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Issue 78 May/June 2011





GOOD OLD BOAT

THE SAILING MAGAZINE FOR THE REST OF US!



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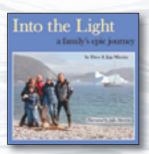


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Joshua Slocum: Sailing Alone Around the World

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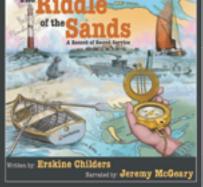
Shared experiences a world apart by Homer Shannon



About the cover ...

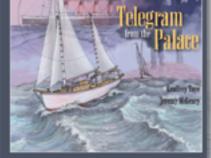
Terry Donnelly captured the morning fog in Quartermaster Harbor on Washington's Maury Island. In the background is the small village of Dockton, which was once accessible only by boat; it wasn't connected by road until 1909. For more of Terry's work, go to <www.donnellyaustin.com>.

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The Riddle of the Sands by Erskine Childers While sailing in the Baltic Sea, two men uncover a secret German plot to invade England, The Riddle of the Sands (written in 1903) was heralded as the first true spy novel, written by Childers to encourage the British government to bolster their presence in the North Sea. This story features equally thrilling scenes of espionage and adventures at sea. A real classic brought to life by the talented voice of

a Sea



Telegram from the Palace by Geoffrey Toye

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A Voyage Toward Vengeance by Jule Miller

Missing persons, murder, sunken vessels, unlikely comrades, and a couple of real sociopaths will frighten and entertain the adult listener of this nautical fiction by Jule Miller. There are plenty of realistic sailing scenes and good nautical detail but not enough to prevent the nonsailor from appreciating the tale. Readers will find it difficult to sleep at night. For adults only.

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The view from here

GOOD OLD BOAT

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78 – VOLUME 14, NUMBER 3 GOOD OLD BOAT (ISSN 1099-6354; USPS 019327) PUBLISHED BIMONTHLY BY Partnership for Excellence, Inc. EDITORIAL OFFICE: 7340 Niagara Ln. N. • Maple Grove, MN 55311-2655 Phone: 701-952-9433 • Fax: 701-952-9434 BUSINESS OFFICE: 1501 8th Ave. N.W. • Jamestown, ND 58401 Phone: 701-952-9433 • Fax: 701-952-9434 www.goodoldboat.com

Periodicals postage paid at Osseo, MN 55369, and at additional mailing offices.

POSTMASTER, SEND ADDRESS CHANGES TO: Good Old Boat 8810 27th Street Ct. N. Lake Elmo, MN 55042-9473

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Editorial contributions are handled with care, but no liability is accepted. Opinions expressed by the writers are not necessarily those of *Good Old Boat* magazine.

SUBSCRIPTION RATES (1, 2, 3 YEARS): U.S. AND CANADA – \$39.95/\$74.95/\$110us OVERSEAS – \$49.95/\$95.95us

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Inching our way toward spring

Under cover of snow, new skills emerge

by Karen Larson

t's been a tough winter for folks from the Pacific to the Atlantic. In Minnesota, we had snow on the ground before Thanksgiving (the hardy natives consider this to be a good thing so Tom Turkey can

arrive with his sleigh full of cranberries). Great piles of snow several feet high remained on the ground for weeks, making it tough for that other famous animal, the groundhog, to perform his ritual — he couldn't be located under the snowdrifts of early February.

I don't have a crystal ball and, as the May issue deadline is in mid-February, I can only hope it will all have thawed by the time you read these words.

You may wonder what sailors like us do in the wintertime. This year, Jerry practiced his guitar playing until he developed great calluses on every finger.

More important, he was incredibly busy on our backyard project boat, *Sunflower*, doing as many indoor-workshop jobs as he could. We'd like to splash *Sunflower* sometime this summer, just to see if she floats and to be reminded of what the rig looks like when set up.

When he wasn't working on the Mega 30, Jerry was working to improve the foredeck amenities on *Mystic*, our C&C 30, to ensure a happier crew. (That'd be me. You may recall that we operate on the Princess Principle on our boat, as explained in this space in the previous issue, March 2011.) Jerry created a mockup of *Mystic*'s bow and, using that plywood board, designed a windlass arrangement that will handle two anchors and a deck-wash system to deal with what they bring up from the bottom.

Since we didn't have a spinnaker to build this year, I feel like a slacker. I sewed a new sun and rain tarp for *Mystic* but I sent our decaying mainsail cover out to one of our subscribers to use as a pattern for a new one he'll build for us. I don't send these projects out randomly to subscribers, so don't worry that your number could come up next. Aaron Norlund wanted this sewing job. Really.

I discovered something else this winter: the art and science of weaving. I took a weaving course in my 20s and always thought I might like to weave someday. (I also discovered sailing in my 20s and always thought I might like to sail someday and you see where *that* got me!) So when we found a cast-off loom at a yard sale last spring, I put that treasure away until the days turned cold and short. Then I took some lessons, tossed shuttles back and forth, and had a heck of a time experimenting with warps and wefts in the warmth of our living room.

Now the obvious question is: where will this new loom fit on the boat? We have found room aboard for Jerry's guitar, so surely a small loom can't be much of a problem $\dots \Delta$

Mail buoy

C is for ... confusion, rescued

Tartan 34 ... uh, "C"?

I always thought the "C" in Tartan 34C stood for centerboard (see "Tartan 34C — 'C' as in 'Class Act,'" January 2011). Also, can you ask the owners of the boat in the article what they did with the mainsheet traveler? I think some T34s had them aft and some had them on the bridgedeck. It looks like Max and Donna may have gone away from a traveler altogether. If so, many readers would want to know how they struggled with that decision and how it affects mainsail trim.

-Bruce Rosenzweig, Chicago, Ill.

Max and Donna respond

We have heard both explanations of the "C" and agree ----how could it have stood for "classic" from the beginning before they knew later models would emerge? The original brochure only refers to the T34C as T34. Once the later model (Tartan 342) came out, it's possible the "C" came into use to distinguish between the two. Since the T342 does not have a centerboard, the "C" probably stood for "centerboard." Over the years, as the T34C became more "classic," many started to identify the "C" as meaning "classic."

The traveler on Sin Sal is mounted across the lower cockpit, at shin level, just forward of the steering pedestal. This is a great location for singlehanding, but the traveler is less than 2 feet long and doesn't give us much room for traveler adjustment. (We're not racers anyway.) Our boom is 101/2 feet long. On earlier T34Cs (which had longer booms), the traveler was aft of the steering pedestal.

We changed the mainsheet routing. For singlehanding (or just laziness), we decided to change to 6:1 sheeting straight to the traveler. We can adjust the sheet without leaving the helm (the genoa winches are right there within reach as well) ... ideal!

Our mainsheet attachment is between the Bimini and the dodger. We have a Sunbrella connector piece to bridge the space between the two, but this connector has to have a small opening to allow the mainsheet to pass through. It works fine while anchored or when motoring, but the connector must be removed while sailing.

A number of T34C owners have relocated the traveler to the cabintop. This gets the traveler out of the cockpit altogether, allows a larger range of adjustment, and would allow a connector between the Bimini and dodger while sailing, but it means you must go up to the cabintop to adjust the mainsheet.

-Max Guzman and Donna Delahanty, Cincinnati, Ohio

Nuts about a wooden pram

After years of trying to row an inflatable tender in a straight line, last winter I built the 9-foot 6-inch Nutshell pram sailing model from *WoodenBoat* plans. She has proven to be everything designer Joel White intended her to be. She tows well and rows well but, as I have only recently

finished the mast, boom, sail, etc., I have yet to try her under sail. I enjoyed doing the project and would recommend the boat to anyone interested in building their own.

-Don Saari, Sechelt, British Columbia

Hinterhoeller drawings rescued

Recently, a collection of drawings and correspondence came into my possession. I won't bore you with the details, but I managed to rescue them before they went to the dumpster in a wheelbarrow. It was all quite legal.

The drawings are original draftsmen's work from Hinterhoeller Yachts, which built a number of good old boats, like the Niagara and the Nonsuch, in the 1970s and '80s.

The drawings are for a wide variety of original equipment for the vessels. These include custom castings, tanks, cradles, and so forth. From what I can see, just about every model of vessel ever built by Hinterhoeller is represented, some more completely than others.

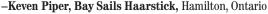
Anyhow, I'm in the process of cataloging, scanning, and posting the drawings for the use of anyone with an interest. I've only done a few so far and they can be viewed on my website at <www.venturesail.com/resources.html>.

If any of your readers have a specific requirement or interest, I would be happy to move that item (if it exists) to the top of the pile for posting. They can contact me directly via the email address on the website.

-William Edward Henry, Port Hope, Ontario

Turnbuckle tether feedback

Tethering open-body turnbuckle bodies (see "Turnbuckle Tethers," March 2011) is popular with racing boats that are frequently adjusting shroud tensions, but it is required to pin the wire side of the body. The lashing only keeps the bodies in place, in effect replacing the lower pin. The wire side is free to rotate and should be pinned in a conventional or unconventional way to keep the adjustment from opening up.





drawings, and PanelVisor



PanelVisor

Protection for engine panels is a necessity for countless good old boats and your May 2010 issue gave one of many solutions. Several of our customers have contacted us about this problem and, even though our PortVisors are designed for shielding portholes, not panels, it turns out that a few of them have used PortVisors as panel visors too. All this valuable input (and prodding) has convinced us to design a visor specifically for protecting the most common size of panel used in classic boats. By the time this issue is in print, the PanelVisor will be available to provide an easy yet inexpensive way to shield your panel from the ravages of the elements. –**Paula Biles,** Bradenton, Fla.

In vino re varnish veritas

The March 2011 Mail Buoy mentions a product for paint and varnish preservation (BlO_2xygen). Although it is plenty cheap (\$7.50) at Amazon.com, compared to marine sources, shipping and volatile-product surcharges may make it better to purchase locally. I have used a can of wine preservative with similar results for preserving varnish and it can be purchased locally from any wine store or at <www.winepreserve.com>.

-Eric Swisher, Roanoke, Va.

Dinghy motor alternative

You might be interested in the setup of the dinghy we tow behind our Nonsuch 26, *Xtasea Tu*. I did not want to carry gasoline to run an outboard for our dinghy so I purchased an electric trolling motor. I installed a 12-volt deep-cycle battery in a battery box under the center seat in the dinghy (named *Agony*). For charging the battery, I placed a flexible solar panel on the seat. This modification prevented me from installing a cover to keep the rain out, so that led to the addition of a bilge pump with overboard discharge. I have yet to run out of battery power. This setup works for us where we sail, in and around the Thousand Islands just where the St. Lawrence River begins. One of the advantages of a quiet motor is that you do not disturb the wildlife. -Chuck Jones, Trenton, Ontario

About that light-air mainsail ...

Editors' Note: Many readers were interested in the Mainster discussed by Ed Zacko in our January 2010 issue. Next, we heard rumors that the folks at Sailrite went so far as to create a Mainster kit for the do-it-yourselfers among us. In spite of having a kit of this type for sale, Sailrite's Matt Grant recommends that sailors try a drifter headsail before they consider building their own Mainster. Matt says:

"Since the mainsail is fully supported by the mast and the boom, the weight of the fabric is not so important. For a headsail that hangs from an angled stay and is not held open (think boom for a mainsail), the fabric weight is critical to maintaining exposed sail area in light air. Our point here would be that a drifter headsail is a far better investment than a Mainster.

"Booms are heavy. As a result, putting a Mainster up requires some leech edge reinforcing. I think most builders are putting a line in the sail's back edge. Without a rigid vang



While cruising with their nieces, Aaliyah and Maiya (pictured on page 77), Homer and Dee Shannon often passed this President's Roads buoy marking the main shipping channel into Boston Harbor. They have sailed *Cinderella*, a 1986 Bristol 29.9, for 12 seasons. Their home port is the American Yacht Club in Newburyport, Massachusetts.

Mail buoy

to ease the weight on the sail's clew corner, the boom will have a tendency to pull the twist out of the Mainster and force sail draft aft. All of this can be controlled with some investment in rigging. One might even find that a topping lift rigged while sailing will be enough to control the leech/twist.

"Reduction of sail area may offset the gain. The general thinking with a Mainster is that, since the material is light, the sail will stay filled more consistently in light air. We all know that a flogging sail is not generating lift and as such is largely in neutral. Fill the sail and drive is engaged. But one of the compromises of using ripstop nylon for the mainsail is that adding roach and sail battens is not practical, so the sail goes roachless and sail area is reduced. We have a tradeoff between sail area and the ability to keep the sail flying.

"If the boat is sailed predominantly in very light air and some of the above concerns with rigging can be mitigated, I think a Mainster is worth trying (mostly for fun or just to prove me wrong). But think first about adding a gennaker for downwind sailing or a drifter for all points of sail. I equate the concept of a Mainster to the potential performance gain that shaving your head for a swim meet might garner. For most of us, the difference will not be noticeable."

-Matt Grant, Sailrite, Churubusco, Ind.

For the real sailors

Great magazine for the real skippers with real crews. It's nice to see one oriented to those of us who actually skipper and crew our own boats — boats that don't fall into the category of being too new, too large, too pretty, and with too many models posing as crewmembers. You can tell they aren't working crew as their whites are without a mark. Thanks for the good articles by people who get their hands dirty. Heck, even the ads seem to be from suppliers who cater to real boatowners.

-Patrick Wolfe-Milner, Salt Spring Island, British Columbia

Timely tale saved him money

Your story on the non-skid renewal with KiwiGrip saved me many times the cost of a new subscription. I have been looking for a way to refresh my decks but had issues with all other products. Thanks for the relevant content! –Jeff Carlton, Birmingham, Ala.

Deep Blue passes the green-water test

You published my letter concerning my hard dodger in your May 2007 issue. I built it (at a cost of about \$450) by fastening 3mm ply to a cheap dodger frame and then glassing the whole thing inside and out (see photo at right).

Since that date, *Deep Blue* (a 1962 Pearson Triton) has done the North Atlantic Circle to Portugal and back. The photo is of *Deep Blue* at a marina in Praia da Vitória on the island of Terceira in the Azores. Both the dodger and *Deep Blue* came through unscathed, despite several knockdowns and direct hits with green water. This is proof that our good old boats have a lot of life left in them.

-Phil Prosser, Bailey, Colo.

Well done, Robert Perry

I really enjoyed the March 2011 issue, especially the article by Robert Perry on designing decks. He has the ability to

describe a complex process in easy-to-understand (mostly) layman's terms. His description of chainplate location, jib/ genoa track location, and lengths was well done. He didn't get into mainsheet traveler locations because it sounds like there are many conflicting opinions about it. I, for one, would like to hear pros and cons from someone as experienced in design as Bob is. In an upcoming issue, please try to follow up with an article on mainsheet traveler locations, whether by Bob or another designer or sailmaker.

I also would enjoy a small sidebar article on repairing small gelcoat nicks, product recommendations, techniques, etc. Keep up the good (old) work!

-Phil Szczyglowski, Great Mills, Md.

Reply by Jerry Powlas

In the mainsheet location discussion, there is a big difference between initial design and retrofit. A boom designed for end-boom sheeting may not be, and often is not, strong enough for mid-boom sheeting. In these situations, you will frequently need a different spar. Designers can calculate the section needed, and it would be worth it to hire someone to do that for you if you want to go to mid-boom sheeting.

Such arrangements are common on larger boats. The traveler controls, and often the mainsheet, are then located on the cabintop. This does allow the mainsheet to be controlled with a winch but it is inaccessible from the helm, making it mandatory to have a crew of two or more in the cockpit when sailing.

Being an old dinghy sailor, I appreciate any arrangement that puts the mainsheet within reach of the helmsman. On our own boat, which we have sailed for two decades, the knockdowns have always been tempered by the helmsman releasing the mainsheet. Without that feature, I hate to think how things would have turned out.

I'd like to open up the request for gelcoat repair tips to our readers. Particularly for those small nicks, what gelcoat repair hints, product recommendations, and techniques do you use? Keep those letters coming!

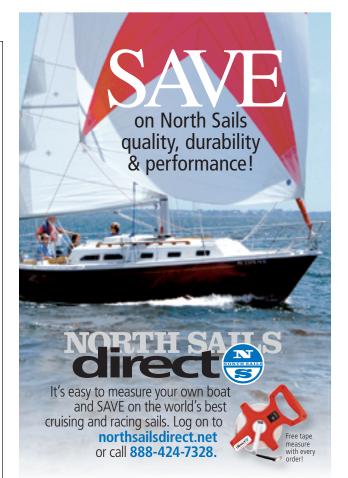
-Jerry Powlas, Technical Editor

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





Tim and Tina Duffin on their wedding day, August 2010, Bay of Quinte, Ontario. Instead of a honeymoon, they bought this beautiful good old boat, 1976 Tartan 30 #323. True story! Send your sailboat photos to jstearns@goodoldboat.com and we'll post them on our website. If we publish yours here, we'll send you a Good Old Boat T-shirt or cap.



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S2 9.2

A stylish and well-built cruiser/racer

by Richard Smith

With the mainsail and genoa drawing well, Greg Pearson's S2 9.2A, *Blast*, moves quickly upwind on the gray waters of Puget Sound.

stood at the top of the marine ramp in Edmonds, Washington, looking down at Greg Pearson's S2 9.2A, *Blast.* My first impression was of a particularly well-kept 1970s cruiser/ racer with basically clean lines.

The "9.2" stands for 9.2 meters, which equals 29 feet 11 inches, just under the 30-foot length limit set by the Midget Ocean Racing Conference (MORC), a popular rating system in the 1970s. The 9.2 name lasted for many years until the builder changed it to S2 30, but by then it was too late: the 9.2 name stuck.

History

Leon Slikkers, who made his name building powerboats, founded S2 Yachts in 1974 to build sailboats in Holland, Michigan. He commissioned Arthur Edmunds to design the S2 9.2 and several other boats in the S2 line. (For a general background of the company, see the S2 8.6 review in July 2008.)

Arthur Edmunds' best-known production sailboats are probably the Allied Princess 36 and Allied Mistress 39. His S2 9.2A (for "aft cockpit") and the S2 9.2C (for "center cockpit") have identical rigs and hulls. More than 700 S2s of both types were sold and they acquired a reputation for being well built.

Design

49774

While Arthur's Allied designs were fullkeel cruisers, the S2 9.2 has a cruising fin keel, a spade rudder with a partial skeg, a moderately deep forefoot to reduce pounding, and a very flat sheer that gradually rises forward. A shoaldraft option reduced draft from 4 feet 11 inches to 3 feet 11 inches.

With a moderate displacement/length ratio of 280 and sail area/displacement

ratio of 16.4, the S2 9.2 is a capable coastal cruiser.

The design's sloping deckhouse and swoopy inset Lexan portlights foreshadowed Euro-style design features that were to become established over the next decade or two. When it was introduced 30 years ago, the 9.2 had a distinctly modern appearance.

