind continued strong, frequently topping 20 knots, a perfect wind for our boat.

Suddenly, I heard another horn. I called to Judy. “There is someone out there!”

“Where?” she said, as she scrambled into the cockpit, and I gestured vaguely off to starboard. I blew again, dropped the horn and clasped the wheel. We both strained to see the other boat. It was out there somewhere, but sound plays tricks in the fog. I heard it just forward of the starboard beam, but Judy was just as convinced that it was astern, slightly to starboard and over my shoulder.

We couldn’t hear a motor, so it must be another sailboat. I blew, and the other boat answered almost immediately. They were also using a mouth powered horn. Blow and listen to the answer. I would blow a good five- to six-second blast, and the answer was easily as long or longer. I tried a couple of short toots and got a long blast as a reply. This could not be an echo. At least we were not bumbling into a cliff. The sound stayed off the starboard beam, but Judy insisted that it was astern. We both

strained to see our fellow traveler.


We continued along our course blowing and listening, squinting into the fog, leaning into the wind, then blowing and listening again. Check the depth sounder; plot another loran fix. Could it be someone on shore playing with us? We struggled to grasp what our senses were telling us.

I lifted the horn for another long blast. The other horn stopped immediately. I dropped it back onto its lanyard — just as the other horn started its blast. Then I noticed that the answering blast stopped when I clapped my glove over the bell of my horn and

started when I pulled back my hand.

Our

phantom vessel was the wind blowing over the horn as it hung from my neck. It was strong enough to vibrate the reed — which explains why it came from forward as I turned to listen. And why Judy heard it back over my shoulder.

As the tension broke, we had a good laugh and resumed a more routine journey through the fog. 

Larry Carpenter has been sailing good old boats on Lake Superior for 12

seasons — first on Kiwa, a C&C 30, and more recently on Allegro, a Mason 33 requiring “extensive deferred maintenance.” A guitar and flute are standard equipment on Allegro,



and Larry and partner, Judy Taylor, can often be heard playing music at anchor in the Apostle Islands. When not sailing, Larry researches nautical history and has developed a series of talks for sailing organizations.

by Larry Carpenter



THE

resin in a lay-up in the garage.”

It didn’t take Clinton long to run out of money. He started working for an insurance company during the day and making the dinghies at night. But sales were promising enough for him to incorporate in early 1956. A high-school classmate named Brad Turner helped out by investing \$5,000 in the business.

Clinton’s cousin, Everett, who was a couple of years behind Clinton at Brown, also served in the Navy after graduation. He worked with Clinton, building the dinghies when he could, and was able to come to the new company full-time in 1957. Fred Heald, a fellow Brown alumnus, joined them as head of sales.

At the request of customers, the cousins built larger dinghies, which they exhibited at the New York Boat Show in 1957. Sales were so good that the young company needed room to expand. The Pearsons found an empty textile mill on the waterfront on Constitution Street in Bristol, R.I., with a flexible lease that allowed them to pay just for the space they used. Soon they were renting the entire first floor. By the time of the show in 1958, they also were making 15- and 17-foot runabouts based on Clinton’s designs, in addition to the line of dinghies.

Things started to gel in 1958. “A fellow named Tom Potter, who worked for an outfit called American Boat Building, over in East Greenwich, asked us if we would be interested in building

a 28-foot fiberglass sailboat that would sell for under \$10,000,” says Clinton. “Tom knew Carl Alberg, who was working at the Coast Guard Station in Bristol, across from where we were renting space. We agreed, and Tom had Carl design the boat for us. So Tom Potter was really responsible for the concept of the Triton.”

Big in Europe

“I had an idea for a family cruising boat using fiberglass,” says Tom. “Family cruising was a big thing in Europe at the time, but not in the U.S. The idea hit me that we could do the same thing, and it would be successful if the price was under \$10,000. Everyone was still building boats from wood, but I thought fiberglass was the way to go.” Building with fiberglass allowed for a much roomier interior compared to wooden boats.

Tom adds: “I approached a number of people about my idea. My employer at the time, American Boat Building, wasn’t interested. I talked to Sparkman & Stephens. They wouldn’t give me the time of day. I got to know Carl while I was at American Boat Building, and talked to him about the idea. He’s the one who introduced me to Clint and Everett. He knew they were building fiberglass dinghies and runabouts across the way from him and thought they might be interested in building a sailboat. Naturally they were.

So Carl designed the boat, and I financed the tooling for it. Carl had been designing

ammunition boxes for the Coast Guard when the Triton idea came along.”

The cousins built the boat and had to borrow money to truck the Triton to the 1959 New York Boat Show. They didn’t even have the cash between them to pay the hotel bill. The boat’s base price was \$9,700. When it became an instant success, with \$170,000 in orders, the hotel bill was paid, and the young company was off to a solid start.

It’s a familiar story to sailing buffs. The Pearson cousins, Clinton and Everett, began the modern era of fiberglass production sailboats at the New York Boat Show, in January 1959, with the introduction of the Carl Alberg-designed Triton. They sold 17 of those 28-foot boats at the show, and “it started us chasing money,” says Clinton. Indeed, that one show put the fledgling company on the map and in solid financial shape, but this well-known story reveals only part of the roots of Pearson Yachts.

“The Navy ROTC sent me to Brown University,” says Clinton, “so after I graduated, I had to serve three years of active duty on the destroyer *Joseph P. Kennedy*. This was from 1952 to 1955. While on the *Kennedy*, I built a small model for an 8-foot fiberglass dinghy. Later, I built a mold for the dinghy in my father’s garage. I started the company in May 1955 with the \$2,000 I received when I left the Navy.”

Clinton tried making the dinghies using a vacuum process. “But I had no luck with it after six or seven attempts. So I started making them from mat and

by Steve Mitchell

PEARSON ERA

*Starting in a garage,
cousins Clinton and Everett Pearson
initiated an era in yachting history*

“Right after the boat show,” continues Clinton, “we still needed money to build those 17 boats. We already owed the bank \$6,000, and we had to go back to the bank to ask for even more. We asked for — and got — \$40,000. That started us chasing money. From the very beginning, we had to chase sales to pay off loans, a never-ending process.

“Carl sold the Triton plans to us for \$75,” states Clinton, “and then he wanted royalties of \$100 per boat sold.” The Pearsons agreed to those terms, although eventually it would work against Carl.

Flush with the success of the January 1959 show, the cousins took the company public that April. “The shares opened at \$1,” says Clinton. “They were \$3 a share the next day. By the end of 1959, the price was \$13 a share.”

Sales stayed strong enough for the company to add another production site. Pearson bought the legendary Herreshoff Yard in November 1959 for \$90,000, half in cash and half in stock. Production also continued at the Constitution Street site in Bristol.

Clinton explains, “In 1959, the market was just right for us. The price [of the Triton] was right. Leisure time was a big thing. They were pretty simple boats to build at the time, and we tried to build one boat a day to keep up with the demand.”

***Pearson 10M, at far left,
Pearson 26, at right. Both
photos from Pearson marketing
materials dated 1977. Our
thanks to Tom Hazelhurst for
sharing these treasures.***

Controlling interest

In 1960, the Pearsons were trying to obtain approval for another stock offering, but had trouble getting the proposal through the Securities and Exchange Commission. The money chase was continuing, and the company

needed another cash infusion to finance its rapid growth.

“Luckily, Grumman was there and interested in the company,” says Clinton. In 1961, Grumman Allied Industries bought a controlling interest in Pearson Yachts for \$800,000. Grumman wanted to diversify its



military-aircraft business. It already had an aluminum-canoe division as a toehold in the boating industry. Grumman sought a stake in the developing fiberglass-technology area, and Pearson was a leader in the field at the time. The Grumman purchase started a long period of growth and stability for the yacht manufacturer.

With the full backing of the new owners, the Pearson cousins expanded production to include more boats, both large and small. Most also were Alberg-designed boats. The 20-foot daysailer called the Electra, "which we made into an open 22-foot daysailer called the Ensign," says Everett, was added in 1960. The Alberg 35 followed in 1961.

According to Clinton, "When we started building the Ensign, it was an exception [to the one boat a day goal.] We eventually got that line up to two a day, then three a day" to meet the demand. It became a popular one-design racer, with nearly 1,800 produced in its 21-year production run. (Photo on Page 21.)

Other Alberg designs were the Rhodes 41, a 26-footer called the Ariel, and a 16-footer called the Hawk. Pearson also built the Invicta, a 38-footer designed by Bill Tripp, in the early 1960s. "It was the first production fiberglass boat to win the Newport-to-Bermuda Race, which was the 1964 race," Everett says proudly. The young firm also produced powerboats, including the 34-foot Sunderland.

States Clinton, "A lot of credit for the early success of the company has to go to Tom Potter for selecting a line that would sell." For his part, Tom says, "Fred Heald and I were close friends, and we ran the marketing end together. I primarily worked with the designers on boats we thought would sell, while Fred worked more on marketing the boats. It was a pretty exciting period of my life."

As with the Triton, Carl Alberg received a royalty on each of his designs that was sold. "As the boats got more expensive, the royalties went up," states Clinton. "By 1964, Carl was making \$40,000 a year from us, on top of what he made from the Coast Guard. Grumman wasn't happy at all with the

royalties and said we should hire our own architect." But first, Everett approached Carl about renegotiating the deal on royalties. "He was a stubborn Swede and refused," says Everett. "So we had to say: 'No more boats from him.'"

A Grumman employee named John Lentini had a hand in the next serendipitous step for Pearson Yachts. John had purchased a sailboat designed by the prestigious New York firm of Sparkman & Stephens. One of the naval architects involved in that boat was a young fellow named Bill Shaw, and he and John became acquainted. When Lentini learned of the opening at Pearson Yachts, he mentioned it to Bill, who went to Bristol, R. I., for an interview with the Pearson cousins.

Momentous year

"I had worked for Sparkman & Stephens for 11 years before leaving to work for an outfit called Products of Asia, which also was based in New York," says Bill. "It imported custom wooden yachts from Hong Kong, and I ran their marine division." The company's most famous import later on was the Grand Banks line of trawlers.

The interview went well, and Bill was hired as the Director of Design and

"The cousins built the boat and had to borrow money to truck the Triton to the 1959 New York Boat Show. They didn't even have the cash between them to pay the hotel bill."

Engineering with a starting salary of \$18,000. "We hit it off," says Everett. "It worked out very well."

"Rhode Island was my home state, and I was thrilled to be able to return there," he adds.

As it turned out, 1964 was momentous for Pearson Yachts for more than the hiring of Bill Shaw. Grumman financed the construction of a 100,000-square-foot manufacturing plant in Portsmouth, R.I., and planned to move the company there the following year. "Lots of people didn't want to make the move," says Clinton. "Plus, Grumman fired me in 1964."

Fired?

"Yep, fired."

"My boss was a sailor," explains Clinton, "and thought himself an expert. He was the comptroller of Grumman but actually acted more as the treasurer. We got along OK for a couple of years, but what set him off was a new concept we had. Tom Potter had an idea for a full-powered auxiliary. This comptroller said we needed to sell five of them before we could go with it. We discussed this for an hour at a board meeting. At the end of the discussion, they took a vote, and I won. I knew that sealed my fate. The boat turned out to be the Countess 44, which was quite successful.

"I really hated working for a big company," Clinton goes on. "I had already made plans to do something else. I was ready to resign anyway. If they had just waited a few more weeks, I would have left on my own, and everyone would have been happy."

Clinton bought out a troubled sailboat-maker called Sailstar in West Warwick, R.I. "I still had the lease on the Bristol factory, and moved the company there," he says. "Carl Alberg designed a 27-footer for me. I called it the Bristol 27, and soon the Sailstar name faded away." He changed the company's name to Bristol Yachts, and

thus was born another famous sailboat manufacturer with a Pearson pedigree.

Back in Portsmouth, business was booming for Pearson Yachts, but not everything the company was building would float. Grumman combined the

sailboat company with its subsidiary that made aluminum canoes and truck bodies. "Grumman was building aluminum trucks for United Parcel Service," states Everett. "Soon Pearson Yachts was making the fiberglass rooftops and fronts for the trucks. We did it really just to accommodate Grumman."

Tom Potter was the next to leave. "I hated working for Grumman," he says, "and I quit. I actually was out of work for a while when Clint asked me to join him at Bristol. He was building stock boats, and I wanted to do custom work." Tom stayed with Bristol Yachts until he retired in 1972. He then went back to school to become a naval architect and

began a second career designing boats. Today at the age of 84, he's still designing sailboats.

Special permission

By 1966, Everett Pearson also was ready to leave. According to Everett, "We were run by a board of directors. We had to write quarterly reports and go to board meetings. I didn't like it at all. My interests were in producing sailboats. I decided to go out on my own. I agreed not to compete with the company for three years, so I decided to go into the industrial business.

"But first," continues Everett, "I helped out with a 58-footer for a fellow I knew named Neil Tillotson. I had to get special permission from Grumman to do the boat, which was granted since it didn't compete with anything Pearson was building." Later, he teamed up with Tillotson to form Tillotson-Pearson, Inc., which has become a major force in industrial uses of fiberglass-reinforced plastics and other, more exotic composites. Known today as TPI Composites, its varied product line includes windmill blades, flag poles, aquatic therapy pools, and J-Boats, among other sailboats and power boats. Everett, 65, now serves as chairman of the board of TPI. Just 10 short years after it all began in Clinton's garage, no one named Pearson was running Pearson Yachts.

"Shortly after [Everett left], Grumman asked me to run the company," says Bill Shaw. "Never having done that, I said sure." Bill was made the general manager of the Pearson Yacht Division.

"We put together a great team," he continues. "And Grumman was great to work for. They were very supportive in getting us the best equipment and machinery. We had computers to help us cut out materials. They also expanded the Portsmouth facility later on so that we could build bigger boats."

According to Bill, Grumman also started making firetrucks and motor homes based on a truck body. "It's interesting to build boats on one side of a plant, and motor homes on the other. I had to be a diplomat. At one point, we even built some modular housing for Grumman. We erected it at the plant and used it as an office as a prototype."



Pearson 30 from Pearson marketing materials.

Grumman began manufacturing the housing at another site and continued making aluminum canoes in New York.

Under Bill Shaw's leadership, Pearson Yachts enjoyed rapid growth in sales in the late '60s and early '70s. The product line was varied and included powerboats as well. Sizes ranged up to 44 feet, thanks to the new production facility Grumman funded. Then the fuel crisis hit in the early '70s, and the company found itself at a crossroads of sorts.

"When the fuel problems hit," says Bill, "the powerboat business was hurt badly. We found that people went to sailboats who never thought they'd set foot in one previously. We decided we were a sailboat company and wanted to concentrate on that. We also came face-to-face with the realization that to be successful in that line of business, we

had to be committed to the dealers. Other manufacturers were always after our dealers, too, trying to steal them away from us."

Bill started holding meetings with an advisory board partially composed of dealers. "The boats were developed with specific price points in mind and with dealer input," he continues. "A new design had to satisfy a lot of people; otherwise it wasn't worth the trip. More than once we had what we thought was a great idea, but the dealers would turn it down. We would pull them into the plant and bounce ideas off them. They were extremely helpful to the success of the company."

Condo boat

John Burgreen, who now owns Annapolis Yacht Sales in Annapolis,

Md., one of the earliest Pearson Yacht dealers, was one of those dealers Bill counted on. "Pearson would get a group of us together from different parts of the country," explains John, "to brainstorm new ideas. We talked about what should go in a particular boat, what the market was demanding. We'd discuss such things as heads that had to be bigger, or we had to have stall showers, or we needed more performance-oriented boats, or more cruising boats. All the dealers worked together pretty well.

"One boat that comes to mind," muses John, "is the Pearson 37. We called it the condo boat. We had more fun than you can imagine working on that boat. We went berserk. Everyone there was at fault for that one, although it did pretty well."

The 37 was introduced in 1988 to considerable dock chatter. At the Annapolis Boat Show, people could be heard saying, "You've got to see the Pearson 37!" The boat had a queen-sized island berth forward, two swivel chairs in the saloon, a television and stereo center, and a separate shower stall. The cabin was about the most luxurious to be found in a production sailboat. It made a definite statement about how serious Pearson was at attracting new customers in a changing market.

Another key factor in the company's success was its advertising

firm, Potter-Hazelhurst. "Their strength was marketing, not necessarily in printing pretty ads," Bill says. "One of their employees developed an index of buying power by county and city for the whole country." The company used the data to develop sales estimates for particular markets, a most effective tool. "It worked well for the dealers, giving them sales goals, and a good idea of what their sales should be," he adds.

According to Tom Hazelhurst, his firm handled Pearson's marketing and advertising efforts from 1969 until the end in 1991. "Pearson grew during that period, and so did we," he says. "Under Bill's tutelage, they built damn good boats. I'm not saying that because I was their advertising man, but because I bought two of their boats. The boats just don't break."

In 1980, Grumman expanded the Portsmouth plant to 240,000 square feet to build even larger sailboats. The Pearson 530 was the largest boat the company ever built. The firm also began building power boats again, although none was designed by Bill.

By the mid-'80s, Grumman started looking for a buyer for Pearson Yachts. "I tried to buy the company in 1985," says Clinton, "when Grumman made it known they wanted to sell. But the deal didn't come off. Times were already starting to change in the sailboat business. Pearson only lasted as long as it did because of the kindness of

Grumman. I doubt the company ever made any money for Grumman."

Bill Shaw disagrees. "We certainly had some lean years, but we also had some very productive ones," he states. "Sure, Grumman looked at it as a business, and we turned a good profit for Grumman in the healthy years, especially when we started building the larger boats with larger profit margins. I don't think they would have kept the company that long if we weren't doing well for them."

Business downturn

In March 1986, Grumman sold Pearson Yachts to a private investor group headed by Gordon Clayton.

"Gordon had no prior experience in the boating business," says Bill. "When he came on board, we looked forward to taking advantage of his overall business experience to add a healthy element to the company. It's unfortunate that when he came along, business started going badly for the entire industry."

The company was also faced with an aging model line. "Things like aft staterooms and open transoms were popular, and we couldn't add those features to many of our boats," Bill explains. "We worked with the models we could adapt. For example, we brought back the 34, and we also changed the 36, which we extended and called the 38."

Pearson sailboat introductions, 1957 to 1980*

Plebe	1957	Invicta II	1966	Pearson 28	1974
Triton	1959	Lark	1966	Pearson 365	1975
Tiger Cat	1960	Renegade	1966	Pearson 323	1976
Electra	1960	Wanderer	1966	Pearson 31	1977
Invicta	1960	Pearson 22	1968	Pearson 23	1977
Hawk	1960	Pearson 24	1968	Pearson 424	1977
Alberg 35	1961	Pearson 300	1968	Pearson 260D	1977
Bounty II	1961	Pearson 43	1968	Pearson 40	1978
Petrel	1962	Pearson 35	1968	Pearson 32	1979
Ariel	1962	Pearson 33	1969	Pearson 36 PH	1979
Rhodes 41	1962	Pearson 39	1970	Pearson 530	1980
Vanguard	1962	Pearson 26	1970	Pearson Flyer 30	1980
Ensign	1962	Pearson 390	1971	Pearson 36 Cutter	1980
Packet	1963	Pearson 30	1971		
Resolute	1963	Pearson 36	1972		
Commander	1964	Pearson 10M	1973		
Countess 44	1965	Pearson 26W	1974		
Coaster	1966	Pearson 419	1974		

* (Other sailboats came later, of course, and dinghies and motorboats also were manufactured in the early years.)



The Pearson Ensign has remained a popular one-design racer since its introduction in 1962.

In 1987, Pearson introduced several new designs with wing keels and 10-year warranties against hull blisters. "I'm partial to centerboarders myself," adds Bill, "but not everyone is. The wing keel was a good way to get shoal draft."

Gordon Clayton was "aggressive in picking up Sunfish and Laser for us," says Bill, "and also O'Day. That gave us entrée to a segment of the market we had missed before." O'Day also had acquired the Cal name earlier, so Pearson had a number of well-known names for marketing purposes.

But a general drop in business was well under way. The money chase that began in 1956 for Pearson was getting tougher.

Bill Shaw says of the demise of the company: "It was a number of things, not the least of which was a rapid fall-off in sales volume. When we thought about it, the most serious competition we had going against us was our old boats. Also, sailing was getting so

expensive, and that created a loss in interest [by the public.] When the Ensign first came out, it sold for \$4,000 to \$5,000. At the end, it sold for \$14,000, and not one screw was different. The Ensign association

"When we thought about it, the most serious competition we had going against us was our old boats."

wouldn't let us change anything. Add to that the rising costs of slips and insurance, and owning a sailboat was simply too expensive for many people.

"We needed volume to make a go of it," continues Bill, "and without that, we had to increase prices. We couldn't just cut out the unneeded overhead. We had that huge 240,000-square-foot plant for one thing."

By 1990, the boating industry was rocked to its roots by an economic

recession, and by a 10-percent federal luxury tax on such items as new boats costing over \$100,000. While Bill maintains the luxury tax had little impact on Pearson, because few of its sailboats cost over \$100,000, the buying public was confused about what the tax did and did not apply to. For example, the tax did not apply to brokerage boats — but sales of those fell, too. Many wealthy clients simply stopped buying boats altogether, refusing to pay the luxury tax on general principle even though they could easily afford it.

The end result was disastrous for many boat manufacturers. The drastic drop in sales forced Pearson into bankruptcy court in 1991, with Bill retiring just before the end. "I miss the business tremendously," he states. Bill, now 73, has had some health problems, but "with medical science these days, they keep me going," he says.

Record production run

When asked to name his favorite from the many designs he did for Pearson through the years, Bill laughs, saying, "I get that question a lot. When I was active in the company, my answer always was 'the next one.' In its day, the Pearson 30 (pictured on Page 19) was quite successful, especially with racing in mind. I'm helping my son do some alterations to his 1972 P-30. I also am very partial to the 365 as a cruising boat. It was so popular we had two production lines for it. It's a good, wholesome cruising boat. The Pearson 35 was one of our most successful. It was in production for 14 years, which was quite a record. We never approached that again. Most designs would last five years or so.

"I get several calls a week from boat owners, asking for help," he continues. "When the company went on the blocks [with the turmoil of many ownership changes] we lost control of so much. Everything was documented so well, and that's all gone now. When I get calls now from owners about their boats, I can't answer them unless I can remember, and that is getting to be more of a problem," he chuckles. "It was a wonderful 27 years for me."

Shortly after the bankruptcy, the Pearson molds and trademarks were sold to Aqua Buoy Corporation. To make the situation even worse, Aqua

Buoy went bankrupt before taking possession of the molds and moving them from the Portsmouth plant, which Grumman still owned. Grumman reacquired the molds in a bankruptcy sale.

This began a tumultuous time for the remnants of the Pearson name and molds. Through a series of other sales and actions, the Pearson and Cal molds and trademarks eventually were sold to a new company, formed in January 1996, called Cal-Pearson Corporation. In the disclosure statement sent to prospective stock purchasers, the principal office was listed as Bristol, R.I., but the corporate office was in Bethesda, Md. Clinton Pearson was listed as the chief executive officer and Christian Bent as the chief financial officer. The company began a campaign to raise the capital needed to build Cal 33s and 39s and Pearsons ranging from 27 to 39 feet. Bristol Yachts, then owned by Clinton's two sons, was to build the sailboats.

The exact number of boats Cal-Pearson actually built is not known, but certainly is in single digits. The company exhibited boats at the Annapolis Sailboat Show in 1996 and 1997. By 1998, no one was answering the phone at the Bethesda office, and the company disappeared in a cloud of lingering debt. A big part of its demise was the bankruptcy of Bristol Yachts, which left Cal-Pearson with no manufacturing partner.

According to one insider, Cal-Pearson essentially ceased to exist when Bristol Yachts was forced into bankruptcy and its assets were sold at auction.

According to Clinton, "The Bethesda group offered me some stock to help them start the company. They were looking to publish the fact that I was involved to stimulate interest in others. They found it harder to raise money than they had thought. They did raise money in New York, but the overhead was so high with lawyers and accountants. It was a good idea, but only if they could have gotten proper financing. Training a new crew is so hard. It just takes quite a bit of money to get something like this started. Quite

a few dealers were enthusiastic about the name returning to the market, too."

Clinton, who is now 70, is "not currently active in the boat business, and I have no intentions of getting back into it," he says.

Different world today

Says Everett of the Cal-Pearson Corporation, "So many people jump into the boat business without knowing what it takes. They were trying to market 10-year-old designs, and that is tough to do in today's climate. People knew they were old designs because their competitors were constantly pointing it out to the public. And trying to start the Cal line at the same time was too much."

Bill Shaw has a similar take on the short life of Cal-Pearson. "People absolutely lose their smarts when they get around boats," he says. "It's a different world out there today. Unless you have a big bankroll, you can't make it. To develop a new 35-footer, with molds and tooling, would take several hundred thousand dollars. If you are looking at a line of eight to 10 boats, as they were, it just doesn't make sense."

But the venerable Pearson Yachts name refuses to die. At the National Pearson Yacht Owners' Association

"So many people jump into the boat business without knowing what it takes."

rendezvous in Bristol, R.I. in August, Everett Pearson announced to the group that his company, TPI, had just purchased the trademarked name of Pearson Yachts. (See related article on Bristol Yachts on Page 73.)

Says Everett, "I wanted to grab the name while I had the chance. We didn't buy the molds. All that stuff is too old."


He continues, "We do plan to develop new models. I bought the name so we'd have it there. But we have some projects involving buses, people movers, and a couple of other things that I need to get moving before we start [on a new Pearson product line]. We have some guys working on it, studying the market. Up here in New England, we're more efficient at building large boats, rather than competing with small-boat

manufacturers. So we probably will start with something over 35 feet, maybe in the 40- to 42-foot range." It probably will be at least one to two years before any new Pearson yachts hit the market."

When asked the purchase price of the trademarked name, Everett replies, "I haven't told anybody. I paid too much. But when you're buying your own name back, you get carried away." He was determined to make the purchase. "It took me three months of phone calls to track these people down," he says.

TPI will handle the marketing itself, as it has done for several of its other boat lines. Everett foresees a network of six to eight dealers. "That's all we'd want. We need to give them enough territory so that they don't compete with each other."

With some 20,000 boats out there bearing the Pearson name, from eight-foot dinghies to 53-foot sailboats, the Pearson legacy is already well-established in the history of boating. Very active owners' groups keep interest in the boats quite high. In some areas, certain Pearson models sell by word-of-mouth without even being advertised. The Pearson name also is one of the most active on the Internet. Pearson bulletin boards abound on the net, and usually are among the most active in the online sailing community. (See resources on Page 24.)

Certainly, Pearson owners can take solace from knowing that for the first time in over 30 years, someone named Pearson once again is in charge of Pearson Yachts. The symmetry of events is satisfying for a company that has endured so much turmoil in the last decade. Pearson Yachts sails on. 

When not working at his job for the federal government or singlehandedly his 1989 Pearson 27 in the Annapolis, Md. area, Steve Mitchell is a part-time freelance writer. He writes for a variety of business and boating publications.



THE BIRTH OF FIBERGLASS BOATS

Despite the popular notion today, fiberglass and plastic resins were not “new” technology in the mid-1950s, nor was Clinton Pearson the first person to use them to build sailboats. This begs the question: who did build the first fiberglass sailboat?

According to Dan Spurr, editor of *Practical Sailor*, and the author of a forthcoming book on the history of fiberglass sailboats, *Heart of Glass*, “It probably was a fellow named Ray Greene in Toledo, Ohio. He built a fiberglass and polyester sailboat in 1942, probably a Snipe. So a sailing dinghy was the first fiberglass sailboat.” After a pause he adds, “But you have to watch your terms.”

It turns out there were several earlier boats made of fiberglass and various plastic resins, but most of them were too brittle for practical use. Dan says it was the development of polyester resin that started the fiberglass boat revolution. In part, this problem of terms revolves around the separate, but parallel, developments of fiberglass and plastic resins.

The ancient Phoenicians and Egyptians made glass, and are said to have used glass fibers as decorations and to reinforce pottery. (To add to the many coincidences of the history of fiberglass boats, the Phoenicians were the master shipbuilders of their day. One can only imagine what they could have done with fiberglass construction.) Through time, many other civilizations made glass strands, primarily for decoration. In 1870, John Player developed a process of mass-producing glass strands with a steam-jet process to make what was called mineral wool for insulation. A patent was awarded to an American named Herman Hammesfahr in 1880 for a type of fiberglass cloth also woven with silk.

Fiberglass experimentation continued into the 1920s, with the first actual fiberglass fibers we know today being made in 1932 — by accident. A young researcher for Corning Glass named Dale Kleist was trying to weld together two glass blocks to make a



Jeff and Nancy Larson enjoy their 1965 Pearson Vanguard, Nordhavn, the 32-foot big sister of the Triton. The Vanguard was introduced in 1962.

vacuum-tight seal when a jet of compressed air inadvertently hit a stream of molten glass. The resulting spray of fine glass fibers turned out to be what researchers had been trying to make for years.

In 1935, Corning Glass joined forces with Owens-Illinois, which also had been experimenting with fiberglass, to develop the product further. The word “Fiberglas” (note only one “s”) was patented in January 1936, and the two companies merged to become Owens-Corning in 1938. Research showed the glass fibers to be light, yet very strong. On an equal weight basis, a strand of fiberglass is actually stronger than a strand of steel.

Development of plastics began in the mid-1800s, in part due to a challenge from a billiard ball company to find a new material to replace ivory for its chief product. Patents were awarded for a variety of plastics by the late 1800s. Research speeded up in the 1920s, and again with the approach of World War II, due to the shortage of many natural products. Carlton Ellis of DuPont was awarded a patent for polyester resin in 1936. The Germans furthered the manufacturing process of this early polyester by refining its

curing process. Early in World War II, British Intelligence stole these secrets and turned them over to American firms. American Cyanamid produced the direct forerunner of today’s polyester resin in 1942.

This early polyester resin quickly ended up in a number of manufacturing hands. Owens-Corning had been experimenting with fiberglass cloth and resin combinations to create structural elements for airplanes. By 1942, the company was turning out fiberglass and polyester airplane parts for the war effort.

Back in Toledo, Ray Greene, who had studied plastics while a student at Ohio State, had been working with Owens-Corning on fiberglass composites. He had made composite boats as early as 1937, but was searching for just the right plastic to use for boats. He received a shipment of the polyester resin in 1942 and produced a daysailer.

Others followed suit. Dan says, “B.B. Swan made a small fiberglass catboat in 1947. Carl Beetle built fiberglass boats at a GE plant in Pittsfield, Mass. He exhibited his

by Steve Mitchell

fiberglass boat at a show in January 1947.”

The first sailing auxiliary made from fiberglass appeared in 1951. “It was called the Arion, a 42-foot ketch,” states Spurr. “It was a one-off design by Sidney Herreshoff. Then Fred Coleman’s Bounty II came out in 1956.”

Dan goes on to explain that Ray Greene was not finished either. “He formed his own boatbuilding company and produced a 25-foot Sparkman &

Stephens design in 1957 called the New Horizon,” says Spurr. “He built 175 of them. That was a pretty good number of boats, and right before the Triton, too.”

Tom Potter, the driving force behind the Triton, agrees. “Ray Greene did bring out a fiberglass boat before we did, at least what you would call the first sailing yacht,” he says. “It was kind of an odd looking boat, though. The Triton certainly was the first mass produced boat that sold well.” Bill Shaw also acknowledges Ray

Greene as the first to build a fiberglass boat. “And I worked at Sparkman & Stephens when we designed the New Horizon,” he says. “I remember Ray Greene very well.”

How the Pearson cousins came to be viewed as the fathers of the modern fiberglass industry is not clear, given the many boats that preceded the Triton. Nevertheless, it was the Triton that captured the buyer’s heart — and pocketbook — in 1959. In the end, that’s all that matters.



Resources for Pearson sailors

Pearson 26 site

Dan Pfeiffer
danp@en.com
<<http://www.en.com/users/danp>>

Pearson 28 sites

- Ron Davis
CptinRn@aol.com
<<http://www.geocities.com/cptinrm>>
- Edward Lee Kennedy
lkennedy@acanthus.net
<<http://www.acanthus.net/p28gallery>>
- Pearson 28 email discussion list
Mark Petrush
P28List@softhome.net

Pearson 30 sites

- Richard Ian-Frese
rif@u.washington.edu
<<http://staff.washington.edu/rif/Squid>>
- Bob Brody
Bobsprit@aol.com
<<http://members.aol.com/bobsprit/RBP30.html>>

Pearson 422 site

Gary Soward
garyjana@concentric.net
<<http://www.geocities.com/TheTropics/Paradise/2335/>>

Pearson Ariel-Commander newsletter and website

Bill Phelon
42 Las Cascadas
Orinda, CA 94563
925-254-8338
rphelon@juno.com
<<http://www.pearsonariel.org>>

Pearson Electra contact

Bob Hinely
1204 Condor Dr.
Jacksonville, FL 32223
904-262-2640 (home)
904-269-0027 (work)

Pearson Ensign newsletter and sites

Jay Robinson (newsletter)
21505 Lake George Blvd.
Anoka, MN 55303
612-753-3982
argos@skypoint.com
<<http://www.effectnet.com/nitchie/ensign>>
<<http://www.geocities.com/~ensignclass>>

Pearson Renegade Owners’ Association

Michael Lehmkuhl
314 A. Street, NE
Washington, DC 20002
ghz@mindspring.com
<<http://www.mindspring.com/~ghz/>>

Pearson Resolute contact

M. Brent Boydston
132 N. Third St.
Box 5113
Durant, OK 74702
580-924-4455
mbrent@redriverok.com

The Vanguardian newsletter

Conrad (Connie) Hoover
2600 W. 17th St.
Wilmington, DE 19806-1109
302-888-2722
choover@tower-hill.pvt.k12.de.us

Pearson Tritons

- Pearson Triton Association (National)
Dorothy Stevens
300 Spencer Ave.
E. Greenwich, RI 02818-4016
suter@ix.netcom.com
<<http://www.netcom.com/~suter/nta/>>
- Triton One Design Fleet of San Francisco Bay
Larry Suter
suter@ix.netcom.com
<<http://www.netcom.com/~suter/todsf.html>>

Pearson Vanguard websites

- Fred Fuller
fredfuller@aya.yale.edu
<<http://www.execpc.com/~fetrpt/>>
- Ralph Vinciguerra
rlv@homemail.com

<<http://rlv.cjb.net/blue-angel/>>

Pearson Yacht Owners’ Association (National)

Bill Lawrence
28 Vesey St., Ste. 2172
New York, NY 10007
718-789-7105
pearsoncurrent@pipeline.com
<<http://www.pearsoncurrent.com/>>

Other Pearson sailboats

- <<http://www.geocities.com/TheTropics/Paradise/3730/Pearsons.html>>
- Email Discussion Group
<<http://www.sailnet.com/list/pearson/index.htm>>

Pearson logo clothing

Stuart Ofer
107 Metcalf Dr.
Williston, VT 05495
802-879-1779
sofer4@aol.com

Mystic Seaport website

Philip Rhodes donated all drawings here
<<http://www.mysticseaport.org/>>

Rostand, R.I., Inc.

Carrol Harrington
Box 737, Dept. WB
Chepachet, RI 02814
Carrollharrington@compuserve.com
Has aftermarket castings and fittings.

Maier Hatches

<<http://www.baierhatch.com>>
Has cast aluminum hatches.

Rig-Rite

<<http://www.rigrite.com>>
Source for old rig castings and standing rigging.

Pearson sailors appear to be blessed with many sources of information and supplies. Many more websites and resources for parts and equipment can be located through the websites listed above.

Small wonders

Moving immovable objects

The joy of installing new equipment in your good old boat is sometimes turned into teeth-gnashing frustration when removing the bad old equipment. Disintegrating metals, frozen bolts or screws, and remarkably persistent adhesives can drive you right into the arms of a \$50-an-hour professional boat mechanic or, worse, into skipping the new equipment installation altogether.

But don't despair. With a few specialized tools and techniques, you can remove almost everything, from an obstinate alternator to an intransigent handrail, quickly and efficiently. This not only makes upgrading your boat easier, it adds value that might otherwise be lost to big yard bills. And to be completely honest, when you finally do conquer a particularly ornery fitting, there's always a small, fine feeling of victory over the ravages of time.

by Ken Textor

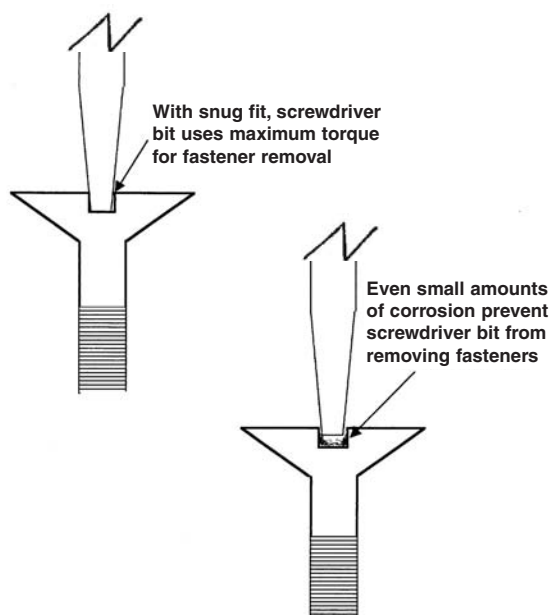
Bad bolts and sullen screws

At the heart of most obstinate old gear are the bolts and screws holding them in place. Usually, once these are removed, dislodging the rest of the object is relatively easy. It doesn't matter if the fastener is made of plain old iron, silicon bronze, or stainless steel. Sooner or later, all metals commonly found on pleasure boats will corrode and freeze in place, requiring extra attention to remove them.

Initially, try to remove bolts and screws by simply reversing the manner in which they were installed. But before doing so, take some basic steps to stack the odds in favor of success. First, be certain all corrosion, paint, and rust on the head of the fastener is removed. This is particularly important with slotted screws. Any amount of corroded material or paint left in the slot virtually guarantees your screwdriver will "walk out" of the slot, and you will fail to

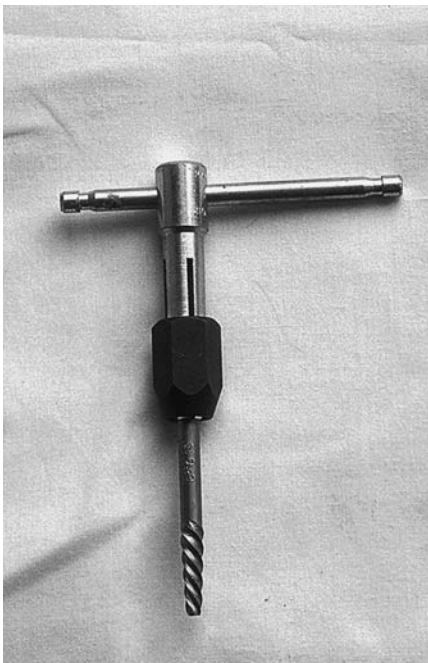
remove this fastener. When a screwdriver point walks out of a slot, it usually destroys the slot, forcing you to move on to more complex removal methods.

With all debris removed, be certain the screwdriver you choose fits as snugly as possible in the slot. A loose fit will again allow the screwdriver's point to walk out of the slot. If available, use a brace-and-bit instead of



*The fine art
of achieving small victories
over the ravages of time*

*Clean slots help prevent taking more
dramatic screw-removal actions.*



Easy-outs are also called screw or bolt extractors.

a hand screwdriver. With a brace-and-bit, you can apply much more downward pressure while at the same time providing turning torque. Do not, however, be tempted to use any sort of electric screwdriver. They prevent you from “feeling” if the screw is moving or not, which again leads to the tip walking out of the slot.

Before you attempt to turn a slotted screw head, apply some hammer power to the effort. Do this by inserting the screwdriver tip in the slot and rapping lightly several times on the end of the screwdriver handle. These shocks are transmitted to the screw and help break the bond between the screw threads and the material into which it's inserted, whether it's wood, a nut, or an engine block.

In general, these preliminary techniques should be applied to any type of bolt or screw head you face, including Phillips-head, square-socket, Allen, and both common hex- and square-head cap screws. In all cases, the crucial factor is getting a snug fit between the fastener head and the tool you're using to remove it.

One good turn

After all the preliminaries, actual removal comes down to good technique, rather than strength and sweat. Go slowly here. For successful removal, applying consistent, even, counter-clockwise pressure is much more

important than a sudden burst of torque. If you're using a brace-and-bit, “knocking” the screw may help. This is done with short, low-pressure turns of the brace that tend to send small “torque shocks” through the screw to help turn it.

If your first attempts to turn the screw fail, give it some more raps with the hammer and screwdriver team. Keep alternating back and forth between brace-and-bit and hammer shocks until it moves . . . or until you've messed up the fastener's head to the point where it's no longer possible to keep the bit's point in position.

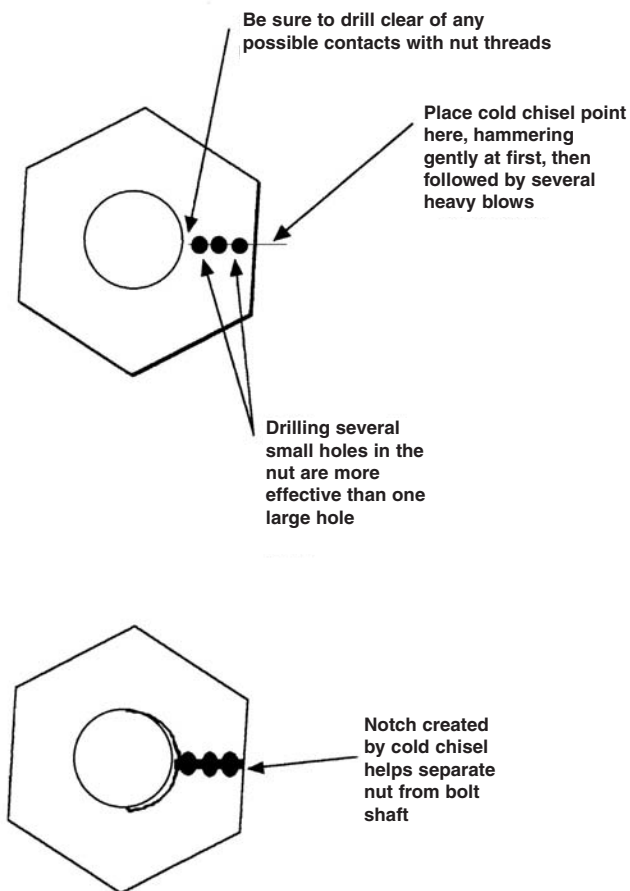
Once the fastener's head is bollixed up, don't worry. It happens to everyone. Other excellent options are still available. One of the best alternatives is using what's commonly known as an easy-out. They are also called screw or bolt extractors. To use one, you need to first drill a hole through the head and into the shank of the fastener.

The drill bit size you use for this operation is important. Too big, and the fastener will crumble when the easy-out is inserted. Too small, and the easy-out will lose its grip when torque is applied. The drill bit should be about half the size of the shank of the fastener. A 3/4-inch bolt would therefore take a 3/8-inch drill bit, 1/2-inch would take 1/4-inch and so on. Once you've selected the drill bit size, get the corresponding easy-out size. All easy-outs are sized for a certain range of drill bit sizes.

The hole should be as deep as the length of at least half the spirals on the easy-out. I try to have on hand two appropriately-sized drill bits, one for the actual drilling and one for heating. Although heating a fastener is not always necessary, it certainly stacks the odds of removal in your favor. And when the fastener is badly corroded or made of a material similar to the material in which it's inserted (such as iron bolts in an iron flange), heat is indispensable. Of course, mechanics often will heat a fastener directly with an acetylene torch. But in the confined spaces of boats, this is often unsafe or impractical. So heating without a torch is necessary.

Have heat, will travel

Heating a fastener without using a torch is based on the physics of friction. When drilling the hole, some heat will



Bolt removal is necessary anytime the head of a fastener is inaccessible or should not be drilled (such as in the case of specially designed thru-hull fixtures or rudder pintles).



Cold chisels and a two-pound hammer are used to break the fault line once a stubborn nut has been weakened.

be transferred from the drill bit to the fastener due to friction. But it's rarely enough heat. To increase the heat, you switch from a sharp drill bit to a dull one after you've drilled the hole in the fastener to the desired depth. You can dull the cutting head of a drill bit quickly with a file or grinding stone. Don't worry about the cost of this. Inexpensive drill bits can be obtained for a couple of dollars.

To turn up the heat on the fastener, you simply start "drilling" with the dull bit. Although the hole doesn't get any deeper, a tremendous amount of friction heat is transferred to the fastener. The heat then helps break the bond between the fastener and the material through which it passes or into which it's inserted. Be careful when a fastener passes through a particularly volatile material, like some foam cores. Friction heat rarely becomes intense enough to result in a fire, particularly in a fiberglass or wooden hull. But if you have doubts about a foam core, check

with the boat's designer or manufacturer before proceeding.

Once the fastener's heated, move quickly to the use of your easy-out.

An easy-out works on the principle of a square peg in a round hole. In fact, some easy-outs actually are tapered squares instead of the tapered counter-clockwise spiral. In any case, easy-outs are made of extremely hard steel. This allows you to gently hammer it into the hole you drilled, which forces the sharp edges of the easy-out into the walls of the hole. This makes it possible for the easy-out to "grip" the fastener

from the inside. Moreover, with spiral easy-outs, the more torque you apply, the deeper the edges cut into the walls of the hole. Torque is best applied using a T-handle wrench specially designed for the easy-out.

Tapping the easy-out into place is an art form in itself. Avoid hitting it too hard. This may cause the fastener to split, which will make it much harder to extract. On the other hand, it must be tapped firmly into place to be effective. More tapping is better than less, since tapping also helps break the bond.

Once the easy-out is in

place, slowly apply torque in a counter-clockwise direction. I usually tap gently on the head of the T-handle wrench as I increase the torque. This also helps break the bond. Once the bond breaks, the easy-out continues to hold onto the fastener until you have it backed all the way out of its hole.

Going nuts on the nuts

Sometimes the head of a fastener is either inaccessible (as in ballast bolts or other embedded fasteners) or should not be drilled (as in rudder pintles or other specially designed thru-hull fixtures). In these cases, removal of the available nut is best. But that, too, requires special procedures.

It is rare to be able to fit either the properly sized wrench, socket, or even a pair of Vise-Grip pliers on a corroded nut. That's because nuts not only corrode around the perimeter, but also from the top down. Moreover, if they are snugged up against a bulkhead, hull, or flange, you'd have to hold the handle end of the wrench or pliers far enough away from the structure to get your hand around it. This angle, and the awkward positioning of your body, reduces the amount of torque you can apply to the nut. The only solution here is to slowly and methodically destroy the nut.



It takes gloves, eye protection, Vise-Grip pliers, wood chisels, and a wooden mallet to safely remove some obstinate gear.



Objects fixed in place with stubborn adhesives and bedding compounds require either delicacy or destruction. Pry tools include screwdrivers, crowbars, razor blades, and a soft wedge. Don't use solvents.

The tools for this process are an electric drill, drill bits, and a cold chisel. In my experience, drill bits should be sized on a 6-to-1 ratio relative to the nut. That is, a 3/4-inch nut will take a 1/8-drill bit, and so on. I found this works best because small holes generally are easier and quicker to drill than large holes. Also, you're trying to create a fault line with your holes (see sketch on Page 26), not a crater.

Cold chisels can be found at most good hardware or auto parts stores. Try to get one with a long handle (12 inches is best) and a fairly narrow head (about 3/4 of an inch wide). This will allow you to get into tight places but still have room to swing a husky hammer.

When drilling, be certain to stay clear of the threads in the nut. If you drill into them, you will probably take out part of the threads of the fitting itself, thus weakening it and possibly forcing you to replace it. Nor should you get carried away with drilling your "fault line" holes. Just a couple of holes (see sketch on Page 26) will sufficiently weaken the nut and allow the cold chisel to do its job. Use drilling oil to speed up the operation.

Once the holes are drilled, grab your chisel. With the business end properly sharpened, place the chisel's point on the drilled holes and, at first, lightly tap on the chisel. This should give you a cutting line depression, which will help the chisel stay in the position for best results.

Then, with a two-pound hammer or better, give the chisel end a couple of good hard blows. This may or may not break the nut at the fault line. Regardless of whether it breaks, the blows and the notch created by the chisel point will rearrange enough of the metal in the nut to break the bond of corrosion which locks the nut onto the shaft. Then the nut will back off easily with a pair of Vise-Grips. If it doesn't, a little more pounding of the cold chisel into the notch will do the trick. Altogether, it's a very satisfying procedure.

After the fasteners' fall

Once fasteners have been removed, it's sometimes necessary to use a little more persuasion to actually remove the object in question. This is particularly true of any hardware that has been bedded down with adhesives or other goop. There are two basic approaches to this: the Take-No-Prisoners policy or the Save-It-For-A-Rainy-Day approach.

The Take-No-Prisoners technique works best with wooden objects like handrails, dorade boxes, and the like. But it can also be used on low-quality metal gear too, especially cheap aluminum alloys. Basically, you destroy the object by cutting or chiseling it into smaller and smaller pieces. This is less time-consuming than it seems. With just a hammer and wood chisel, I removed all the dilapidated handrails on our 30-foot sloop in a matter of a half an hour. Once you cut the object into small parts, then you chisel the smaller parts down to the deck or bulkhead.

The same general approach works with low-grade metal objects except that a hack saw is used to cut it up. The individual pieces can then be pried up with a screwdriver or pry-bar and wedge (see sketch at right). When working on lightly built fiberglass boats, be certain to use a softwood wedge such as pine or spruce. Hardwood wedges transfer too much pressure to the surrounding surface and may crack it.

The Save-It-For-A-Rainy-Day approach requires a little more time, usually two people, and some delicate

work. In this case, you must pry at the object just enough to slip a razor blade under one edge (see sketch below). Then you pry a little more, cut a little more bedding adhesive, pry some more, cut some more, and pretty soon all the adhesive is cut away and the object has been freed. Don't be tempted to use solvents during this process. Very often, the same solvent for removing an adhesive will also turn your gelcoat into putty.

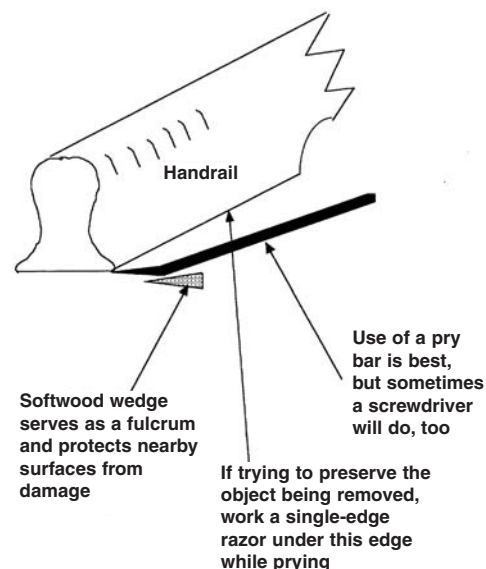
Throughout all these processes, remember that tiny pieces of cut metal have the uncanny ability to leap great distances and find an unprotected eyeball. So always wear protective goggles. As in any maintenance chore, the best war stories are those in which you're not wounded, only victorious. And victory is particularly sweet when you triumph over what was once considered an immovable object.

Editor's note: We bet our readers have more tricks yet. Send them in, and we'll print them.

Ken Textor has lived and worked aboard boats for 22 years. In addition to work he did for the former Small Boat



Journal, he contributes to a number of sailing magazines and has written a book, *Innocents Afloat: Close Encounters with Sailors, Boats and Places* from Maine to Florida.



Why is the hole for the wire located at exactly the length of your arm plus fingertips? Why does the stuffing box leak when you have just spent an hour upside down in the bilge tightening it? Why is the only nut that fits the rusted-in stud the one that you just dropped into the bilge?

I don't know the answers to all of the whys we ask ourselves when we work on our good old boats, but I do want to assure all those working on a good old boat that they are not alone. Not alone in frustration, heat, body-constricting contortion, or the dizziness from lying head-down over dirty bilge water.

Still, I do sometimes think I'm the only person going to work on Monday with hands that look like I've been in a bare-knuckle fight over the weekend. The cuts, scrapes, broken nails, and embedded grime are one way to distinguish a good old boat owner from, say, a golfer or tennis player.

I remember trying to rewire the running lights on my boat and feeling lucky the builder had molded channels for the wire to run in, rather than sandwiching the wire between the hull and hull liner. Lucky, that is, until the wire would not pull out. A workman had carefully taped the wires snugly in the channel so they wouldn't rub. This idea worked for the first 20 years of the boat's life, but fell short of success in year 21, when the insulation failed from old age and shorted out.

That sent me to the Thinking Chair for a spell, there to ponder the application of the Two Great Maxims of good old boats:

- *Think twice, act once.* Any solution pursued in haste will be repented.
- *There's more than one "best way."* Returning things exactly to "as was" condition may not be the best approach.

The Thinking Chair is the tool you should use before you subject yourself to the frustration, heat, and body-abusing contortions that accompany a quest for the fully renovated good old boat. There's a Thinking Chair or its equivalent in some quiet corner of every good boat shop, where the professionals of the boat restoration game retire to ponder problems created by systems installed when the boat was an open shell and are now sealed beneath decks and behind bulkheads accessible only to someone with four elbows.

Great Maxim #2 gave me the solution to rewiring my running lights. I left the old wiring in place and epoxied lengths of PVC tubing of maximum practical diameter along the wiring channels. That way, if I made a mistake or needed to add wires, the room was available. It was more time-consuming in the short term, but assured me good access and fewer problems the next time I need to address that wiring. It was also safer.

There is little we can do about the space allowed or access to the major mechanical systems on our boats, but there is lots we can do to make the support systems easier to service, cleaner, and safer. I'm talking about the electrical wiring, pipes, fuel lines, filters, and other systems.

For the electrical system, we can run wire in conduit whenever we have repairs to do. Instead of just splicing a short piece of wire into an existing run to fix the problem, trace the entire wire run, check wire sizing, and color code per the American Boat and Yacht Council (ABYC) and run new wire. Use tinned, stranded copper wire such as Ancor marine-grade electrical wire, Type III (Class K).

Remember, the size of the wire and the length of the run determine electrical resistance. Undersized wire will not provide full amps at the intended device or receptacle. It heats up trying to provide the required amps and creates a safety hazard in the process. I always buy wire one size larger than specified just to be safe. It does not cost a lot more, delivers full amperage to the device or receptacle, remains cool, and is safe. It will withstand stress and time better and be an almost permanent fix for an electrical circuit.

Does the word "spaghetti" come to mind when you look behind your electrical breaker panel? It is a big job, but not so bad if you break it down into manageable portions. Buy a set of wire identification tags, available in any large electrical supply house. They may be a little big for your wire, but you can tape them on. Every time you run a new wire, tape an identification tag at each end of the wire and in several places along the length. The tags are like tubes that slip over or around the wire. If you can write neatly, you could write the circuit name on a small piece of paper and tape it to the wire. It may seem like a lot of work, but it will save time overall. I wish I had been that organized when I expanded and rewired my electrical system. I wasn't, and now I have to trace every wire when something goes wrong.

Another candidate for piecemeal upgrading is the fuel system. The original fuel filter on my boat was a large Racor unit mounted at the foot of the quarter berth underneath the galley counter. As you might guess, it was inspected only when something went wrong. Eventually, I reinstalled the filter in the cockpit locker where I could crawl in and sit comfortably (*well, semi-comfortably*) next to it during servicing. Better, but still not perfect. So, a few years later, I relocated it again, this time into the open area under the galley in front of the engine. There's a small door there that I routinely open to sniff for fumes before I start the engine. Now I can check the filter

for water at every startup, and drain and replace it with ease. Much better.