Construction

The hull is solid, hand-laid fiberglass with an inward flange at the sheer on which the balsa-cored deck is attached. Through-bolts and a flexible adhesive bedding compound secure the extruded aluminum toerail, hull, and deck together. Any fender washers used in the mounting of deck hardware should be replaced with proper metal backing plates (see "Better Backing Blocks," March 2010). S2 Yachts resisted the industry trend toward molded interior liners, so the 9.2's bulkheads and furniture are tabbed to the hull, usually on both sides of each surface, and contribute to the hull's structural stiffness. Two tons of lead ballast is encapsulated in a well-sealed keel cavity.

For the most part, production boats of the 1970s used similar technologies and have generally held up well. But, as with any well-used boat of the era, the normal precautions apply: inspect the balsa-cored deck for softness, especially near chainplates, stanchions, and other deck fittings. Also check that the keel with its encapsulated ballast has remained watertight.

Hull blisters have been a problem with some 9.2s. Greg reports that the previous owner of *Blast* found blisters. In 1989, he had the hull dried out and blasted before applying an epoxy barrier coat. *Blast* has been kept in the water during the last six years and has been blister-free.

On deck

As Greg and I walked down to the dock, I had a closer look at *Blast*. She appeared to have nothing tacked on — the scourge of many less-than-good old boats is the assortment of unmatched and conspicuous bits and pieces of gear and fittings they acquire over the years. In fact, it was hard to believe this boat was launched 34 years ago.

The quality of *Blast*'s gelcoat surfaces is immediately apparent. They are generally free of stress cracks even where they are tightly curved, and her non-skid surfaces seem on par with other boats of the era. Her substantial hardware is of a size and quality that is unlikely to necessitate an upgrade. She has 8-inch bow cleats bolted through stainless-steel deck-mounted chafing plates. These fittings incorporate the navigation lights and chocks as well. A hinged and flush-mounted anchor-locker lid and an acrylic forward hatch with teak non-skid strips are neatly and unobtrusively integrated into the deck molding. There's nothing here to trip the foredeck crew or snag lines.

Well-detailed "no-trip" teak handrails extending from the cockpit to the bow are mounted on fiberglass spacers. *Blast*'s black cove stripe accents the black canvas in her largely transparent dodger and well-tailored sailcover. The overall effect is a well-coordinated and good-looking boat.

The cockpit

The T-shaped 8-foot cockpit works well, with the mainsail sheeted abaft the 28-inch destroyer-type steering wheel, where it is out of the way and easily handled by the helmsman, along with the traveler lines and backstay adjustment wheel. The 8-inch stern cleats are mounted on stainless-steel chafing pads, an arrangement similar to that at the bow. The helmsman's seat on an S2 9.2 is separated from crew working



This view of Greg Pearson's well-maintained S2 9.2A, above, shows some of her key deck features. Note the sea hood over the companionway sliding hatch, continuous teak grabrail, narrow foredeck, double lifelines, and double lower shrouds terminating near the rail.



At the bow there is a small anchor locker, two cleats, and a tiny roller for handling ground tackle, at left. The forward hatch, at right, located on the coachroof above the entrance to the forward cabin, is a little too far aft to bring much breeze to crew sleeping on the V-berth.



The compact galley, at left, is fitted out with an Origo alcohol stove, a small sink, and an icebox. The nav desk, at right, is cleverly designed to lift up and out for use. It is stowed against the hull and a cushion takes its place when the quarter berth is needed.

at the winches, and Greg reports that this makes tending to headsail sheets and roller reefing a bit of a tussle when he's singlehanding.

The winches are by Lewmar. Two #40 two-speed sheet winches and two #10 single-speed winches are mounted on the coamings. Other running rigging is led aft to the cockpit. The main halyard is handled by a #10 winch on the starboard side of the companionway, while jib and spinnaker halyards are taken care of by a #10 to port.

The starboard seat locker opens to reveal general stowage and access to the stuffing box and engine controls. Two lockers under the helmsman's seat provide additional stowage.

The rig

The S2 9.2 is a masthead sloop with a high-aspect-ratio sailplan. *Blast*'s 208-square-foot full-battened Lidgard mainsail sets very well. A 150 percent genoa adds about 352 square feet for a total of 560 square feet.

The mast, a black-painted aluminum extrusion, has a single pair of airfoil spreaders. It is stepped on deck and a strong post integrated within the main bulkhead carries the compression load to the keel. There is a mechanical adjuster for the backstay. Mast height above the water is 43 feet 6 inches.

In addition to main and headsail sheets, running rigging includes an outhaul, downhaul, halyards, reefing lines, and a Cunningham. Headsail sheets are led through snatch blocks that can be easily moved about on the slotted aluminum toerail.

Belowdecks

The S2 9.2 has a translucent acrylic sliding companionway hatch with teak handholds inside to either side.

The engine enclosure provides a wide, deep, and carpeted first step down to the roomy and well-appointed cabin. Teak-veneer plywood and solid teak trim are used to a considerable extent throughout the boat.

Immediately to port, the entry to a quarter berth doubles as a navigation space. When used for navigation, a table pivots down and a seat folds up from the side of the engine box. When not in use, the table is stowed against the hull side and a cushion takes its place. The electrical panel, with circuit breakers and a battery-condition meter, is located above the nav table. A lockable master battery switch is next to the panel and a VHF radio is below it. Greg has a Garmin 300C fishfinder/depth sounder mounted on hinges so he can view it from the cockpit.

Opposite the nav station, a small L-shaped galley contains a small sink



The saloon of the S2 9.2A, at left, is warmly appointed and comfortable. The L-shaped settee to port and standard settee to starboard make two good sea berths. The carpeting glued to the inside hull surfaces, at right, is just about the only disappointing feature of this otherwise attractive interior.

with pressure cold water, an icebox, and an Origo alcohol stove. Headroom is 6 feet 3 inches in this area, gradually dropping to about 5 feet 10 inches at the entry to the forward cabin.

Immediately forward, a table and settee to port — that convert to a double berth — and a 6-foot 6-inch settee berth to starboard provide a well-thought-out eating, lounging, and sleeping area. The table has leaves that hinge on top, offering a choice between large and small surfaces. Along with its pedestals, it's removable and can be stowed near the quarter berth.

On the port side of the main bulkhead, Greg mounted a flat-screen TV on a movable arm so he can swing it away from the kerosene Force 10 heating stove.

Carpet is laid over the fiberglassed plywood sole and S2 used a carpet-like polypropylene fabric as a hull liner. It was treated to be mildew resistant and contact-cemented to the hull. While a benefit of this liner is easy access to through-bolted deck hardware, over the years the fabric has become faded and blotched with mildew stains, a detraction from an otherwise handsome interior and one not easily put right.

There is an ample head with a vanity sink and shower drain across from a large hanging locker in the area between the saloon and the forward cabin's 6-foot 4-inch berths.

The engine

I had an Atomic 4 many years ago and had forgotten what a good shipmate it can be: quiet, smooth-running, and without a lingering trace of diesel odor. Greg maintains the engine, keeping a close check on everything to ensure good running order and safety.

Gasoline fumes are heavier than air and can lie in the bilge waiting to turn a good sailing day into a disaster. Like a propane stove, a gasoline engine demands the utmost respect. Greg ran the blower for five minutes and took some good sniffs at the blower vent and deep into the locker before he fired up the engine. We motored over to the gas dock to meet the chase boat and begin our trial sail. With its two-bladed 16 x 8 right-handed prop, the boat handled well in tight quarters, backing predictably and stopping just so.

Many 9.2s were fitted with Atomic 4s during 1977 and 1978. Later boats were delivered with a choice of a 2-cylinder

Yanmar or Volvo diesel. Since then, some owners have replaced these smaller engines with 3-cylinder 23-hp Yanmars in the quest for more power. *Blast* has an 18-gallon fuel tank and burns about ³/₄ gallon per hour. Cruising speed is about 5¹/₂ to 6 knots. Greg finds the Atomic 4 to be entirely adequate for the cruising he does, in spite of the strong currents, often strong winds, and steep chop of Puget Sound and the islands to the north.

Under way

We pulled away from the gas dock and headed into the Sound. The wind was a steady 15 to 17 knots, gusting to 20. Greg and Bret Hart, who helped crew, hoisted the full-battened mainsail and let out the 150 percent genoa. Without much headway we heeled sharply, but as she gathered speed *Blast* picked herself up and we accelerated smartly, beating to windward before going off on a close reach. We made a rollicking



S2 9.2A

Designer: Arthur Edmunds Builder: S2 Yachts LOA: 29 feet 11 inches LWL: 25 feet 0 inches Beam: 10 feet 3 inches Draft (shoal keel): 3 feet 11 inches Draft (deep keel): 4 feet 11 inches Displacement: 9,800 pounds Ballast: 4,000 pounds Sail area: 468 square feet Disp./LWL ratio: 280 SA/Disp. ratio: 16.4 5 or 6 knots in 2-foot waves and the boat was absolutely dry.

We were heeled well over, however, so Bret rolled in the genoa to about lapper size. We were still heeled well over and I thought we'd be better off tucking a reef in the main, but the skipper thought otherwise. Weather helm increased strongly with the gusts but the boat was always manageable, tracking well in spite of the lumpy seas and considerable wakes of ferries and container ships. I reckoned that reefing the 9.2 for speed and comfort is a serious consideration at about 15 knots, maybe 12.

Conclusion

The above-average condition of Greg's boat may have skewed my overall view of the S2 9.2. Most boats over 30 years old will more than begin to show their age, but not so with *Blast*.

The 9.2A's good looks topside — the smooth sweep of deck and the absence of non-essential gear — make the boat seem more of a racer than a cruiser. In fleets across the country, PHRF ratings range from 180 to 201 seconds per mile. For comparison, a 1970s-era Pearson 30 is 174 and a Catalina 30 is 180 to 192.

Blast's interior is well organized, serviceable, and tasteful. The only conspicuous exception to this, as mentioned, is in the builder's use of carpeting glued to interior surfaces.

Apart from the appearance of the 9.2A, the sailing performance is a high spot. It may be a bit tender when compared to other 30-foot cruiser/ racers, but this is difficult to judge as weather, sea conditions, and sailing practice vary.

The S2 9.2s seem to hold their value. After 30 years, condition is everything. Other things being equal, an Atomic 4 may detract from market value, but Greg believes *Blast* would sell for about \$20,000 to \$22,000, perhaps a couple of thousand less than a boat fitted with a diesel. \varDelta

Richard Smith, a contributing editor with Good Old Boat, is an architect. He specializes in designing and building very small houses and has built, restored, and maintained a wide variety of boats. These days, he and his wife, Beth, sail their Ericson Cruising 31, Kuma, on the reaches of Puget Sound.

13

Cruising designs

Making old boats sail better

Soften the helm and sharpen performance

by Robert Perry

am often asked by owners of good old boats what they can do in the way of upgrades or changes to make their boats perform better. Depending upon the specific boat, there may be several areas where improvements can be made. The key in almost every case is the budget set aside for the changes. I also have a general rule of thumb that you do not want to make expensive changes to your boat and then, on your first sail with the altered boat, say, "I *think* I can feel the difference." If you are going to make a change, make it significant enough that the results are obvious and, of course, positive.

Taming weather helm

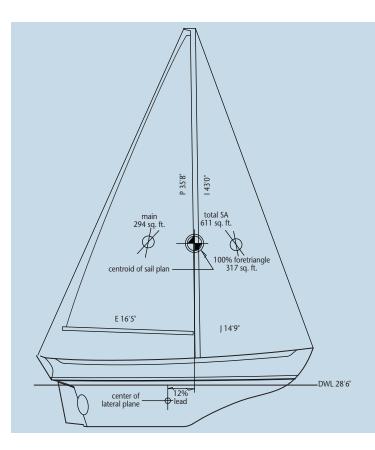
A common complaint I hear about is weather helm. If you have a full keel, a modified full keel, or a rudder on a skeg, your rudder has no balance area and that can exacerbate helm pressure. If you have a spade rudder, you can add more balance area forward of the stock to reduce helm pressure, but that is only a band-aid on the weather-helm problem.

Why do so many boats have too much weather helm? I don't know. If we leave sail shape aside for the moment, weather helm is usually caused by the mast being too far aft or the keel being too far forward. These are hard things to change.

Keeping your mast tuned can reduce weather helm. If your masthead is drooping off to leeward when you are on the wind, this can increase helm pressure. You can remove rake from the mast to move the center of pressure of the sail plan forward. You can't, within a reasonable budget, move your keel.

If you have split appendages, you could add area aft on your keel fin, but I think the location of the leading edge has far more to do with it than where the trailing edge ends. Bill Garden once sent me a formula and diagram that used only the leading edge of the keel and the end of the boom as determinants for helm balance.

Over the years, I have found no reliable formula for helm balance and I have come to trust my eye and a few basic rules of thumb. So, if we want to address helm pressure issues, where do we start?



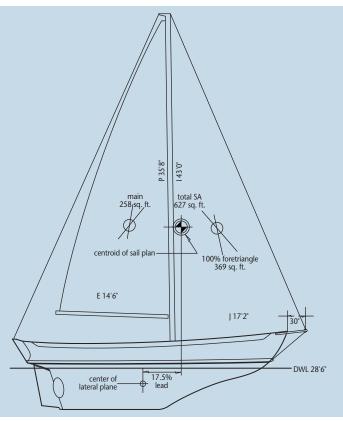
Sails come first

The most obvious upgrade is sails. While your old Dacron sails may still be intact, the chances are that their original designed-in shape has long since departed. The old, stretched-out sail will increase heeling moment while not delivering the drive you need for good performance. This can affect heel angle significantly, and increased heel angle usually brings with it an increase in helm pressure or weather helm. This is particularly prevalent when the mainsail gets that "catcher's mitt" shape with the maximum draft moved back into the last one third of the chord. Modern sail materials will allow the sail to maintain its designed shape far longer and the only caveat here is that new matrix-style fabrics do cost more than Dacron.

You might consider going to a full-battened mainsail, which is more forgiving to trim and tends to hold its shape longer. It's also easier to furl, especially if you have lazy-jacks. Full-battened mains can look just fine while being way out of trim. I want a main to tell me when it needs trimming. On my boat I have two full battens at the top and two half battens at the bottom. This is a good arrangement for boats under 40 feet as it is a little more sensitive to trim adjustments. I also like telltales on the leech at the batten pockets.

I think, on most older boats, you are better off staying with a normal roach curve rather than adding roach. The new boats you see with exaggerated roaches usually have either no standing backstay or a running backstay that can be eased in tacks while the mast is supported by spreaders swept up to 30 degrees. Most older boats have in-line spreaders with forward and aft lowers and a standing backstay that will catch the exaggerated roach each time you tack. This can be

by Robert Perry



Adding a 30-inch bowsprit to this boat and taking 23 inches off the foot of the mainsail moved the centroid of the sail plan a significant distance forward. This should result in reduced weather helm.

a real problem in light air when there is not enough wind to push the roach over the backstay.

The typical good old boat will be a masthead sloop with probably a far bigger foretriangle than we see today on modern fractional-rigged boats. This means that the choice of jibs and genoas is paramount.

Boats of that era usually came with a number-one genoa with an LP of at least 150 percent and sometimes as high as 160 percent. We loved overlap in the old days and much of that love came from the way the CCA and IOR rules measured rated sail area. I think today you can sail quite effectively with a max LP of around 135 percent. Of course, if you pole the jib out in light air downwind, you will not be as fast but, upwind, I think a good new jib with 135 percent LP will work just fine. Of course there is no one ideal LP number and if you sail on San Francisco Bay you might be better off with a 100 or 110 percent-LP working jib. Part of the beauty of a lower-LP genoa is ease of tacking, especially if you have forward lower shrouds. An asymmetric chute or "screecher" on a roller furler can also be a nice addition.

Add sail area forward

If your boat suffers from excessive weather helm even with good sails, you have several choices: you can move the mast forward, you can move the keel aft, or you can add a bowsprit. Obviously, the first two options are pretty much out of the question. What you are after here is to move the center of pressure of the rig forward. A chunky-looking wooden bowsprit can do the job but a tubular bowsprit would perhaps look better while also eliminating the need for whisker stays. You can also move your anchor rollers out onto the sprit. You will have to add a bobstay and, down near your bootstripe, a bobstay chainplate. This can be external and bolted on with a Y-shaped bracket or it can be done by cutting a slot in the stem and glassing in the Y-bracket on the inside. This looks nicer.

"How long should my bowsprit be?" My advice here is that the cost of adding a bowsprit will have little to do with how long it is — that's just extra tubing. If you go ahead with this change, be bold so in the end you can say, "Wow! That really made a difference." I can't just give a number to cover all boats but I'd guess, for the typical 35-footer, I would start at 30 inches. There is very little chance you'll add enough to give the boat lee helm.

I'm frequently asked, "Should I add an inner forestay so I can carry a staysail?" If your boat has a long J dimension and a big foretriangle, the answer is, "Yes you can." If your foretriangle is short on J, you may not have the room for an inner forestay. The big question will be about how to anchor the tack point of the staysail. You can add a chainplate and tack fitting on your forward bulkhead at the foot of the V-berth but you may need to beef up that bulkhead.

I like to see the tack point as far forward as possible. People call this a "Solent stay" and ideally it would go almost to the stem. That way, the center of pressure of the staysail or storm jib is well forward and your performance and balance will be better. If you added a bowsprit, you could keep your old stemhead tack fitting and use that for the staysail.

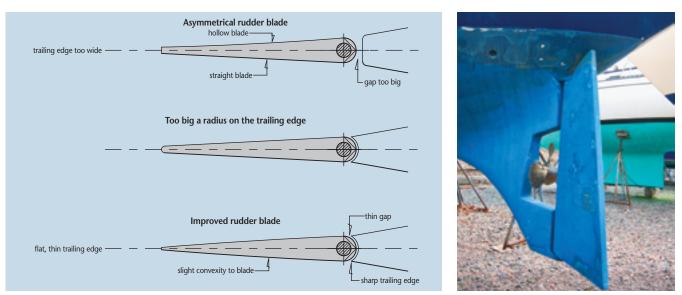
With the tack point established on the deck, you next have to decide where the head of the new staysail will go on the mast. If you have double spreaders, the obvious place is at the upper spreaders where the mast is well supported.

66 If you choose to increase the size of your rig, that's a major change. **99**

On a single-spreader rig, the new inner forestay will terminate about halfway between the spreaders and the masthead where there is no support. That's the bad news. The good news is that those old mast sections were usually stout and boats like the Valiant 40 and the Tayana 37 could get by with just adding running backstays to offset the load on the inner forestay. Many Valiants did not add runners but relied upon a standing intermediate shroud that I finally realized did little or nothing at all. The answer to the running backstay question will depend entirely upon how stiff your mast section is.