Water systems and drains are subject to much improvement after appropriate reflection. When I bought my boat, the original water system had expired. In my haste to get sailing, I ran new hose from the tank to the pump with a cheap, plastic shut-off in the line. A few years later, my quick fix dumped all the fresh water into the bilge. A proper fix, once thought through, was inexpensive, took just one day and will outlast me. I replaced the hose with copper fittings and a ball valve for flow control.

Even the wisdom of the boat maintenance gurus, though often of great value, should be mulled over in the Thinking Chair. Having read repeatedly that all thru-hull fittings should have seacocks, I undertook to install them on my boat's cockpit drain lines, replacing the original rigid fiberglass pipes that were molded into the hull. I should have left well enough alone.

I didn't take time to consider why the standard pipes had been glassed in vertically with an angled piece where they mated with the hull. Since my new thru-hulls had no such angle, the curvature of the hull caused the new drain pipes to point inward at about 15 degrees from the vertical. That meant they wouldn't mate properly with the downcomer from the cockpit.

With the old pipe cut out and the new seacocks installed, I was forced to resort to connecting thru-hulls and downcomer with wire-reinforced hose, the curve of which encourages blockages. When they need replacing, I'll have to remove the seacocks to do it. Furthermore, the seacocks interfere with access to the aft portion of the engine.

The Thinking Chair has its application to the world of new boats, too, should any of us ever venture there. My father-in-law bought a new boat from a well-known

builder a number of years ago, despite my warning that the builder had

installed the vessel's 110-volt wiring behind the hull liner, where it couldn't be inspected. I was dismissed as an alarmist until, 10 years later, an electrical fire in the 110-volt system caused \$10,000 worth of damage to the boat.

Adventures, as a noted arctic explorer once said, are what happens to people who don't plan ahead. The Thinking Chair is one way of avoiding at least a few of life's little adventures.

Bill Sandifer is a marine surveyor and boatbuilder who has been living, eating, and sleeping boats since the early '50s when he assisted at Pete Layton's Boat Shop.

by Bill Sandifer



Pushpit seats

Comfort in the cockpit

Common on many newer stock boats, pushpit or stern pulpit seating is a great addition to any good old boat as well. The pushpit is the stainless steel framework aft of the cockpit. It's an important safety feature on any cruiser and, therefore, generally well constructed. This makes it a perfect location for the addition of seating areas that are not only great sailing thrones, but also provide out-of-the-action perches for non-sailors as well.

This is a reasonably simple project. Materials are readily available and fabrication is easily accomplished using tools found in most household workshops. These instructions will loosely guide you toward results similar to what you see in the photos, but every boat is as different as its owners' personal tastes.

It is essential that your pushpit frame have a center horizontal rail. You really can't consider the project without it. It supports the seats and gives you something to fasten them to. You'll need some stiff corrugated cardboard for patterns. The sides of a cereal or tissue carton will do. Most frames will have one or two vertical supports near the bends in the corners. In our situation, these supports neatly defined the location of the seats. Your frame may be different. Lay the cardboard on the corner of the center rail. Doing so may require you to notch

around a support or two. This is a trial-and-error challenge and may take a bit of time. Also make sure the pattern covers the entire area being considered for the seat. Then simply trace the outside contour of the rail onto the pattern. Also mark where you want the seats to end up on the frame. Don't make the mistake of assuming that both sides of the frame are the same. Port and starboard seldom mirror each other, and you will need to make a pattern for each.

With the outline of your frame in hand, lay out the seats. Keep in mind that what you are doing will have some impact on the appearance of your boat. Your seats should be well proportioned in respect to the rest of the cockpit. Older cruiser/racers often have

narrow transoms, so keep the seats fairly small — just enough to

give support, with enough room left over for a beverage holder, if you want one. Another tip: there are very few truly straight lines on a boat. Use smooth flowing curves when laying out the inboard edge. Your final design should be pleasing to the eye and look like it belongs on the boat. Set both patterns on the frame to satisfy your eye before plugging in the saw.

Then label them port/top and starboard/top.

We used 3/4 inch polyethylene stock for our seats because it was readily available. This may not be the case in your area. A better choice would be Starboard, a material made specifically for marine environments. Starboard comes in several sizes and colors. It can be ordered from most mail-order distributors. (I got mine from Elastomer Engineering Inc., 801

by Bill Dimmitt



Simple solutions



Bill and grandson appreciate the newly added seats on his Ericson '74 at left. As noted in photo below left, a strut was added for support. Clamps, shown above, were made from the same HDPE as the seat. Stainless steel clamps would also work. Use smooth flowing lines and keep the seat fairly small, as shown at right and below.



Steuben St., Sioux City, IA 51102. Phone: 712-252-1067.) Be sure to use material thick enough to give good support. I recommend 3/4 inch.

Transfer the patterns onto the material and simply cut them out with whatever you have on hand. A band saw is best, but a handheld sabre saw will do nearly as well. Take your time and try to cut right to the outside edge of the line. The holes for the beverage holders are best made with an adjustable circle-cutting bit mounted in a drill press, but the sabre saw will work here as well. Whatever tools you use, you are going to end up with edges that need some additional work.


Sand or file them smooth and fair. After they match the pattern and look good to the eye, you can contour them for comfort. This is easily done with a router, and if you don't have one, a friend probably will. All that is necessary is to round over the top. But we chose to bullnose ours. The router should leave you with a nearly finished edge. Use a Scotch-brite pad to do any final smoothing.

With the seats shaped and edges smoothed, it's time to mount them on the frame. Ours are held in place with custom clamps made from the same material as the seats. But making similar clamps would be difficult without a drill press. Stainless steel straps are an easier and better choice. Whatever you use, they should be through-bolted like hardware subject to stress. Countersink the heads and

plug the holes just as you would if doing traditional woodwork. The beverage holders are held in place with marine-grade silicone.

Unless your seats are very small, they will probably require additional support. Our Ericson 32 has a split cockpit with an athwartships bench behind the helm. This made it easy to extend struts down to the original seat level. Most conventional cockpit arrangements should work. The struts are short sections of stainless or aluminum tubing with the same kinds of ends and mounting brackets used in Bimini frames.

These items can be found in any boating area and also ordered from marine catalogs. Position the struts for good support. Ours run from near the center of the inboard edge, down to the back of the original cockpit seat. This retains some useful space on the bench below.

Our seats have endured two Midwest sailing seasons and we immediately found them to be one of the best improvements we've made on our good old boat. 



Bill Dimmit, shown above left with grandson, Isaiah, and the new pushpit seats, has had a lifetime fascination with sailing, primarily sailing dinghies until a charter in the Virgin Islands convinced him and wife, Laurie, of the pleasures of the cruising life. They now sail a 1974 Ericson on Lewis and Clark Lake near Yankton, S.D.

Christmas Eve

~on~ Kinery Rock

December of 1899 was particularly vicious along the coast of Maine. Just off a promontory jutting into the sea, rose a wind-swept half-acre of bare granite named Kinery Rock, on which stood a stone lighthouse. Although it was termed a “secondary” lighthouse by the Lighthouse Service, the beam of its 125-candlepower oil lamp provided the coastal schooners a warning against the half-submerged rocks offshore that were washed by the restless sea and waiting to do them harm. To the landsman it was a desolate spot, merely a barren rock bereft of soil, but to the lighthouse keeper, Joshua Bennett, his wife Martha, and their two children, Thomas and Kathryn, it seemed far from desolate.

They were regaled by the sounds of gulls, terns, and migratory waterfowl; they frequently saw pods of grampuses out where the water ran deep; and they enjoyed watching the coastal schooners, wallowing low in the water under their loads of timber, fish, stone, or ice, as they plied their trade, guided by this string of beacons that outlined the coastline. The gray pastel skies of winter were often aflame with reds and lavenders at twilight, and during cold calm winter evenings, eerie displays of northern lights lit the sky.

Many packets had strayed and gone to pieces on this inhospitable coast, but many worthy seamen had been saved through the efforts of the lighthouse keepers and their families. Two months earlier, in the middle of October, the Lighthouse Service tender had made its twice-yearly visit to Kinery Rock Lighthouse, delivering winter supplies from the General Lighthouse Depot on Staten Island — winter oil, wicks, mantles, cleaning cloths, glass, lumber, and cement. A few years before, President Grover

Cleveland had managed to have the lighthouse keepers included under Civil Service laws, and Joshua’s new yearly salary of \$1,200 provided them their other necessities, which were brought to the lighthouse from the village on the mainland, inside the crook of the promontory. For this purpose, a 16-foot dory was their link to shore.

When weather permitted, fish, shellfish, and crustaceans supplemented their diet, as did the occasional migratory duck, which, following the

lighthouse beacon as though mesmerized, would dash itself against the tower. But none of these

treats had been available for seven days now. Since the middle of December, the weather had varied between gale and full storm out of the northeast, with winds reaching a senseless fury. In daytime the mainland disappeared behind squalls of rain and sleet as the clouds marched down upon them, and at night the breaking waves glowed phosphorescently as the howling wind blew off their crests and flung the spray against the cottage.

Joshua had hoped a lull in the storm would allow him to go to the village to fetch their Christmas goose and the tree for the children that the storekeeper had put aside for them. The storm, however, showed no signs of abatement, and the small boat from the lighthouse could not possibly be launched without being smashed to bits.

Thomas and Kathryn understood the limits of their existence, and set about fashioning a Christmas tree from a piece of driftwood, some kelp, and shells that had been tossed up on the rock. Although they wanted to bring their proud creation into the cottage, their mother would not put up with the onerous smell, and the little Christmas

tree was relegated to a spot outside, near the door of the vestibule.

The night of December 23, wind-driven rain mixing with sleet beat against the shuttered windows, and tons of water in the form of gigantic waves, flung themselves against the rock with a thunderous roar. By morning the sea had swept the rock clean, and the children’s Christmas tree was no more. A barren celebration seemed in store, but daily chores had to be taken care of.

After breakfast Joshua climbed the steps to the gallery where the first jobs of the morning were cleaning and polishing the lamp and the huge Fresnel lens, filling the fuel tanks, and trimming the wicks of the four-wick lamp. The clockwork mechanism that rotated the beacon was powered by a weight suspended by a rope that traveled down inside the length of the newel column of the spiral staircase. The final chore of the morning was cleaning and oiling these gears and cranking the weight back up to the top of the tower in preparation for nightfall. When he returned below to the cottage, it was nearly time for lunch.

“Then there’s no chance of fetching our Christmas goose and tree?” Martha asked, already knowing the answer.

“This ain’t no weather to set a trawl,” was the reply, falling back on a phrase used when he was a fisherman on George’s Bank.

“But the children . . .”

“Martha, it jest don’t make no sense riskin’ me and the boat in that sea, — it’s a matter o’ jedgment.” Martha went to the cupboard and brought down six rock-hard slabs of salted codfish, put them to soak in a pan of water, and began plans for a Christmas dinner of codfish stew and apple pie.

After lunch Joshua announced, “I’ll be goin’ above fer a spell,” and re-climbed the steps to the gallery. Although there was no pressing need for him above, he felt ill at ease among his

by Don Launer
illustration by
Nancy Christensen



family, as though the failing was his for the Christmas gone awry.

He scanned the dim horizon which merged with the gray skies overhead and the storm-tossed seas all around. To seaward, graybeards raced down the face of monstrous waves in purposeless malevolence, while toward shore the rocks struggled to raise their heads above water. Lost in admiration of the violent spectacle around him, he suddenly became aware that the wind had fallen away to a mere breeze, and a patch of sunlight, shining through an acre of blue in the sullen sky, was passing over the lighthouse. He watched as the spot of sunlight traveled to shore, where he saw a speck of white emerging from around the promontory, a striking contrast of whiteness on the

dark water. Joshua picked up his brass telescope, extended its four sections, and focused on a small skiff with a loose-footed spritsail, close-hauled, heading toward Kinery Rock. Around the skiff, the water burst into sheets of foam, as the bow shouldered away the dark seas into a smother of white, while several storm petrels flew about in circles, shrieking their excitement.

"There's a power o' virtue in anyone that would tempt a sea like this," thought Joshua, "or a fool." He hurriedly descended to the cottage where the whole family donned their oilskins. A quick glance at the barometer showed that it still had not begun to rise. Leaving the cottage under a shower of spray from the seas breaking on the rock, they huddled on

the leeward side of their island, where stone steps, hewn from the granite face, led down into the water.

Joshua strained to recognize the skiff and its skipper as they entered the confused seas to the lee of the rock, but knew neither.

"By thunder," he said to himself half aloud, "he's lyin' a point nearer the wind than any-un's a right to expect."

As the skiff drew closer, Joshua descended to the lowest step which was engulfed in foam, and, cupping his hands around his mouth shouted, "What be your mission?" The figure in the skiff rose up holding a fat goose for all to see, then with deft seamanship, born of a lifetime on the water, brought the skiff up into the wind just as a swell lifted him close enough to Joshua to pass him a small pine tree and the goose.

As Joshua cradled their bounty, he looked to their benefactor to express his thanks, but the skiff had already fallen off on the other tack, making the turn back toward shore. He had a fleeting glimpse of a spray-soaked face he did not know, more like that of a drowned man than of a hearty seaman.

Almost without warning, the wind picked up again, and the rest of the family retreated inside while Joshua stood looking after the skiff as it appeared and disappeared on the crests and into the troughs, laboring its way back toward shore on a broad reach with huge following seas breaking behind. When the sail had been eclipsed by the promontory, Joshua sat down on the step of the vestibule, pulled off his seaboots and emptied the water out of them, thinking, "It's quite providential that that fella manages his skiff so well. My dad learned me to handle a boat as well as the next man, but dunno as I wud 'uv tried it. He's sure wuth his salt. Yep, quite providential all around."

Christmas time at the lighthouse that year was a day to be pressed between the pages of memory. The tree was decorated, presents were exchanged, opened, and marveled at. A special prayer was said for the stranger in the skiff. The aroma of goose with stuffing and apple pie permeated the cottage while the storm raged on outside.

It wasn't until the third day after Christmas when, finally, a rising

barometer and calm weather settled in. Although large swells were still running, the confused and breaking seas had subsided, and Joshua decided to make the trip to the mainland for needed supplies and to thank the one who had risked so much for them that Christmas Eve.

He didn't return till nearly dusk. As he entered the door, he seemed deep in thought. He set down the heavy canvas seabag filled with provisions, hung his oilskins in the wet locker, and walked over to the stove to warm his hands. Martha, waiting for a comment that didn't come, finally asked, "So, did you thank whoever it was that gave us our Christmas, Joshua?"

At first she thought he hadn't heard. Then he turned around slowly to look hard into her eyes. He seemed troubled.

"Our Christmas goose and tree was still at the store waitin' to be picked up. I dunno where the ones we got come from. I asked everybody in town." He paused a moment, then went on, "They all said that no livin' soul could have taken a boat out in a storm like that."



How did this purely fictional story originate? Don explains: "Many years ago I received a nautical Christmas card. When I looked at it, I thought, 'That would make an interesting story.' That was the genesis of my Kinery Rock creation." At Good Old Boat, we wanted to share the original card with you, but were unable to locate anyone who could give us the rights to republish it. The illustration here, by Nancy Christensen, is a likeness based on the card which inspired Don.

Don Launer has held a USCG captain's license for more than 20 years. He built his two-masted schooner, Delphinus, from a bare hull and sails it on the East Coast from his home on Barnegat Bay in New Jersey. He's a frequent contributor to boating magazines, has had a regular boating column in a New Jersey newspaper, was field editor for Waterway Guide, and is the author of the book, A Cruising Guide to New Jersey Waters.



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Cooking under pressure

Long, long ago in another lifetime far, far away — well, 17 years ago in Montana when sailing hadn't infected our lives — we received a 6-quart pressure cooker as a wedding present. I remember staring at it and wondering if it would become an enemy or a friend. Memories of steaming pork chops, potatoes, and sauerkraut fresh from my mother's pressure cooker gave me hope.

My mother had a friendly pressure cooker. She used it weekly to speed-cook dinners for our large family. In fact, when microwaves first came onto the market, she didn't see any reason to get one. "Why microwave when I can pressure cook?" she'd say.

Now that I had my own, everything seemed different. I listened to my friends' stories of boiling hot soup splattered on the ceiling and steam burns. Were some pressure cookers enemies to humankind? I went to my mother for help and learned that pressure cookers are safe and easy to use as long as you follow a few basic rules.

by Theresa Fort

Mom's safety rules

- Always check the vent for debris before using and while cleaning after use. Hold the lid up to the light and look through the vent tube to be sure there are no clogs.

- Always check your gasket to assure that it is pliable and free of any cuts or degradation. If it takes a long time to reach pressure or if steam escapes during pressure cooking, you need to replace your gasket.

- Never interrupt the pressure cooker while it cools and releases pressure on its own. It is cheating and

dangerous to jiggle the jiggle-top to speed up release. (*But, if no one sees you jiggle it a tiny bit, does that count?*)

- Always open the top away from your face. No matter how badly you want to see your creation, you have to wait for the remaining steam to escape.
- Never overfill your pressure cooker. When cooking rice and dried vegetables, fill only to the half-full mark. With stews, soups, and other dishes, fill only 2/3-full. Overfilling a pressure cooker can cause food to clog the vent tube when the food

It bakes bread, makes hearty soups, distills water, and holds the kids' "critters." Who could ask for more?

expands or boils, especially with beans.

- Do not pressure cook cranberries, lima beans, applesauce, cereals, or noodles in jiggle-top pressure cookers. These foods tend to foam, and sputter which could clog the vent pipe.

Her guidelines were straightforward and simple. But my pressure cooker and I didn't develop a very strong relationship. In fact, for years I hesitated to use it. I only grudgingly brought it from the cupboard when my husband, Chuck, requested a favorite pressure-cooked dinner. "Why pressure cook when I can microwave?" I said.

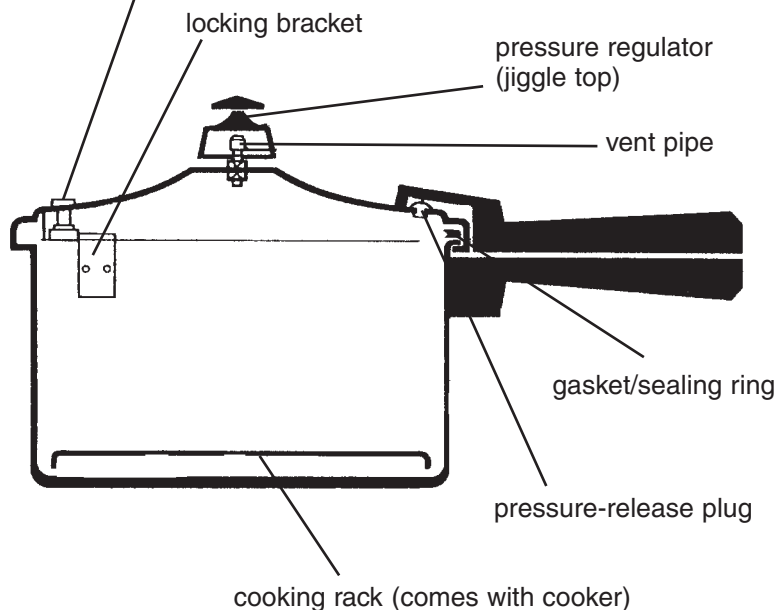
Then sailing came into our lives. The microwave wouldn't work aboard our new (to us) 30-foot sailboat. We spent weekends sailing, fishing, and crabbing in the Puget Sound area. Now with two kids who were starving after a full day of fresh air and boating, we needed hearty meals fast. My pressure cooker got dusted off and brought aboard to live. That's when the friendship began. Slowly I began to understand my pressure cooker's versatility.

When we set off to cruise, this new friend became a necessity. Its locking lid prevented any boiling hot food from splattering when we were cooking under way in a roly sea. In the tropics, it baked bread with less energy than our oven would have used. In Alaska, it made quick hearty soups in less than a half hour that tasted as though they had cooked all day.

It cleans up easily after being used as a bucket for holding critters the kids have caught. Set up as a distiller, it has the potential to save our lives if we need it to make drinkable water at sea. Top that with the fact that it requires only a little maintenance, and that makes it a great addition to our crew list.

Hold the lid to the light to see if you can see through the vent pipe. If not, use a pipe cleaner, twist tie, toothpick, or other thin object to clear it.

air vent/cover lock (Air is vented through here before pressure is achieved. If it is all the way up, you have full pressure.)



Maintenance tips

When bringing your pressure cooker up to pressure, instead of using high heat, turn the burner to between high and medium high. This prevents warping the bottom. It may take a little longer for it to reach the proper pressure, but it will extend the life of your pressure cooker.

Store your pressure cooker with the lid nestled upside down and over the top of the pot. Keep the gasket out of the lid to prolong its life by letting air get to all edges. Storing it this way will prevent warping of the gasket, release odors that may linger, and allow air to get to all parts. To save room, you may be able to nest spare bowls or bottles

inside along with your rack and pressure regulator.

While gaskets don't need to be replaced very often, it is a good idea to carry a replacement gasket and pressure-release plug on extended trips. We have experimented with different gasket materials from auto supply stores but have been unable to find any satisfactory materials. (*Note: not all gasket materials are safe for foods.*) If you decide to experiment with other types of gasket material, test your experimental gasket with a few cups of water inside your pressure cooker. Bring your cooker up to pressure and maintain it for 15 minutes before you try cooking a dinner. Needless to say, you'd have a





Theresa uses a medium-sized stainless steel bowl as a heatproof dish which fits inside the pressure cooker and is called for by some recipes. A ceramic soufflé dish also works for recipes of this nature. (See example recipes on Page 41.)

big mess if the gasket didn't work with dinner inside.

Don't forget to check your pressure release plug whenever you check your gasket for wear. This is the plug that will release steam and built-up pressure if your vent pipe becomes clogged. It is usually made of the same rubber as your gasket and may need to be replaced at the same time. Ours is located on the inside of the lid near the handle.

A little vegetable oil occasionally on your gasket will keep it pliable and soft longer. But be careful: too much oil will actually reduce the gasket's ability to form a good seal.

(Note: check the owner's manual for your cooker, some discourage the use of oil on gaskets.)

Check your pressure cooker for screws that will rust in a marine environment and replace them with stainless screws before bringing it aboard. Our pressure cooker had two screws in the main handle and one on the helper handle that needed replacing with stainless screws. If your pressure cooker is aluminum, consider putting a barrier of silicone or other material between the stainless screws and the aluminum of the pot to reduce the corrosion that can occur when these two metals join in marine conditions.

How it works

The concept behind pressure cookers is simple. When liquids come to a boil, they give off steam. Because a pressure cooker has a locking lid, that steam builds up and creates a higher pressure inside the pot. With the pressure regulator jiggling atop your cooker, it releases small amounts of steam to maintain the proper amount of pressure for the system. That amount is usually 15 pounds of pressure for most brands and models — others have adjustable pressure regulators, and some use lower pressure. With that higher pressure, a higher temperature can be realized.

“I listened to my friends’ stories of boiling-hot soup splattered on the ceiling and steam burns. Were some pressure cookers enemies to humankind? I went to my mother for help and learned that pressure cookers are safe and easy to use as long as you follow a few basic rules.”

Under normal sealevel conditions, the water in food can only reach boiling point temperature to cook — that's 212°F. At 15 pounds of pressure, that same water can reach and maintain temperatures of 250°F. Thus, food cooks faster.

Inside the pressure cooker, there is also an almost airless environment. The quickness in cooking combined with that environment allows food to maintain its nutrition value without

water-soluble vitamins and minerals boiling away. It also allows for stronger flavors to develop, allowing cooks to use smaller amounts of salt and spices.

The rack

Most pressure cookers come with a rack that can be very helpful when cooking rice, vegetables, meats, breads, puddings, or even cheesecakes. Its job is to keep food off the bottom of the pan and away from the intensity of the flame. This is especially helpful during steaming and baking. Vegetables and rice can be quickly steamed in a separate heatproof dish that will fit inside your pressure cooker set atop the rack. The rack is also helpful when baking breads or puddings in a separate dish. And it helps prevent scorching when cooking roasts and other larger pieces of meats that can sit directly on the rack.

Considerations when buying

Deep-pressure pans can be used both for water-bath and pressure canning. It's good to have a large pot aboard for cooking large amounts of food without pressure as well. Heavier models with thick bottoms will scorch food less easily and serve better as ovens. Two handles are a necessity when it comes to carrying a full pot of steaming hot food.

Aluminum is lighter in weight

and conducts heat better than stainless steel, but some people may want to limit their exposure to aluminum due to possible links to Alzheimer's

disease. If this concerns you, you may want to do your own research on the subject.

A new generation of pressure cookers has come on the market in the last few years that may be safer for boaters though more expensive (some brands are in the \$150-\$200 range). Instead of the weighted jiggle-top regulator, they use a spring valve that allows for more precise timing and pressurization. The new non-



Daughter, Amie, gives the family dog a bath in the pressure cooker.

jiggle-top cookers also have a way to release pressure without any need to carry them to a sink or bucket of cold water to reduce pressure (though this feature cannot be used with any foods that foam). Also, since they have a spring valve that is self-cleaning and nearly impossible to get clogged, it is safe to cook the forbidden foods like cranberries, applesauce, lima beans, and cereals.

Great emergency rescues

As any good friend would, your pressure cooker is able to help out in any number of “emergencies.”

- **Saving your food when the fridge dies** — A pressure cooker can become a water-bath canner or pressure canner if food is in danger of spoiling. We like to bring along

pint canning jars with lids whenever we leave on an extended trip. Our 6-quart cooker can hold three regular-sized pint jars for water bath canning and pressure canning. Even though we have no fridge, we have the ability to can extra fish and produce, and to make jams or pickles if we arrive in an area rich in produce. To turn your cooker into a canner, experiment with different sizes of canning jars. For water-bath canning, the water level needs to be an inch above the jars while boiling to insure proper immersion.

Water-bath canning is used for most fruits and all types of pickles. Pressure is not used for this type of canning. There are many books available that have excellent canning recipes. One I would recommend is *Putting Food By* by Janet Groene.

Pressure canning is used for all non-acidic foods. It can be done easily with your pressure cooker, but you are limited to only one pressure setting. For this reason you will need to refer to your owner’s manual for recipes, times, and proper procedures. Other recipe books may not have the proper times for the amount of pressure that you would be using.

- **Storing leftovers** — You have just finished a wonderful dinner of soup or stew, but there are leftovers. What do you do with those leftovers if you have no fridge? Well, when we have leftovers from our pressure cooking, I bring the food back up to pressure in my cooker and heat at full pressure for two minutes. Then I set the cooker aside with its regulator undisturbed and lid locked. I leave it for

tomorrow’s lunch or dinner. Many times we have kept leftovers for up to 24 hours this way.

I use my pressure cooker for any leftover meat as well. That same evening, I simply bring out my pressure cooker and make a quick soup of the meat with any vegetables I have around. After the soup cooks under pressure, I set it aside on my stovetop and leave it for tomorrow’s lunch or dinner.

In both cases, I let the pressure cooker cool on its own. I do not break the seal by opening the lid or removing the regulator. And, it is always served within 24 hours. The only drawback to this method is that you cannot use it for dishes that have tomatoes as one of the ingredients. These rules are very important to the safety and healthfulness of the leftover food.

- **Turning your pressure cooker into a distiller for emergency drinking water** — See sidebar at right for more information on distillation using a pressure cooker.
- **When running low on stove fuel** — With a pressure cooker’s locking lid, it can become an ideal fire-less cooking pot. Fire-less cooking is a method of slow cooking that has been around long before slow-cookers were invented. All sorts of one-pot dishes like stews, chili, soups, even rice and noodle dishes can be made with only a little amount of heating and some blankets and pillows. Here are some basic instructions:
In the morning, bring your dinner up to pressure and heat for five minutes at full pressure. Take from heat and wrap your pot, upright, in a blanket or sleeping bag, being careful not to burn yourself or disrupt the jiggle-top or pressure safety valve. I place my hand on the regulator as I put the first wrap on the cooker to make sure I do not disrupt it. Pile

Continued on Page 40

Making a distiller

After some experimentation, our pressure cooker has become a successful distiller with the addition of these items:

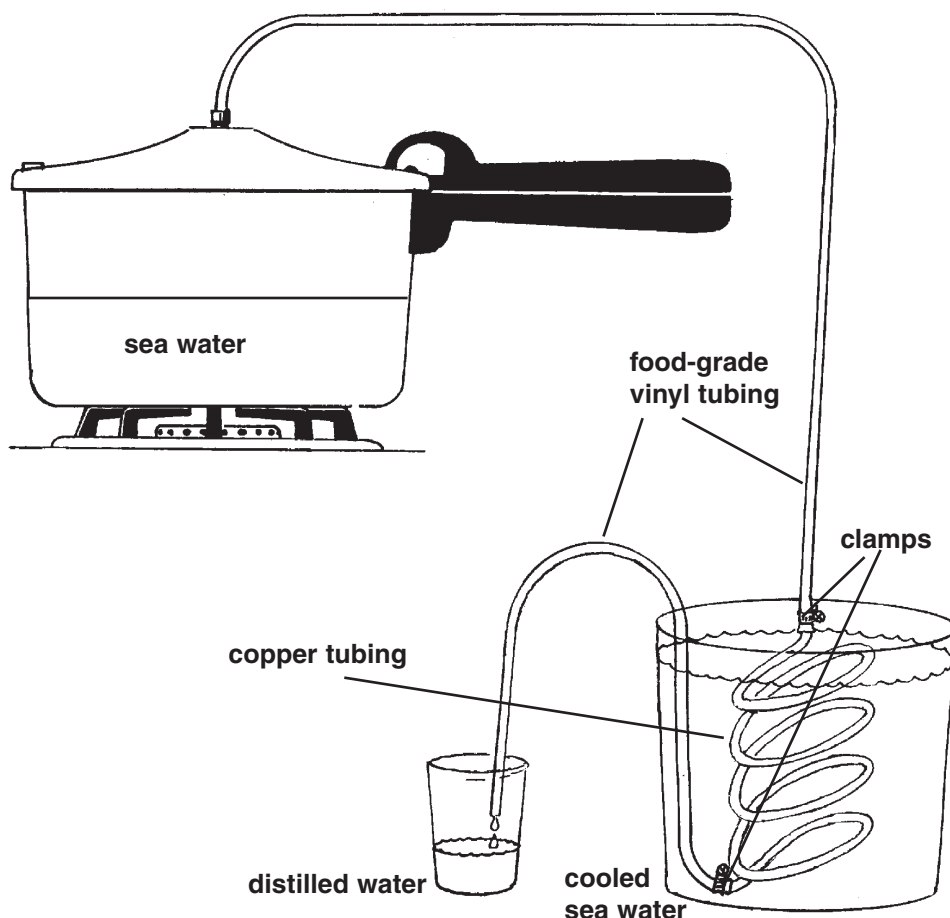
- 10-feet of 1/4-inch outside diameter copper tubing
- two 3-foot lengths of 3/8-inch outside diameter (1/4-inch inside diameter) food-grade vinyl tubing
- two hose clamps
- a bucket
- a water container

How we put the distiller together and run it:

First, we fill the bucket with cool seawater and bring it below to our galley. Then we fill our pressure cooker 2/3 full with seawater or any other water that may or may not be contaminated. Our copper tubing is wound into a coil around something cylindrical so it will fit completely into the bucket of cool seawater with one end pointed up toward the pressure cooker on the stove.

Our pressure cooker has a vent pipe with an outside diameter of 1/4-inch. We slide one of the 3-foot lengths of food-grade vinyl all the way onto the vent pipe in the lid. Then with a hose clamp over the vinyl tubing, we slide the copper tubing into the remaining loose end and tighten the clamp. The remaining piece of food-grade vinyl tubing attaches to the copper tubing end at the bottom of the bucket with a hose clamp as well. Then the remaining end of vinyl tubing is placed inside the water container, which sits next to the bucket. It helps if your container is shorter than your bucket.

Now we are ready to assemble the pressure cooker and heat the seawater. As steam builds up inside the cooker, it begins to make its way through the tubing. When it reaches the copper



coils, it condenses into pure water and flows into the water container. The key to making this distiller run efficiently is to replace the seawater in the bucket once it warms up. Be careful not to burn yourself when you lift the coil out of the bucket to change the water. As the flow develops, we turn the burner to medium low because less heat is required. Once the steam begins going through the tubing, we usually get about 1 cup of water after about 25 minutes on medium heat.

Keeping the copper tubing in a coil with the vinyl tubing already attached helps with storing and quick assembly. Before using the tubing for the first time, rinse it with clean water. Be sure to use only food-grade tubing, as not all

vinyl tubing is safe for drinking water use. We have never found the vinyl tubing to pop off the vent pipe or melt with the heat. The pressure that builds up is not the same because of the lack of the weighted regulator on the vent pipe, so the temperature is not as high either.

While this process is slow and uses quite a bit of energy, it could save your life in an emergency. In many situations you could use this process to create pure water. Water tanks can run dry or become contaminated. Or you may be somewhere which only has contaminated water available. You may also need distilled water for your boat's batteries.



Son, Alex, uses the pressure cooker as an occasional aquarium.



Continued from Page 38

pillows all around the pot (including underneath), and then wrap any other blankets or sleeping bags you may have aboard around your cooker. Try to insulate your cooker so that minimal heat is released. Wedge this huge bundle somewhere safe while you are sailing. In 8-10 hours you'll have a steaming dinner all ready for eating. Aboard *Lindsay Christine* we use two sleeping bags and all four of our family pillows. One of the kids' berths, depending on the tack, is the ideal wedging place for our fire-less cooking bundle.

By the way, using this method with dried vegetables such as beans still requires a pre-soak before preparation, which would have to be done the night before.

- **A weapon** — As a safe weapon aboard a boat, pressure cookers are second only to a large cast iron frying pan. It will never be confiscated when entering a new country, you don't have to reload, and even a child can use it.
- **An extra bucket** — Buckets are usually stored outside near the cockpit of most boats. But, when stored inside the galley of your boat, a pressure cooker may be closer at hand if water enters your cabin while you are below. A pressure cooker is a perfect bailer with two handles for carrying heavy loads of water.

- **During a medical emergency** — While pressure cookers are nowhere near as effective as an autoclave in a hospital or lab, they do work to sterilize items in the same general way providing a higher temperature with an increase in pressure. And they could be your only solution for sterilizing supplies when a medical emergency at sea occurs.

Pressure cookers attain 15 pounds of pressure and 250°F, the very minimum requirement to sterilize medical equipment, water, and bandages or cloths. If a medical emergency were to occur, you could sterilize your supplies by putting them into a heatproof dish fitted inside the pressure cooker with 2 cups of water in the bottom and the rack in place. Water could be sterilized inside canning jars filled with 1 inch of air space remaining and sealed with lid and ring. The minimum amount of time at full pressure (I would have the jiggle-top regulator rocking at a consistent speed because I wouldn't be worried about overcooking anything) would be 20 minutes. But this is not a guaranteed procedure. There is no way to assure that everything received enough steam and heat under pressure to say that all supplies are sterile. However, as an alternative to boiling supplies in water, it is a superior method because everything reaches a higher temperature. This is in no way condoning the use of a pressure cooker as a substitute

autoclave on a regular basis. But it is a possible alternative in an emergency situation when someone is far away from medical services.

Aboard *Lindsay Christine*, we try to make most of our items aboard have a dual purpose. Our pressure cooker has more than satisfied that requirement. Here's a list of the ways we have used ours: pressure cooker, non-pressurized cooking pot, distiller, slow cooker, steamer, oven, canner, bucket, weapon, temporary leftover storage unit, temporary critter home, weight training equipment, sterilizer.

Could a microwave do that? I doubt it. These days I agree with my mom more and more. I say, "Why microwave when I can pressure cook?"

In another life long, long ago and far away, Theresa was a home economist with a specialization in consumer education.

After receiving her BA in home economics at the University of Montana, she went on to become a master food preserver with the co-operative extension office in Montana. Still, it took life aboard a sailboat to convince her to use her own pressure cooker. Theresa and family have lived and cruised aboard Lindsay Christine, a Mercator Offshore 30, since 1995.



Chicken and Mushrooms

This one-pot dish requires few ingredients.

- 2 chicken breasts, skinned, boned, and cut into large chunks
- 1 cup thickly sliced mushrooms
- 1/2 onion, sliced
- 1 bell pepper, cut into chunks
- 1/4 cup low-sodium soy sauce
- 1 cup water
- 1 tablespoon brown sugar
- 1/2 teaspoon garlic powder
- 1 cup rice (I use a mixture of 1/2 long-grain white and 1/2 brown rice)
- 1 1/2 cups water (pressure cookers use less water than would be normal with conventional cooking)

Place first eight ingredients in cooker. Place rice and water in a heatproof dish that fits loosely inside your pressure cooker. Place dish in pressure cooker with chicken mixture surrounding it. The dish should stick up a few inches above the level of the chicken mixture. No food or containers should be over 2/3 full. Close securely. Place pressure regulator on vent pipe and cook 10 minutes with pressure regulator rocking slowly. Let pressure drop. Lift out rice bowl, and let sit 5 minutes. Thicken chicken dish, if desired, with cornstarch mixed with a little water. Serve over cooked rice. Serves 4.

Rice can be cooked separately in the pressure cooker by combining 1 cup rice and 1 1/2 cups water in a heatproof dish. Place dish inside the pressure cooker with 1 cup water in the bottom. Pressure cook 10 minutes if using 1/2 white and 1/2 brown rice, 5 minutes if using white rice only. Let pressure drop. Open lid and let rice sit 5 minutes. Fluff with fork.

Sun-dried Tomato/Herb Bread

This bread is an example of steam-baking in the pressure cooker. It is done under pressure. The amount of time for steam-baking is a bit shorter than when using an oven, and you save fuel by heating only the pressure cooker.

Pre-heat the pressure cooker on medium heat five minutes before putting in your food to be baked, covered with aluminum foil to retain heat. Turn your burner down very low. A consistent low flame will produce a moderate oven temperature. Cakes and other sweets seem to take a little longer than breads this way.

We love this bread sliced and toasted under the broiler with cheese melted on top. The crust is chewy and not browned on top. You can make plain bread this way by leaving out the seasonings. I like to use 1/2 whole

wheat to hide the fact that the bread is not browned on top.

- 1 cup warm water (110-115° F)
- 1 1/2 teaspoons active dry yeast
- 1/2 teaspoon salt
- 2 tablespoons olive oil
- About 3 1/2 cups unbleached bread flour
- 1 cup fresh basil, chopped finely
- 4 cloves garlic, minced
- 6 reconstituted dry-packed sun-dried tomatoes, chopped

1/4 cup shredded Parmesan cheese
Dissolve yeast and sugar in small bowl with 1/4 cup of the warm water. Add remaining water to large mixing bowl. Add salt and oil and allow to cool while yeast is dissolving. Add yeast mixture and 3 cups of flour along with basil, garlic, dried tomatoes, and cheese. Turn out on floured counter and knead for 10 minutes or until smooth and elastic, adding flour as needed. Place dough in a greased 2-quart oven-safe casserole dish or bowl that will fit in your pressure cooker. Let rise until doubled in volume in a warm draft-free place 40 minutes to 1 hour. When doubled, punch down, turn out onto counter, and knead a few times. Place dough back in dish and let rise a second time for 1/2 hour.

Pour 2 cups fresh or salt water into pressure cooker with rack. Place container of dough in the pressure cooker and seal with lid. Bring up to 15 pounds pressure. Turn heat down to maintain pressure, and cook 40 minutes. Cool cooker immediately by placing in a pan of cold water or letting cold water run over cooker. Open lid carefully and remove bread. Cool in baking container for 10 minutes, then invert and take out of dish. Cool 15 minutes before slicing. Makes 1 loaf.

Mercator Brownies

This is an example of baking with a pressure cooker. To bake in the pressure cooker, remove the gasket, leave the pressure regulator off the top, and use the cooking rack and a separate heatproof dish that fits inside the cooker for the food. Doubling the recipe and baking it in an oven will produce a 13x9 pan of brownies. It is a scaled-down recipe tailored to using my medium stainless steel bowl (that holds 6 cups) as a baking pan. A soufflé dish would work well as a heatproof dish.

- 2 ounces unsweetened baking chocolate
- 3 tablespoons butter
- 3/4 cup brown sugar
- 1 egg

- 3/4 teaspoon vanilla extract
- 1/2 cup unbleached flour
- 1/2 cup nuts (optional)

Pre-heat pressure cooker over a medium flame with rack inside and top locked on but without a gasket or the pressure regulator. Do not put liquid inside. Lightly grease the heatproof dish that will fit inside your pressure cooker for the batter.

In a pot over very low heat, melt chocolate and butter, stirring constantly. As soon as it's melted and smooth, remove from heat and add sugar. Stir until well blended. Add egg and vanilla; mix well. Add flour and nuts, if desired. Stir mixture well. Pour into heatproof bowl. Cover with aluminum foil. Open your pressure cooker and place dish inside on rack. Turn heat down to low and bake 45 minutes or until a wooden toothpick inserted in the center comes out clean. Remove from pressure cooker and cool. Enjoy!

Cooking Dried Vegetables

The pressure cooker is ideal for cooked dried beans, peas, and lentils.

Remember to fill the cooker only halfway.

Pre-soaking dried vegetables:

- 2 cups dried vegetables
- 2 teaspoons salt
- 1/4 cup cooking oil

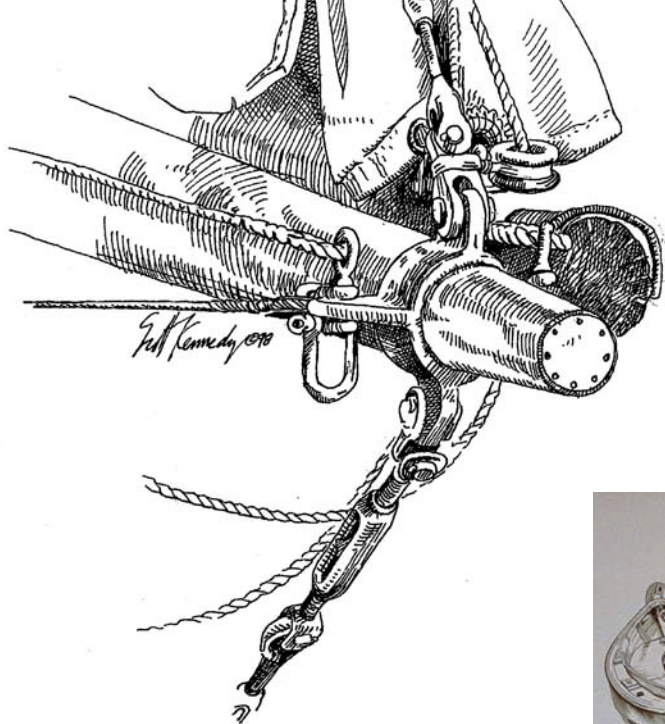
Water to cover vegetables

Place dried vegetables in cooker. Add remaining ingredients and soak 8 hours. I start soaking beans in the morning in our cooker, keeping it secured with fiddles on the stovetop.

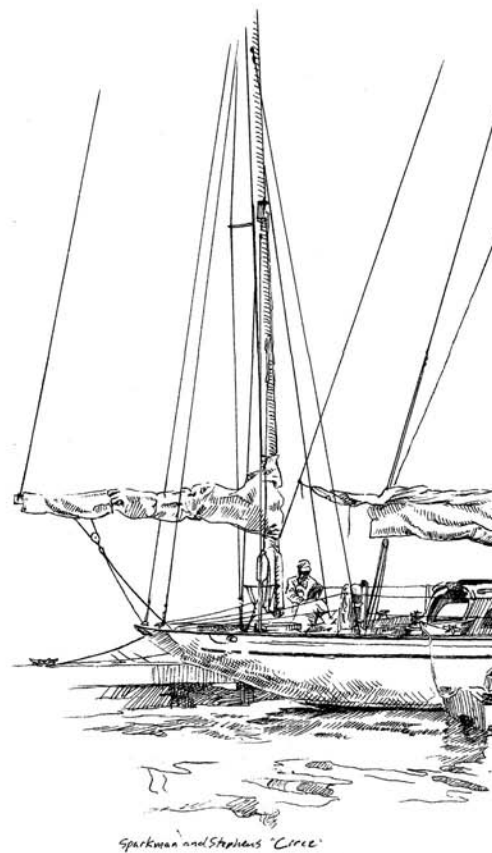
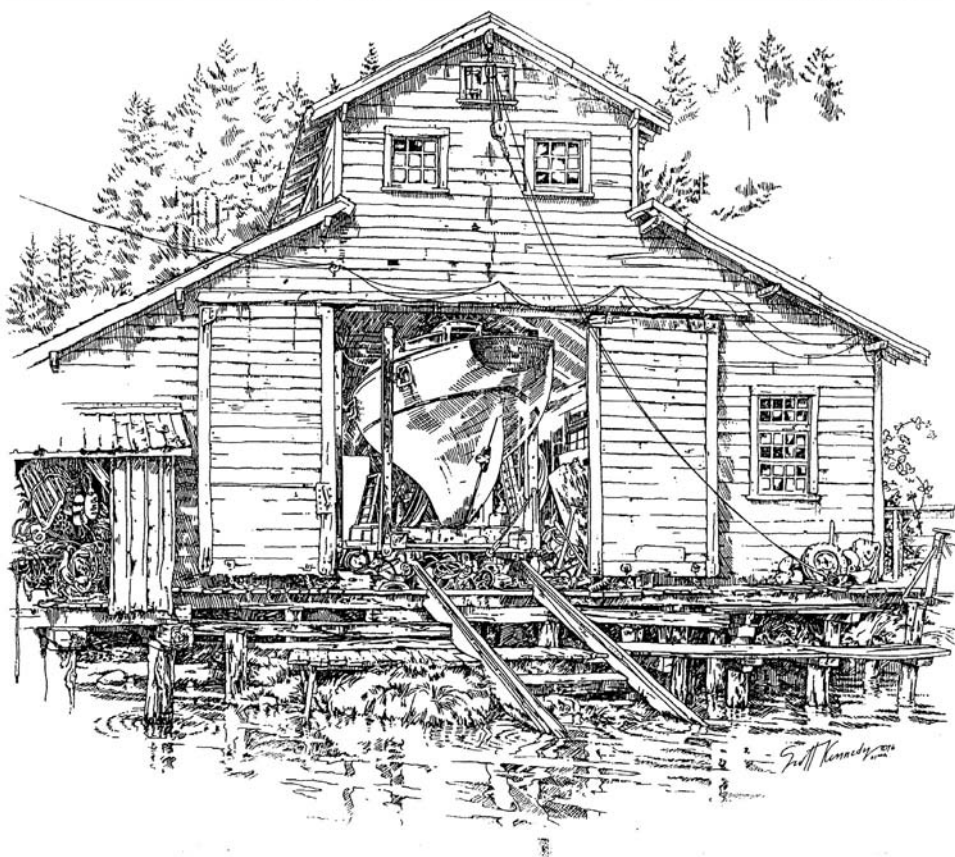
Cooking pre-soaked vegetables:

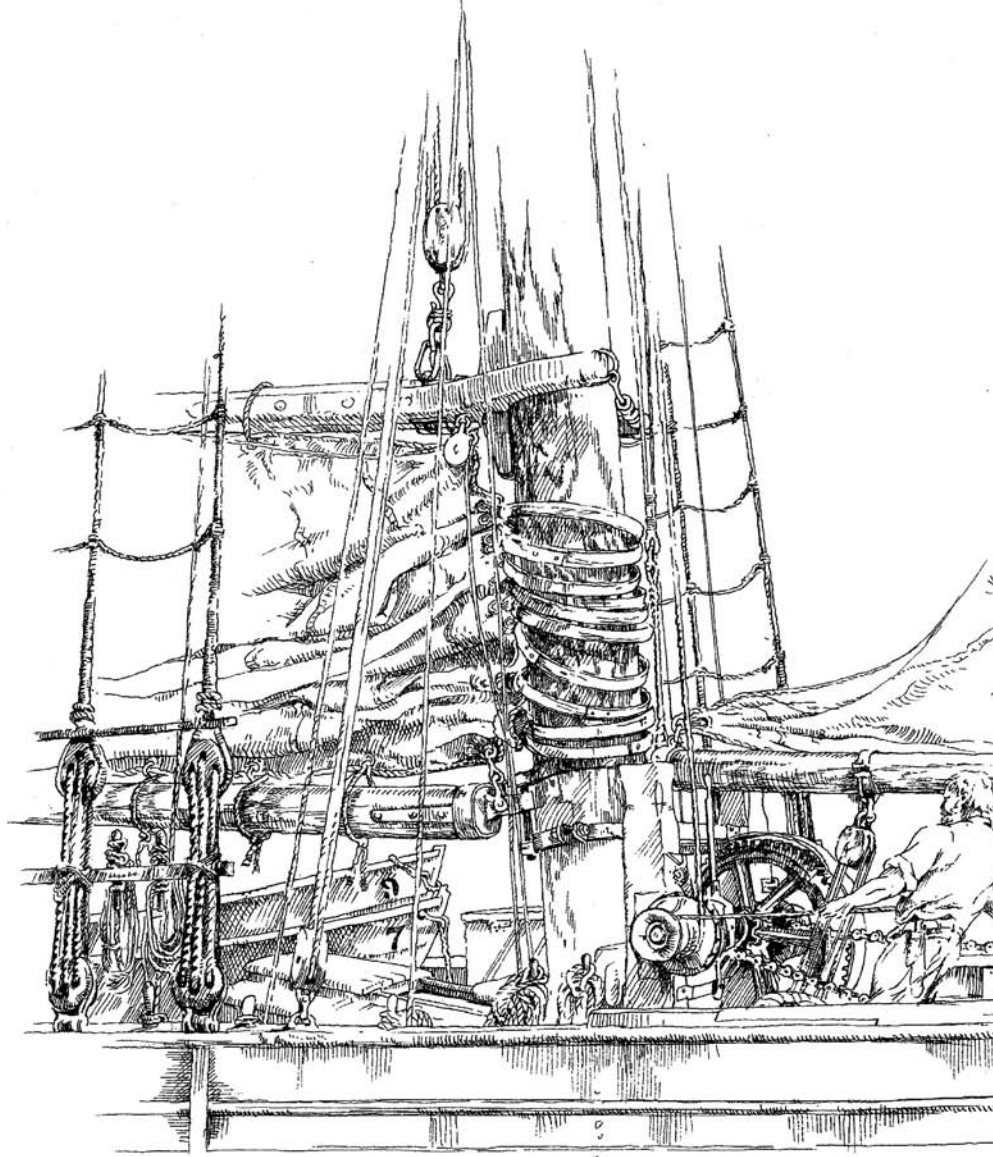
Pour off and discard water from soaking. (This water could cause indigestion.) Place vegetables in cooker, adding enough water to cover well. Add seasonings and any other additions you desire. Adding 1 tablespoon cooking oil will decrease the foaming action of the vegetables. **Do not fill the cooker over half-full.** Close cover securely. Place pressure regulator on vent pipe and cook under pressure according to the following timetable. Let pressure drop.

Dried vegetable	Cooking time
Pinto beans	25 minutes
Black beans	35 minutes
Great northern beans	20 minutes
Kidney beans	25 minutes
Navy beans	30 minutes
Pink beans	30 minutes
Black-eyed peas	20 minutes



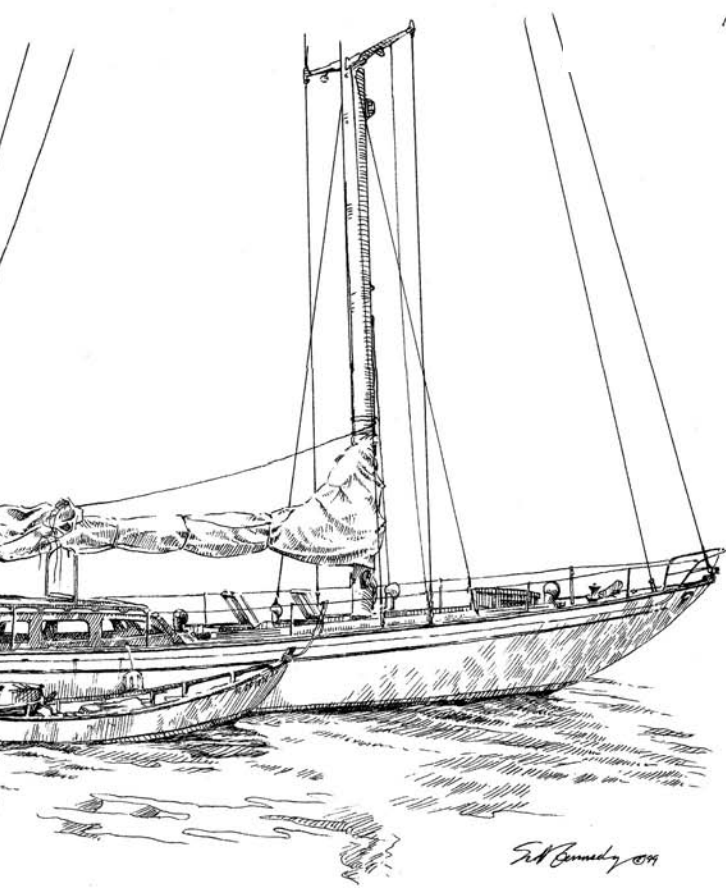
*Scott
Kennedy
reminds us
of simpler times*





Halgard Hoist

Scott Kennedy



Scott Kennedy

Scott Kennedy is an incorrigible boat nut focusing on floating subjects in port and at sea. His work has been acquired by museums in Europe and the U.S., and he has illustrated books by sailing authors such as Lin and Larry Pardey. Scott's eye for the beautiful and traditional demonstrates his love of sailing.

At top left, the bowsprit of the Pardey's boat, *Taleisin*. The trio of water-color-and-ink paintings starting at far left: a Kragejolle workboat in Aarø Sund Baadebyggeri, Denmark; the vessel *Spike Africa* undergoing a ballast/keel replacement in Ventura, Calif.; and a Vestkyster workboat in Vestkystbåd, Denmark. Above, a halyard hoist on the *L.A. Dunton* in Mystic, Conn. At left, the Sparkman & Stephens wooden yawl, *Circe*. At far left a boatshed on Buzzards Bay. Want more? Call 949-675-5395. Scott's webpage is at <http://www.apayne.com/scottkennedy>.

The

Bayfields, tricked us into thinking that his modern fiberglass boat was traditional.

First and foremost is the bowsprit — but not the traditional bowsprit, in which a spar is rigged out from the bow of the boat and copious rigging holds it in place. Rather, it's an extension of the molded hull with a platform built on it. With a sturdy stainless steel railing around you, you can walk out on the "bowsprit" and pretend you're on a clipper bringing the tea back from China at a record pace. Traditional.

Then there's the full keel with a moderate cutaway forefoot. This gives the boat a solid look and feel. My

first sight of one was out of the water, and she did look solid. Upon examination, she was solid, too. The ballast is inside. Kept low. These boats are not tender. They don't skitter around. Traditional.

By keeping the sailplan low and moderate in size, the stateliness of the design is emphasized. It says to the eye, "This is a dignified boat, a boat that will behave itself . . . above all, a boat that will take care of you."

Wetted surface

When you combine all of that with teak trim, the trademark trailboards at the bow, and a contrasting sheer stripe on the fiberglass hull, the illusion is complete. Here, in the most modern of materials — stainless steel, fiberglass, and Dacron — is a very "traditional" craft. Ted Gozzard deserves a medal. Or maybe an Oscar.