Remember, if you choose to increase the size of your rig, that's a major change. You are going to need new chainplates and probably new knees or more reinforcement to the bulkheads. This is where you should consult a designer. For instance, the typical bobstay sees a far greater load

Cruising designs



A rudder hung on a full-length keel or a skeg can have several issues. Too big a gap at the leading edge and a hollow blade can work against efficiency, at left. A too-thick trailing edge doesn't help a rudder that's already compromised by a propeller aperture, at right.

than does the headstay, so it will need to be of a greater diameter than the headstay. I am always conservative with rigging diameters.

Rudder and keel remedies

"What can I do with my clunky old rudder?" Good question. If your boat has a full keel or modified full keel, the answer is simple: "Not much."

The best thing to do would be to check the rudder blade for symmetry and make sure that, over the years, it has not gone concave in its section.

The next thing to address would be the trailing edge. I see old rudders on which the radius of the trailing edge is over ½ inch. This is too much, and in almost all cases you do *not* want a radius on the trailing edge of your rudder. You want a nice crisp flat with sharp corners to discourage the water flowing over the rudder from wrapping around the trailing edge to get from the high-pressure side to the low-pressure side. A $\frac{1}{4}$ -inch flat trailing edge should work.

On some boats, big round trailing edges can result in a "collapsing vortex" that you would feel as a low-frequency flutter that can be quite pronounced. This flutter can also be a product of asymmetry in the blade, so make a template and check to see that both sides of your rudder are the same sectional shape.

If your prop is in an aperture, don't forget to clean up the edges of the aperture.

You need to do the same things — check for symmetry and trailing-edge treatment — if you have a spade rudder. If your rudder happens to have that sexy looking scimitar shape like the old C&C rudders had, it has a minimal chord at the upper end. This is good for reducing interference drag but it sure doesn't help the rudder work. You would be better off with a rudder blade that came snug up to the bottom of the hull so



the rudder can benefit from some end-plate effect off the hull that will help keep the flow over the blade attached. We have done new rudders for a few boats that originally came with the scimitar blade and the results were always very good.

New rudders are expensive, and you don't want to have to change your rudder tube and bearings or you can get into major surgery and great cost. However, if you suspect the steel web inside your rudder has suffered major corrosion, this might be a good time to consider a change in your rudder's planform as you rebuild the rudder.

You can do little to your keel that will not run into big money. Again, symmetry is important and you want to avoid that big fat radius at the trailing edge. A lot of old boats' keels have blunt leading edges. A parabolic shape works best, but the only way you can alter your large-radius leading edge is to get a new keel made or add a false leading edge to what you now have.

I have had clients who added draft by bolting on additional span to their keel. This can be done in timber lifts faired to the existing keel and glassed over. This will not help stability but it will give you a more efficient keel for upwind work. You can do it in lead if you feel your boat is overly tender but I'm seldom in favor of adding weight to any boat. If you want to increase stability, and you have a nice deep bilge, you can glass in some lead ingots. The key here is to get the new lead as low in the boat as possible. If you have a shallow bilge, this is probably not going to help.

Keep in mind that, if you make a major improvement in the boat's stability, you are going to put greater loads on the rig and your existing rigging, chainplates, and knees may all need beefing up.

Return on investment?

I had a client, I'll call him John, who owned one of my Cheoy Lee 43 motorsailers and loved it. From time to time, though, he would call me and discuss the possibility of doing a new custom boat. I tried hard to sell him, but he would always come back at me with, "How can you improve on perfection?" He even talked about buying another CL 43 MS so he could keep one in Maine and one in Florida.

It was clear that John wanted to spend some money but wasn't ready yet for a custom project. I suggested a change



A blunt leading edge does not induce good flow over the keel. This one could benefit from an addition to give it a more parabolic shape.

to his rig. I had already added a tall rig and a bowsprit to another CL 43 MS and that owner had liked the change. But John had another idea. His idea was to get rid of the original spruce spars (it was a ketch) and replace them with an all-carbon rig. We are talking big money here, about \$60,000.

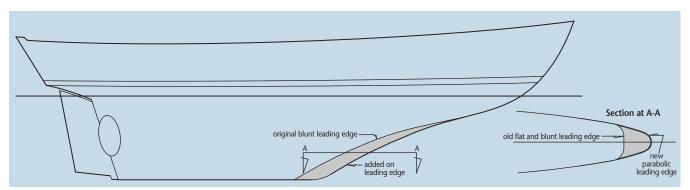
I explained to John that the carbon rig would make the boat stiffer and probably result in a change in the motion in terms of pitching. With the weight of the heavy spruce sticks gone, the boat should feel like a new boat. John had GMT build him beautiful carbon spars painted in a fauxwood finish.

John was very happy with the change. I was chatting with him one day and he was raving about some rough offshore work he had done recently. I casually asked him, "Can you tell the difference in the boat with the new carbon rig?"

He answered, "Not really."

I eventually designed a new custom boat for John. \varDelta

Robert Perry is a contributing editor with Good Old Boat. Over the course of a long career designing sailboats, he has figured out some of what makes them good. He hopes that owners of old boats can benefit from what he has learned.



Adding to the leading edge of the keel looks at first sight as though it could increase weather helm but the cleaner entry could well move the effective center of pressure of the keel aft. According to the method to determine correct helm balance outlined in *Skene's Elements of Yacht Design*, 15 percent lead was considered enough. Less than 15 percent and you would have weather helm problems. Although this is a simplistic two-dimensional approach to a complex three-dimensional problem, over time it has worked in most instances. While too much lead can cause lee helm, unless you have a very skinny boat, this is seldom a problem.

Sailboats 101



Storing life's essential element

fill

by Don Launer

ater is necessary for living aboard a boat. Since a gallon of water weighs 8.3 pounds, full water tanks can be very heavy and should be installed as low as possible in the boat, preferably on the centerline. In practice, this is often impossible. It's not an option in most small boats or in boats with shallow bilges. Alternative locations are beneath the V-berth, which is on the centerline, or under saloon settees or quarter berths. If tanks must be located far from the centerline — such as under settees or quarter berths — a good solution is to fit a tank on each side of the boat to maintain trim. The weight of an off-centerline tank might also be balanced by the galley or by heavy stores, such as canned goods, on the opposite side of the boat.

outlet

Water tank materials

Water tanks can be made of many materials including stainless steel, aluminum, Monel, fiberglass, polypropylene, polyethylene, high-density polyethylene (HDPE), and polyvinyl chloride (PVC). Each has its advantages and disadvantages. Tanks are available in many shapes and sizes and they can be made to order to fit oddly shaped spaces.

Plastic water tanks are considerably lighter (about 40 percent) than metal tanks, and have the added advantages of being seamless and corrosion-free. They also cost considerably less than metal or fiberglass tanks of comparable size. It is important when building a water system from scratch, or when modifying an existing one, to use only materials approved by the Food and Drug Administration (FDA) as safe for use with drinking water.

Water tank size

water tank

Although the largest water tank possible would seem to be ideal, this is not necessarily so. The weekend sailor who uses his boat only one or two days a week, and takes showers ashore at a yacht club or marina, might find that the water in a too-large tank will become stale before it can be used up or replaced. Under these circumstances, a smaller tank, or more than one small tank, will be more practical.

Hundreds of pounds of water surging back and forth as the boat pitches or rolls can put undue strain on the water tank and its mounts. It's important, therefore, for largecapacity tanks, whether rigid or flexible, to be fitted with baffles to restrict the water's movement.

Water tank fittings

The typical rigid water tank has four openings.

• *Fill* – Most boats are fitted with fill plates on deck. A largediameter hose connects the deck plate to the fill fitting on the water tank. Often this hose has a Y-valve for directing the water to either of two tanks. The deck fill should be prominently marked "WATER" and preferably be located as far as possible from the fuel-fill deck plate so there's no chance of confusing the two.



Polyethylene water tanks come in a wide variety of volumes and shapes. They can last the life of the boat and are relatively inexpensive.

- *Outlet* The fitting for the outlet, or supply, is usually located at the lowest point in the tank. It is commonly a ½-inch hose barb.
- *Vent* A fitting in the top of the tank is for attaching a vent hose. The vent allows air to replace the water as it is withdrawn (and air to escape when the tank is filled). The vent line is routed to a high point inside the boat. Avoid leading the vent to a fitting on the outside of the hull, since outside water could come in when the boat is heeled or when waves strike the hull. An air vent is not necessary with flexible (bladder) tanks.
- *Inspection port* A large screw-type hatch at the top of the tank (usually 3 inches or larger in diameter) makes it possible to inspect and clean the tank (not all tanks have this fitting). This is also where an internal water-level sensor can be mounted. (External tank-level sensors are also available). A large tank with baffles might have more than one large access port.

Doing it yourself

inspection port

If you have to replace a tank that was installed when the boat was manufactured, chances are you're in for a very messy and frustrating job that could entail tearing up the cabin sole or interior furniture. Installing a new tank in place of the old one is usually a major undertaking. \varDelta

outlet

Don Launer, a Good Old Boat contributing editor, built his two-masted schooner, Delphinus, from a bare hull and has held a USCG captain's license for more than 34 years. He has written several books, including Navigation Through the Ages and The Galley: How Things Work, and frequently gives talks on the history of navigation.



The flexible tank can fit into a space in which a hard tank would be difficult or impossible to install. An innovative idea, especially useful on small boats where space is at a premium, is a combination water tank and water bed. This illustration shows how a water bed/water tank works. The center berth cushion has been left out for clarity.

Feature boat

A Corbin 39 from a bare hull

OPPORTUNII

Building a boat while building lives

by Don Davies

avid Salter is meticulous. You know that the moment you step on the boat, named *Opportunity*, he and his wife, Eileen, keep moored behind their home in Bath, Ontario. Every sheet, halyard, line, switch, tool, and valve is clearly labeled in bold print. Anyone with a bit of sailing experience could board this boat and sail her by following the clearly marked labels.

For me, opportunity knocked when *Good Old Boat* editor, Karen Larson, asked if I could write a feature article on David and Eileen's boat. I thought about it ... drive for two hours through Ontario's scenic Prince Edward County on a brilliant summer day, meet nice sailing folks, go sailing on the beautiful blue waters of the Bay of Quinte, probably moor in a secluded bay to enjoy a sumptuous lunch and cold beverage ... and decided to make the sacrifice.

The stately Salter home is situated on a small cove that opens into the North Channel of the Adolphus Reach. These are some of the best sailing waters in the Great Lakes. The reach is a part of Lake Ontario's Bay of Quinte and, because it's protected on all sides by land, the catch phrase for sailors is "all the wind and none of the waves." When I arrive, David and Eileen take me from their front door on a quiet cul de sac through to the back door and out to the cove. There she sits ... Opportunity ... a 39-foot Corbin double-ender looking spanking bright and shipshape in the summer sun. I ask David how they found such a paradise. His reply is classic Salter: "We didn't find it. We built it."

"For me," says David, "it's important to know how things work, inside and out. The best way to do that is to build it yourself."

He's fortunate Eileen shares his unconventional and labor-intensive philosophy. While living in Oakville, Ontario, the Salters purchased a 28-foot steel hull and, over a period of three years, methodically built her from the ground up: bulkheads, interior, cockpit, engine, mast, rigging ... everything.

Opportunity, a Corbin 39, takes advantage of a fair breeze and flat water on Adolphus Reach, facing page. Her owners, David and Eileen Salter, built her from a bare hull and keep her behind the house they also built, at right.

All this while they were raising children and working full time. David, an engineer, was working for Shell Oil and commuting to Toronto every day. Eileen was teaching eighth-graders in the Oakville School system.

"We eventually named her *Day By Day*," says Eileen, "because that's how we built her ... day by day."

David enjoyed his career, which included flying to the Arctic Circle to observe how fuel reacts to extreme cold, but he also loved sailing the boat he and Eileen had built and made plans for an early retirement. Eileen was reluctant to leave her students, but their son and daughter were already of university age; it was time to start thinking of the future.

The future lay in a property on a small cove near Bath, Ontario, on which sat a rather large derelict building that had once been the home of Bath Fisheries.

"Long ago, fishing was a major industry in this region," David says. "To preserve the fish in the warmer months, they'd cut huge chunks of ice from the channel in the winter and throw sawdust on them." Unfortunately, the years of damp had compromised the wood of the ice house and the Salters had no option but to tear down the entire building. Over time, working with contractors, they built the twostory home and the docks in the back, knowing their boat would be moored outside and they'd be able to sail away any time they wanted.

Thoughts of blue water

"We'd lived in Trinidad for two years and many of our friends sail south for the season," says Eileen, "so we were always thinking of an oceangoing vessel. Our 28-foot *Day By Day* wasn't quite up to the comfortable voyage we had in mind. That's when we started thinking of something bigger."

Originally, David was considering a larger steel hull similar to Day By Day. He discussed this with a designer named Robert Dufour in Montreal (no relation to the builder of Dufour sailboats), who had designed the JE Bernier II that sailed through the Northwest Passage in 1977. Robert showed him the Corbin 39, a doubleender he'd designed for Corbin Marine. Corbin built the boat between 1979 and 1990 and sold it in three configurations: the completed boat, the bare hull and deck with just the engine installed, and the bare hull and deck. Guess which option David and Eileen took.

"Sure, I like to build things from the ground up," notes David, "but, in all honesty, it was a financial decision as well. We just couldn't afford that much money in one lump sum. Better to buy the shell and invest in parts as you go along."

Eileen says David began by keeping track of every expense incurred during the building of *Opportunity* but stopped as the total approached what it would have cost to buy a completed boat. "No sense beating yourself up," says David. "Besides,



Feature boat



David and Eileen like to have company aboard *Opportunity* and the galley, at left, is equipped so they can deliver appropriate sustenance. In the saloon, at right, the dining area provides comfortable seating for socializing while the entertainment console on the port side contributes to the atmosphere. The sumptuous and well-appointed nav station, below, is aft in the wheelhouse, where it's convenient to the cockpit.

I was *over* building. I'd been blue-water sailing. I wanted this boat to be strong enough to take the rough going."

The bare hull of the Corbin 39 and its cradle arrived at the Salter home in Oakville in 1980. Fortunately, they could sail *Day By Day* on Lake Ontario whenever they needed a rest from building the Corbin.

"The children were grown, but our parents were aging and still living in England, so there were long summer vacations back home," says Eileen. With their move to Bath, Ontario, in 1987, the Corbin was trucked to its new home. It took 10 more years of carpentry, machining, planning, and working before *Opportunity* was launched in July 1997.

A custom layout

David researched the project carefully. There were some things he liked about a

finished Corbin 39 and some things he didn't like. He ended up with a unique interior and, as we go aboard, he proudly points out *Opportunity*'s prominent features.

The two private sleeping cabins, one forward to starboard and one aft to port nestled beneath the cockpit, each have a double bunk and head. The forward head also has a shower.

The aft cabin is aft of the wheelhouse. David says he made the companionway ladder leading from the cockpit into the wheelhouse steep to gain room for the comfortable navigation booth on the port side with radios, radar, GPS, and chart table. Directly ahead is a large steering wheel, a windshield looking out along the deck, and a photo with *Opportunity*'s motto, "Don't wait for your ship to come in ... swim out to it."

"Steering from the wheelhouse is tricky and visibility is limited," says David. "But, on a long ocean stretch with heavy rain and winds, it would be a dry and comfortable alternative to the open cockpit."

Aft on the starboard side is a roomy closet housing the hydraulic steering system. It was recommended by Corbin, and David agrees it provided the best helm control. Neatly labeled drawers containing nuts, bolts, clamps, fuses, and other parts line the starboard side of this closet. On the starboard side of the wheelhouse are a settee and a shelf for books. A step down takes you forward into the large main saloon.

"We like to cook and prepare elaborate meals while aboard," says David. "We like to sit around the table and talk with friends. The main saloon is really a cooking and entertainment center."

The raised eating area has lots of comfortable seating and ample headroom. A small pilot berth high on the port side of the main saloon is popular with the grandchildren. Below it is a beautifully finished entertainment console with music and television. With a few swift movements, David transforms the console into a functional workbench with access to lockers containing a full complement of tools. While working from this central point, David says, he's close to whatever he's

repairing on the boat.

While demonstrating the entertainment console, David produces a large binder that contains specifics on every piece of equipment on the boat, including a full description of the item, its function, and its location.

Aft of the dining area, the large galley spans the width of the boat. The refrigerator, stove, and oven are all conveniently placed and the area is fitted with custom cabinets filled with dishes, cutlery, glasses, and the amenities found in any kitchen ashore.



A section of the counter to port can be easily removed to reveal spacious access to the engine compartment. It houses a Pathfinder Marine 50, the marine version of the Volkswagen Rabbit diesel engine. Beneath the engine, David built a separate sump to catch engine fluids and keep them out of the bilge.

Going topside again, David reinforces the primary benefit of building a boat from the bare hull. "This way you get the boat the way you want it."

The compact cockpit is dominated by huge chrome self-tailing winches. They seem to be too much for a boat this size, but I would soon learn to appreciate their cranking power. Looking over the stern, David proudly points out the adjustable hoisting mechanism for the Avon RIB dinghy and its 15-hp Honda motor. With a pull on a line, the dinghy can be lifted so only a small portion of the bow is in the water and drag under sail is minimized. The engine can be attached to the transom by one person with the help of a tackle. Forward on deck are curved mast stands that David designed to fit the curvature of the human back.

With all the equipment aboard, Opportunity is a heavy boat and she carries a lot of sail. I notice blockand-tackled lines leading back from spreader height on the mast to reinforced plates on deck. David says these are running backstays. They provide additional support for the mast when the staysail is set and can be tightened or loosened as necessary. Forward, a large electric Lofrans Tigres windlass seems more than capable of handling the 44-pound Bruce anchor.

A competent duo

With the inspection over, we're ready to cast off. I'm told in the politest possible terms that my role in this process will be to stay the heck out of the way. Standing near the mast, I watch Eileen on the dock as she loosens the springlines and goes forward to uncleat the bow line. She tosses the line across the rail and, with the slightest push, climbs aboard as Opportunity's bow swings out to face the reach. In the cockpit, David holds the stern fast to the rear dock cleat until the right moment and then releases one

66 David unfurls the full jib, and the boat takes to it like a horse taking the bit. 99

end, pulling the line aboard and coiling as he goes. Obviously, these people have done this before.

We move into the channel under power. Without saying a word, David leaves the helm and moves to the mast. Eileen slips behind the wheel and holds the course. The change in the wind strength from the cove to the channel is dramatic. The waters appear calm but the wind speed is showing between 10 and 13 knots. Eileen nudges Opportunity head to wind and David hoists the main. As she falls off to port and the big main fills, Opportunity heels slightly and picks up her heels. Back in the cockpit, David unfurls the full jib, and the boat takes to it like a horse taking the bit. Our speed immediately climbs to 6 knots with just the slightest heel. The sun is shining. The waves are slipping swiftly beneath the hull with a steady swooshing sound. The wind racing across the deck is taking the heat off the day. Does it get any better than this?