Owners love them despite the fact that Bayfields are not fast. They all have a lot of wetted surface. That's a full keel under there, so there's a lot of drag.



I first saw a Bayfield early in the '80s, on the hard, at a marina on Lake Huron's Saginaw Bay. It was a 25, sitting next to an elderly wooden Tahiti ketch. Here was a study in contrast. The little fiberglass Bayfield 25 bravely trying to look classic, while a tattered wooden classic, complete with galvanized rigging, was gamely trying to look seaworthy. Each succeeded in its own way. I wonder what John Hanna would have thought of H. ("Ted") Gozzard's Bayfield line?

From the small 23, with which Ted began the company, to the stately Bayfield 40 (but excluding the 36, which wasn't designed by Ted), these boats have what can only be called a family resemblance. In fact, if you've seen one, you won't mistake it for anything else. They all have an

overhanging bow, a full keel, inboard engine, and a low-aspect-ratio rig. But Tahiti ketches they ain't.

Ted Gozzard took pains to give these boats what he felt was a traditional look. Each one has a certain sheerline, a similar curve to the overhanging bow, a rake to the transom, a ratio of cabin-to-topside that defines the esthetic quality of the design and says to the modern eye: "Traditional."

We know what traditional really is, and as boat buyers we have most emphatically rejected it. Our boats are

no longer made from wood (at least most of them aren't). They no longer have the narrow look of a plank on edge. We want that interior space. The topsides are high because we

want headroom. And gaffs no longer hang from the top of the mast. The mast just continues to go up, and up, and up. Yet Ted Gozzard, in designing the

by Ken Miller
photos by
Marv Slocum

Bayfield trick— traditionally modern

Add to that a fair amount of beam for the length (the 25 with its 19-foot-8-inch waterline has an 8-foot beam), and you have lots of skin to push through the water. Include a three-bladed prop in an aperture with a fairly square rudder, and the drag grows.

There's the low-aspect ratio of cutter rigs (depending on the boat). Cutters have smaller sails, which are easier to handle. Cutter rigs also offer visibility under the sail. Sloop rigs depend on big deck-sweeping genoas for power. The main is merely a tab that helps the genny along. Cutters are different. They have bigger mains, and the jibs are cut high: a Yankee, for example. You can *see* under a Yankee. Try looking through one of those deck-sweeping genoas sometime. But you pay in loss of power. These sailplans do not overpower their boats. If you want to race, you might want something other than a Bayfield.

If you want to cruise, though, a Bayfield is for you. And comfort is the reason their owners love them so. Take that same large wetted surface, inside ballast, relatively small sailplan, modern materials, and good design, and you have a boat to settle back on with a sigh. A boat in which to put your feet up and relax. Stable, slow (but not *too* slow), stately, steady, roomy, a boat to trust. It even looks like a boat to trust. It's traditional.

Sapphire

I knew this much about Bayfields when I contacted Doug and Carol Kelly, in Millersburg, Mich., somewhere “up north.” For those who live in the Detroit area as I do, there is a distinct meaning to “up north” in Michigan. It

The bowsprit and characteristic trailboard of Doug and Carol Kelly's Bayfield 40, Sapphire, at left. A Bayfield 29 sails the Chesapeake Bay, at right.

is the place where the woods begin, where the white pine trees are — many of them — and where you find lakes. Great Lakes. Lakes that sometimes take more than a day to cross in my sailboat.

Doug began sailing with a friend and his cousin in 1955 in an X-boat on the St. Croix River near St. Paul, Minn.

Later, after he and Carol were married, they bought a plywood Corsair, a Midget Ocean Racing Club (MORC) design, for \$2,300. Carol was teaching, and Doug was an engineer. They learned serious sailing together on Lake Michigan. At one time they even asked themselves, “Do



Sandy Benham

you think anybody has ever crossed Lake Michigan on a sailboat?" That day finally came for them one Memorial Day weekend. It was a trip to remember. They had two dogs and two couples on that little sailboat in a storm at night. Both women were pregnant and seasick. Still, that trip marked the beginning for them. Next, they began chartering sailboats and venturing to popular places like Mackinac Island.

Eventually they wanted more comfort, so they bought a Seafarer 38 and sailed it from 1979 to 1982. It had a modified bathtub that worked well for confining the kids when they were little. But Doug discovered this boat was really a 34-footer with a 31-foot waterline. He felt the designers had just extended it and put on more superstructure. He said the bow sections would "oil can," popping in and out. He felt the designer had taken the 34 design and scaled it up, without modifying the scantlings. He and Carol also thought it was tender, so tender that they kept the tanks full as extra ballast to make it manageable.

Not long after that, they went to the Metropolitan Beach Boat Show, a

large in-the-water show near Detroit. They saw a boat that looked very much like the Seafarer. It was a Bayfield 40. They really liked its rakish look. They went back three days in a row and finally bought hull #12.

The Bayfield factory put too much ballast in the keel of this particular model — 8,500 pounds of lead, right at the bottom of the keel. Later, the company eliminated 800 pounds. But Doug and Carol opted for the older one with the full 8,500 pounds. Consequently, their boat is "stiffer than the dickens," according to Doug. It carries 1,000 square feet of sail, and does very well in a blow, he says.

Doug and Carol spend one or two months cruising *Sapphire*, their Bayfield 40, each summer. They believe the North Channel of Lake Huron is the best cruising ground in the world. Carol says they've been as far east as the islands in Lake Erie, as well as all over Lake Huron and Georgian Bay. "There isn't a harbor we haven't been in," she says. They have been as far south as Grand Haven in Lake Michigan. They



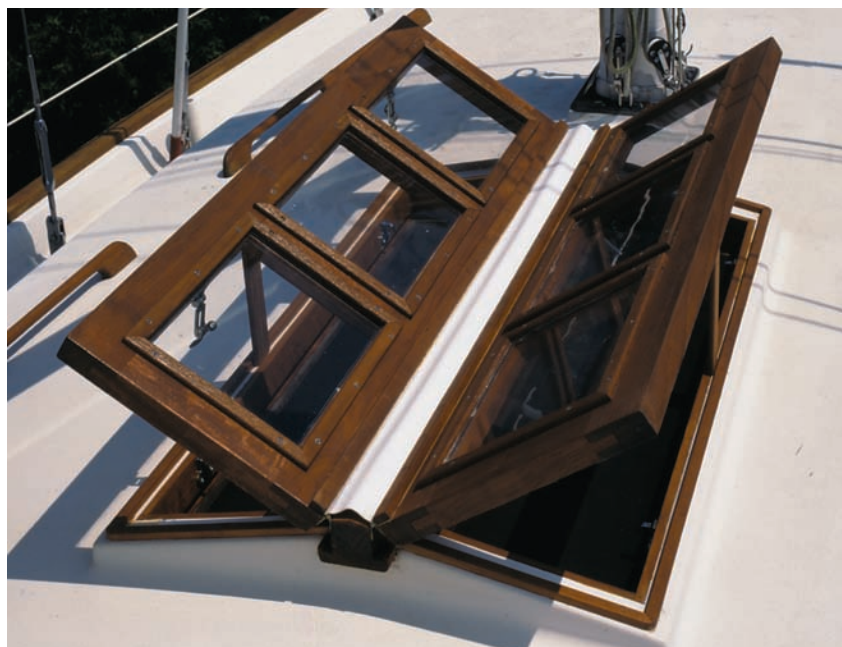
had intentions of going all the way around Lake Michigan one summer, but it was a blazing hot summer "and it just wasn't fun," Carol says.

One summer they cruised Wisconsin's Green Bay, and they have been in Lake Superior a couple of times. "Many times we were the only boat in the anchorage there," Doug recalls.

And how does the Bayfield perform? "She sails very, very well," Doug says. "You can lock up the wheel, trim the sails, and sail on course with no attention. It will do that for hours and hours and hours unless there are gusts. The wind goes around, and the boat just follows it." He has an autopilot, an old Autohelm 5000, "but sometimes I don't use it. Our guests think I do. The boat has that big, long keel. It has a cutaway forefoot, but even so, sometimes it's a job to get it around on a tack. You have to turn on the engine."

Doug and Carol Kelly are dwarfed by Sapphire as she rests on the hard above. At left, Sapphire's interior is very open, with panels which slide vertically to permit privacy when needed.





Sapphire's head occupies the forepeak, making it "a head you can get seriously cleaned up in," according to Doug. He solved problem leaks in the skylights with "O-ring spaghetti" tubing sold for use with screens.

Jib and jigger

Doug and Carol say when the mizzen is up, it will turn the boat about 45 degrees off the wind and hold it there. The boat will drift backward at about half a knot. This can be very handy in an emergency situation or when they want to heave to. They can also put up either the jib or staysail with the mizzen and still be balanced. The boat sails well "jib and jigger" in about 30 knots of wind.

Doug says, "Many skippers think of the main as the controlling sail and the jib as the power sail. In higher winds they will take down the jib and sail with reefed main alone. We do it the other way around. We use the jib or the staysail. Any time we heel more than about 15 degrees, it gets too hard. We take the main down early."

There have been some problems with the boat in the time Doug and Carol have owned her. A memorable one was when they grounded near Little Current in the North Channel. There is a cap that holds the bottom bearing of the rudder. It has four stainless-steel, half-inch-thick bolts. Whatever they hit in the grounding sheared all the nuts off one side. These bolts should have been recessed to reduce drag and vulnerability (*see photo on next page*).

During that incident, Doug reached down to hit the starter on the engine and found how things can pile up on you at sea. When he turned the key to

the start position, the ignition switch stuck. The starter continued spinning after the engine started, burning up the starter motor windings in the process. The first thing Doug knew, smoke was coming out of the bilge. He shut off the engine and worked the boat out of the shallows under sail, bumping and banging all the way.

The interior of the Bayfield 40 is unusual. Doug thinks Gozzard did a superb job of laying it out, although he has not done any other boats like it. The entire forepeak is the head and shower stall. "You can go in there and get seriously cleaned up," he says (*see layout on Page 51*).

As you go down the companionway there's a stateroom on either side. There's a table there as well. A galley doesn't have to be right aft, and it isn't in this boat. It has a very open feel. Cutouts with sliding panels contribute to this open feeling, (*shown at left*).

The boat has a Westerbeke 50 diesel that Doug thinks is outstanding. He made the boat into what he considers a real performer by installing a 20-inch prop, instead of the original 18-inch-diameter one, and upping the pitch from 12 to 13 inches. He got almost a knot-and-a-half more speed. "It doesn't strain the engine," he maintains. "And you pick up 50 percent more blade area."

Extra alternator

One of the big modifications the Kellys made was adding a propshaft alternator. Doug took a 35-amp Oldsmobile alternator and put it on the propshaft. Now, when they sail, the spinning propshaft cranks out about 10 amps. Doug put an 8-inch pulley on the propshaft and a 2-inch pulley on the alternator. There is a manual switch to turn it on. When the boat slows down to where the alternator is not charging, a buzzer sounds, and the alternator can be turned off.

"An Adler-Barbour refrigerator chews up between 74 and 100 amp-hours per day," Doug says. "You have got to replace that. A propshaft alternator really helps. The wind generator doesn't work very well. I also have a 150-amp alternator on the engine. With eight batteries, each one providing 105 amp hours, I could weld." With this setup, Doug claims they can go about four days and not even be down 50 percent.

The engine battery is set up like a car's and is dedicated just to the engine. It's a separate unit from the house bank. Doug says, "I have my big battery bank — which cuts down on this cutting back-and-forth — connected to a Heart Interface Link 2000. That's a 20-amp battery charger as well as a 2000-watt inverter. We usually have both our



was Siemens solar panels. They now have two 3-foot by 2-foot solar panels. These have sufficient output to run the refrigerator. They can be placed across a set of davits, safely out of the way. Putting the television antenna on top of the mizzen is another good idea they picked up from Bayfield owners.

It has taken time to sort out the ground tackle, too. "I didn't like the Danforth anchor," Doug says. "I went to the CQR. They're heavy, but they don't seem to set very well." Next, he says, he tried a Delta and liked how it worked.

But with chain, it was far too heavy for Carol to handle.

So he made two aluminum Deltas. "I heaved up the aluminum, eyeballed it, and welded it up." Doug says they work like a charm. But there's another difference. "When they made the Delta, they put a big chunk of steel in the point of it, to get the thing to roll over right. It didn't make any sense to me to make an aluminum anchor and put a big chunk of steel in the tip. You can do the same thing with a float. So I attached a float to the other side. Now it drops with the tip down, and it anchors instantly." Carol can lift this anchor and swish it off in the water by herself. It weighs 9 1/2 pounds and has 3 pounds of chain on it. "It'll hold a 40-foot boat in 30 knots," Doug claims.



Doug replaced the original 18-inch prop with a 20-inch one and increased the pitch from 12 to 13 inches. Nuts at the bottom of the rudder are vulnerable to being sheared.

computers on board. It's nice to be able to plug into 110 volts when you want it."

It's taken the Kellys 15 years to get things exactly how they want them. You can shower while under sail on *Sapphire* because they moved the water heater up near the shower. They also made storage modifications, like cutting out the bottom panel under the dresser. That provides a large storage area below.

"Every time we meet another Bayfield owner, we get one or two ideas," Doug says. One in particular

There have been some other minor problems, too. The boat developed some small blisters along and below the waterline. They sanded them out and used VC tar and VC-17.

Until two years ago, the boat was kept in the water except for two days a year when the bottom was painted. Lately, they have noticed little toerail leaks. Sometimes it leaks inside the liner, and sometimes on the outside.

Cupboards can pop open when the contents hit the latch from the inside. They installed thumb latches on the outside to prevent that.

All the Bayfields have their original trailboards stripped off by the first big wave they hit because the factory let the trailboards stick down a little past the fiberglass, according to Doug. "The water hits that overhang and just takes it right off," he says. Even when they made them the right size, the trailboards would still come off, because the bow would come down so hard that when it hit the water, the pressure would go in the crack and split them out. "All you have to do is run a solid bead of silicone along the bottom and then put the trailboard on so the water can't get in," Doug says, "and it solves the problem." He has the patterns and forms for making trailboards. They're also available from Gozzard's shop in Goderich, Ontario (see sidebar for more information).

The Kellys feel that the best feature of the boat is its comfort and the compliments they get. "Bayfields have been all over the world," Carol says. "We know of two or three of them that have turned turtle and sailed on." What better recommendation could you get?



Minor problems

Bayfields have beautiful six-unit skylights. They all leak, according to Doug. The silicone sealer pulls away from the glass in cold weather. The next spring, the windows leak. "There's an easy way to fix that," Doug says. "I took a router, cut a little round channel around the bottom and inserted 'O-ring spaghetti.' This is the same stuff that goes in screen doors. It worked like a charm."

Ken Miller has been cruising for more than 17 years. Beginning with a 19-foot Mirage with two holes in the bottom, Ken progressed through several boats to his present 34-foot Tartan. Each was in poor shape when he bought it and was restored to safe running condition for cruising.





Ted Gozzard at work in his office at North Castle Marine.

Gozzard magic lives on

H ("Ted") Gozzard, designer of the Bayfields, began his own boatbuilding business when he left the Bayfield organization. His second company is North Castle Marine in Goderich, Ontario, a mere 15 miles from the town of Bayfield, both on Lake Huron. North Castle Marine has been making expensive, high-quality boats long enough for many of its products to qualify as good old boats. It's hard to believe that such an unpretentious plant could produce some of the best boats in the world.

When I visited, several people were at work in the lofting and fiberglass area. Two were climbing around inside a two-part, fiberglass mold for the Gozzard 36, and another worker was cutting balsa core to size. The material is end-grain balsa wood cut into blocks about 3/4-inch thick and 2 inches square. This is glued onto fiberglass cloth in large sheets. When saturated with resin and sandwiched between built-up layers of fiberglass, it produces a hull more than 1-inch thick and immensely strong. I once owned a Douglass & McLeod 22 with a balsa-cored hull, that fell off its cradle shortly before I bought it. It suffered only cosmetic damage from the pavement. I like balsa-cored hulls.

As we looked around, Gary Ferguson, who was the sales manager, described what Gozzard can build here: anything you want. He pointed to a large plywood construction hanging on the wall. "That's our lofting floor," he

said. "We can loft any set of plans and custom-build whatever boat you want."

In the next room, a deck hung in the air next to a hull without a deck. Three people were working on the underside of the deck. The final fit of that critical hull-to-deck joint was being custom-crafted. All of the interior of the hull had already been installed. If you ever wondered how they got all of the

equipment into your boat through that little hatch, now you know: they didn't. It was all put in

before the deck was installed. No wonder repairs are so difficult and cramped.

There were several other boats in this last room. Two were sailboats, one was a large trawler. They were in for repairs or renovation. This repair work kept the business going during the last recession. Now, new orders are keeping them busy.

One of the problems boatbuilders are experiencing nowadays is locating wood suitable for brightwork. One Michigan boatbuilder ordered a whole load of mahogany from the Philippines, and fully half of it was usable only under the waterline or on boats that were to be painted. Teak is even worse. The Gozzard plant can't get teak that will meet their standards for finish work. They solved the problem by using cherry. It is a North American wood and thus more available. It makes the interiors of Gozzards unique and beautiful.

The high point of the trip was the opportunity to meet Ted Gozzard. He

says he is located in Goderich for one simple reason: It is his home.

Goderich has everything needed for custom boatbuilding: an industrial park, good roads for shipping, and a deep harbor. They have built and launched boats up to 70 feet there.

Ted designs his boats right there in the office. There was a concept drawing of a new pilothouse cruiser on the board when I was there. He said that the market for Gozzard boats is retirees, people who could buy waterfront condos, but who want a little more adventure. Perhaps they still play golf, they've raised the kids, had all the storms at sea they want, and are ready to settle down to comfortable cruising. He offers

North Castle Marine

P.O. Box 373
197 Huckins St.
Goderich, ON N7A 4C6
Canada
Web: <<http://www.gozzard-yachts.on.ca>>
Phone: 519-524-6393.

several models of sail and power yachts for them.

Gozzards are not Bayfields; far from it. They are new designs. But they keep many of the elements that Ted used in the Bayfields. He still tricks you into thinking that these creations of modern material science are traditional boats. Don't you believe it. What he has done is take his early designs and cause them to evolve into something magnificent.



Bayfield: bluewater boater

Over the years, from 1974 to 1990, Ted Gozzard designed and built 10 or more different production sailing-yacht models, ranging from the Bayfield 23 to the handsome Bayfield 40. I must admit I was quite shocked when I first saw the boats, as their prominent feature was an exaggerated bald clipper bow, complete with trailboards, but without a bowsprit.

A clipper bow *without* a bowsprit! This is simply not done, old boy! But it *was* done, and it proved to be a very successful line with many boats built in all the various sizes. Still, being a traditionalist, I have to admit that the 32-C and the 40, both having bowsprits, are far and away the most attractive designs of the entire series, to my eye.

With the exception of the shorter keel on the 23, the line is characterized by full-keel underbodies of rather shoal draft. They certainly will not point to weather, compared with a deeper-draft fin-keel yacht, and the increased wetted surface will reduce light-weather performance. However, the keel area is large enough to keep leeway moderate; the boats will have good directional stability; and the shoal draft will let the cruising man poke the bow into many pretty gunkholes forbidden to the deep-draft crowd. There is much to be said for that last advantage.

One other advantage of shoal draft rarely mentioned is that, in the ultimate storm, the boat is less likely to be capsized than a deeper-draft yacht is. The shoal-draft vessel is more likely to be shoved sideways when hit beam on by a steep, breaking sea, whereas the keel of the deep-draft boat tends to dig in, and then the boat is

rolled by the sea. Combined with her very good capsize-screening formula number, the Bayfield 40 would seem to be a truly excellent choice for the serious bluewater cruising skipper.

You will find that the sail-area figures noted in the comparison below do not agree with those advertised or published elsewhere. It is apparent that the advertised figures are not for the main and 100-percent foretriangle but are the actual area of the mainsail and the headsails. With a double headsail rig, this gives quite a misleading impression. The jib and jib topsail together may have as much or more area as a sloop's large genoa, but they are never as efficient, particularly to windward. My sail-area figures are for the main and 100-percent foretriangle and may not be exact, as they were scaled from very small prints, but they are close enough for comparative purposes and will give a better idea of potential performance.

In any case, the sail area of the Bayfields is on the generous side, with the exception of the 30-32, and the boats should move along very nicely even in a light breeze. It is probable that the 32C with its bowsprit was created to increase the sail area of the

30-32 model in order to improve light-air performance.

Of course, with generous sail area, it is desirable to have solid stability to keep the yacht on her feet when it breezes up. That should not be a problem as the boats have good, but not exaggerated, beam and, particularly in

the larger sizes, excellent ballast ratios. With their long keels, it is also probable that

the ballast is well spread fore-and-aft. This will help to lower the center of gravity, despite the shoal draft, and thus add even more to stability.

I was pleased to see that the larger boats all feature a keel-stepped mast. This setup is much stronger than a deck-stepped mast and, in the event of rigging failure, the keel-stepped mast usually breaks at the spreaders. This leaves a stub still standing that can provide the basis for a get-home jury rig. While yachts with deck-stepped masts have sailed all over the world, I still feel that the keel-stepped mast is a desirable feature in an offshore cruiser, such as the 40.

There is no doubt that the Bayfield line was designed for the cruising sailor and, if you can live with that bald clipper bow, the boats will serve very well indeed for the coastal cruising

by Ted Brewer

Bayfield model	25	29	30-32	40
LOA	25 ft. 0 in.	29 ft. 0 in.	32 ft. 0 in.	45 ft. 6 in.
LWL	19 ft. 8 in.	21 ft. 9 in.	23 ft. 3 in.	30 ft. 6 in.
Beam	8 ft. 0 in.	10 ft. 2 in.	10 ft. 6 in.	12 ft. 0 in.
Draft	2 ft. 11 in.	3 ft. 6 in.	3 ft. 9 in.	4 ft. 11 in.
Displacement	4,300 lb.	7,100 lb.	9,600 lb.	21,000 lb.
Ballast	1,500 lb.	3,000 lb.	4,000 lb.	8,200 lb.
Sail area, 100% fore	312 sq. ft.	412 sq. ft.	424 sq. ft.	784 sq. ft.
Bal/displ ratio %	34.8	42.3	41.7	39
Displ/length ratio	252.2	308	341	330
Sail area/displ ratio	18.87	17.84	15.02	16.48
Comfort ratio	19.4	20.7	24.8	33.6
Capsize number	1.97	2.11	1.98	1.74

ts with shoal draft

family. However, if your aspirations include sailing the oceans to far-off ports, then a Bayfield 40 in particular deserves serious consideration. Her layout is unusual, but it looks to be very workable for the liveaboard couple. More importantly, the other

features of the design definitely spell out “serious bluewater cruiser” — long keel, moderate beam, shoal draft, husky displacement, good ballast ratio, versatile ketch rig. The Bayfield 40 has it all and is handsome enough to deserve admiring glances everywhere she sails.



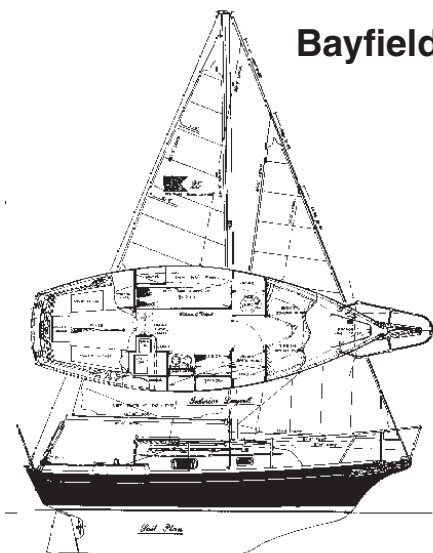
Ted Brewer is one of North America's best-known yacht designers, having



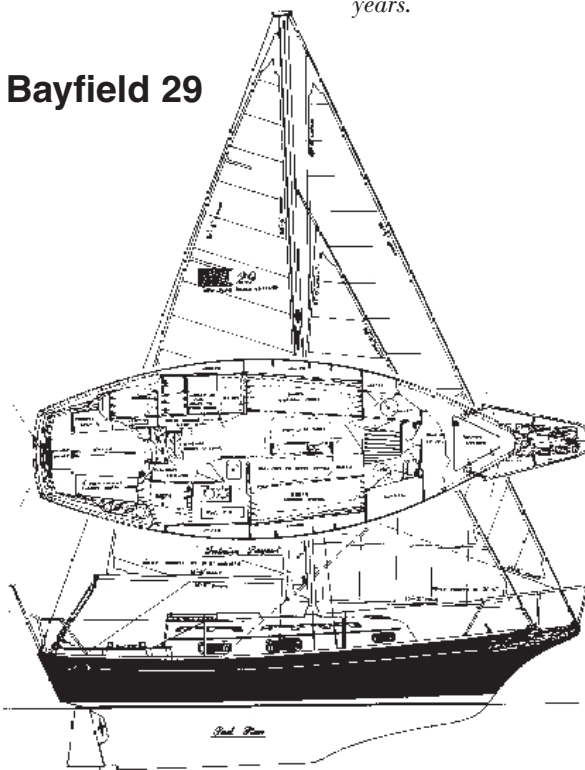
worked on the America's Cup boats American Eagle and Weatherly, as well as boats that won the Olympics, the Gold Cup, and dozens of celebrated ocean

races. He also is the man who designed scores of good old boats . . . the ones still sailing after all these years.

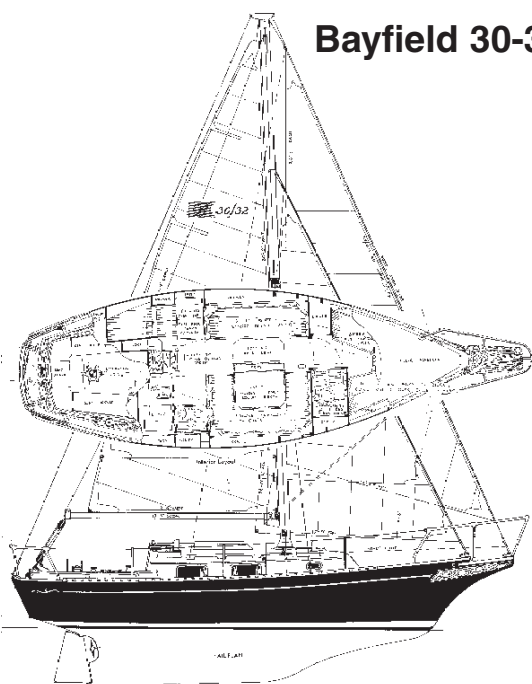
Bayfield 25



Bayfield 29

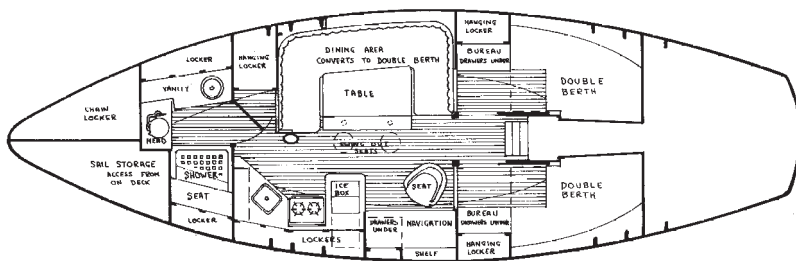


Bayfield 30-32



Line drawings courtesy of *Mauch's Sailboat Guides*,
P.O. Box 32422, Jacksonville, FL 32422,
<<http://www.mauchs.com>>

Bayfield 40



Build a one-off holding tank

Like most good old boats, *All Ways*, my 28-foot Pearson Triton, was built with an overboard discharge marine head. Since my favorite cruising area was recently declared a No Discharge Zone (NDZ), installing a holding tank became an important priority in my refit. The previous owner had installed a 2-gallon plastic "tank" that fulfilled the law but was of little real use. (He bragged that he never had an odor problem since the tank had never had sewage in it!) I wanted a tank that was large enough for at least several days for two of us.

My first step was to research the proper design and installation of a marine sanitation device (MSD). That

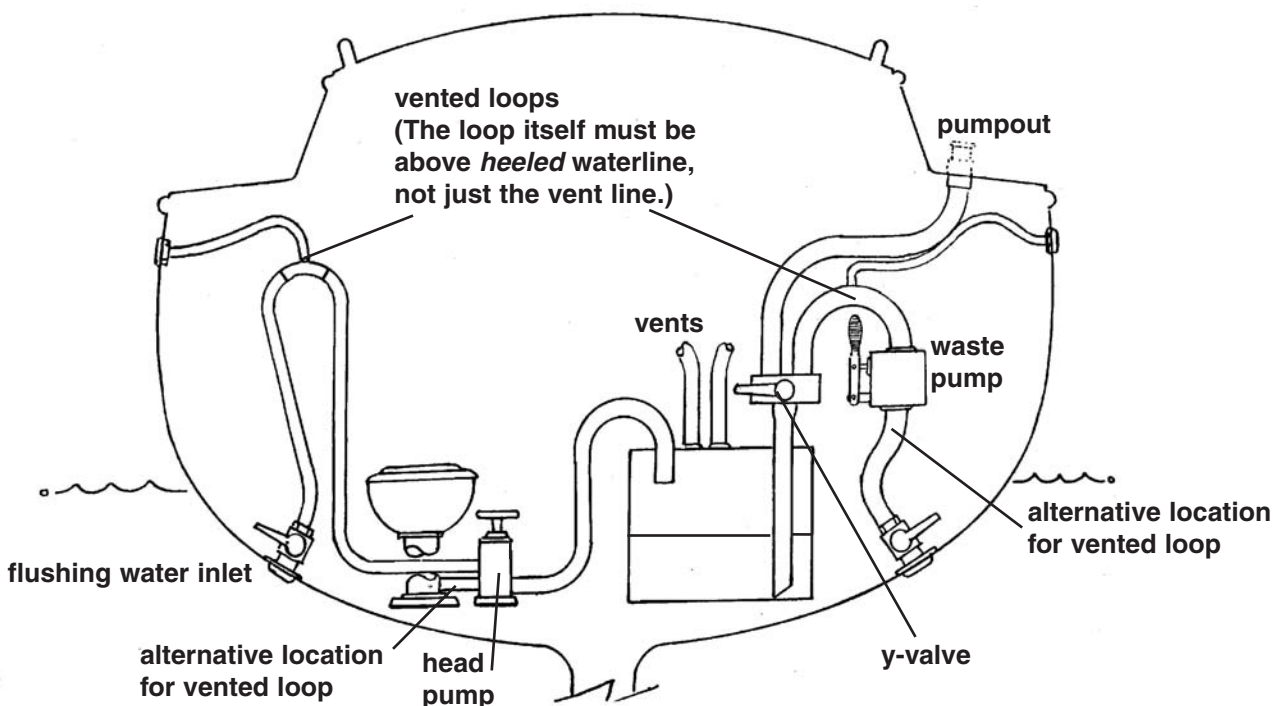
search led me directly to Peggie Hall of Peal Products and her publication, *Marine Sanitation: Fact vs. Folklore*. For a free copy, contact pegghall@worldnet.att.net. It is easily the clearest, most concise discourse I have ever seen on the subject. Peggie is also a good source of information. She's a frequent contributor to the rec.boats.building newsgroup and answers email questions. Her company sells a huge variety of rotomolded polyethylene tanks to fit many installations.

Location

Unfortunately, even after Peggie faxed me several pages of dimensions, we could not find one that fit perfectly in

the V-area of my forward berth. A review of options available from Defender, West Marine, and BOAT/U.S. yielded far fewer choices and still nothing that really fit. I decided to build my own one-off fiberglass holding tank. Here is the thought process that went into my final choice. I wanted:

- *As large a tank as practical.* (Initial calculations suggested 35 gallons, but I finally decided on 20 gallons as a minimum.)
- *To keep the head-to-tank hoses as short as possible.* (To aid in odor prevention, you should pump the discharge line dry after each flush. The longer the hose, the more water it takes to flush the line, and the quicker your tank fills up.)



Note: Vented loops are shown on the suction side of both pumps. This can cause cavitation and loss of prime in some cases. The loops may be put on the discharge side of either pump to prevent this, however loop valve failure will cause the vent to discharge fluid. Take your pick.

Caution: Some enforcement authorities may object to the Y-valve. They may require that signs be posted or that it be locked in the no-discharge mode in no-discharge zones. Enforcement is not consistent.

- *To have as little negative effect from the weight as possible on vessel trim.* (Ideally this would put the holding tank in the bilge, however midline, and not in the bow, was a reasonable compromise.)
- *To avoid odor at all costs.* (Following Peggie's recommendations, this meant two large-diameter vent lines, one forward to the bow and one aft by the discharge line to create cross ventilation.)
- *To make use of the V-berth area.* I had already decided to make the V-berth into a large double bed. Therefore the area underneath was available. The area was a rectangular trapezoid, 31 inches wide at the base, 20 inches at the top, 21 inches long, and 20 inches high. That calculates to 35 gal. Allowing for space at the top for hose access drops the height to 16 inches which, allowing for wall thickness, yields a 32-gallon capacity.

Other choices considered and rejected included:

- *Behind the head* (An excellent article in *BoatBuilder*, XIV:6 details such an installation) — too small.
- *In the forecabin* — too far forward for weight, difficult to work in.
- *Under both sides of the V using flexible bladders* — plumbing complex (two tanks) and concerns about odor in flex tanks.
- *In the hanging locker opposite the head* — plumbing complex (hoses need to cross midline of boat — no place to do that).
- *Under the port berth* — unbalanced location, marginal size.

Plumbing and materials

Having decided on the location, the next issue was plumbing. The West Marine catalog has a nice set of diagrams showing the various options for plumbing a marine head. Given that most of my cruising would be in an NDZ, I chose to route all

discharge into the holding tank but to maintain the option of emptying the tank overboard when beyond the three-mile limit. That yielded a relatively simple design with only one Y-valve as shown at left.

The final decision was construction of the tank. I elected to use a pure fiberglass construction with polyester resin (refer to sidebar on Page 55 regarding the safe use of polyester resin). I rejected epoxy over plywood because I just did not trust it to remain laminated. (Polyester over plywood was out of the question.) I also rejected epoxy/fiberglass as much more

expensive. Plus, I had some resin, mat, and roving left from my

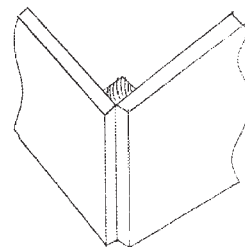
deck repair and was comfortable working with it. The only real drawback to polyester compared to epoxy for one-off construction is that you cannot use foam to construct your plug, as the resin will dissolve the foam. Since this was a truly one-off construction with no thought of ever making a second, there was no need to construct a durable plug. I decided to make the plug out of drywall (also known as Sheetrock). It is cheap, easy to work with, and easy to destroy. The corners can be nicely rounded using joint compound ("mud") and tape.

The plug

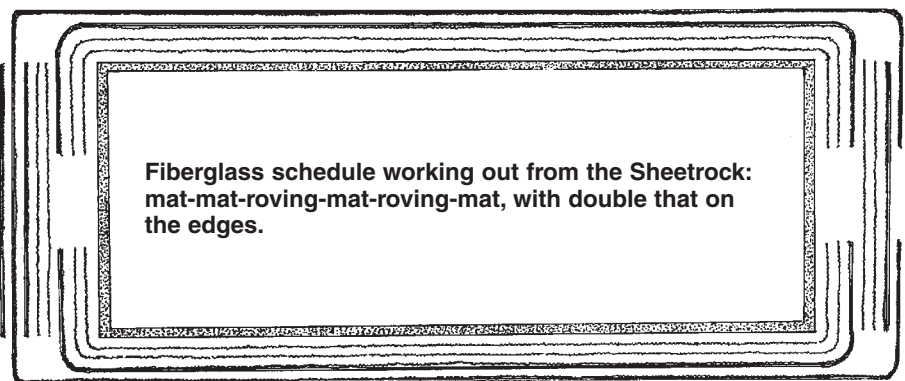
To build the plug, first determine the outside dimensions of the final tank (allow clearance inside your space).

Before proceeding, be sure the finished tank will fit through the companionway and any doorways necessary to install it. In getting the angles right for the trapezoid, I first cut a pattern from cardboard. Using a rectangle and two triangles, I maneuvered them into place and taped them together fixing the final shape. Using this as a starting point, I calculated the dimensions of the plug. The following calculation derives the inside dimensions of the panels. I subtracted 1/2 inch from each outside dimension of the cardboard mockup to allow for 1/4 inch wall thickness all around. Because I was using 1/2-inch drywall, I subtracted another inch for the thickness of the panels making the plug.

I did this to all dimensions because I did not want the sides to overlap the top. (See detail in figure above.) I added 3 inches to the height. This allowed me to cut the finished tank apart, remove the plug, taper the edges, and reassemble the tank. I cut out the panels and assembled the plug using softwood nailing blocks on all corners. If you are making a trapezoid like mine,



by Mark Parker
photos by Kim Parker



———— mat
———— bply (mat and roving)
———— Sheetrock

MARINE SANITATION DEVICES



Tank with mold inside shows framing and corners.

this will require ripping some of the blocks to the proper angle. This is easily done on a table saw (set the top on the table and tilt the blade to match), but could also be done on a band saw or even with a hand plane — great accuracy is not needed. I used a Sureform rasp to round all edges, eliminating the corner at each edge.

The resulting radius should be covered with “mud” and tape, smoothing it with your hand. Remember, this is the inside of the tank. No one will see it; it just has to be smooth enough to release well. Test fit your plug before proceeding, remembering that the actual tank will be roughly 1/2 inch larger overall. Paint the plug with primer, and apply two coats of auto polish, buffing each coat out. The wax acts as a release agent.

One of the nice things about working with polyester is that as long as you do not use finishing resin (which contains wax), you get a chemical bond between layers even if you don’t work

“wet-on-wet.” There is no amine blush to worry about and no sanding between layers.

The tank

Cover the bottom with two layers of mat (1.5 oz.) and a layer of bply (24 oz. roving with 1.5 oz. mat attached) wet-on-wet, with roving to the inside and mat to the outside, and let it dry at least to where it can be handled. The fiberglass should be folded over the edges about 2 inches. Apply the same schedule to the top. You can either let this dry or proceed directly to the next step, depending on your comfort with working on a vertical surface. Wrap two layers of mat and a layer of bply around the sides in one continuous length, staggering the seams. If the top is still wet, this must be done vertically but it really is not that hard, just messy. (Be sure to wear long sleeves and good gloves in addition to your respirator.) If you elect to let the top dry first, the plug can be turned on its side and rotated while three of the four sides are applied, then turned back upright to apply the fourth. Of course, you will have to repeat the process three times to get all the layers on. I am not sure this is really easier — I did it the first way. Apply another layer of bply to the top and bottom (waiting for one to dry before turning it over), again overlapping 2 inches.

A note on fiberglass schedules (refer to diagram on Page 53): The double layer of mat on the inside is necessary to ensure that the tank will be waterproof. My finished tank has a schedule of mat-mat-roving-mat-roving-mat with double that on the edges. It is about 1/4 inch thick and nearly bomb-proof. You can certainly use alternative schedules; the important features are the double layer of mat on the inside and a layer of mat between layers of roving to ensure good bonding. Cloth or non-woven bi- or tri-directional fiberglass could be used, but cost significantly more and are not needed in this application.

Smash dry wall to remove it.

The fun begins

Measure down 3 inches from your 2-inch overlap, and draw a line all the way around the tank. Using a circular saw with a carbide blade or a jigsaw with a fiberglass blade, cut the tank in half along this line. Remove the plug. Unless you did a better job of waxing the plug than I did, this will involve smashing the drywall and peeling it off the fiberglass in pieces. (A trick that I learned *after* this project is to coat the plug at the last minute with no-stick cooking spray just before applying the laminate. I am not sure if it would allow



Finished tank before installing connections.

the plug to pop out intact, but it is worth trying.)

Now is the time to install a baffle if you want one. It can be fiberglass or coated plywood since the worst that will happen is that it will slowly decay, leaving a tank with no baffle. Paint the interior of the tank with primer and gloss enamel to make it easy to keep clean. Leave a 3-inch band unpainted on the lip of the top.

Sand or grind (a 7-inch right-angle grinder does a great job here, but a belt sander works) a 3-inch scarf on the inside of the top and the outside of the bottom. Great accuracy is not needed; just draw a reference line at 3 inches to start and taper to a feather edge. Wet out the scarf with straight catalyzed





Finished tank installed with connections at the top.

resin. Make a glue by adding chopped fibers (easily made by cutting your scraps into 1/4-inch pieces) to the resin, apply this to the joint, and assemble the two halves of the tank, smoothing the squeezed-out glue with a putty knife. Be sure to tap the top into place until it is parallel with the bottom. Wrap another layer of bipy around the sides of the tank. If you want a non-tacky finish, you can either use finishing resin for this step or wrap the tank in plastic wrap while it dries. The top and bottom can likewise be coated with finishing resin or with plain resin and covered with plastic, but this is entirely optional.

Test fit the tank again. (It had *better* fit!) I had to grind the lower corners a bit as the overlaps created a total thickness of more than 1/2 inch. With the tank in place, mark locations for the clean-out, vent lines, and sewer lines. I used a 5-inch clean-out, 3/4-inch thru-hulls for the vent lines, and 1 1/2-inch right-angle elbows glued into flanged fittings I got from an RV outlet for the sewer connections. (1 1/2-inch thru-hulls stood too high.) Remove the tank, cut the necessary holes, and install the clean-out and fittings using plenty of 5200 sealant. (Make sure you can reach the underside of each fitting through the clean-out before cutting the holes — you may have to relocate something to accomplish this.) You may want to place the tank in the boat before setting the final direction of the

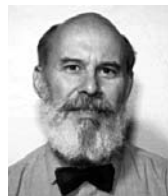
placement. You probably want the vent lines and discharge into the tank to be near the centerline of the boat so that they are not submerged on either tack, but the pump-out can be at the most convenient corner.

Installation

Finally, install the tank permanently in place, being sure it is blocked securely so it cannot shift or rub underway. I used some of the urethane foam-in-a-can that is sold for caulking to create an exact fit along the edges. Attach all hoses securely, double clamping below the waterline and including a vented loop if necessary. Now go cruising in your good old boat and enjoy the independence of a truly custom marine sanitation system!



Mark Parker, M.D., is director of the Emergency Care Center at The Cheshire Medical Center in Keene, N.H. He's been sailing since college — Sunfishes, Lasers, Hobie Cats. His work on a 16-foot trimaran, a "work in progress," was temporarily sidelined when the Pearson Triton, Always, received a higher priority rating. Mark sails with his wife and family in Narragansett Bay. Kim, the photographer is Mark's daughter.



Play it safe

Being an ER doc in real life, I have perhaps a greater than average concern for the toxicology of the chemicals we use in working on our good old boats. It turns out that both epoxy and polyester resins are potentially very dangerous — but in entirely different ways. The dangers of epoxy resin are well addressed in the Gougeon Brothers' *On Boat Construction*. Put in the simplest terms, **epoxy** in liquid form is dangerous if you get it on your skin. It is *not* dangerous to breathe, as it gives off no volatiles. Therefore, when working with epoxy resin, you must wear

by Mark Parker

gloves and long sleeves at all times, but (contrary to popular belief) you do not need a respirator. Epoxy dust, however, *is toxic* if inhaled, so you should wear a particulate respirator whenever sanding or cutting epoxy.

Polyester resin, on the other hand, *is very toxic* if the volatile gases released during cure are inhaled. (I use the generic term polyester to refer to both isothallic and orthothallic polyester as well as the slightly different vinylester.) Breathing even relatively small amounts can cause permanent brain, kidney, and/or liver damage. It is, therefore, mandatory that people working with polyester resin wear respirators rated for organic vapors. These are the canister types that usually have charcoal filters which must be changed periodically. A good rule of thumb is: if you can smell it — *don't*. Change your respirator, get better ventilation, or do something so you cannot smell the polyester, and you should be safe.

Given an understanding and respect for the differing toxicities, both epoxy and polyester can be used safely, and each has its advantages and disadvantages. Epoxy is a much better

Consider a stitch

glue; it sticks (bonds mechanically) to things better than polyester. Once it is cured, however, subsequent coats must rely on secondary (again, mechanical) bonds. In contrast, polyester can bond chemically to itself — regardless of the time lapse. This obviously results in a stronger bond. Epoxy is more flexible than polyester. This can be an advantage or disadvantage, depending on your application. The rate of cure of polyester can be adjusted by the amount of catalyst added; epoxy resin and hardener must be mixed in a fixed ratio with the rate of hardening determined by the particular hardener chosen. You can use fiberglass cloth or roving with either resin, though the more exotic fibers (kevlar, carbon, etc.) are usually coupled with epoxy because their properties are more complimentary. You must *not*, however, use mat with epoxy, even though I have seen other authors recommend it. The binder in mat is dissolved by the styrene in polyester, but will be unaffected by the epoxy. Therefore use with epoxy will result in incomplete saturation and very weak laminate.

An excellent source of information on the pros and cons of epoxy and polyester is LBI, Inc. of Groton, Conn., (800-231-6537). They sell epoxy and polyester and have years of experience with both. Their catalog is informative, and the owners will answer any questions and make recommendations regarding choosing between epoxy and polyester for a given project. Of course, the Gougeon Brothers' technical department is very knowledgeable and anxious to answer any of your questions about West System epoxy. They may be somewhat biased, however, as they neither make nor sell polyesters. The same can be said for System Three which publishes a very entertaining and informative booklet on using epoxy but does not deal with polyester.

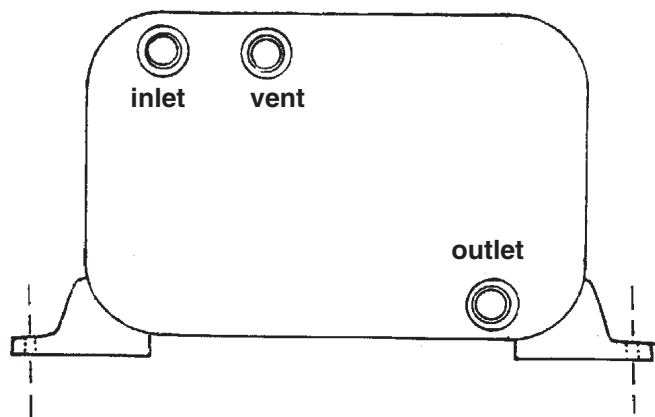


When you purchase an older boat, it's inevitable that some things will need to be changed, repaired, or enlarged. Holding tanks are often on the list of things that must be added or enlarged. An older boat may lack any holding tank at all, and many newer boats have tanks that are too small.

There are a number of commercially available tanks listed in boating catalogs, however these may be in shapes that don't use the available space on your boat to its best advantage. And it may be expensive to have a custom tank made for your boat. If you like working on your boat and have the time and inclination, you can make your own holding tank. Tanks of a wood/epoxy composite have been used successfully for many applications.

The first step in designing and building a holding tank is determining its location. Several criteria are obvious. The holding tank should be located close to the head. It should have a fairly direct route for the hoses to run from the head to the tank and from the tank to the deck pump-out fitting. Ideally, the tank should be as low as or lower than the head. You will have fewer odor problems if you can avoid waste collecting in the hoses. If you have to pump the head uphill to reach

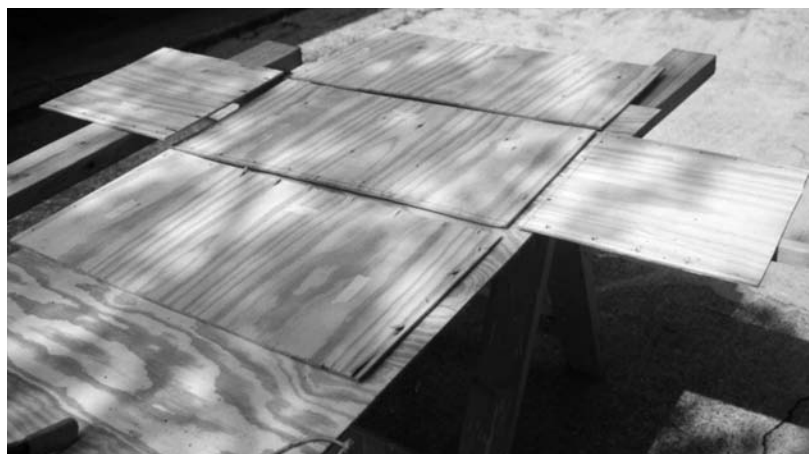
the holding tank, the chance of waste remaining in the hose is greater. Another criterion is accessibility. After you have constructed it, you have to be able to install the tank in the area you choose. This area can be any shape. Available spaces in boats usually have



sides and edges of varied angles. This is what makes commercially available tanks so inefficient in using your space.

Make a mock-up

The next step in designing your tank is making a mock-up of it. Using cardboard from an old appliance carton and a roll of duct tape, make a full-size model of the tank. Rough dimensions and angles can be figured with a ruler and bevel tool. When making the tank

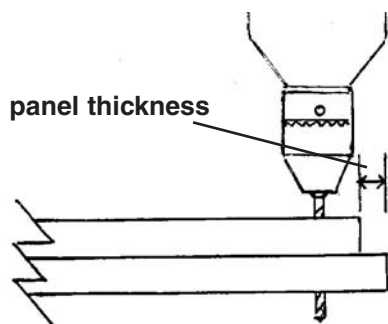


-and-glue holding tank

model, be sure to determine where the inlet and outlet hoses will be located and leave room for routing them to their destinations and attaching the hoses and hose clamps after the tank is in place.

Also leave room for the vent hose at the top of the tank. The inlet hose should connect to a 1 1/2-inch thru-hull at the top of one side of the tank. The outlet hose should connect to a 1 1/2-inch thru-hull at the bottom of one side of the tank. The vent hose should be at least 5/8-inch with an appropriate thru-hull in either the top of the tank (ideal place), or on one end as high as possible.

Once the model is constructed, you are satisfied that it is going to fit, and it

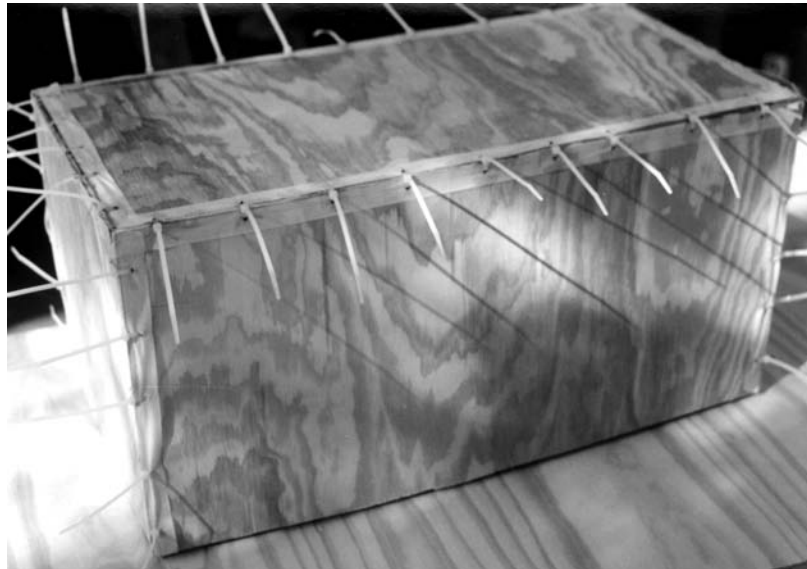


is the most efficient use of the area selected, you can begin construction. For tanks in the 20- to 30-gallon range, purchase a sheet of 1/4-inch exterior BC-grade plywood (the type with one smooth side). For an estimate of tank size, use the formula for rectangular tanks: U.S. gallons = $H \times W \times L / 231$. Take your mock-up model of the tank apart, and use the pieces as patterns for your tank. Mark your tank pieces on the sheet of plywood, making sure the smooth side of the plywood is to be the interior of the tank. After the pieces are marked on the plywood, cut them out using a sabre saw. It might be wise to label the pieces.

Using a 1/8- to 3/16-inch drill bit, drill holes along all the edges of the pieces about 1/4 inch from the edge, 1 1/2 inches apart except for the edges of the sides adjacent to the top and the edges of the top of the tank. When drilling the holes, place pieces that will be adjacent together and drill through both of them so the holes will be aligned (*see illustration at left*).

Now assemble the tank by stitching the pieces together using heavy monofilament fishing line or small nylon wire ties, which are my preference. Before stitching the pieces together, place a strip of 1-inch-wide masking tape along the outside edge of the pieces covering the holes. This will prevent the epoxy from leaking through when gluing. When stitching the pieces together, leave the knots or clamps of the wire ties on the outside of the tank where they can be cut off later (*see illustration "a" on Page 58*). After the tank is stitched together, except for the top, which is completed last, use scrap blocks of wood to prop the tank on newspapers, arranging the joint you want to work on first with its apex down (*see photo on Page 59*).

There are a few precautions to observe when working with epoxy. Although the fumes from epoxy resin are not as pungent as those from polyester resin, you must have proper ventilation. Use disposable latex gloves



and wear an old long-sleeved shirt. Most marine catalogs carry the necessary supplies.

Mix epoxy resin and hardener and, using a disposable acid brush, paint the area along the interior edges to approximately 3 inches from the joint. Now add some West System 406 filler to the epoxy/hardener mix to make a

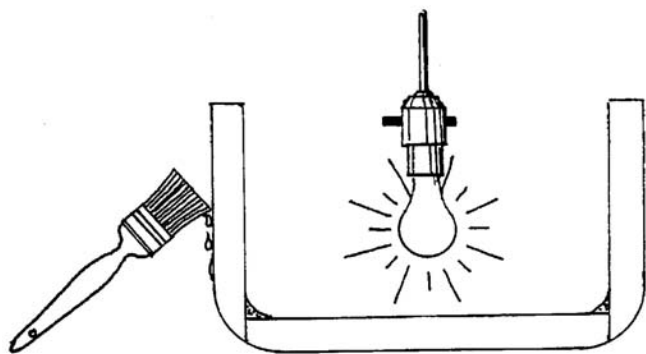
putty of mayonnaise consistency and, using a tongue depressor, work it

into the joint on the inside of the tank. Note: depending on the temperature, do not mix up more epoxy/hardener than can be used in 8 to 10 minutes as it will "kick" before it can all be used. The putty mixture should extend about 1 inch on both sides of the joint and cover the stitches.

Now, cut a piece of 4-inch wide fiberglass tape the length of the joint. Lay this tape over the putty, and extend it up on both sides of the tank. Using an acid brush, thoroughly wet out the tape with an epoxy/hardener mix with no fillers. Repeat this process with all the interior edges of the tank, turning

by Norman Ralph

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the tank as you work with each joint. When the epoxy has kicked, cut the monofilament line or wire ties using a pair of diagonal pliers and remove the masking tape on the exterior of the tank.

Sand the area, and round the edges and corners into a smooth radius. Turn the tank upside down and, using an acid brush, paint an area 3-inches wide along the exterior corners with epoxy/hardener mix. Now lay a piece of 4-inch wide fiberglass tape over the joint, wet it out with epoxy/hardener

mix, and squeegee out the trapped air. Allow this epoxy to harden before proceeding.

Next, cut pieces of 6-ounce fiberglass cloth to cover the interior panels of the tank. Cut these pieces to overlap the 4-

inch wide tape on the interior corners. Sand the rough edges around the interior joints and wipe down with a Scotchbrite pad and water to remove the dust and any "blush" on the cured epoxy. This blush is a film that forms on the surface of epoxy when it cures. It is water-soluble and washes off easily. After the surface has dried, wet the interior of the tank with epoxy/hardener mix, using an acid brush or a 1- or 2-inch disposable paintbrush. Lay the pieces of fiberglass on the interior panels of the tank, wet them out, and

squeegee the panels to be sure the cloth is fully saturated and trapped air is removed. While laying the cloth on the interior of the tank, also put a layer of cloth on the piece of plywood that forms the inside of the top of the tank.