After a few tacks to demonstrate the boat's agility, David and Eileen tell me we're heading for Kerr Bay, where we'll drop the anchor and enjoy a relaxing lunch. The boat is sailing so well I'm

almost disappointed when it's time to drop the main, furl the jib, and motor into the secluded bay on Amherst Island. Six or seven boats are already moored there and, before we finish lunch, the population will grow to 20.

With the anchor set, David and Eileen slip belowdecks to prepare lunch. Once more, my job is to stay the heck out of the way. I'm left on deck to ponder this new role. I'm not used to being a passenger on a sailing vessel. I'm usually at the helm making decisions and trimming sails. Truth to be told, on a boat like this I'd like to be more involved. But David and Eileen have a proven system. They're a team, they know their roles, and they set to their tasks wordlessly.

Cold cuts and conversation

When called below, I'm informed that it's do-it-yourself. On the table are cheeses, tomatoes, hardboiled eggs, salads, rolls, cold cuts ... a virtual banquet. Eileen has done her part, David his and, with the addition of a cold beverage, we ascend to the cockpit for feasting and conversation.

I like the boat. I like David and Eileen. I like the food. I like the





A large mirror on the bulkhead creates the illusion of doubling the size of the forward head, at left. The forward cabin has a double berth and lots of lockers and bins for storage, at right.



Opportunity's Pathfinder diesel engine is ensconced under the galley counter.

beverage. I like this assignment. We talk about how they came to this time and place.

Once these two focus on a dream, they plan how to achieve it and make the necessary sacrifices. *Day By Day* took three years to complete while they built careers and raised children. *Opportunity* took 17 years to finish while they pursued careers, built their home and docks by the cove, and welcomed grandchildren. These were busy times.

David will tell anyone who wants to build a boat from a bare hull that a support group of like-minded individuals is essential. He has referred to, and contributed to, the Corbin Owners' website often over the years. The site was created and has been run since inception by Lester Helmus, a Corbin owner in Los Angeles. It has proved to be a great asset for the owners and, through it, Corbin owners half a world away email David to find the best way to effect a repair or secure a needed part. Much of the rigging for Opportunity was David's own design and he was fortunate to have a tooland-die maker close by. When ordering essentials, such as teak and mahogany for building his cabinets, he did so with others to get better service and save with bulk buying.

"It sounds like you're doing everything yourself when you're building a boat," David says, "but you get tremendous support from friends and others who share the same goals. That's one of the greatest gifts to come from the experience ... sharing your ideas and challenges with others."

An unplanned exercise

It's time to weigh anchor and head home. David, naturally, checks the engine compartment before starting the Pathfinder and discovers that the sump is full of antifreeze. Eileen and I look around at the flotilla that has assembled while we have been eating lunch and consider the options. After draining the sump, we find a split hose at the rear of the engine. It's difficult to access and we don't have a spare hose aboard anyway.

We decide against a "duct-tape fix." We don't know how long it might hold and blowing an engine makes no sense when there's plenty of wind out in the channel. We unfurl the jib to power the boat to the anchor while David uses the windlass to take in the rode. Once the anchor is off the bottom, Eileen takes the helm and heads *Opportunity* out into the channel, avoiding several anchored boats.

Out in the channel, we find the wind has increased to 20-plus knots right on the nose. The channel is narrow and the lake's level is low, making long tacks toward shore dangerous. *Opportunity* is hard pressed and heels well over and, after a tack or two gain us what seems like just a few yards of headway, it's decided that perhaps I *can* do more than "stay the heck out of the way."

I'm pleased to be invited to join the team, and stand by the port winch while Eileen stays at the helm and David takes the starboard winch. We're soon tacking quickly and smoothly. The big winches haul in the 135 percent genoa on each tack as Eileen brings her up as tight as she'll go on a close reach. Back and forth, tack after tack, the afternoon wears on.

Our final tack takes us well above the entrance to the cove and, as we knife toward the opening at 7 knots, we discuss the docking plan.

David and I haul the dinghy alongside (we've already rigged the outboard) and lash it tightly to the toerail. As we enter the lee at the mouth of the cove, we quickly furl the genoa and David jumps into the dinghy to start the engine. I move forward to take the bow line and Eileen resolutely holds her course toward the dock. David puts the outboard in reverse and applies full power. *Opportunity* seems to take an eternity to slow down. Eileen wrenches the wheel around, swinging the boat alongside the dock. I make the leap and find a cleat. Eileen leaves the helm and tosses the stern line into my hands. Two wraps around the rear dock cleat and *Opportunity* stops, then floats calmly ... home again. The rest is easy.

We're grateful all's well that ends well. David wants to go below immediately to get the part number of the delinquent cooling hose to see if Volkswagen still makes it. Instead, Eileen, in a calm but very determined voice, says, "The first thing we're going to do is relax and have a quiet drink. Everything else can wait." David and I aren't about to argue with that kind of sound reasoning.

Sitting quietly on the dock behind the house with *Opportunity* safe and secure, we watch the setting sun throw brilliant red and yellow ribbons across a calm blue sky and the now gently flowing waters in the channel.

"You built her for blue water and she's more than up to the task. Have you ever taken her offshore?" I ask.

"No, we haven't," says David. "When we were younger, that was the plan. That's why we built her for heavy weather. But we listen to our friends who sail south and think we've got things just about perfect *here*. In the winter, *Opportunity* sits on a cradle over there and we can refit her at our leisure. Come the spring, these waters are all the adventure we need now. We're content."

After a short pause Eileen adds, "That's why we named her *Opportunity*. If we ever change our minds, we know all we have to do is walk out our back door and the *Opportunity* will be there." \varDelta

Don Davies has sailed the North Channel, Georgian Bay, and Lake Huron extensively aboard a Contest 31 and, more recently, his 1974 Grampian 30 that he keeps at Highland Yacht Club on Lake Ontario. He has written several books and his screenplay, Bluenose, The Movie, is currently in development.

Resources Corbin Owners Group www.corbin39.com

The Corbin 39 in company...

... with a duo of double-ended classics

by Ted Brewer

B ecause the Corbin 39 has some rather unusual features for a production yacht, it was easy to select two boats for comparison. Very few fin-keel, skeg-rudder, double-ended cutters have been built in series production, so the Pacific Seacraft 40 and Valiant 40 were logical choices. All three yachts are husky, beamy vessels with good draft, and all have a long proven record of bluewater passages and circumnavigations.

What's most interesting about the three designs is how alike they are. The differences are mainly in style. The Corbin has a somewhat flat sheer, Baltic-style stern, flush deck, and a fairly long bowsprit. The original Valiant had a perkier sheer, Baltic stern, traditional boxy cabin trunk, longer waterline, and an all-inboard rig. The Pacific Seacraft has nicely balanced ends with a British-style stern, a perky sheer, and a short sprit. Their similarities are more in the numbers.

Robert Perry's Valiant 40 was the first of the breed. Rather than copy the full-keel double-enders, such as the Westsail 30, that were popular at the time, Bob designed her with a Baltic stern and gave her the underbody and rig of a performance cruiser. The Valiant's fin keel and skeg-hung rudder greatly reduced wetted surface, her long waterline assured a moderate displacement/length ratio, and her generous sail area gave

her the drive she needed for good performance. A Valiant 40 was the first U.S. boat to cross the finish line in the 1980 Singlehanded Transatlantic Race.

Six years later, Robert Dufour (no relation to the French boatbuilder) designed the Corbin 39 to be built in Quebec. I have no idea if he was influenced by the Valiant or if the style and general dimensions were dictated by the builder, as often happens, usually to the chagrin of the designer. Other than style, the main differences appear to be the Corbin's shorter waterline, slightly shallower draft, longer fin, and heavier ballast. It is very possible that the general style and shallower draft were set by the builder. If so, Robert Dufour may have increased the fin length and ballast to ensure adequate lateral plane and provide excellent stability for ocean voyaging.

Twenty years after the Corbin 39 appeared, Pacific



	Corbin 39	Pacific Seacraft 40	Valiant 40
LOA	38' 2"	40' 2"	39' 11"
LWL	32' 0"	31' 3"	34' 0"
Beam	12' 1"	12' 5"	12' 4"
Draft	5'6"	6'1"	6'0"
Displacement	22,800 lb	24,000 lb	22,500 lb
Ballast	9,000 lb	8,600 lb	7,700 lb
LOA/LWL	1.203	1.285	1.17
Beam/LWL	.378	.397	.363
Disp./LWL	311	351	256
Bal/Disp.	.395	.358	.342
Sail Area	811 sq ft	845 sq ft	772 sq ft
SA/Disp.	16.1	16.2	15.5
Capsize no.	1.70	1.72	1.75
Comfort ratio	37.3	37.7	34.0
Year introduced	1979	1997	1973
Designer	Robert Dufour	W.I.B. Crealock	Robert Perry

Seacraft came out with the Crealock-designed 40. Having a bit more displacement and the shortest waterline, she might have slightly more resistance than the other two, but she spreads more sail area to make up for it. Her fin is shorter but she has a ventral fin running aft to the skeg, probably to ensure directional stability in heavy going and to counter any tendency to excess weather helm.

Assessing cruising performance is not simple with these three. Despite her smaller sail area, the Valiant has an efficient high-aspect-ratio mainsail that may give her more punch to windward. However, the first Valiants had a single-spreader rig and the double-spreader rigs of the others may allow closer genoa sheeting. A tossup? Off the wind, all three have long foretriangles that allow large genoas to be set, and they should easily make hull speed and more in brisk conditions. The Valiant's 34-foot waterline may tilt the scale, but the difference in hull speed between the shortest and longest waterlines is only .3 knot. The Pacific Seacraft's longer ends will pick up a bit of length as she heels, so the overall performance difference is slight and, on a long cruise, will depend on the winds.

I have to note here that good designers and builders make

changes as designs age. The original Corbin 39 had an all-inboard rig and the bowsprit was added later. On talking with Bob Perry, I found that the latest Valiant 40, now called the 42, is quite a different yacht from the boat we are looking at here.

For the sailor looking for a good old boat capable of rounding Cape Horn (in summer!) and carrying her crew from Maine to New Zealand and on around the world, any of these three will do nicely. They were designed to take you there and bring you back in comfort and safety through fair weather and foul and, given good seamanship, they will! *A*

Ted Brewer is a Good Old Boat contributing editor. His contributions to the world of sailing as a yacht designer are legion and most of them are still afloat, carrying sailors to destinations in worlds real and imagined.

Damper plate redo

Replacing a reclusive transmission component

by Bob Tigar

am meticulous about maintaining my sailboat. I perform routine maintenance on a schedule and I address little problems that arise immediately, before they turn into more serious issues. Let's face it, a breakdown can be dangerous, inconvenient, and embarrassing.

Diversion, our Morgan Out Island 33, is more than 30 years old. With 2,500 hours on the engine and transmission and our yearly trip to the Bahamas approaching, I wanted to confirm that everything was OK. The Bahama Out Islands are a cruisers' paradise but a serious mechanical problem down there could turn our adventure into an ordeal.

While I have never had a problem with my transmission, it had been a concern. The maintenance regime seemed minimal for such a complicated piece of machinery. According to the manufacturer, all I had to do was change the fluid once a year, check its level regularly, make sure all the bolts were tight, and verify that the cable drew the unit into gear properly. That's it. My local marine transmission supplier confirmed this. In his words, "When it goes, it goes."

The manual for our Velvet Drive Model #71

indicated that symptoms I was noticing meant the damper plate should be replaced. Damper plate? I'm familiar with the mechanical aspects of a boat, but this was a new one for me, so I looked it up.

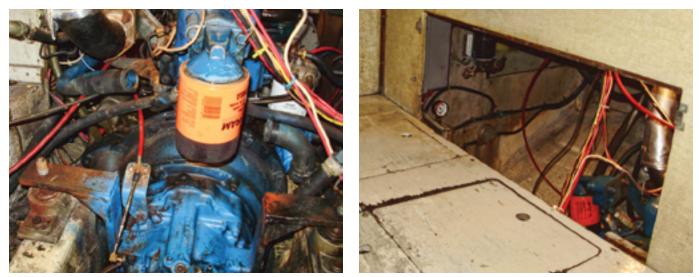
The transmission damper plate is a clutch-like device bolted to the flywheel and an integral part of the mechanical propulsion system that links the engine and transmission. When the shift lever is moved from neutral to forward or reverse, the damper plate absorbs the



The damper plate is constructed of two plates and springs. The transmission shaft fits into a toothed hole in the center.

shock so the transmission doesn't have to. When it fails, the prop stops turning.

A failing damper plate produces distinct symptoms. With your engine operating at idle speed, slip the transmission into gear. If you hear a rattling sound (mine sounded like engine-valve knock), and the rattle disappears as you raise the rpm above 1,000, your damper plate is probably worn but still has some life left in it. However, when you shift into gear and hear a "clunk," the plate is beginning to deteriorate. Eventually, it



On Bob's boat, the rear engine mounts are attached to the transmission case by L-brackets, at left. The two top nuts holding the transmission to the bell housing are visible beneath the yellow oil filter. Bob's primary work area was through an access panel in the rear quarter berth, at right. That put him at the back of the engine and above the transmission.

will break apart and you'll lose propulsion. When that happens, most boaters assume the transmission has failed. More likely, it's only the damper plate. While damper plates are generally reliable, they don't last as long as transmissions. The consensus among my more knowledgeable friends was that at 2,000 to 2,500 hours, the springs on a damper plate will begin to loosen. A transmission will probably last twice that long.

I had been hearing that telltale rattling noise for a long time and wasn't too concerned. I occasionally checked the shaft for slippage. Everything was operating fine ... but those engine hours.

Labor-intensive fix

All marine transmissions use damper plates or something like them. The most common marine transmissions, Velvet Drive, Hurth (now ZF), Paragon, and Twin Disc all use damper plates, the exact type being determined by the transmission model and the engine it's paired with. The good news is a damper plate is probably one of the least expensive replacement parts you'll purchase for your boat. The plate for my Velvet Drive matched to a Perkins 4.108 was \$65. However, the estimate to replace the plate was \$2,000 to \$3,000.

Why so much for labor? Think of what has to be done. The damper plate is bolted to the engine's flywheel. For it to be removed, the transmission must be detached from the engine. If the engine and transmission are small enough and accessibility is good, they can be removed from their mounts in one piece, disassembled, the plate replaced, and everything put back together again. However, to accomplish this, every fixed connection — fuel, electrics, cooling, exhaust, shaft coupling, control lines, and hydraulic lines — must be disconnected.

In my case, which is typical of most vessels over 30 feet, the engine and transmission were too large and heavy to remove. My Perkins weighs more than 400 pounds; the transmission weighs 145 pounds. What's more, the access panel through which the engine would have to be extracted is so small that many parts, including the manifold, alternator, and starter, would first have to be removed. A more practical method for my setup was to unbolt the transmission from the bell housing and slide the transmission back to expose the plate.

Knowing that replacing a damper plate is labor-intensive and therefore expensive, you may wonder if you can do the job yourself. I did it and you can too. Knowledge is the key to success.

Advice and planning

Before I picked up a wrench, I searched for expert advice. I discovered that several of my boating friends had made the same repair, albeit in trawlers. While their information proved valuable, my situation was a bit different. Compared with my engine compartment, their engine rooms were enormous. They talked of placing an I-beam above the transmission and using a chain hoist to support it and slide it back. My engine compartment is under the cockpit. Access to the back of the engine and transmission is through a side panel in the quarter berth or through the cockpit locker. I spent hours studying the limitations while trying to devise a plan.

Should you choose to tackle this project, be advised that each vessel is unique but, while engines and transmissions vary, the procedure for replacing a damper plate is fairly standard.

Study the transmission, bell housing, and engine. Identify where one part joins the other so you don't remove the wrong bolts. In most cases, the bell housing stays fixed to the engine. The damper plate is quite small. On my 50-hp engine, it was less than 6 inches in diameter, small enough to pull through the bell housing once the transmission was unbolted and slid back.

Look for accessories that can be removed to create needed workspace. Visualize what can happen when the transmission is loosened from the bell housing. If the hull below it is wider than the transmission, it will be necessary to support the transmission to prevent it from sliding down into the bilge. Then the routine is straightforward:

• Remove any engine parts that impede your work.

FRITZ SEEGERS

Bolted to the engine's flywheel inside the bell housing, the damper plate protects the transmission by absorbing the shock when forward or reverse gear is engaged.

Engine work



With the transmission slid back, the damper plate is visible inside the bell housing.

- If the rear motor mounts are on the transmission, block the engine.
- Block the transmission if necessary.
- Loosen the bolts holding the transmission to the bell housing.
- Slide the transmission back.
- Remove and replace the damper plate.
- Reassemble all the parts you took off the engine.

Nothing to it! However, a few tidbits of information will help you with this repair.

Safety and preparation

With any repair of this nature, safety is a major consideration. Think of where you will be working. You will be surrounded by sharp objects: seizing wire, metal brackets, and hose clamps. Wear long pants, a long-sleeved shirt, and shoes. Gloves are great if they give you the freedom to work, otherwise they'll be a hindrance. I used an old pair of lightweight sailing gloves, the kind without fingertips.

Tools

If you perform your own maintenance, you probably have all the tools you need:

- Socket wrench, ratchet drive, breaker bar, and extensions
- · Open- and box-end wrenches
- Allen wrenches
- Punch
- Miscellaneous tools for working in confined spaces

The punch is for marking the coupling halves so you can reinstall them in the same position.

I also used "shorty" wrenches, fingertip ratchet drives, and crowfoot wrenches. A crowfoot is the head of an open-ended wrench that accepts a socket extension and a ratchet. They are used for blind bolts that cannot be reached straight on and do not provide swinging room for a flat wrench.

Equipment

- Proper lighting essential
- Blocking materials a bottle jack or pieces of wood — to support the engine and/or transmission
- Paper and pencil to take notes on your disassembly
- Penetrating fluid for loosening rusty bolts — I had very good results with PB Blaster
- Masking tape, marking pen, plastic bags, punch, and hammer — you'll want to tag, bag, and mark equipment you have removed
- Plastic wire ties with which to temporarily tie back cables, wires, and hoses out of your work area
- Containers to collect fluid drained from the engine and transmission
- Rags, paper towels, and a waste container to keep your work area reasonably clean
- Band-Aids, hand cleaner, and bilge retrieving tools as careful as you are, mistakes can happen

Create a work area

Clear everything you can from your work area to create space. I did most of my work through the access panel in the quarter berth. I removed everything normally stowed there and in the the cockpit locker, where there was another access.

Shut off the electrical power to the engine. If you are afloat, close the raw-water intake seacock. Pump out the transmission fluid and dispose of it properly. If you are disconnecting any portion of the freshwater cooling system, drain that also.

Remove equipment and accessories to gain extra space on and around the engine. The heat exchanger is secured to the back of my engine. I removed it and the associated cooling pipes to create space. This exposed most of the bolts that secured the transmission to the bell housing.

As soon as you start to remove parts, mark them and make notes — it'll make reassembly easier. Loosen the *top bolts* on the motor mounts — all four of them — a few turns. This will minimize any chance that excessive movement will pull the motor mounts from their mountings on the engine beds. If you don't touch the lower bolts, the engine should remain aligned to your original specs.

Remove all cables, hoses, and wires that lead to the transmission and use wire ties to secure them out of the way. These connections include:

- Shaft coupling mark each half with a punch to aid in reassembly
- Shift cable
 - Neutral-interlock wires
- Oil hoses
- Grounding straps

Block the engine

Make sure the engine sump is rigidly braced to the hull. If it's not, brace the sump pan to the hull. Place a large piece of $\frac{3}{4}$ -inch plywood in the bilge sump and set a bottle jack on it. Fit a small piece of wood on the riser and under the bell housing or in the space aft of the oil pan — *not* on the oil pan as it's probably not strong enough.

If a jack won't fit under the engine (this was my situation), cut a variety of thicknesses of wood for blocking. I started with a short length of 2 x 4 and cut pieces of ¼-inch, ½-inch, and ¾-inch plywood the same size. I nailed and braced them together, then wedged in tapered 1 x 2s for a tight fit. I knew I had done it correctly when I could slide a feeler gauge under the rear motor mount. Have a few extra wedges available. The wood may compress slightly, requiring you to drive in one or two more when you're reattaching the transmission.

Support the transmission. Either block it from below or support it from above.

Unfasten the transmission

Identify the nuts that secure the transmission to the bell housing. On the Velvet Drive, the bolts are on the lip at 1, 3, 5, 7, 9, and 11 o'clock positions. The top four are visible and can be removed with a socket extension and ratchet. I couldn't see the two lower bolts. When I finally located them with my fingertips, the only wrench that worked was a shorty box end. The nuts and lock washers come off and the threaded posts remain on the bell housing.

Wedge a flat scraper between the front lip of the transmission and the back of the bell housing. It should release with minimal effort.

Slide the transmission back to expose the damper plate. The transmission shaft is relatively short (about 2 inches on the Velvet Drive). However, you will need about a foot of space to work in when unbolting the damper plate. With the motor mounts still attached to the transmission, you have a choice.

If you have blocked the transmission, you can remove the brackets from the transmission case. This leaves the mounts on the rail and the transmission free to be pulled back and raised over the coupling. Alternatively, you can loosen the mounts from the hull, slide the transmission back on the rails, and tilt it up and over the shaft coupling half. I did the latter.

Look in the bottom of the bell housing. Any metal parts are probably from the damper plate. A large accumulation of oil is the result of a bad seal on the transmission. If you have had any problems with your transmission, now is the time to take it out and replace it with a rebuilt unit.

The object of the exercise

Remove the damper plate. Typically, this part is attached with flush-fit Allen bolts that are very tight. After all, they haven't been touched in many years. Take a deep breath. These are not bolts you'd want to break off, as drilling them out successfully would be very challenging.

I was faced with five bolts. Two of them came out quite easily. I soaked the others with PB Blaster, tapped them forcefully with a hammer, and left them for 24 hours. The next day, they loosened easily.

If your bolts still won't budge, don't rush it. Try a second application of penetrating oil before going to another technique. Other ways a mechanic suggested for removing difficult bolts were to use an impact wrench or use an extension on the Allen wrench for better leverage.

Replacing the plate is straightforward. The flat side of the plate fits against the flywheel. If you think you'll ever do this again (or hope the next owner may someday think of you fondly), coat the Allen bolts with antiseize compound before installing the plate. Tighten the bolts securely.

66 While you have all these parts disassembled, you have a great opportunity to replace any suspect items. 99

Reassembly

Slide the transmission back into place. To make aligning the shaft to the damper plate hole easier, remove two of the upper stud posts on the bell housing. Cut the heads off a couple of 4-inch-long case-hardened bolts with the same thread (case-hardened because you *really* don't want them to break off). Hand-tighten these long studs into the bell housing and use them as guides as you slide the transmission into position.

For this stage, have someone available to turn the engine to align the plate with the splines on the transmission shaft. Usually, a breaker bar on a socket on the main pulley bolt will provide enough leverage to turn the engine the small amount needed for the shaft and hole to line up. When they are aligned, the transmission and bell housing joint will be flush. Run the nuts onto the studs, replace the aligning studs with the original ones, and tighten all the nuts.

Reattach all the items you removed, using your notes to do it in the right order. While you have all these parts disassembled, you have a great opportunity to replace any suspect items that might otherwise be difficult to reach,

such as the transmissionoil lines, shift cable, and various hoses and hose clamps.

Touch up and test

You're just about finished. Remove the blocking, retighten the upper engine-mount bolts, align the coupling halves, and adjust the shift cable. Use a brass wire brush to remove any rust spots and touch up with engine paint. Refill the fluids you drained and clean your work area and the bilge. Then start the engine.

While a test at the dock is prudent, a sea trial is better. Run your engine at various speeds for an hour and take the boat back to the dock. Check and retighten the bolts and hose clamps and be prepared to retighten them after your next few excursions.

Before I began this task it seemed monumental. I thought the difficulty for the project, on a scale of 1 to 10, was probably an 11. After doing it, I think it probably was an 8, mainly because of the confined workspace. While this is not an easy repair, it can be accomplished without any specialized tools and in a reasonable amount of time. You'll need patience, attentiveness to detail, and the spirit to invest your time (rather than your money) in your vessel. When you have completed this repair, you will have learned a great deal about how your boat is put together.

Bob and Joyce Tigar began their marriage and sailing on small inland lakes in the Midwest in the late 1960s on a board boat, then moved to larger sailboats on Lake Michigan. Since moving to southeast Florida 12 years ago, they sail their Morgan Out Island 33, Diversion, on annual trips to the Bahamas, adventures in the Florida Keys, and weekend excursions around southeast Florida.



The old damper plate doesn't look too bad but one of the clips was off and the springs were loose.

Man overboard

Don't avoid the subject; do avoid the event

by Don Davies

T begins innocently enough. Two young couples meet socially and begin to talk. One couple says they're sailors and enjoy racing on Wednesday nights at their yacht club. The other says they've never been on a sailboat but would love to try it. The first couple says they always have trouble getting crew, and the inexperienced couple agrees to go out with them on the following Wednesday.

Due to traffic, faulty directions, and other problems, the new sailors arrive at the dock late. As soon as they scramble aboard, the four of them head out to the starting line.

It's the first race of the season in early spring. The big lake's temperature is still very cold. The breeze is brisk, the waves are high, and the other racers are jockeying for position. The non-sailing husband is beginning to feel ill and is already regretting his decision to try sailing. The non-sailing wife is frightened but she bravely asks what she's supposed to do. The sailing couple, intent on preparing for the start, merely tell them both to just sit tight . . . they're used to doing this on their own. The horn sounds and 15 boats of various sizes leap for the starting line. The newcomers don't even see a starting line.

The boat with our foursome aboard is the last around the first mark and the field is far ahead of them. The sailing wife goes on the sidedeck to move the blocks forward to give the headsail a better shape on the downwind leg.

The wind is gusting as she struggles with the block. She calls to her husband for assistance and he locks the wheel, then goes forward to help. As she stands to give him access to the troublesome block, a hard gust of wind fills the sail and the boat suddenly heels violently, sending her overboard without a life jacket. In an instant, her husband jumps into the water to save her.

The boat, with its wheel locked, sails on with the untrained couple left aboard watching helplessly as they leave the two people behind in the frigid water. They do not know how to unlock the wheel. They do not know how to detach the life rings on the rail and throw them into the water. They do not know how to start the engine. They do not know how to drop the sails. They do not know how to turn the boat around. They do not know how to radio for help. They do not know there is a cell phone in the cupboard belowdecks.

Hours later, both bodies are pulled from the water and pronounced dead. Tragically, this story is true.

Critiques and excuses

It's easy to sit back on dry land and analyze all the things that went wrong that day and believe it could never happen. But when was the last time you instructed guests aboard your boat in emergency measures and an overboard drill? For too many, the answer is never, and the excuses are legion.

- You don't want to needlessly scare people.
- The weather conditions are calm and there's no danger of anyone going overboard.
- They'll learn on their own after they've been sailing awhile.
- It'll be too complicated for them.

Excuses aren't much comfort when lives have been needlessly lost.

Outline a procedure

Man-overboard situations are rare, but that doesn't mean you shouldn't talk about them.

First, if you're taking inexperienced sailors out for a pleasure cruise, don't alarm them, but tell them that — in the unlikely event that you should suffer a heart attack, or fall overboard, or whatever --- their emergency procedures are simple: drop the sails, turn on the motor, go to the assistance of the man overboard, radio for help. Then show them how to accomplish these tasks as simply as possible. Show them the halvards and how to release them. Show them the jibsheets and how to release them. Have them start the



engine. Show them how to operate the radio. Do it coolly and efficiently and add some humor where appropriate. Finish by telling them that no one has ever had to use these emergency procedures for as long as you've been sailing. That should give some comfort.

Intelligent guests will be impressed that you've taken the time to prepare them for the worst, even though it's unlikely to happen.

Practice a response

Of course, before you can instruct guests on what to do in an emergency or man-overboard situation, you have to be confident and sure that you know what you're talking about. The way to build that confidence is to regularly



practice emergency situations on your boat and challenge yourself to improve your response times. This doesn't have to be arduous or detract from the enjoyment of your precious sailing time.

If you're a singlehanded sailor, regularly ask yourself, "What would I do if I suddenly suffered severe medical symptoms or fell overboard?" Would I be wearing a life jacket? Would the boat be on autopilot? What are the potential variables and how would I respond in each situation?

Many singlehanders leave a line trailing from the stern and have their ladder halfway down and suspended by a bungee cord. End up in the water and you'd have to get to that line quickly, but at least you'd have a chance.



If you sail with one crew, practice your procedures as if that person fell in the water and you were left aboard alone. What would you do first? Second? Third?

When you practice by throwing a fender overboard, don't let your crew assist in the retrieval in any way — that person would be in the water.

Also bear in mind that a fender weighs a lot less than a person with soaking-wet clothing. On a nice warm day, at the dock, entice your crew into the water and see what you would have to do to get him back on board if he were unconscious and unable to climb the ladder. Then switch roles and get wet yourself.

What is the best man-overboard recovery procedure? While there are *continued on page 61*

by Tim Bauernfeind

One hand for the ship and one hand for yourself

believe in the old salts' mantra but I prefer to make *absolutely* certain I'm going to remain on the boat.

With the vast majority of my sailing on the "cool" Great Lakes, my motto has become, "A life jacket may save your body but a safety harness will save your life!"

My harness has saved my life more times than I care to remember – not that I'm out there bungee jumping from the masthead – and it has become a staple of my sailing (as in "staple me to the boat").

Although the lifeline looks like a great place to attach your tether, it's the very last place you should consider. The best place to attach it is to thoughtfully placed, strong cable jacklines rigged from stem to stern with the best hardware you can afford. That allows you freedom of movement while you remain connected to the boat and encourages consistent use of the tether.

Shrouds, stays, and the mast are a very good second option for

attachment, assuming that your rig will remain intact! Anodized aluminum toerails with many openings are also a good choice but prevent you from reaching very far to work.

Yes, a safety harness can hinder you when moving about on the boat, but isn't that sort of the point? What about having to unclip and re-clip your tether? Purchase a second tether. That way you can always have one attached while you move the other. There's plenty of room on the D-rings of most harnesses for two tethers.

What about kids? Required. End of discussion. Our oldest daughter was barely walking but could climb and crawl when we made that rule. Having just set the hook, we turned to see Katie waving to us sporting a "Look what I did!" coy smile after her first climb from the cabin sole to the top of the companionway steps. That got our attention quickly — safety harness ever since.

I like a safety harness integrated into an inflatable PFD, like the

Mustang Auto Hydrostatic MD3184, which allows you to detach your harness when going below yet keep your life jacket on. And yes, I always wear my inflatable PFD.

You can take other precautions to ensure you stay on board:

- Periodically replace your deck shoes (as you do your car tires) so they always have excellent grip.
- Check your lifelines, stanchions, and hardware for security and wear.
- Consider perforated toerails when purchasing a boat.
- Use the high side of the boat when you go forward and keep your weight as low as possible.

And, just in case, practice, practice, practice, practice your man-overboard recovery technique.

Tim Bauernfeind is Good Old Boat's Managing Editor. He has been a sailing instructor for almost 30 years and is the Sailing School Director for Sailboats Inc.

<u>Making your own</u>

Guarding

Acrylic goes behind bars for its own protection

by Richard Toyne

Stainless-steel bars give *Golly*'s hatches a classic look while protecting the acrylic lenses from damage, above. The old acrylic needed replacing, near right, and the first step in the upgrade was to remove it, far right.

ne interesting aspect of socializing with other cruising sailors is discovering how they go about fitting out, maintaining, and modifying their vessels. Almost invariably there's something interesting to see and, every so often, you come across a really good idea that has resulted in a smart and effective solution to a problem. This was the case with our friends Nick and Hazel Teale and the way they improved and upgraded the hatches on their steel ketch, *Golly*.

To increase the light in the cabins, *Golly* has varnished iroko hatches with substantial acrylic panels in them. Nick and Hazel found this arrangement perfectly satisfactory when sailing by themselves because they knew not to step on the hatches. Guests, however, would often step on the hatches' unsupported acrylic.

When the aging acrylic came due for replacement, they decided to modify the hatches at the same time.

Design

In their original form, each hatch's acrylic panel had been flush fitted into a rabbet in the top of the hatch and held



in place with wooden battens screwed down to the top of the hatch. The ends of the battens were miter cut but, instead of being joined, were left about ¼ inch apart so water could drain out at the corners.

In the new design, the battens on either side of the hatch would be retained, but with their ends now cut square. The battens at the forward and aft ends would be replaced by wooden combs, which would have stainless-steel bars fitted between them to protect the acrylic and make it obvious that the hatches should not be walked on.

Preliminary work

The first step was to remove the old acrylic and retaining battens. Nick and Hazel discarded the forward and aft battens and cut the ends of the lateral battens square, then rubbed down all the wood and revarnished it.

Once this was done, Nick made the combs. He cut them from strips of %-inch-thick iroko and shaped them so they fit snugly to the curved top of the hatch.

To mark the curved shape of the hatch onto the combs, Nick carefully



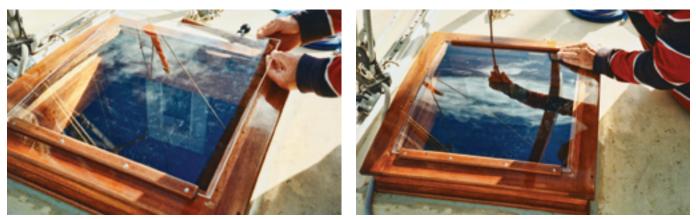
clamped the wood in place and transferred the shape with a pencil and a scribing block.

Scribing with a block is an easy technique that can be used to mark curves, such as deck camber. To do this, lay a pencil on top of a small block of wood. As you slide the block along the curved surface, hold the pencil on the block so its point marks the straight piece of wood. The pencil will follow the curve, transferring the shape to the piece of wood.

Although this method is acceptable for tracing slight curves, like that of the deck camber, it cannot be used for more complicated shapes because, even though the pencil mark is at precisely the same distance away from the surface, the angle of the block changes as it follows the curve. For marking out tight or complex curves, such as where a bulkhead joins the hull, the curve should be marked out using a pair of dividers or a pencil compass, as described by Paul Ring and Tony Allport in their articles in the January 2010 issue.

With the curve of the hatchtop marked on the new timber, Nick cut out

Golly's hatches



After varnishing the hatch, Nick set about fitting the new acrylic. He slid the port-side end under the batten, at left. He then carefully coaxed the sheet to the curvature of the hatch and secured the other side with its batten, at right.

the combs with a jigsaw and shaped them with a spokeshave. He made them 1¼ inch deep, with a decorative duck-bill shape at the ends.

The final stage of the preliminary work was to drill the combs to accept the stainless-steel bars. These were ¼ inch in diameter and purchased cut to length from a local supplier. Nick drilled the holes for the bars halfway between the top and bottom of the combs and to a depth half the thickness of the timber. He spaced them evenly, with half a space at each end. Initially, he had anticipated using five bars in each hatch, but they appeared a bit too far apart to his eye, so he added an extra one, making six.

Assembly

Nick first tested everything by dryfitting the parts, then began the final assembly in which he bedded all the parts on silicone sealant.

He started by screwing one of the wooden battens in place, on the starboard side of the hatch. He then slipped one side of the acrylic under it, carefully flexed the acrylic to shape, and screwed the other batten down to secure it on the port side.

Next, he fitted the metal bars into the combs and secured the combs to the hatch top so they held down the fore and aft edges of the acrylic, fastening them with screws from the underside of the hatch top. It would be extremely difficult to sand and re-varnish the combs while they're in place. With this in mind, Nick chose a silicone sealant with low adhesive properties, so the bars and combs can be easily removed by undoing the screws from underneath and carefully prying them off. \varDelta

Richard Toyne and his partner, Magali Bellenger, have been living aboard Sigfrid, their 34-foot 6-inch steel ketch, for several years while exploring the Mediterranean Sea. To finance their voyages, they write for magazines, Richard does carpentry work ashore and on boats, and Magali sells jewelry she makes on board.



Knowing that varnishing the various parts of the hatch in situ would be difficult, Nick designed the guards to be disassembled. Here, he is fitting the bars into the combs, at left. Once the guard was assembled, at right, he fastened the combs to the hatch from beneath.

Making your own

layniarin

Radar on the level



everal years ago, my wife, Kari, and I decided to venture beyond the relative safety of our normal cruising grounds in the Apostle Islands, on the south shore of Lake Superior in Wisconsin, and head across the open lake to Grand Marais, Minnesota. This passage is only 50 miles or so but it crosses five shipping lanes and is exposed to the full fetch of the lake.

In the morning, after motoring the first 10 miles and leaving the protection of the islands, we hit the fog that all Lake Superior sailors know so well. Our boat at that time was a 1976 O'Day 27 with minimal electronics, no autopilot, and no radar. Anyone who has sailed in the fog knows how uncomfortable it can be, and how our imaginations conjure up images of thousand-foot ore ships barreling down on top of our little craft. In addition to these frightening thoughts, the 10-hour crossing gave us plenty of time to ponder the merits of having radar on board.

That boat served us well and took us across the lake and back without a hitch. Since then, our family has grown and so has our boat. Danny built *Olo's* radar tower, at left, from readily available aluminum plate and tubing, below and illustration on facing page. He sets the angle of the radar manually by adjusting a turnbuckle, on facing page.