For rigidity, add one or more baffles to the interior of the tank. Cut a piece of plywood that will fit snugly across the width of the interior of the tank. It should be cut so that when it is

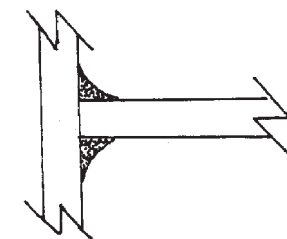
in place there is at least a 1-inch clearance on the top and 2 inches of clearance on the bottom. This is so waste will not hang up in the tank. When it is in place, lay the tank on its side and work in a mixture of epoxy/hardener with filler into the joint in a 1-inch radius fillet on both sides of the baffle and tank. Cover this joint with 4-inch fiberglass tape. The baffle can be covered with fiberglass cloth either before or after it is epoxied in place, making sure the edges are saturated with epoxy and covered with the cloth.

The interior now gets a minimum of 20 mils of

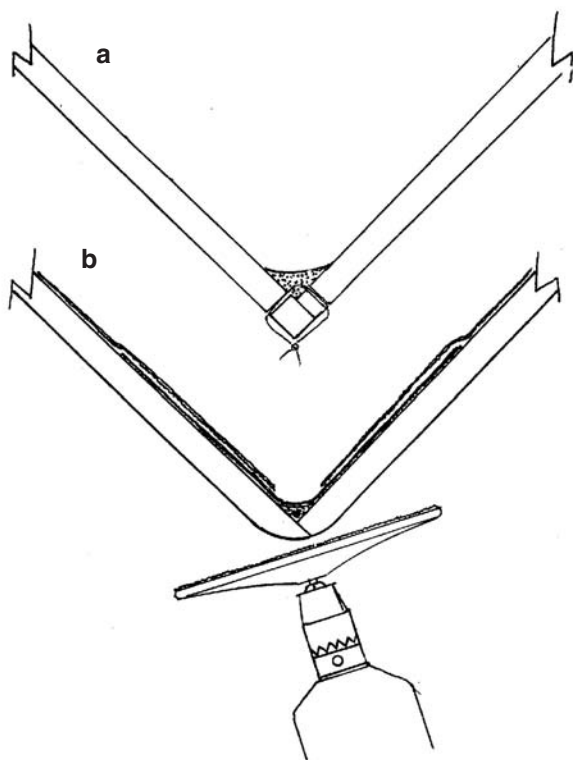
epoxy barrier coat. This translates into at least six coats of epoxy rolled on the

interior surfaces with a foam roller and brushed out to remove any air bubbles. The interior should be kept warm with a fairly high wattage incandescent light bulb while the epoxy cures. This will ensure that there is maximum cross-linking and curing. Watch out for any potential fire hazard. Also apply the barrier coat to the inside of the piece for the top of the tank.

The outside of the tank does not need to be covered with cloth but should be given a coat of epoxy/hardener mix to protect it from abrasion. Additional abrasion protection can be achieved with a layer of cloth, but it is optional depending on the location of the tank. If the cloth is added, it should be done before the thru-hulls are installed.



Baffle/joint detail.



- a. Fillet covers stitch in corner. Leave tie knots on the outside.**
- b. Cover the corner with cloth. Overlap cloth with cloth from panels. Round outside corner.**



tank from shifting after installation, tabs made from the plywood should be fastened to the tank with epoxy/hardener and filler added (see illustration on Page 56). These tabs should be coated with epoxy and cloth

inside. Then turn the tank so the holes are up, and thoroughly coat the edges of the holes with epoxy/hardener mix and allow it to cure. Remove the tape and — with a rasp, file, or coarse sandpaper — enlarge the hole so the thru-hull will fit. Make sure no bare wood is exposed. The thru-hulls can now be installed with a good bedding compound. If a gauge is desired, it also should be installed in the top, following the same procedure as for the thru-hulls.

You are ready to install the top of the tank. With an acid brush, coat the top edge of the tank with the epoxy/hardener mix. Then mix in a little filler, and coat the top edge of the tank again. Lay the top on the tank, making sure it is aligned. Place a weight on the top to ensure that it doesn't shift and, after scraping off any excess from the outside of the joint, allow it to cure.

After it has cured, sand the edge, rounding it into a 1/2-inch radius, as fiberglass cloth doesn't like to go around a sharp corner. Coat the top and adjacent sides with epoxy/hardener mix for about 3 inches, and cover the corner with 4-inch wide fiberglass cloth tape. Wet the tape out with the mix, squeegee out any air, and allow it to cure.

The tank is basically finished. If fasteners are required to prevent the

for added strength. Fasteners are attached to these tabs to hold the tank in place. For appearance, the tank may be painted. When installed, the hoses should have double hose clamps with top-quality stainless steel clamps on each thru-hull.

The actual construction of the tank is much less complicated than it would seem from reading this article. It isn't difficult and results in an excellent tank. Holding tanks may not be a topic you like to think about, but as more waters are declared no-discharge areas, the topic becomes more important. An excellent article on holding tanks and problems associated with them can be found on the Internet at:

<<http://boatsafe.com/shipstore/index.htm>>.


Questions are asked regarding epoxy/wood composite tanks for potable (drinking) water and fuel tanks. They have been used for both with success. However, the Gougeon Brothers (West System) does not encourage their use for potable water and gasoline fuel. The rationale is that because they cannot control the cure process to ensure the proper resin/hardener ratio and cure temperature (temperature should be several hours at 150 to 200°F) for the barrier coat, they don't encourage its use. With potable water tanks, improper

cure may possibly result in extractives in the water. In commercial manufacturing applications, this process is strictly controlled and, as a result, epoxy-lined

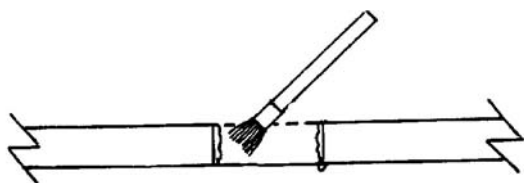
containers and pipes are used in many applications that carry the food and drinks we use each day.

Regarding fuel tanks, the Gougeon Brothers' literature is ambiguous. With gasoline tanks, the constantly changing fuel chemistry, because of fuel additives and blends, does not guarantee that in the future fuels will be compatible with epoxy coatings. However at present, there is no problem. So Gougeon does not encourage composite tanks for gasoline. Diesel fuel poses no threat to epoxy, and it is often used to repair metal diesel fuel tanks.

However, before constructing a diesel fuel tank with epoxy/wood composite, the Gougeon Brothers recommend checking with your insurance carrier regarding any restrictions on their use. Any increase in your insurance premium might offset any savings in the construction of the tank.

Holding tanks, however, have no such restrictions. In fact, the U.S. Coast Guard does not certify any holding tanks, only the head itself and its discharge into the waters. A home-built epoxy/wood composite holding tank is an excellent way to get the most tank for your space at an economical price. 

Norman Ralph, and his wife, Jeanette, discovered sailing with the help of their grown son. It worked out for everyone — they bought his boat. A trip to the Gulf Coast exposed them to the concept of year-round sailing, and they began plans for early retirement in Louisiana where the water never freezes.



Coating the inside of the thru-hull openings.

Alternatives to the cedar bucket

I recently read that relieving oneself over the leeward rail is the most common reason for men falling overboard. You can't help but wonder why this potentially dangerous practice has become so common. Maybe it's because many find the risk of falling overboard preferable to using the head.

The boat my wife and I bought to sail in a no discharge zone (NDZ) has an illegal marine toilet that pumps waste directly through the hull into the surrounding water. It was built in 1974 and hadn't been sailed in a handful of years. We bought it knowing something had to be done before launching it.

Cedar buckets excluded, the family tree of waste disposal options onboard has three main branches: permanent marine toilets plumbed to some type of holding or treatment apparatus (marine sanitation device or MSD), portable toilets, and composting toilets. The biggest branch is permanent toilets and the seemingly endless combinations of pumps and tanks.

Prudence dictates that you ready your system for compliance in an NDZ. That means having some sort of holding tank. If the waste is treated while in the tank (chemically or electrically) so that it meets standards for bacterial content and contains no visible solids, it meets the requirements of a Type I or II MSD. A Type III MSD is simply a holding tank.

Type II MSDs offer the highest level of sewage treatment. They are more complex and more expensive. The ones most commonly found on small- and medium-sized boats are Type I and IIIs.

The most common toilets have manual or electric pumps. Typically, raw sea water or water from an onboard source is pumped into the toilet. Then the water and sewage are pumped into a holding or treatment tank. Electric macerating heads also use raw water and, as the name implies, puree the mixture while flushing it.

Legally, a holding tank must be adequate for the time the vessel will have to retain sewage, be used solely to

hold sewage and flushwater, and not be used to recycle gray water or galley waste. Seamless polyethylene is recommended. Bladder tanks are probably not a good idea because of the difficulty in keeping them clean and in keeping fittings in place. Metal tanks of any kind should not be used because of the corrosive nature of urine.

There are tradeoffs in the area of pumps. If you opt for the convenience of an electric pump, make sure your electrical system can handle the load. Manual pumps may be more reliable but still require maintenance. A macerator pump grinds waste and reduces the chance of clogging.

These are usually placed between the head and the tank. If you're going to discharge, you'll need another pump after the tank.

Y-valves add to the versatility of a system. But versatility and complexity go hand-in-hand. Even if you remember to turn all the valves in the right direction will your crew? Another important piece of hardware is the vented loop. Any two below-the-waterline openings must have an above-the-waterline vented loop between them to prevent water from siphoning into the boat.

Composting heads use microbial action and evaporation to reduce human waste to a dry odorless product that can be used as fertilizer. Although many companies use the words "marine" or "boat" in their list of possible uses, I could only find two that make models specifically for use on a boat.

Incinolet's (800-527-5551) marine model boasts a vibration-resistant mounting plate and USCG certification, but also lists as a requirement 120-volt AC power. This limits its practicality on small boats.

Sun-Mar's (800-461-2461) Ecolet marine model can use both AC or DC power, has a 45-degree angle built into the rear of the base to fit against the hull if mounted athwartships, is gasketed to prevent leakage, is designed to handle violent motion, and is rated for the constant use of one to two people

or weekend/vacation use of three to five people. Sun-Mar's website posts the following caution: "Evaporation capacity on Ecolet units is limited by the size of the heater, the surface area, and the volume of air movement. Thus, although Ecolet has a large reservoir (about 20 liters), this will not be sufficient for continuous use by more than one person. Consequently, arrangements may have to be made to connect the Ecolet drains to a container or small holding tank for disposal in an approved manner." The cost of either unit is around \$1,000. Composting may

be the future of marine waste disposal but at present there are

not many practical alternatives to the MSDs common on boats today.

If the options discussed so far make your head spin (no pun intended), take heart, there are simpler solutions. The most obvious is the Porta-Potti. This is a Type III MSD. It is self-contained, easy to operate, and typically comes in 2.5- and 5-gallon sizes. It requires no installation, however the tank part has to be brought ashore to be emptied.

Sealand Technology (800-321-9886) makes a head that is a real porcelain toilet mounted on a 9.5-gallon holding tank. It is self-contained except that it uses water from an onboard source. This particular unit, like some portable toilets, can be fitted with a vent and sanitation hose to allow for pumpout.

In order to get an idea of the cost for my situation, I entered numbers into my calculator. When I finished, the words "Porta-Potti" appeared in the display, so that's what we'll install in our boat.



John Kowalczyk teaches high-school science. He and his wife, Suzanne, spend too much time working on sailboats and not nearly enough time sailing them . . . yet. They will soon be sailing a Bluewater 277 on the East Coast.



The rest of the ratios: On helm balance

As you are aware, proper helm balance is a very desirable factor on a sailing yacht and can make the difference between a craft that is enjoyable to sail and one that has a helm that would rupture a gorilla, exhausting and exasperating her crew. The ideal vessel will have about 3 to 4 degrees of weather helm and will still retain a light and easy feel to the tiller or wheel under all conditions of weather. Excess weather helm, besides being extremely tiring for the helmsman, adds unnecessary resistance and can make it difficult, or even impossible, to jibe.

Weather helm is a term that describes a yacht that sails with her tiller, or quadrant if she is wheel steered, slightly angled to the windward side of the vessel. This is a vital safety factor, as such a yacht will turn to windward, head up into the wind, and simply luff if the helm is released. With the opposite, lee helm, the yacht would turn to leeward and risk a knockdown or a dangerous accidental jibe.

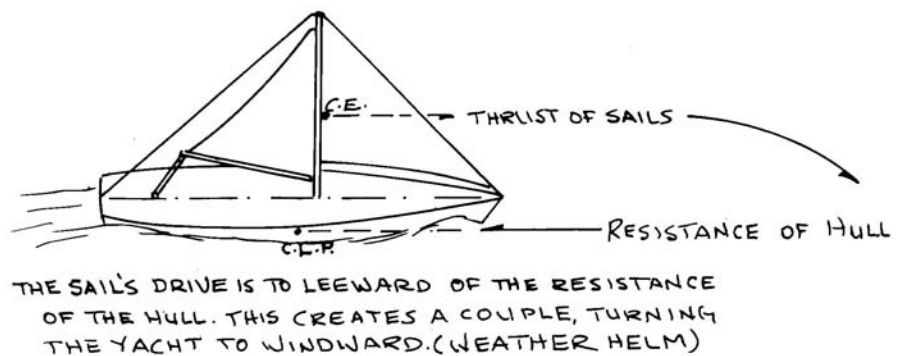
Also, having 3 to 4 degrees of weather helm improves performance. The rudder steers the yacht, of course, but it can also provide lift and reduce leeway if there is a slight weather helm, acting like the flaps on the aft end of an airplane's wing, in effect. Conversely, a bad lee helm gives negative lift, adds resistance to slow the yacht, and can make it difficult or impossible to tack.

Perfect weather helm in all conditions of wind is eminently desirable but not always possible. It is not uncommon to find a yacht with a neutral or even a slight lee helm in light air changing to a moderate weather helm as it breezes up. Such a helm is acceptable since leeway in light air is not a serious problem, nor is an accidental jibe. In any case, such a helm is preferable to having moderate weather helm in light air that increases

to a bear of a weather helm as the breeze stiffens. Of course, the helm balance will change as sails are reefed or changed down, but the experienced skipper will determine which reefed sail combinations provide the best balance as the yacht is snugged down for a blow.

It must be noted that a heavy, tiring helm can be mistaken for a strong

At first glance it might seem that the boat will balance well if the CE is directly above the CLP, in effect no lead. However, the locations of the centers are calculated from a flat sheet of paper and it is obvious that these are not the true centers of pressure of a yacht that is heeled and moving through the water. When the boat is underway,



by Ted Brewer

weather helm, yet the two can be worlds apart. If the tiller or quadrant is only 2 to 4 degrees off the centerline and the helm is still too heavy for comfort, then the cause is probably not helm balance

but, rather, a too-short tiller or, with a wheel steering system, a quadrant that is too small or a wheel of inadequate diameter. These problems are readily corrected.

Actual helm balance is governed by the lead (pronounced leed) of the rig. The lead is the amount that the center of effort (CE) of the sail plan is forward of the center of lateral plane (CLP) of the hull, and the figure is usually expressed as a percentage of the LWL. If the CE is too far aft, the lead will be small, and a heavy weather helm will result. If the CE is too far forward, the result is excess lead and a dangerous lee helm.

the CE moves forward and to leeward due to the shape of the sails, the eased sheets, and the angle of heel. Also, the true hydrodynamic center of lateral plane of the boat moves well forward of the geometric CLP when the boat is close-hauled, but moves aft as she bears off. So the true centers are not easy to pin down except by testing in tanks and wind tunnels. As a result, the designer will usually work with the geometric centers, some general rules for lead, plus his own experience and intuition when drawing up the sail plan.

Finding CLP: The longitudinal position of the CLP is simple to locate if you have a profile drawing of the hull. Copy the drawing up to the LWL on a piece of tracing paper, cut it out, crease it to stiffen it and balance it on a pin or sharp pencil. Ensure that the ends do not hang down by folding it parallel to the LWL a few times as required to prevent this. Note that it is only

necessary to locate the longitudinal position of the CLP. The vertical position is of no importance in the lead calculation, although it is necessary for stability work and masting calculations. In working out the CLP, some designers omit the rudder area, most use the forward half or third of the rudder area (me), and a few use all the rudder area. The individual designer will interpret the results based on his experience.

Calculating sail area: The mainsail area is calculated by multiplying the luff (P) by 1/2 the foot (E). The foretriangle area is the hoist (I) multiplied by 1/2 the base (J). See sketch on Page 63 for calculating the areas of individual jibs and gaff mains and mizzens.

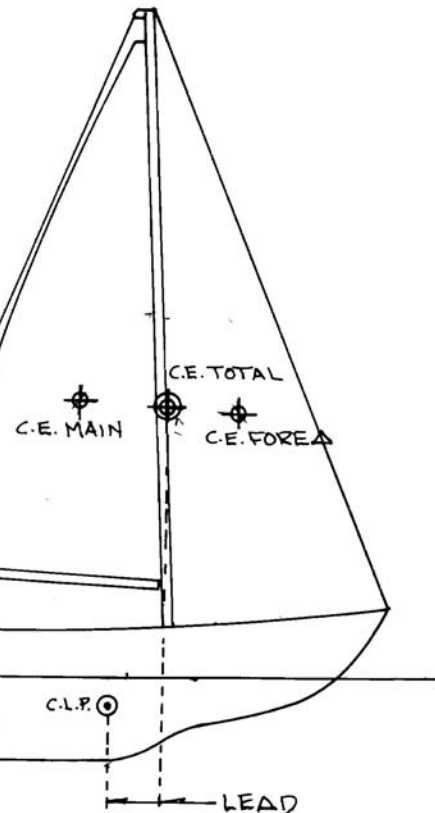
Calculating CE: To find the center of a triangular mainsail (Cm), draw a line on the sail plan from the mid-length of the boom to the head of the sail and another from the clew to halfway up the luff of the sail. The

roach is usually ignored, and the center is considered to be where these two lines cross. For a gaff mainsail, divide the sail into two triangles, find the center and area of each using the above technique and obtain the center of the sail by using the formula below or, more simply, use the geometrical system shown in the diagram.

To find the center of the foretriangle (Cf), draw a line from the tack point of the headsail to a point halfway up the mast and another from the masthead to a point on deck halfway between the mast and the tack. Again, the point of intersection is the center of the area.

With these centers found, and the areas worked out, the location of the overall CE of the sail plan is readily calculated. Connect the two centers, Cm and Cf, with a line and measure its length, L. Then the distance that the CE is from Cf = (Main area x L)/Total area main and foretriangle (see example at left).

The foretriangle area and center are used if genoa jibs are to be set but if only a working jib is carried, its center and area may be used instead. In the case of yachts

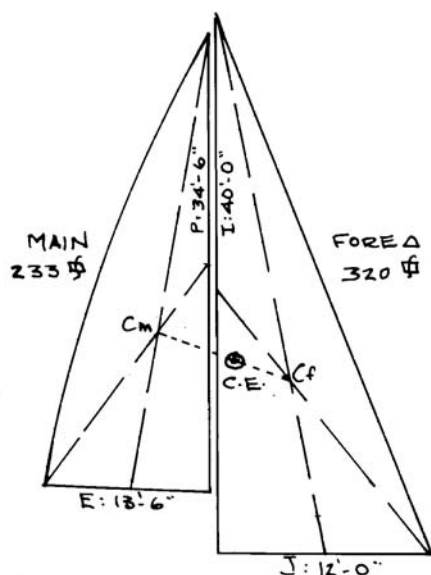


WITH CORRECT LEAD THE SIDE FORCE OF THE SAIL WILL OFFSET THE LUFFING MOMENT.

with bowsprits and multiple headsails but no genoas (i.e., a Friendship sloop), it is a matter of choice whether to use the foretriangle area and center or work out the overall center and total areas of the individual sails.

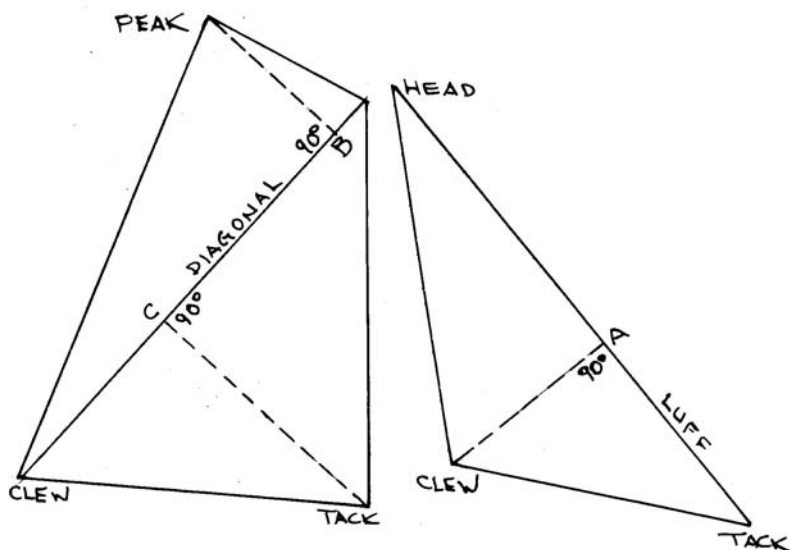
In any case, the areas of light sails — such as fisherman staysails, mizzen staysails, main topsails, etc. — are ignored when working out the overall sail area and CE. Some designers use half the mizzen area in the calculation of the overall CE of yawls and ketches. However, I feel this may be an error which could result in insufficient lead since it tends to result in a CE further forward than if the actual mizzen area is used.

Once you have the CE and the CLP, it is simple to mark them out on a sail plan of the boat, measure the distance between them, and calculate the lead as a percentage of the load waterline (see illustration above). However, even leading authorities do not always agree on the proper amount of lead to give different types of yachts. I suggest the reader take with a grain of salt anything they read about lead in the otherwise excellent books written by Chapelle, Kinney, Baader, or Henry



$$\begin{aligned} \text{DISTANCE } C_m - C_f &= 10.33' \\ \therefore \text{DISTANCE } C_m - C_E &= \frac{320 \times 10.33}{(233 + 320)} = 5.98' \end{aligned}$$

LOCATING THE CENTER OF EFFORT



JIB AREA = LUFF $\times \frac{1}{2}$ A-CLEW DISTANCE.
GAFF MAIN AREA = (DIAG. $\times \frac{1}{2}$ C-TACK) + (DIAG. $\times \frac{1}{2}$ B-PEAK)

CALCULATING AREAS OF JIBS AND GAFF MAINSAILS.

and Miller. The problem is that hulls and rigs have changed greatly over the years, and the definitive leads given in these books do not take into account the variables of hull form, beam, rig height, etc. in contemporary yachts. These have changed drastically, and they all affect the amount of lead required to obtain a balanced helm.

For example, Kinney states that a schooner requires a 5 to 7 percent lead; Baader recommends 3 to 5 percent. Yet our 1960s *Ingenue* schooner design started life with 10.5 percent lead and still had to have her bowsprit lengthened to correct excess weather helm. Baader suggests 4 to 6 percent for a "beamy, long, keel yawl and ketch," and our beamy, long, keel ketch *Traveller III* balanced beautifully with 22.5 percent lead. The second edition of Kinney's work did come close with a 20 percent recommendation for a ketch but with Baader's 4 to 6 percent lead, the *Traveller III* would have had an impossible weather helm. Kinney also comes close in suggesting a 14 to 19 percent lead for sloops, but I've had a yacht with 17.5 percent lead develop such a heavy weather helm that we had to move the mast a foot forward.

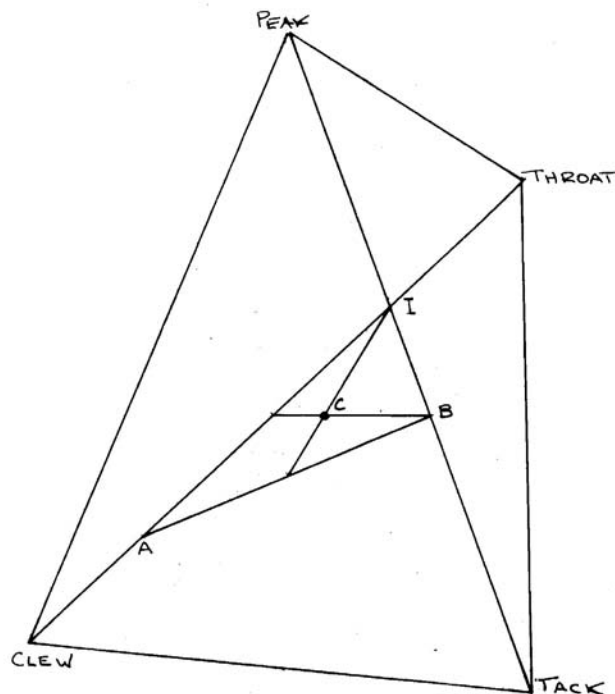
Obviously, a number of factors affect the amount of lead required for a balanced helm, and these factors simply cannot be taken into account by any table that simply says "a ketch

requires x-percent lead." Consider two yachts, otherwise identical except that one is heavily built and has a 35 percent ballast ratio, the other is lightly built and has a 50 percent ballast ratio. In a stiff breeze, the more lightly ballasted boat will heel to a greater degree, her CE will move farther to leeward, and the luffing moment will be higher than that of her heavily ballasted sister. The more tender hull will require greater lead in order to maintain a reasonable weather helm.

Similarly, consider two identical hulls with exactly the same sail area but one has a low, broad rig, and the second has a tall, high

aspect ratio rig. The yacht with the tall rig will heel more in a breeze and her CE will move even farther to leeward due to the height of the rig. Thus she will need more lead in order to eliminate excess weather helm. There are many other factors that affect lead and some of these are noted in the chart on Page 64.

Some of these factors will seem to contradict each other. Wide beam creates a stable hull, but it also tends to result in full waterlines forward. A narrow beam may mean a tender hull but also fine forward waterlines as a rule. Obviously a certain amount of interpretation and experience is required when designing a hull/rig combination so each new design has to be analyzed, and the sail plan must be designed to suit. A rough estimate of



DRAW THE DIAGONALS THROAT-CLEW & TACK-PEAK, INTERSECTING AT I.
MAKE CLEW-A = THROAT-I & TACK-B = PEAK-I.
CONNECT A TO B. DRAW LINES FROM ANY TWO CORNERS TO THE CENTERS OF THE OPPOSITE SIDES, INTERSECTING AT C. C IS THE CENTER.

LOCATING THE CENTER OF A GAFF SAIL

Factors affecting lead

Shortening lead

Short keel (fore- and aft-dimensions)
Deep draft
Narrow beam
Fine forward waterlines
Stable vessel (heavily ballasted)
Low-aspect-ratio rig
Two-masted rig

Lengthening lead

Long keel (fore- and aft-dimensions)
Shallow draft
Wide beam
Full forward waterlines
Tender vessel
High-aspect-ratio rig
Single-masted rig

the percent of lead necessary can be obtained by starting with a figure of 14-15 percent and adding 1 percent for each characteristic of the boat that falls into the Lengthening column and subtracting 1 percent for each characteristic in the Shortening column in the table above. This is not a very scientific rule to live by, but the whole issue of helm balance and proper lead really comes down to intelligent guesswork based on previous experience. There is no sure way to pin it down any closer than that.