We're now sailing a 1986 O'Day 35 with our two young sons. When buying the larger boat, we decided early on that radar would be one of our first major upgrades.

The decision to add radar was easy, but we then faced choosing where and how to mount the dome antenna and the accompanying chart plotter that would display the radar image. The obvious place to mount the antenna dome is on the mast, but I decided I wanted something easier to install and maintain that did not require a trip aloft. (I had already been through an unsuccessful wiring project that had required multiple trips up the mast.) Besides, the mounting brackets are expensive.

A backstay mount with a selfleveling device seemed like a good way to go, but our backstay attaches right in the middle of the gate to the swim platform. Since it's already tricky enough climbing up and down at the stern using this path, I decided against adding any bulk there. Besides, those backstay mounts cost a few bucks too.

My solution was to mount the dome on a tower at the transom. But (need I say it again?) those independent radar masts are almost as expensive as the backstay mount! I decided to build my own. After researching a wide variety of mounting methods, the idea of leveling the dome made a lot of sense to me and I decided to make my tower with a manually operated leveling mechanism.



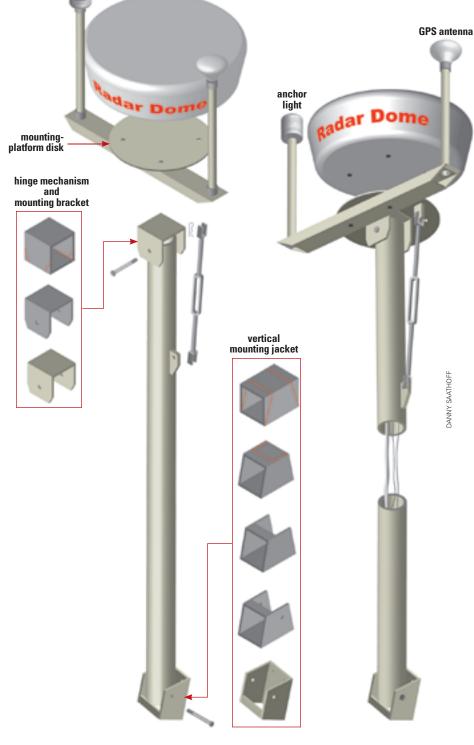
A home-built tower with manumatic leveler

by Danny Saathof

Mostly metal

The methods I used are easily within the reach of most do-it-yourselfers, but metal fabrication should be undertaken with proper preparation, safe practices, and protective equipment. Be sure to clamp the pieces in place when cutting and drilling. Always wear eye and ear protection and use gloves when handling the metal, as it has a tendency to heat up when worked. Some of the basic cutting tools I used were a jigsaw, a chop saw with a metal-cutting blade, and a drill press. I did have access to a welder who welded a few pieces together, but mechanical connections would work just fine.

Most mid-sized and larger cities have steel and aluminum distributors who will cut to specifications you provide. I bought a 2½-inch-diameter x ¼-inchwall x 8-foot-long aluminum tube for the tower. I have access to a fabrication shop and a CNC router at a local sign shop.



Radar on the level

I drew up the plans on the computer for the mounting platform disk, with the corresponding hole pattern for mounting the dome, and had the router do the cutting for me. I used ³/₁₆-inch aluminum plate for this. This is not a necessary step. A square of ³/₁₆- or ¹/₄-inch aluminum with corresponding holes carefully drilled in place would do the job.

For the hinge mechanism and mounting bracket, I cut a 3-inch length from a 3-inch x 3-inch x ¼-inch-wall square aluminum tube. I cut out one section of the wall to

create a U-shaped piece and used my drill press to drill a %-inch hole through the two uprights of the U.

I drilled a corresponding pair of holes 1 inch in from the end of the round tube that would

The turnbuckle can level the radar for any normal heel angle, at right. Danny used a Garhauer bracket to brace the tube to the boat's stern rail, lower right. Kari is pleased to have an ally with the ability to peer through Lake Superior fog, facing page.



be the tower, slid the U over the end of the tube, and ran a shoulder bolt through the holes. This was the basis for the leveling device.

I welded the U to the underside of the disk, making sure to align it with the mounting holes for the antenna so the antenna would face the right direction. Again, instead of welding, a few countersunk bolts with locknuts would suffice.

The key for the leveling device is a large turnbuckle (McMaster-Carr part number 3001T56) that can be adjusted to level the platform to the horizon.

I bought the jaw-to-jaw style turnbuckle (as opposed to eye or hook styles). It has ½-inch threads and a range of 19½ inches to 31½ inches. I fashioned two tabs out of ½-inch aluminum stock to fit the %-inch jaw openings and had them welded in place 25½ inches apart (half of the turnbuckle's range), one of them to the tube, the other to the underside of the mounting platform.

Once I attached the turnbuckle, I had a platform I could level with a few twists of my hand. I added a top and bottom jam nut to the turnbuckle to keep it from loosening while under way. I also attached a clinometer to the underside of the mounting platform to show me when it was level.

Installing the post

As my installation was to be on the transom behind the stern rail, I needed a vertical mounting bracket. I cut off a section of the 3-inch x 3-inch square tube and, with some creative cutting and drilling, I fashioned the bracket to attach the tower to the transom. I used my drill press to drill the holes on the bracket for the pin to keep the tower in place but — since the transom is not perfectly perpendicular to the

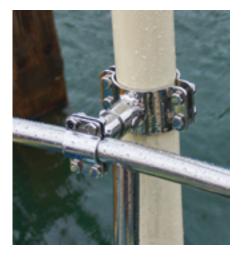
66 I figured I could clean up the stern rail by moving the GPS antenna up above the dome as well. **99** boat's centerline — I waited to drill the corresponding holes in the bottom of the tower's vertical tube until after I'd installed the bracket on the boat. This way I could set the tower in place, square it to face forward, then mark the holes to drill them out. A bolt secures the tower to the bracket.

Garhauer Marine builds radar towers to customer specifications. To support them, it makes stainless-steel struts and brackets, which are listed on the company's website under Radar Tower Accessories. I purposely used the same diameter vertical tube as Garhauer to accommodate these struts. I bought the 2½ SRB (I believe SRB stands for stern rail bracket) plus the Strut 2½, sold by the foot. I actually spent a little money on two struts and corresponding brackets for my installation, but similar struts and brackets could be fabricated by hand.

I ran one strut from the tower to the top of the transom approximately amidships. This supports the tower laterally as the boat heels. I attached the other strut to the stern rail for fore-and-aft support. With these in place, the tower is very stable and sturdy.

Down to the wires

The wiring cables come down from the dome through the tube and out the bottom of the tower. Where the cables pass through the hull, I fitted a Blue Sea Systems CableClam (Defender Marine part number 252317) to the transom near the bracket. CableClams are made in several sizes; I suggest



getting the largest one so you can run multiple cables and wires through it. Drilling holes into a perfectly sound boat is always a little intimidating. You must be strategic about the placement of your pass-through.

As I mentioned earlier, my decision to go with the tower was based upon some unproductive wiring efforts up the mast. When we bought our boat, we didn't realize the masthead light was not working. The bulb was fine and, after considerable effort, we isolated the problem to somewhere in the mast. I decided to skip the fix and mount a designated anchor light above the radome.

While doing this, I figured I could clean up the stern rail by moving the GPS antenna up above the dome as well. This was accomplished by mounting a length of rectangular aluminum tube laterally to the underside of the dome platform. The rectangular tube is 1 inch high x 2 inches wide x 22 inches long. I cut the ends at steep angles to facilitate mounting the vertical tubes to the arm.

I used electrical conduit fittings to attach short vertical lengths of conduit to the lateral tube on either side of the dome. The anchor light I chose was a Davis Mega Light. I liked the fact that it consumes just 0.11 amps so the battery draw would be minimal, plus it also has a photo cell that turns it off when the sun comes up. The other side now holds the GPS antenna that once sat on the stern rail.

Protected by paint

As I was constructing the tower, I sanded all the aluminum pieces to prepare them for painting. I looked into having the whole thing anodized but, as

Resources

Defender Industries www.defender.com

Garhauer Marine garhauermarine.com

McMaster-Carr www.mcmaster.com

66 After living with this arrangement for a few years, I'm still very satisfied with it. **99**

that was going to run more than \$200, painting seemed to be the right choice.

Since it is always hard to sand into the corners of mated surfaces, I sanded the individual pieces prior to assembly, and used 220-grit sandpaper to ensure good paint adhesion. I used an automotive primer and industrial sign paint for a topcoat, but I've also had good results with quality hardware-store spray primers and spray paints.

The whole tower, with the dome but without the struts, weighs 34 pounds.

After living with this arrangement for a few years, I'm still very satisfied with it. I must admit I don't adjust the leveling mechanism every time I switch on the radar. But when the wind pipes up and the visibility drops, I do use it and I think the minimal time and effort it took to build the system was worth it.

With this addition to our boat, we have put to bed the nightmares of ore ships running us down in the fog. \varDelta

Danny Saathoff is an artist and a jewelry designer, although many days he'd rather be sailing. He completed his first long-distance solo race last summer and is considering doing the Trans-Superior Solo Challenge within the next few years. He sails with his family in the Apostle Islands on Lake Superior.



Making your own

Grand entrance

Double doors do more than double duty

by Benjy Benjamin

Open, Benjy's doors rest against the cockpit bulkhead and allow a person to lean against them. The basic frame, at right below, includes the bottom dropboard.

iving aboard a boat changes one's priorities. What works for the occasional trip can become downright annoying on a daily basis. Take the companionway dropboards for example. If you live aboard, removing and refitting them each time you come and go soon becomes a drag, especially when you have four of them to remove!

On a small boat where storage is at a premium, it makes sense to store things "on" the boat. I favor roller furling if for no other reason than the sails are stowed on the furler and not taking up valuable space in a locker. I applied the same logic when I fitted companionway doors, and no longer have the problem of where to stow the dropboards.

Doors for *Doolittle*, my Dana 24, had to be elegant yet strong. They had to open wide enough to be stowed flat against the cabinhouse. They had to house the ship's compass, a GPS, and a depth sounder. I also wanted to be able to refit the original boards easily, if needed. And I didn't want to drill any holes in the fiberglass. Quite a tall order!

The most logical way to achieve all these goals was to create a set of doors in a frame that could be dropped into the same groove the dropboards used. I shaped two uprights and used the first dropboard to join them at the bottom. It takes a little more effort for us to lift a leg over the extra height at the companionway, but we can live with it ... especially as it has given us a great new place to sit when on watch at sea.

A place for instruments

When I first ordered *Doolittle*, I told Pacific Seacraft I did not want a compass fitted in the usual place, to starboard of the companionway. This ruins a good place to sit and prevents a door, when fitted, from swinging all the way back. Besides, it's hard to read the compass if you're sitting on the other side of the boat. With my door arrangement, I was able to fit the compass on the boat's centerline and, what's more, without cutting a huge hole in the fiberglass.





Benjy made the center door stile in two pieces and, with a router, cut grooves in them to take the homemade latches and controls, at left. The wooden plugs with leathered ends prevent the doors from bending when leaned against, at right.

The GPS now lives on one side of the compass and the wireless Tacktick speed/log unit lives on the other.

I chose a Tacktick display mainly because it has no cables. This meant I could easily fit it to the doors and connecting it wouldn't be a problem. The GPS needs only a 12-volt supply that is plugged in when at sea. Yet another advantage of the door frame was a narrow space on the inside, beneath the door sill, just deep enough to store the instruments and cables when not in use.

Once I had completed the frame, I could move on to making the doors themselves. They would have windows in them to let light into the cabin. I wanted a window shape that suited the boat, but I wasn't having much joy. Everything I drew looked wrong. I asked an artist friend for suggestions and he nailed it on the first try.

I made the doors of teak with simple tongue-and-groove joints and epoxy glue. This is a very simple, yet strong, way to join wood. Also, because of the tongue, the pieces stay in place and

FRITZ SEEGERS

This exploded view shows the principal wooden parts that Benjy assembled to make his companionway doors.

Grand entrance

Glazing with tape

f when glazing you don't like making holes for screws or using messy sealants, perhaps you need 3M's VHB tape, which stands for "very high bond." This is not new technology: 3M has been selling it for more than 25 years and offers a bewildering choice for hundreds of different applications, from joining airplane wings to building houses. It's a double-sided sticky tape made from acrylic foam. Using it is simplicity itself. Ensure the surfaces are clean, lay the tape, peel off the backing paper, and bring the two surfaces together. The bond strengthens the longer it's in place.

It seems unaffected by UV or heat, works well, and is easy to apply, so there must be a catch. You guessed it, it's the price. But when you consider how long and messy a job it can be bonding windows with runny sealants, the time saved outweighs the cost. The finished result is very tidy and there's no cleaning up to do afterward.

With almost 40 products to choose from, working out which tape to use to bond polycarbonate plastic to wood wasn't easy. I decided that Multi-Purpose Conformable Acrylic was the best choice, as it bonds most materials. VHB should be applied in temperatures above 60 F, but 3M also



makes a low-temperature tape for applications down to 32 F, which is what I chose.

It's available in black, white, gray, and clear versions in widths from ¹/₄ to 1 inch. I planned to leave the teak untreated so I chose gray tape in the hope that it would not be noticeable once the wood had aged. The roll I bought was .06-inch thick and ¹/₂-inch wide and has the 3M code 4957F. It followed the curve in the woodwork without kinking and was the perfect width for attaching the glazing.

Our windows have been in place for four years. The tape shows no signs of letting go its tenacious grip and the doors are still as watertight as ever. I applied a couple of coats of varnish and let it dry well before I stuck down the tape, but I suspect it would have worked just as well had I stuck it to the bare wood. I just hope I never have to replace the polycarbonate as I have no idea how I will get it out without breaking the doors!



The gray glazing tape is barely visible through the smoked polycarbonate on the inside of the door, at left, and not at all visible from the outside, at right.

lock the assembly together, making clamping and gluing easier.

A tricky catch

My previous boat had doors that were fitted with amazing bronze handles but, as we were going to lean against these doors, I couldn't use any sort of external mechanism on them that would make that uncomfortable. I wanted simple catches so the doors would close by themselves, and a simple mechanism for opening them.

I had to solve a couple of slight issues before I could have neat flush catches: no one manufactured any such thing ... and how on earth would I operate them?

One door closes on the other so only one of them needed catches. For the top and bottom catches to be operated, they would have to be connected to the door handle with strings, which meant the door would need to be hollow. Drilling such a long hole was out of the question, so I made this part in two pieces and routed them out to create a hole for the string, for runners for the catches, and for the return springs that fit over the shanks of the catches.

The strings meet inside the door where they are connected to a door handle or lever. A square of bronze on the outside of the door has a hole in it for the padlock. A hasp is fitted below it. When folded up, the hasp covers the handle, which then cannot be operated.

A nice trick when mating two pieces of wood like this is to screw a couple of brass wood screws into one of them, cut the heads off the screws, then position the other piece of wood in place and tap it with a mallet. Where the cut-off screws mark the wood lightly, drill small holes the same diameter as the screws' shanks. The screws now act as keys, and the two pieces match up in only one way. Otherwise, when clamping pieces of wood for gluing, they can slip or slide. This easy trick is the perfect invisible remedy.

I made the windows from lightly smoked 5mm polycarbonate. They are held in very neatly by a special tape made by 3M that is suitable for sticking polycarbonate to other surfaces (see



With the hasp in place, at left, the doorknob cannot be turned. It can be secured with a padlock. The entire doorframe assembly can be removed, center. The doors and their frame were built around the compass, at right, and the other instruments followed.

sidebar). The polycarbonate is incredibly strong, as is the tape, so it all makes for a light, yet very strong, set of doors.

I had to extend the original wooden lip on the sliding hatch to cover the new doors as they are about ³/₄ inch farther aft than the dropboards were. The entire assembly can be removed in moments as the doors are held in place by only two wood screws.

I oiled the doors on the inside to match other interior wood and left the outsides bare teak. I installed a brass ventilator in the inner panel. It allows some air to pass when the boat is closed up and it also provides a way to get the inner panel off when I need access to the stored instruments.

I glued two leather-covered teak plugs to the tops of the doors on the outside. These stop the doors from bending when being leaned against. I fitted each plug with a loop of elastic that can be clipped over the cleats on the cabintop to prevent the open doors from banging when it's windy or rough at sea.

The doors are very easy to use and have made our lives easier. Light from the windows also brightens the boat's interior, making it more cheerful, and it's a pleasure to be able to watch our damp sparrow friends eating the food we put out for them while rain beats down on the doors. I've made quite a few mods to *Doolittle* over the years, but not one has changed our lives quite so much as the doors did. The spray hood comes close, perhaps, but that's another story ... \mathcal{A}

Benjy Benjamin loves sailing, making things in wood, and photography, and sells dinghy plans at <woodenwidget. com>. He lives aboard Doolittle, a Pacific Seacraft Dana 24, with his partner, Celia, near St. Tropez in the south of France. He works on classic yachts to fill the time when not exploring the Med.



The doorframe was sufficiently deep to provide an enclosure for the backs of the compass and the depth sounder, at left. It also holds the GPS when it's not in use. Benjy's trio of instruments is convenient to view and doesn't obstruct the seating area, at right.

Making your own

LPG in a box

A propane locker that won't blow the budget

by Ken Textor

standard propane locker from a marine catalog seemed ridiculously expensive (\$650 or more) when I was refurbishing my Cape Dory 27 a few years ago — and pretty darned ugly too. Thinking I could do better in both respects, I went back to my favorite engineering material, wood, for the answer. Soon enough, I succeeded in meeting LPG recommendations and in producing an easily made, durable LPG locker that just about anyone could put together.

The design idea came to me as I was replacing the boat's battered old teak coamings with new African mahogany trim. I thought: why not have a matching LPG locker at less than one quarter the price of an off-the-shelf, plastic alternative? As laughable as that may sound, I soon found that constructing such a compartment was actually easier than a great many other woodworking projects on boats. But first, I had to get some facts straight.

Liquefied petroleum gas (LPG) is usually a mixture of propane and butane and their kin but is commonly called, simply, propane. Having propane gas appliances aboard a boat still scares the heck out of some owners of older boats. This misplaced fear is based on the extremely rare propane accidents that are sometimes reported, with much fanfare, in the popular boating press. But, as is often the case, the truth behind the screaming headlines is a little different than what you'd expect.

Propane gets its bad reputation from being heavier than air. That means if you have a boat with little or no ventilation belowdecks, and if you develop a leak somewhere in your propane system, the gas will tend to collect at the lowest point in your boat, the bilge. Then, a stray spark in the bilge (typically from the engine's starter motor) can ignite the propane and create those headlines.

In response to this possibility, the American Boat & Yacht Council (ABYC) has come up with some useful guidelines for LPG installations. Most of the specifications are aimed at LPG lockers built into the boat. Outside the hull, however, there are no guidelines for lockers — mainly because they're not really necessary. But you still ought to follow ABYC recommendations for getting gas from the locker to the appliance (see sidebar).

A job for veneer

In the workshop, making a good-looking exterior locker became a matter of bending wood, specifically two layers of African mahogany veneer. They would be the "bread" of a sandwich in which the "meat" was several layers of epoxysaturated fiberglass cloth.

Relative to solid lumber of the same species, African mahogany (sometimes called khaya mahogany) is cheap, usually around \$2 per square foot for ½6-inch veneer as opposed to \$6 to \$9 per board foot of rough lumber (a board foot is 12 inches x 12 inches x 1 inch thick). My 6-pound LPG cylinder measures 13 inches tall and 7½ inches in diameter, so I used veneer 14 inches wide to make the locker. Larger LPG cylinders will require wider sheets of veneer. This usually results in paying a premium of about 50 cents to a dollar more per square foot.



A small outlay in materials and a few hours of labor brought Ken a gas locker that turns heads wherever he sails.

At this point, it's worth noting that veneers of almost any species of wood are available and prices vary according to the scarcity of a given species. Teak will cost more than African mahogany, oak is less, and so on. There are a multitude of veneer dealers nationwide and shipping is a big part of their business. Near large cities, veneers can often be purchased locally, saving you the cost of shipping. Local purchases also allow you to see what you're getting, although in 30 years of ordering veneer from distant suppliers, I've always received exactly what I expected. To find a veneer supplier near you, use your favorite Internet search engine and the terms "veneers, retail."

Molding on a frame

Back at the workbench, the first step in the locker's construction was to make a frame around which to bend the veneer. Part of the frame becomes integral to the locker but part does not. This is important to keep in mind because, if you're not careful, that non-integral part of the molding frame could end up becoming part of the locker. Obviously, the two integral parts of the locker



Ken made a temporary mold, at left, and attached it to the board that forms the back of his locker, center. He covered it with wax paper to prevent epoxy from adhering to it, top right. A veneer-cutting saw and a batten ensured clean straight cuts in the veneer skins. Ken clamped the veneer to the form while he glued and stapled it to the base and the back. Some of the clamps remained in place while he applied the first layer of fiberglass cloth.

should be of the same wood species as the veneer. The non-integral piece can be of any cheap, handy wood. I used some old MDF fiberboard I had lying around, hence the much lighter color than the mahogany.

An LP tank doesn't have to fit hand-in-glove tight in the locker, but it shouldn't be rattling around in there either. For my 6-pounder, I struck an arc with a radius of 4¾ inches, which gives a full inch of extra room on either side of the LP tank's 7½-inch girth. With that radius, the integral part of the frame was 9½ inches wide.

Wax paper is essential for the next step. The wax paper is stapled to the non-integral part of the locker's frame. This will prevent epoxy glue, which can seep through the veneer, from adhering to the non-integral molding frame and locking it in place. Be sure to fold the wax paper back over itself to cover the staple heads. You don't want epoxy glue adhering to them either.

Cutting the veneer can be accomplished with a utility knife but you run the risk of crushing the wood fibers and developing splits in the veneer edge near the cut. Splits have a nasty habit of becoming bigger splits. You can minimize the splits by applying heavy adhesive tape at the point at which you are making the cut. Better yet, get a veneer-cutting saw and use it to cut the appropriate length of veneer, which for my LP tank locker was 36 inches. Don't forget to tape the cut ends to prevent splitting.

Stapling the veneer to the integral part of the frame is simple enough. Use nonferrous staples when attaching the veneer to the integral parts of the locker. Note too that the clamps are applied as you work your way around the integral part's outer edge. Trying to clamp everything in place before you start stapling requires too many clamps, which end up getting in the way of the stapling process. And of course, do not staple the veneer to the non-integral part of the frame.

Once the veneer is stapled in place, it's time to apply the first layer of fiberglass cloth. The clamps on the non-integral part of the frame are left in place to help the veneer hold its shape until the first epoxy-saturated layer of cloth sets up. Obviously, the cloth is applied up to just shy of the clamps and it's important not to get any epoxy on the clamp pads.

When the first layer of cloth has had 48 hours to set up, remove the clamps and, after following the epoxy manufacturer's directions for betweencoat preparation, begin applying more layers of cloth. Start by covering the area that was left open because of the clamps, then build up on the first layer. I've found three complete layers of epoxy-saturated fiberglass cloth are plenty strong but, if you feel more comfortable with more, lay 'em on. Just be sure to leave at least 48 hours drying time between each layer. And when you're ready to apply the last layer of fiberglass cloth, be sure you're ready to clamp another layer of veneer atop the last epoxy-saturated cloth immediately after wetting out the cloth.

Finishing touches

For the final veneer to be properly held in place, have plenty of wax paper and clamps on hand. The entire surface of the finish layer of veneer must be covered with at least one layer of wax paper to prevent the clamp pads from











LPG in a box

66 An outboard bracket on the aft rail made a convenient mounting surface. **99**

adhering to the veneer. As with the first layer of veneer, epoxy can seep through the wood and the wax paper keeps it from cementing the pads in place. It's best to do a dry run of the final step to be sure you have enough clamps on hand and have a general idea of where to place them for the best result.

After the fiberglass/veneer layups are complete, remove the non-integral framing member and prepare for filleting. This procedure has nothing to do with carving up fish but it does help reinforce the corners where the veneer meets the integral portion of the frame. The fillet is made of a paste of epoxy and the manufacturer's recommended filleting powder or, as worked for me, sawdust. Once you've formulated the paste, you just trowel it into the corners, dress it with a disposable edging stick (I used a standard tongue depressor), and let it set up for 48 hours.

Finish off the LPG locker with a lid made from a solid piece of lumber of the same species you used for the veneer. The lid is cut slightly bigger than the outside edges of the locker sides. This helps prevent rain from running down the inside of the locker walls. But this should not be a watertight lid. To be safe, air must circulate freely in the LPG locker; making it watertight would prevent that.

To bring out the best in the veneer, I varnished it without first applying a



The gas regulator and pressure gauge are inside the locker, at left. The latched lid, at right, keeps out the rain but, to ensure the locker ventilates, it is not airtight.

clear-epoxy base. I just varnished in the same way I would any bare wood surface. I did, however, have to sand down some epoxy that had seeped through the veneer. Be careful when doing this as it's easy to sand through the veneer.

On most boats, where the locker is mounted is a matter of convenience. My boat already had an outboard bracket on the aft rail. The outboard was not included in the sale, so the bracket made a convenient mounting surface. I led the gas hose through a vent cowling already in the aft deck.

Since the locker has been aboard *Marie Rose*, I rarely visit an anchorage without someone rowing by and saying, "Hey, where'd you get that?" "I did it myself," I tell them, "for \$75." \varDelta

Ken Textor has been living on, working on, and writing about boats for 35 years. In addition to Good Old Boat, he's written for Sail, Cruising World, WoodenBoat, and others, plus books and newspaper columns. He lives with his wife, cats, and dog in Arrowsic, Maine.



LP locker ABCs

A t every point between your exterior LPG locker and your onboard appliance, it's important to meet American Boat & Yacht Council (ABYC) standards for safety.

At the locker itself, it's best to have plenty of ventilation in the unlikely event you develop a leak. Because the locker is independent of the hull, the ventilation can be as simple as a loosely fitting lid with an extra-wide hole at the bottom of the container. The large hole does double duty as a ventilation port and the point at which the hose from the LPG tank leaves the locker and heads for the onboard appliance, usually a galley stove.

The tank itself must be fitted with a shutoff valve and a pressure regulator. A pressure gauge (for testing for leaks) must be fitted between the tank's shutoff valve and the regulator. These are easy and relatively inexpensive items to obtain from any marine catalog or most LPG suppliers for about \$100.

Unless the tank's shut-off valve is operable from the vicinity of the appliance (i.e., you can reach the tank from next to the stove), ABYC standards call for another shut-off at the fuel supply that can be remotely operated from the vicinity of the appliance. The most convenient way to do this is with an electric solenoid valve (\$150 to \$200).

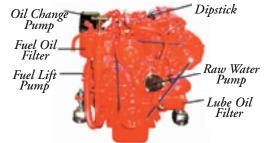
The fuel line must run continuously (no joints) from inside the LPG locker to the connection at the appliance.

An LP gas detector is also a smart investment for insurance reasons and personal safety. From a marine catalog, these detectors vary in price from \$150 to \$250. A similar LP gas detector for a recreational vehicle is around \$60.

Deciding between an aluminum or steel LPG tank is a personal decision. I prefer steel, which typically stays rust-free for 10 years or so. Aluminum tanks are roughly twice as expensive as steel, about \$200 compared to \$100 for a 6-pound tank.

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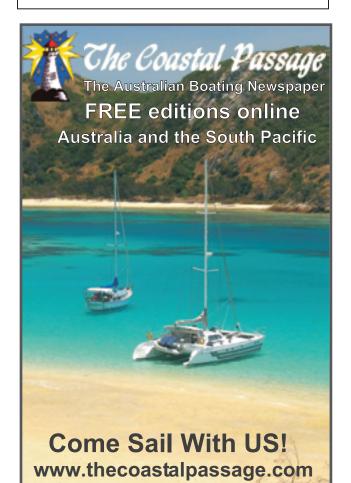
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Cruising memories

Finding friends at sea

Bird sightings enrich the cruising experience

by John Vigor

frigate bird

e never took much

notice of birds before we went to sea. We didn't need to. We had human company everywhere we went. Not all of it was pleasing, of course, but it was there.

When we went to sea, and every wave looked like every other wave on the unchanging ocean, I began to suffer from sensory deprivation. One day, I called my wife, June, up on deck to look at a half-submerged plastic bottle floating past. It was the first thing I'd seen in the sea for more than a week. I was so excited I nearly stopped the boat to rescue the silly thing.

On our voyage across the Atlantic on our 30-foot sloop, June was more affected by isolation, the lack of human company. Our teenage son and I were of little solace to her. We were consumed with the business of sailing the boat. Separately, we each did our stint on deck and then we went below to sleep. We passed June in the companionway.

"I felt very cut off," she recalled later. "I felt we were a small totally detached cell, moving and existing entirely independently. Even on our own boat there was a sense of isolation. Each person had his own duties, his own time to sleep, his own concerns, his own reactions and feelings."

So when a lone brown noddy visited us in the South Atlantic, hundreds of miles from the nearest land, June was delighted. It was a sign that we weren't alone on this uneasy face of the earth, a sign that she had badly missed.

The tern arrived at 0300 in the middle of a thunderstorm, with lightning crashing all around, just after we had doused all sail and were lying ahull, drifting broadsideon to the swells as the wind lashed us. With his webbed feet, he couldn't perch on the aft pulpit, so he ended up swaying back and forth to keep his balance on the flat top of the lifebuoy,

where he made the kind of noises a crow makes. He was apparently unafraid of us, as well he might have been, being the owner of a large and vicious-looking beak. In fact, he ignored us completely and flapped away quietly at dawn, after the storm had passed.

Avian memories

brown

noddy

Birds have enhanced our cruising experiences on so many occasions that now we often recall a special anchorage or a memorable passage by referring to a bird we saw there. Down at the tip of Africa we came across an

> albatross, 6 feet from wingtip to wingtip, soaring up the faces of large swells, swiveling his head and watching us intently with a beady eye. It was near there, too, at the Cape of Storms, that we saw one of nature's great sea spectacles: Cape gannets in a feeding frenzy. Gannets are large, handsome birds, blinding white with deep, black, trailing edges to their wings and pale yellow heads.

Hundreds of them filled the sky over to starboard, attracted by a large school of surface fish. While some hovered with their heads at an angle, peering intensely into the water below, others were already plunging down at full speed. Soon, hundreds of white arrows were shooting into the sea, sending plumes of white water leaping skyward. Some came straight down at the speed of bullets, forming their wings in a W shape as they approached the water and then, at the very last millisecond, folding them flat against their bodies. Others came in at angles, crossing each other as they darted into the sea.

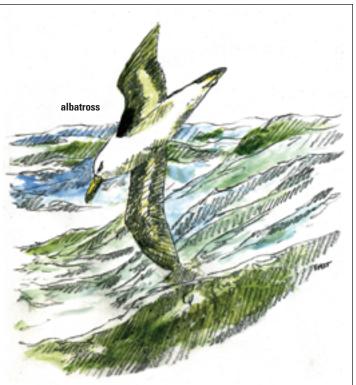
In the reddish morning sun, this savage scene of slaughter was drenched in color and vibrant movement — a seething battlefield in which the frenzied blue-and-white sea surface was stained red in patches with bloody froth and foam.

When we think about the little island of Fernando da Noronha, off the coast of Brazil, we think "pterodactyls." They filled the sky over the sandy white beach where we landed our dinghy — scores of tropical frigate birds, diving into the surf and grabbing small wriggling fish. With their long forked tails and angular wings, they looked just like pterodactyls. They're an extraordinary sight, large birds, all arms and legs and elbows sticking out, and they move like lightning — that is, quickly and erratically. They seem to be either permanently out of control or deliberately reckless and abandoned, but they can certainly catch fish. They're also experts at chasing and harassing other seabirds in mid-flight, especially boobies, until they cough up the fish they've just caught. Frigate birds should really be called pirate birds.

Comics and actors

We still can't talk about cruising in the British Virgin Islands without remembering the pelicans and the laughing gulls. In Gorda Sound we stopped overnight at Drake's Anchorage on tiny Mosquito Island, where pelicans did impossible high-speed belly-flops into inches of water and came up with their beaks full of tiny fish. They looked so panicky and out

of control on their dives that we burst into laughter every time we saw them do it. But even more surprising was the sight of the little laughing gulls that would stand on top of the pelicans' heads, darting at the pieces of fish that fell out of those capacious beaks. Mosquito Island and its funny birds were so fascinating that I incorporated them in a children's novel I wrote later.



On the remote island of St. Helena, where Napoleon was exiled until his death, little fairy terns as delicate as thistledown fluttered around their nests in the cliffs just above our anchorage, their pure white bodies contrasting strongly with the forbidding brown fortress of volcanic rock.

But St. Helena's special treat was the wirebird. We did a lot of walking on the island and one day we were in rich grassland when a wirebird, a kind of plover, appeared in front of us. This was the first good look we'd gotten of one of the rarest birds in the world. He was a brave little male, obviously guarding a nest somewhere nearby, and he put on a wonderful display to lure us away from it. He would run a little way to one side, but when we didn't follow he went into a very convincing wounded-bird act, fluttering, swooping, and crumpling up on the ground. He would come within a stone's throw to entice us away. He dragged a wing to show us how easy it would be to catch him, truly, truly, if we would only come that way. He went through the performance several times, always coming back to start from the same rocks near us. He was

a great actor, a real avian ham, and we applauded his lively show. We'll never forget him.

Closer to our home in the Pacific Northwest, we once came upon a flock of phalaropes in the Strait of Juan de Fuca. They were tightly grouped, floating on a calm sea, but as busy as bees, fluttering and pecking the water constantly. They were obviously feeding on small surface fish we couldn't see. We had some trouble with the abalaxana.

the phalaropes; the first problem was how to pronounce their name. We think it should be pha-LArohpeez, not PHAL-a-ropes. I never

wirebird 🎢 🎶

thought to check with one man who certainly knew. The famous South African author Alan Paton wrote a book (many say his best) called *Too Late the Phalarope*, and had all

66 He looked like a technicolor clown as he took off, his little wings flapping at warp speed and his eyes wide above his oversized beak. **99**

the critics furrowing their brows in puzzlement. It was a love story about sex across the color line, which was forbidden in South Africa at that time, and nobody could figure out how the title related to the book. I think they've stopped trying now. I used to see Paton from time to time but never thought to ask him. Or perhaps I knew what his answer would be. He was a crusty old grump. "If you can't work it out for yourself, then it doesn't matter," is likely what he would have said. However, according to the bird books, the phalarope is promiscuous and not a good parent, which may have some bearing on the title. And apparently (according to Paton, anyway) it's not a very punctual bird.

Another bird that reminds us of a foggy day on the Strait of Juan de Fuca is the tufted puffin. He was alone when we came out of a bank of mist and startled him. He, too, made me laugh outright. He looked like a technicolor clown as he took off, his little wings flapping at warp speed and his eyes wide above his oversized beak. In days gone by, tufted northern neighbor, British Columbia, with magnificent bald eagles. In fact, when we're cruising up there we always seem to find a greeter eagle leading us into port. In both Port Hardy and Ucluelet, where they clean the catch of the sport fishermen and dump the entrails in the sea, dozens of large eagles swirl and dip like pigeons after peanuts. We see them occasionally in Bedwell Harbour, too, where we usually clear customs, but we now remember Bedwell better for its ospreys.

puffins were harvested

Their bills were used to make rattles for dance

Where eagles soar We always associate our

by coastal Native

American groups.

ceremonies.

Last time we were there, anchored at the foot of a tall cliff, two lovely ospreys were gliding back and forth along the top of the ridge, riding the soaring wind currents and never flapping their wings. These magnificent raptors have special talons for catching and carrying fish. They can manipulate their four toes so that either three are forward and one back, or two are forward and two are back.

Our cruising memories of popular Desolation Sound, farther north in British Columbia, are closely tied to the only loon we've ever heard calling. It's an unmistakable sound but



not a common one around here. There was only one call, and we never did see the bird, but it was enough for us to pair the beautiful bird with one of the most beautiful cruising areas in the Northwest.

Not all birds have pretty calls, of course. I might mention the heron, for a start. It always reminds us of Shallow Bay on Sucia Island, where we were anchored early one September, in our Cape Dory 27, *Sangoma*. The peace and tranquility of this sheltered haven in the San Juan Islands was all around us.

A lanky, gawky heron was fishing in the shadows on the western side of the bay when a cheeky little kingfisher came flitting along and disturbed him. The heron flapped clumsily into the air, protesting vigorously, complaining loudly and bitterly in a harsh, grating, echoing croak. If a creaking door could roar, that would be the heron.

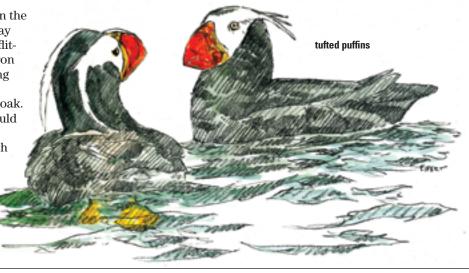
"How could God give the heron such a terrible voice?" I asked June.

She looked at me for a while and then she said: "Have you heard God's voice?"

I was quiet for a long time. I had no answer to that but it served to remind me how much the birds of the sea now add to our cruising pleasure and our cruising memories.

"Sorry, Mr. Heron," I said quietly. "I didn't mean it." 🖉

John Vigor, a former newspaper columnist and editorial writer, is the author of 12 sailing books. He is a sailing and navigation instructor accredited by the American Sailing Association. He writes three boating columns a week on his blog, <www.johnvigor.blogspot.com>.