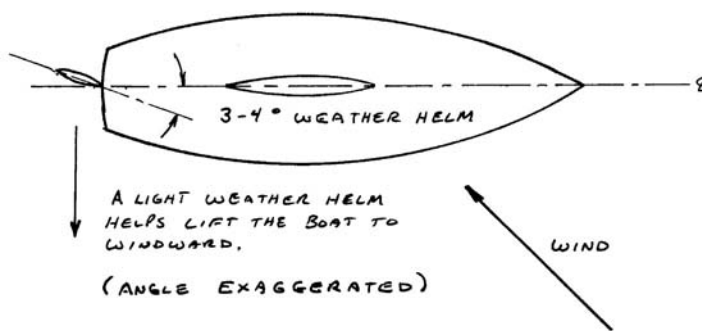
Some examples: A narrow (-1%), heavily ballasted (-1%), long keel (+1%), shoal draft (+1%), yawl (-1%) with fine forward waterlines (-1%) and a high-aspect-ratio rig (+1%) works out to a required lead of 13-14%. A beamy (+1%), lightly ballasted (+1%), short keel (-1%), deep draft (-1%), sloop (+1%) with full forward waterlines (+1%) and a tall rig (+1%) works out to 17-18% lead. In either case, these leads may be too small and our tendency today would be to use a slightly longer lead than derived as above, but never a shorter one.

In that regard, Bill Luders taught me that it was very unusual to find lee helm on a modern hull and that most yachts could stand even more lead than they had. I quite agree. A modern beamy hull can stand quite a long lead but a too-short lead will result in a severe weather helm every time. Bill also felt strongly that the mast location in regard to the keel leading edge was as important as any consideration of lead. Bob Perry and I have discussed this and are in general agreement that locating the mast in the area where the fin of a modern fin-keel sloop or cutter meets the hull will

usually result in a good helm. I must say that in my 40 years in this business, only one of my designs developed a lee helm and that was a boat with less than 11 percent lead. We had to shorten the bowsprit and cut some area off the aft end of the centerboard to correct it; very unusual indeed.

Correcting an uncorrected helm:

The designer is fortunate. If he finds in the design stage that a boat has insufficient lead, he can simply pick up his eraser and move the mast, lengthen or shorten a boom, even add a bowsprit if necessary. The owner of a boat with a bad helm is not so lucky, for the cure is going to require more than an eraser or a fresh sheet of paper on the drawing board. It can mean a costly stay in a boatyard!



If your boat does have a problem, first calculate the actual lead and compare it to the designs of other yachts of similar type to ascertain if you truly have a lead problem. I suggest this because poor balance can be caused by warped rudders, skegs, and centerboards, and even by baggy sails. I even came across one production boat that had good balance on one tack and poor balance on another because her fin was not fitted perfectly down the centerline of the hull and, as well, was not vertical when the hull was at rest! These

problems are usually hard to discover and even harder to correct, but examine the yacht carefully in any case. If the helm problem is not a result of one of the above aberrations, then you can try to alter the lead by making one or more of the following modifications.

To correct weather helm (lengthen lead)

- Reduce rake of mast or even plumb it up
- Move mast forward
- Move headstay tack forward, adding or lengthening a bowsprit if necessary
- Shorten foot and/or hoist of main
- Recut mainsail flatter, or buy a new main if the old one is blown out
- Decrease mizzen area by shorter boom and/or mast
- Move centerboard aft if feasible
- Increase rudder area slightly, but be careful as you can overload the stock

To correct lee helm (shorten lead)

- Increase mast rake by lengthening headstay, shortening backstay
- Move headstay aft, or shorten bowsprit
- Move mast aft
- Lengthen boom and fit larger mainsail; ditto with mizzen
- Adjust main to greater fullness
- Move centerboard forward, if possible.

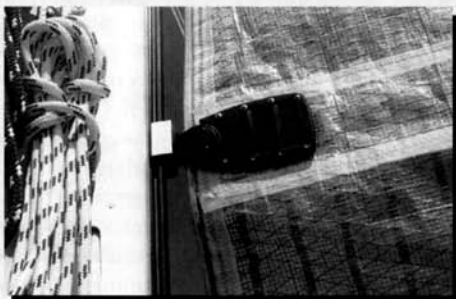
Problems that cannot be corrected by the above changes will probably require a major rig change or an alteration to keel shape, rudder, skeg, etc. In such cases, the advice of a competent yacht designer should be sought.

The result of your changes and experimenting should

be a weather helm of 2 to 4 degrees, and that, in turn, will result in your boat taking on a new life as regards handling ease and even performance. It is well worth some tinkering, especially if you have developed arm muscles like Popeye from fighting a runaway weather helm.

Ted Brewer is, simply put, one of our favorite people and a terrific naval architect. Seems like this should be enough. His real bio is on Page 51.

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Continued from Page 3

it. A diesel engine requires three things to make it operate: fuel, heat, and oxygen. Remove either the oxygen or the fuel, and it cannot run. In the event of an “emergency shutdown,” you can 1) cut off the fuel or 2) shut down the air. If you close the fuel valve, it will burn fuel in the filter before it dies. The time to burn would depend on the size of the filter. It would be quicker to cut the intake fuel line between the filter and the pump, or you could install a valve there for emergency situations.

To shut off air to the engine, you can place a flat piece of metal over the horn on the air intake filter cap. Or wrap a round filter with a piece of heavy material to stop the air flow.

If the above methods don't work, your CO₂ or halogen fire extinguisher are both good for shutting the engine down. They will do so with far less damage than water. Water should be used only as a last resort.

We departed from Islamorada in early November, a “mere” four years after we purchased a 20-year-old boat we'd bought, thinking it was “cosmetically challenged.” Under the tiny picture of *Essa* in the *Florida Yacht Trader* was the plea, “*Essa* needs help, have skills but little money?” The lure was, for us, irresistible. So *Essa* will turn 25, better than new, in the Caribbean with us in 2000! The “little money” wasn't close to true, but after all, BOAT is an acronym for Break Out Another Thousand — and *Essa* is a BOAT.

Where were you when we were desperate for how-to info four years ago? You have a great magazine here; I was really excited to use Ted Brewer's article (July 1999) to figure out *Essa*'s Capsize Screening Ratio was 1.545. Our plan is to spend the next eight to 10 years circumnavigating (as long as it keeps being fun), and every bit of evidence showing her bluewater cruising abilities is enthusiastically received!

**Kathy, Virlyn, and Dandy Sheppard
Islamorada, Fla.**

Subscription pays for itself

Well, maybe our GOB subscription isn't really free, but it sure has paid for itself just in the last week alone. After one year plus with our new old Cal 29 — struggling the whole while with a recalcitrant Atomic 4 that would idle

but stall under the load of engaging forward gear — it had gotten to the point where we weren't going to take the boat out of the slip this season until it was right.

After dozens of sweaty hours spent struggling with the carburetor, timing, points, plugs, fuel line, filters, etc., the partner with the most motor experience was leaving for an extended beach vacation. After a last-ditch 10-hour day, with no joy, he threw up his hands and admitted defeat. It was time to hire professional help.

That turned out to be easier said than done. After a dozen phone calls, I failed to find a single referral for an experienced Atomic 4 mechanic in the northeast part of the Chesapeake Bay. So, turning to the back issues of my favorite boating magazine, I called Moyer Marine in hope of eliciting a referral from them. And I decided to order Don Moyer's engine manual while I was at it. Don was out when I called, but I was directed to Featherman Enterprises to place the order.

The next morning, I was speaking on the phone to Don Moyer. The bad news was he didn't have anyone he could recommend in our area. The good news was he was willing to listen to my account of the symptoms and all the things we had tried to resolve them. The bad news was he didn't have a clear idea of what was wrong. The good news was he took the time to step me through a number of troubleshooting and tune-up procedures that we had not tried. Together, we even worked out a simple way to test the transmission.

Somewhere in the midst of all that advice, he pointed out in passing that the new Atomic 4s had a distributor cap spark plug cable sequence of 1-2-4-3. I duly added that to the pages of notes.

That afternoon, the mechanical partner and I agreed that we would go down one more time (a 1.5-hour drive each way) and try out some of Guru Don's advice. I checked our mailbox as I left, and there sat the Moyer manual, waiting for me. (Remember, I had just ordered it the day before. Thank you, Feathermans!) We arrived charged with positive attitude, and set to work. And after taking care of a few other little details, we looked at the sequence of the plug wires: 1-2-3-4, just as the manual we had said it should be. But we had faith and switched 3 and 4, and . . .

perfection! After running it for a lengthy time in the slip, in gear, straining at the docklines, we confidently decided to take advantage of the remaining evening light, and headed into the harbor.

You should have heard our hoots and hollers as we ran about at cruise speed! The other partner went below to make a final adjustment to the timing at speed, but we were just about perfect already. So in the gloaming, we headed back to the slip, overjoyed and singing paeans of praise to Guru Don.

So how much would it have cost us to import a distant mechanic, tow the boat some distance to reach one, or even pull the engine and take it somewhere for an unnecessary overhaul? And even after all that, there's no guarantee it would run any better than it did before. Compare that to the cost of the subscription to the magazine that guided us to Don Moyer, and you'll see why I'll view it as “free” for at least the next couple of years.

Thanks to Moyer Marine for having the answers and the kindness to share them freely, to Featherman Enterprises for their prompt service, and not least of all, to you and the *Good Old Boat* crew for putting those resources within our reach.

(Sheesh — I intended this to just be a short thank-you note, and look what happened. Well, it's like the quote from the start of an eight-page letter from a famous author (Hemingway?): “I would have written you a postcard instead, but I didn't have the time.”)

**Alfred Poor
Perkasie, Penn.**

Your September editorial

Just read your editorial in the current edition of *Good Old Boat* (September 1999). I found myself saying, “Yeah, that's right, uh huh, exactly . . .” About this time next year I expect to move to Port Townsend, Wash. Sometime thereafter I will begin searching for “the” boat for cruising Puget Sound. At this point, I have no sailing knowledge of that area. But, rumor has it that Puget Sound might be a little different than where I sail (Galveston Bay). Couldn't be true, could it?

I sold my Catalina 27 in 1988, sailing only sporadically since. So you might imagine what is going through my mind as I plan for “the” boat. You described it perfectly: “ultimate in

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resistance . . . maximum comfort . . . largest possible displacement and LOD, fullest possible length of keel." Fear was at the bottom of my thinking. The unknown. Here there be dragons.

There is a 99-percent probability that I will never be a bluewater cruiser. I was completely ignoring the type of sailing I will actually do, as well as forgetting what I like: relatively small in size (28-32 feet), traditional styling with overhangs and cutaway forefoot, and — dare I say it — wooden boats with classic lines and lots of strings to pull.

Again you were right. The "smile" factor is crucial. My 1962 Corvette stopped me in my tracks every time I saw it. The smile soon followed. Ditto my 1968 BSA Lightning (motorcycle). I didn't give a fat quack about all their faults. All I knew was that they were the key to a hidden lock somewhere inside me. I will know when I see the right boat, no matter what its shortcomings. My smile will tell me. Thanks for reminding me.

Jerry Farnham
Houston, Texas

Ditto that

Hurray for a man who is courageous enough to sail against a strong wind. Your September "View from Here" was dead on. I guess I expected that from you because your magazine sails well upwind. It's not the fashionable sailing point.

I wish I could have met that thoughtful "wonderful philosopher." But someday, perhaps I can share a cup of coffee with you and Karen. Her "Last Tack" in the same issue told of a person who is at peace with herself and the natural world. You are both wonderful people.

This was only my third issue of your magazine, and I'm already comfortable with it. It's like I found friends in a port sheltered from the storm of modern hype. Your articles are very helpful to me as I refurbish and refit my 1983 Cal-27, Mark III, *Dream Quest*. For instance, the list of resources at the end of John Vigor's article on the Cal-20 in the July issue sent me to Dan Dalrymple's website: <<http://www.bright.net/~go2erie/callhome.htm>>, a goldmine for Cal owners. Even your readers' mail is amazing and sometimes inspiring in

their expressions of love and respect for their old boats. Philip Raffee's story about buying the same boat twice was definitely a love story. Gary Scurlock's "Reflections" brought tears to my eyes. A lot of good old boat owners evidently have more heart than money. I enjoy the company of such sensitive and sincere people.

As for myself, I probably came back to sailing after 30 years because of the tide of commercialism you complained about. When I retired from being a warrior in industrial management, I wanted solitude and tranquillity. The real-estate people with their pumped-up prices put a cottage on a lake or even a cabin in the woods out of my reach. Then I read a gem of wisdom, "Open water is the last remaining wilderness."

That opened a familiar door out of my frustration. "Could I actually get a cruising sailboat and literally have a cabin on the water?" A casual survey of the market indicated that I could buy a decent one for less than the price of a three-year-old pickup truck.

Although I studied like crazy, I knew I wasn't a good judge of used boats. I had a general idea about how I wanted to sail, so I visited several nearby brokers. When I walked into Torresen Marine in Muskegon, Mich., Peter Blacklock asked me what I was looking for. When I told him a sailing cruiser that was sturdy enough to take the open water of Lake Michigan, simple enough that I could sail single-handed, and comfortable enough that a couple could stay out four or five days, he smiled appreciatively and pointed to a chair in his office. Torresen has a sizable inventory of used sailboats and brokers a lot of others. They know sailboats intimately. After we talked awhile, Peter showed me three boats that could meet my desires and budget. It

was no contest; I fell in love with the Cal-27 right away.

I'm into my second season with *Dream Quest*. She continues to amaze me with her graceful handling of rough seas and her responsiveness in light air. She is truly a Lady of the Lakes. In addition, she accommodates her crew and guests quite comfortably. The people at Torresen did an excellent job of matching a boat to my desires and helping me refit her for my style of sailing. And, they did all this for less than some fraction of a million dollars. There's a human element of consideration and respect here.

Jerry, you're right. There are still some people who put human values ahead of monetary value, and they seem to be collecting around good old boats and cruising. Hold your course! It takes an unusual boat and a skillful skipper to sail well upwind. You are doing it and taking a lot of us with you.

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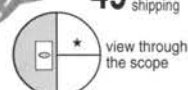


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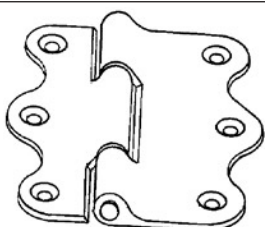
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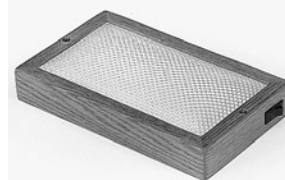
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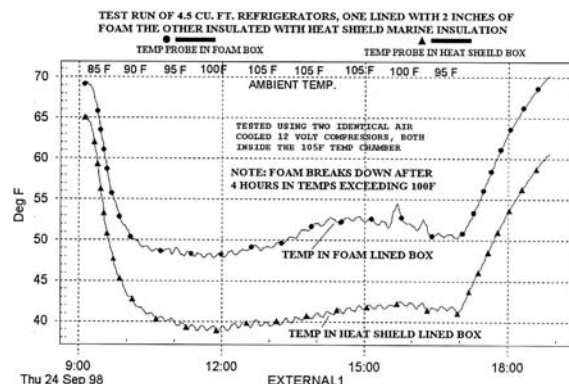
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Welcome news for Bristol Yacht sailors

Nobody needed to ask "Are we having fun yet?" The good folks at Bristol Marine in Bristol, R.I., took care of that. This was the sailors' first rendezvous in 11 years, and they made up for lost time.

The event took place at the new headquarters of Bristol Marine. Under new ownership, the facility has received a \$2.4 million facelift. This is not Wall Street money far removed from the shining sea, but money from sailors for sailors, spearheaded by Philadelphia businessman H.F. "Gerry" Lenfest, owner of a Bristol 38.8 and a Little Harbor 65.

Running the new Bristol Marine team are two men with as much

knowledge as

enthusiasm.

Andrew Tyska,

president, used

to crew for

Gerry on the

Bermuda race

and was previously with the Ted Hood

Design Group and the Herreshoff

Marine Museum. Dave Guertin, vice

president, was also formerly with the

Herreshoff Marine Museum and the

America's Cup Hall of Fame.

Although the new Bristol Marine

has been in business for just over one

year, they have almost tripled the

number of customers and brought in 17

tenants, including a canvas shop, a

kayak shop, a yacht brokerage firm,

and a marine engineering company. The

trio formed this partnership on the

grounds of the old Bristol Yacht Marine

Service Company, which had been

owned by Clint Pearson from 1964 to

1998, when it went into receivership.

The company has repainted the sheds,

rebuilt the marina, given the boot to

lots of junk that had accumulated

around the yard, added a 50-ton Travel-

Lift, dredged the launching pad, and

bought a beautiful covered Crosby

launch which ferries sailors to their

boats, to town, or to the Herreshoff

Museum.

Plans are afoot to return to the

manufacturing end of the business with

a cooperative effort with FG Marine Design to turn out the new Bristol 48, which has just come off the drawing board. They are waiting for three orders before they begin production. You can reach them at 401-253-4318.

Bristol Marine has a crew of 11 on staff. Patrick O'Connell is general manager of the yard crew. He

came

from

Alden

Yachts

and was

also with Ocean Options in

Fairhaven, Mass. Antonio and

Daniel Ferro worked for years painting and building Bristols and are back again with the new team.

The rendezvous featured a designers' discussion with Halsey Herreshoff, Ted Hood, and Dieter Empacher. Ted commented that if you love your good old boat, don't sell it to buy a new one.

Put the money into

refurbishing what you

already have. He was responsible for the

designs of the Bristol 31.1, 32, 35.5,

38.8, 41.1, and 45.5. Clint Pearson, who

was unable to attend, and Carl Alberg

designed the 27. Halsey Herreshoff

designed the 22, 26, 29, 30, and 34.

The 29 and 30 were the same hull with

different topside molds, as was the 39

and 40. John Alden designed the 35,

which is a distinctive full-keel boat,

versus the 34, which is a fin-keel boat.

Dieter Empacher was responsible for

the 54.4 and 65.5.

"Dieter was Ted Hood's head

designer when all the Hoods came off.

He did the supervision/drawing, and



Joe Brito's 1980 Bristol 40, Incognita, heading for the finish as winner of the Bristol Cup Race around Hog Island, Rhode Island.

Bristol Marine

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Ted signed checks and approved the work," according to Doug Axtell, webmaster for the Bristol website and owner of a Bristol 32. Between 1965 and 1998, there were 4,400 Bristols

built in Rhode Island.

The next Bristol rendezvous is planned for August 2001.

Bristol is a lovely old-fashioned New England town with a seafaring tradition,

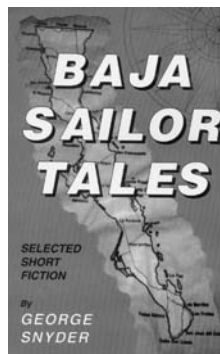
founded in 1680. A must-see is the Herreshoff Marine Museum with restored vessels and an outstanding model room. Across the street is the America's Cup Hall of Fame. So plan on staying in Bristol for a few extra days. Mark your calendars!

Hope Beecher Wright, who doesn't mind having her hair blown in her eyes if she's sailing when it happens, owns a 1968 Bristol 27, Sanderling, and lives on Little Neck Bay in Douglaston, New York.



Two *Good Old Boat* subscribers sail forth and return home as authors

Baja Tales, the ‘real scoop’ on cruising



“You know, especially now, that life does not exist to be fair. It throws us obstacles to our well-being, as it’s supposed to. Who we are depends on how we handle those obstacles, how we deal with them, and get on with ourselves. You know that. It’s what builds character.” So says

Phil, one of the characters in George Snyder’s book, *Baja Sailor Tales*, a collection of stories, poems, and reflections on sailors he met while sailing along the Baja Peninsula.


Snyder creates a tapestry of characters, weaving them through his short stories. We visit with these characters, go down different paths, then meet up with them again in a later tale.

Phil is a weathered sailor who intends to cruise for most of the years he has left in his life. He laments the changes to the world of cruising, the cruisers of the ‘90s: “sailing couples on vessels of 40 feet or more, loaded with gadgetry and ham radios.” These men, who consider themselves the last great adventurers, the rugged individualists unencumbered with the trappings of society, gather daily at the local bar and share their stories.

We learn about Trixie who tends bar at La Faena and has been in Mexico for six years. After three abusive husbands and a prison sentence, Trixie has ended up in Mexico. She goes to school there to learn the language and history. She’s waiting for a teaching certificate. She becomes a Mexican citizen, and the school has found her a place to live. Life is looking up.

And yet, life is not full of happy endings. Later we learn that Trixie’s past has caught up with her, and she ends up back in the bars. *Baja Sailor Tales* is, in some ways, a dark book about people at the end of the line with nowhere else to go and no one to go

home to. This is the seamier side of cruising.

Yet these characters are living life to the fullest and doing what many only talk of doing. The stories are full of boats and seas, of riding the crests of the waves, and of landing on the rocks. If you enjoy reading the adventures of the Paysons, the Neales, or the Pardeys, this may not be the book for you. For a look at the other side, for what some may consider to be the “real scoop” about the cruising life, however, *Baja Sailor Tales* may be just the ticket. 

Baja Sailor Tales is available for \$12.95 from amazon.com. Or get a personal autographed copy by sending \$14.50 to George Snyder, 601 Pacific Ave., #212, Long Beach, CA 90802.

Reviewed by Andrew Fowlie, Ashland, Mass.

Big dreams and little Flicka? No problem!

People who love to sail tend to dream. Any body of water, fresh or salt, and a little time on one’s hands can provoke compelling fantasies. Dreams played a significant role in the decision of



Charlie and Margaret Dewell to set sail on a most incredible journey. Both had been in the insurance claims business for 20 years. Charlie had messed about in boats at local marinas most of his life and had read extensively the accounts of sailors who had cruised the South Seas. He and Margaret decided to act, even though their combined bluewater sailing experience was practically nil.

Their story is told in *Kawabunga’s South Seas Adventure*. There have been many books written about sailing in the South Seas; what differentiates this book — and what makes it so enjoyable to read — are the personal appeal and writing ability of the author and the uniqueness of his boat. *Kawabunga* is a 20-foot Flicka, a boat featured in this


issue on Page 4. She was a good old boat in need of some TLC.

That she got. It took much of the Dewells’ life savings, but in May of 1995 *Kawabunga* was ready to leave San Diego for the Marquesas, thence to Tahiti and the Hawaiian Islands, then back to California.

Charlie sailed the long first and last legs alone. There were times when he found himself questioning the sanity of his decision to cast off his old life for a new one. His engine died as he arrived in the horse latitudes near the equator. Drifting backward for days on a glassy sea beyond radio range can cause even an insurance office to assume enviable qualities.

But when he first spotted Nuku Hiva on the horizon. Charlie modestly wrote: “I felt a great sense of accomplishment, knowing I had navigated through one of the world’s great oceans to a remote, wild, and captivating island.”

There were many other accomplishments, adventures, and relationships to follow. In Tahiti, Charlie and Margaret witnessed the uprising for independence that sent much of Papeete up in flames and brought French warships steaming into the harbor. The passage north from Bora Bora would have tested the mettle of even the most seasoned BOC participant. And the people they met everywhere — from native Polynesians, such as Luti and his family on Christmas Island, to fellow sailors from around the globe — confirm one’s faith in the fellowship of man and the camaraderie within the international sailing community.

This is a book worth reading, keeping, and rereading on future occasions. It says to each of us, “You can fulfill your dream, whatever that dream may be, if circumstances permit and you have the courage to pursue it.” 

To order *Kawabunga’s South Seas Adventure*, call 800-440-8001. It’s listed at \$29.95. Also visit the website at <<http://www.southseaspublishing.com>>.

Reviewed by Bill Hammond, Minneapolis, Minn.

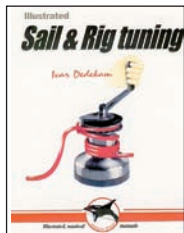


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size (m, l, xl)	quantity	extended price
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Ball caps and sun hats:

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Personalization (two-piece minimum)

For an extra \$6.95 per item, you can have one or two lines added, such as we've done with our boat name, Mystic. For shirts: these lines go below the Good Old Boat logo which is located just above the left pocket. Want something on the sleeve of your short-sleeved shirts? We can do it! For Tilleys and Aussies: personalization goes on the back of the hat.

For ball caps: personalization can appear in front with the Good Old Boat logo or in back. Tell us how you want yours. (See photos for examples.) We'll choose the best color for personalization. If you've got a special color in mind, ask us. Circle the typestyle of your choice on the list below. We'll do the rest!

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A racer at heart, **Tom Vandervoort** sails his good old C&C 27, *Escape*, with a serious look even when he's cruising. Don't be fooled. Tom's not all that serious most of the time. We've seen his lighter side. But then, we haven't sailed with Tom and his wife, **Linda**.



But we've sailed with this guy (*and he's seldom serious*). **Jim Plummer** and his wife, **Bonnie**, sail a Tayana 37 named *Plumair*. Jim's wearing the long-sleeved *Good Old Boat* shirt, while Tom's got the polo-style shirt and the Tilley hat on.



Hope Beecher Wright sails a Bristol 27, *Sanderling*; note the Bristol logo on the sleeve of her *Good Old Boat* shirt. But in this photo she's helping **John Campbell**, the original owner of her boat, sail his Bristol 32 sloop, *Felicity*. (We bet John wishes *he* had a *Good Old Boat* hat or shirt!) That's editor **Karen Larson** doing the ball cap demo at right. Let's have your picture here next!



Great holiday presents!

All hats and shirts have the *Good Old Boat* logo embroidered on them. You can have your name, boat name, boat type, yacht club . . . whatever personalizes it for you . . . up to two lines for an extra \$6⁹⁵. Want larger sizes? Smaller sizes? Children's sizes? Different colors? Something on the collar? On the sleeve of the short-sleeved shirt? That and much more is possible. Please ask.



Last tack

Ode to the iron genny

Our boat was launched this spring without an engine. The plan was to install one after launch. Ah, plans.

We launched in mid-May and had the new engine in by mid-August. Most of the season we sailed without one. Lin and Larry Pardey have sailed around the world twice without an engine. We only did some coastal cruising for a few months without one.


We sailed in and out of marinas, on and off anchors, and right into our slip — just like I used to do with my 700-pound dinghy.

An 8,000-pound keelboat is not a dinghy, however. There were some things we didn't try to do. And there were some things we should not have tried to do that we did do in the end. It all worked out. No damage was done to our beloved *Mystic* nor to other vessels or structures.

by Jerry Powlas

Lin and Larry scull *Taleisin* around one knot. Karen and I paddled *Mystic* at less than a tenth of a knot. This made anchoring against a weather shore very slow business . . . good for mosquitoes, bad for us.

By the time the new engine arrived (from England), I knew the truth. There are a lot of ways to go sailing. The technique and equipment will vary from one boat to the next, and thus the resulting experiences of skippers and crews will also vary. This variation enriches our hobby. I tip my hat to the Pardeys for the skilled purists they are, and I welcome the little red beast in our bilge. I welcome the noise and vibration and smell and all the rest of the hassle of having an engine.

Mystic shall be a sailing auxiliary. To each his own. 

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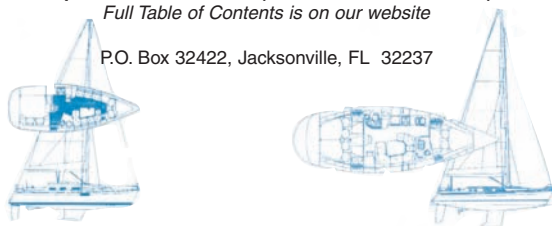
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Reflections

by Brian Backstrand

A psalm of praise while looking for the wind

*The water here
has quieted to a mirror finish.*

*A varnish of many coats
shines, laughs at the images it holds.*

*Sometimes it wears the color of bruised metal
metal brightened by grinding*

*While I look for places
where it turns dark again*

*Where the wind is hiding
where the mainsail can become a foil*

*Where the jib can fill and pull at the sheet
and the whispering of a wake begin.*

*In all of this there is a sense of You,
and I give thanks for it*

*For the way in which things here are full
of a presence I cannot trace*

*But like the slightest wind —
felt on the skin*

*Before the telltale moves —
I feel what I cannot see*

*And know,
in this place of evanescent mirrors*

*And expectant quiet,
I am not alone.*

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