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Alternative choices

Electric auxiliary

Teal is a very capable sailboat, and an electric motor proved to be a suitable (and cheaper) alternative to a diesel for the way Joe uses her.

any of the boats owned and loved by subscribers to this magazine came with the Universal Atomic 4 gasoline engine. That so many of these engines, now venerable, are still in service is a tribute to their design, but our good old boats are beginning to outlast their good old engines.

My own boat, *Teal*, a Bill Trippdesigned Tripp/Lentsch 29 built in 1962, came with the original, but now dead, Atomic 4. This was a factor that helped keep the price within my reach. I considered replacing the Atomic 4 with a diesel, but the cost of a new diesel would have been more than I paid for the boat. I also considered doing without an engine altogether. I was certainly ready to do without the rusty iron and the oil. Besides, I pride myself on being an experienced sailor who does not need an engine to get where he wants to go.

Still, the boat was designed for an inboard auxiliary and had a perfectly good propeller and shaft. And it's not such a bad thing to have a little help now and then, especially when getting alongside docks, past a dead spot behind a steep shore, or into harbor after the wind has died in the evening. An electric motor, some large batteries, and a solar panel seemed a promising compromise. The system was relatively easy and inexpensive to install, it was lightweight, and it was clean. After two seasons, I can say that it has worked well for me. Before I describe my installation, though, let me be very clear about the basic limitation of electric auxiliary power.

Battery reality

Many of today's sailors rely heavily on their engines. They go on a cruise with set destinations and planned arrival times. When the wind does not cooperate, they motor ... and they do it at a good clip. Many sailors drop their sails and motor when the wind is too strong and their planned destination is to windward. All these practices are impossible with electric auxiliary power.

Lead-acid batteries of the type normally used in automobiles and

With the electric motor and its support systems in place, *Teal*'s engine space is still uncrowded. Joe completed the installation by adding hold-downs for the batteries and fitting rubber covers over the high-voltage components.

Accepting the limitations set this sailor free by Joe Steinberger

> boats remain by far the least expensive electric storage system. Newer battery technologies come at vastly increased cost. In the future there may well be a cost-effective alternative, but I use four large deep-cycle marine lead-acid batteries. They each weigh about 50 pounds and together provide, realistically, about 100 amp-hours of power at a nominal 48 volts.

One hundred amps at 50 volts for one hour is 5 kilowatt hours, or the same amount of energy as 14,000 Btu. One gallon of diesel fuel contains about 140,000 Btu, or 10 times what my batteries can hold. An electric motor is about twice as efficient as a diesel engine but, even taking this into account, my four big batteries are equivalent to less than a quart of diesel fuel, or about



conversion

1 percent of the energy capacity of the typical sailboat fuel tank.

People think of engine capacity in terms of horsepower but, with electric auxiliary power, the real issue is energy storage capacity. Electric motors come in all sizes — you could fit 100 horsepower or more in your engine compartment — but you would not have a source of energy to feed all those horses for more than a few minutes.

Tom Colvin, an experienced designer of serious boats, has said that one horsepower per long ton is adequate auxiliary power on a sailboat. That would be three horsepower on *Teal*, which is what I have in my electric motor. Using just one of those horses (750 watts), it can power *Teal* at 3 knots for 3 hours without running the batteries down below half. Using two of the horses, I can go 4 knots for half that time. This is good enough for me. If it would be good enough for you, you will find many advantages in electric auxiliary power.

Charging choices

One big advantage is that your source of energy is renewable, not only in the save-the-earth sense but also in the practical sense that you never need to fill your tank — the sun can do it for you. Again, though, there is a significant limitation. Sailboats do not have a lot of room for solar panels. I have two panels, a total of 40 watts, hung out over my stern rail on one side of the backstay. In Maine, it takes a week to fully recharge the batteries after those 3 hours at 3 knots. You could do better with more panels and a sunnier location or with a wind generator in a windy location, but it will still be very limited.

There is another source of renewable energy to recharge your batteries. Your propeller and motor can generate electricity when you're sailing at speed. How effective this can be will depend on your sailing habits. For long passages in good winds this "regeneration" could be very effective in keeping batteries charged.

Of course, there is the option of topping up your batteries with

Joe originally mounted the two 24-volt 20-watt solar panels on the sliding hatch but shade from the boom seriously degraded their performance. This location on the stern pulpit proved much more effective.

shorepower whenever you spend a few hours at the dock.

As a new father, my sailing has been limited to daysails and a few overnight trips. I have used the motor for occasional visits to the dock and to negotiate some tricky entrances to anchorages among the islands. The sun has proved quite sufficient to keep my batteries



charged. It has kept them fully charged all winter in the boatyard too, a big plus.

Ease of operation

Another big plus is ease and readiness of use. Starting a gas engine safely is a ritual of a few minutes; even diesels require a bit of ritual and do not always start reliably. Electric motors are

Parts and prices

Teal's conversion to electric propulsion was not "off the shelf." I sourced all the components myself. The prices are in round numbers.

Mars Electric ME0201013601 brushless motor	\$	450
TeamDelta RCM187 Etek motor mount	\$	60
Kelly KBS48101 brushless motor controller	\$	200
Crydom solid-state relay (more efficient than traditional contactor)	\$	100
ProStar PS-15M-48V solar charge controller	\$	200
Suntech 20-watt, 24-volt solar panels, \$70 each	\$	140
Kelly HWZ Series 48- to 12-volt, 300-watt converter (for ship's power)	\$	130
Kelly F4815 48-volt, 15-amp battery charger (for charging from shorepower)	\$	200
Walmart's biggest deep-cycle marine batteries, \$75 each	\$	300
Misc. hardware and small components	\$	200
Total	\$ 2	2,000

Sources for the parts listed above:

Crydom	Kelly Controls, LLC
www.crydom.com	www.newkellycontroller.com
McMaster-Carr	Morningstarcorp (ProStar)
www.mcmaster.com	www.morningstarcorp.com
Motenergy (formerly Mars Electric LLC)	Suntech
www.motenergy.com	suntech-power.com
TeamDelta www.teamdelta.com	

Manufacturers of complete electric-drive systems for boats:

	ic Yacht	Re-E-Power
www.e	electricyacht.com	www.re-e-power.com

Alternative choices



extremely reliable and can be started instantly at the turn of a knob. Also, since electric motors can run equally well in either direction, there is no need to change gears for forward and reverse; just a flick of a switch will do.

Not storing fuel aboard the boat is another big plus, and electric motors need neither oil nor grease. Your boat will be safer and smell better, and your engine compartment and bilge can be squeaky clean.

Finally, there is no annual maintenance with electric power. Just turn it off when you haul out and turn it on when you launch. You can leave everything aboard, even the batteries, since your solar panels will keep them charged.

So there is one huge minus and a lot of pluses. Where the scales rest will depend on how you sail and perhaps also on the condition of your current engine and on how much money you have to spend. If my boat had come with a sound diesel engine, I would not have ripped it out. I was forced to deal with a dead engine and I had a limited budget.

Controlling cost

The total cost of *Teal*'s electric motor conversion was \$2,000 (see the sidebar for a breakdown). It is possible to spend much more, but spending more

A splined steel shaft extension, attached at each end with clamping couplings, connects the motor's short shaft to the boat's original propeller shaft, near right. The installation is compact, with the motor and controller taking up less length than a battery. To prevent contact with the potentially dangerous 48-volt system, Joe made rubber covers for the batteries (two more batteries are under the V-berth), the motor, and the motor controller, far right. For the motor beds and the uprights that support the TeamDelta motor mount, Joe used aluminum angle, at left. He used the blue C-clamps while adjusting the motor vertically, then drilled the rails for bolts when it was aligned with the shaft. The aluminum plate, at right, serves as a heat sink for the motor controller and the solid-state relay.



will not necessarily result in improved performance. If the added weight and bulk is an acceptable trade-off, increased battery capacity is possible and a larger motor too, but you eventually push against the line where a diesel might make more sense.

Another way one can spend money is on a gearbox or on a belt-and-pulley arrangement. Good gearboxes are expensive and belts and pulleys have significant friction losses. I chose a slow-turning motor that is reasonably well matched to the Atomic 4 propeller and has bearings designed to take the thrust. A faster-turning motor will need a reduction gear to work properly and some motors may need the thrust bearing a gearbox will provide. There are now some fine-geared electric-drive packages on the market, but they come at more than twice the price of my simple system.

Assembling the system

I chose a Mars motor that allowed me to use the prop and shaft I already had and connect it directly to the motor. (*Note: Mars Electric has since changed its name to Motenergy. –Eds.*) This inexpensive and elegant solution has worked well for me. Another advantage of the Mars motor is that it



is totally enclosed. Because brushless motors have all their windings in the stator, they can be designed to dissipate their heat without the need to blow air through the interior. This is an obvious advantage in the marine environment.

Brushless motors require a motor controller; they cannot be run directly from your batteries. The controller provides three-phase alternating current matched to the desired motor speed and torque, giving a relatively wide range of efficient operating parameters.

Installing the motor on the old engine bed was the biggest job, but it was made easier by the fact that the motor weighs less than 30 pounds.

The Mars motor is face-mounted with four bolts. The TeamDelta mounting plate made this easy and allowed flexibility for final exact alignment. To connect from there to the engine beds I used 2-inch x ¼-inch aluminum angle. I used "structural" angle, but "architectural" angle is plenty



strong and would allow more flexibility for bolt placement. The aluminum can easily be cut and drilled with woodworking tools and the pieces are easy to bolt together. The trick is to use oversized holes to allow flexibility for final alignment. With %-inch stainless-steel bolts and lock washers, it's possible to clamp the parts together so they will never move.

The motor shaft and my propeller shaft are both ½ inch, a convenient coincidence, but it is easy to match different sizes with couplings from McMaster-Carr. My installation required a 9-inch shaft extension, so I needed two couplings. It is essential to use clamping type couplings: in reverse the prop may otherwise pull the shafts apart — a fact I learned the hard way.

Where you place the batteries depends on your boat. Mine had compartments for two big batteries under the V-berth and there were two huge cables already in place to run the power aft. I placed the other two batteries on either side of the motor in the engine compartment, taking care to secure them well.

Good electrical connections are essential. It is important also to appreciate that 48 volts can be dangerous. Normally, I can touch the 48-volt terminal and feel nothing, but with one

66 Good electrical connections are essential. It is important also to appreciate that 48 volts can be dangerous. **99**

saltwater-wet hand grabbing the motor mounts and the other grabbing the battery terminal, death could be a possibility. There is also danger of injury and fire from short circuits. I have made a point of insulating the battery connections from casual contact and of switching off the power when working in the engine compartment.

Designing the controls is a pleasure, since electronic control is much easier than mechanical control. I used a rotary switch for forward and reverse and a potentiometer for speed control. I located these in the traditional place on the side of the cockpit footwell. I may move them to a more convenient location, perhaps on the cabin trunk. It would be nice to be able to keep an eye out when approaching the dock without having to bend down and grope for the controls.

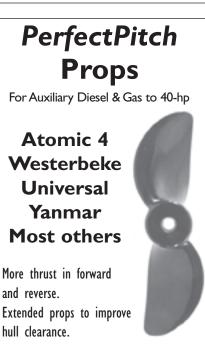
There are many details to be attended to and many choices to be made. Much information is available from the manufacturers of the various components. And much will depend on your own preferences and requirements.

Installing my electric motor has been an easy and pleasant experience. It would have been easier yet if I had known at the start what you know now. If you are willing to accept the limitations, I think you, too, will enjoy the process and the result.

Joe Steinberger got his first boat when he was 13, a Blue Jay he raced on Long Island's Great South Bay. He took time off to study law at Columbia, then moved to Maine, where he has practiced law when not too busy cruising the coast in a succession of good old boats. He writes a weekly column, "We the Six Billion," which can be read at <www.freepressonline.com>.



One of the benefits of the electric motor is it makes neither sound nor exhaust to mar a quiet evening outing.



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hen David "Swede" and Marcia Samuelson sold their San Juan 28 in 1987, they left 14 years of sailing behind and began traveling on motorcycles. They eventually proved true the old adage, "Once a sailor, always a sailor." In the summer of 2003, the allure of sailing won out over the call of the road. That's when they found their 1973 Ranger 33, hull #100, Drifter, in Superior, Wisconsin, and moved her to Rathbun Lake in southern Iowa. The lake is a popular sailing venue and an easy drive from their home in West Des Moines. In July 2010, Swede and Marcia hosted a test sail and photo shoot for this review.

History

Jensen Marine of Costa Mesa, California, the builder of the popular line of Cal sailboats, had an exclusive agreement with Bill Lapworth to build boats to his designs only. At the same time, designer Gary Mull was drawing successful racing boats, including the Santana 22 and Santana 27 produced by W.D. Schock. (Note: for more on Gary Mull, please refer to our article in November 2002. -Eds.) Jack Jensen admired Gary's work and saw an opportunity to produce another line that might have broader appeal. He formed Ranger Marine in 1967 and entered into an arrangement with Gary to build only his designs. The first of these was the Ranger 26; the Ranger 33 was his second. The first 33 hit the water in 1969. Gary designed several more boats for Ranger, including the 22, 23, 28, 29, and 37.

In 1973, Jensen Marine and Ranger Yachts were acquired by corporate giant Bangor Punta. Gary had some philosophical disagreements with the management and his exclusive design agreement was terminated. Ranger and Cal production was moved from California to Massachusetts. Ranger 33

Ranger 33

A quick and accommodating Gary Mull design

by Tom Wells

On Rathbun Lake in southern Iowa, Swede and Marcia Samuelson's *Drifter*, a 1973 Ranger 33, shows off the paint job that earned her the nickname *Lady Red*.

> production halted after 464 hulls in 1978, and Bangor Punta's Ranger division was shut down in 1981. Gary Mull died in 1994 at the age of 55.

Design

Like Gary's other Ranger designs, the 33 has pleasing proportions, with a raked bow, reverse transom, and saucy sheer.

Neither the freeboard nor the cabin trunk is too high.

Underwater, the keel is of the type commonly referred to as a "cruising fin." It has a sufficiently long and flat run on the bottom that the boat can be careened against a seawall. The spade rudder gives optimal control. While skeg-mounted rudders are considered to be more protected, many skegs lack the structural strength to do much good if they take the brunt of an impact.

The displacement/LWL ratio of 259 and sail area/displacement ratio of 17.6 mark the Ranger 33 as a moderatedisplacement cruiser/racer.

Construction

The Ranger 33's hull, with its integral keel, is a solid fiberglass layup. Lead ballast is encapsulated within the keel, which eliminates the need for keel bolts and a joint. The draft is 5 feet and the spade rudder is almost as deep. Rudder bushing problems are common but easily addressed.

The deck is fiberglass, cored with plywood in early boats and balsa in later ones. The hull and deck were joined with a through-bolted flange that incorporates the toerail. Early toerail caps were teak; later boats have aluminum toerails.

Ranger used an interior fiberglass liner, coupled with interior bulkheads and furniture, to provide structural stiffness. The liner was bonded to the hull at contact points with reinforced polyester cement putty, and stiffness was augmented by connections to bulkheads that were likewise connected to the deck. Fiberglass-encapsulated wood members in the bilge beneath the liner add further interior support. This method of construction provides for

66 Teak grabrails run the full length of the cabin, offering good security for crew going forward. **99**

ease of production and somewhat lower initial cost, but it does present problems for owners if access to the hull behind the liner is needed or if maintenance work on wiring or plumbing is required.

Rig

The aluminum mast is stepped on deck and supported by a compression post built into the bulkhead at the forward end of the saloon. The bulkhead sits atop the fiberglass liner at this point. A space between the liner and a 2-inchthick mahogany strip tabbed to the hull near the bilge was filled with polyester putty with the intent of providing a solid base to bear the load from the compression post. In some boats, insufficient putty was used and the area depressed under the mast load. Repairs require cutting into and removing some of the liner to gain access. This area bears watching.

Two halyard winches are mounted on the mast and they are adequate for most purposes.

The mainsail sheet is led from a cabintop traveler to the midpoint of the boom. The aluminum boom has a cutaway on its underside near the gooseneck to house turning blocks for internal lines. *Drifter* has a single-line reefing system and two reef points in

the mainsail, which are adequate for most coastal sailing.

On deck

The Ranger 33's sidedecks are cambered from the cabin trunk to the rail. This feature promotes drainage and provides a more level walking surface for crew going forward when beating to weather.

There is no provision for anchor storage or handling anywhere on the foredeck. As the standard stem fitting was small, many boats have been modified to add anchor rollers. *Drifter* has a teak overlay at the stem that incorporates the bases for the navigation lights. Boats that have had anchor rollers fitted usually have a combination navigation light fixture on the top rail of the pulpit.

The stainless-steel bow and stern pulpits provide good security and support. Single lifelines were standard; double lifelines were offered as an option. Mooring cleats are small but well placed.

The cabin trunk is narrow and slightly cambered. Teak grabrails run the full length of the cabin, offering good security for crew going forward or working at the mast. The cabintop has a single fiberglass hatch forward. The hatch laminate is fairly thin.



Though many Ranger 33s have been retrofitted with anchor rollers, *Drifter* retains the original arrangement, with individual navigation lights, two chocks, and a single cleat, at left. Teak coamings add a touch of elegance in the cockpit, at right, but do require some work if they are to be kept oiled or varnished. Primary and secondary winches and cleats on the cockpit coamings reflect the boat's age and its racing origins.

Review boat



Swede built cabinets into the shelves behind the saloon settees and fitted them with cane doors for looks and ventilation, at left. Aft of the settee on the starboard side is a small navigation station, at right. Its seat is the head of the quarter berth.

A good improvement project would be to replace it with a beefier Lexan or similar hatch, which would be stronger and would provide better natural lighting below. Two Dorade vents over the saloon and a single pie-pan vent over the head provide ventilation. The companionway hatch slides forward into a sea hood.

As is the beam, the cockpit is narrow for a 33-foot boat but has room for four adults and a fifth at the helm. The cockpit seats are exactly 6 feet long, to which the stern seat adds 12 inches. Swede and Marcia have built a custom contoured helm seat for *Drifter*.

The primary winches are mounted on molded fiberglass coamings that extend from the cabin trunk aft to the helm position. Teak coaming boards cover the inside faces of the moldings.

The rather small wheel and the Edson pedestal are located near

enough to the primary winches that singlehanding is possible, although the cabintop traveler complicates things. Engine shift and throttle controls are mounted on the pedestal. Many earlier boats have tiller steering, which might make the cockpit seem more cramped when under way but would open things up a bit at the dock.

There is a sizable stowage locker to port and coaming cubbies forward on each side. Some owners have added small hatches (which were not offered by the builder) to access space under the stern seat for stowage.

The companionway sides taper sharply to a fairly narrow entry. There is a low sill at the base of the opening but not enough to keep a boarding sea out of the cabin. When the boat is under way and any kind of sea is running, at least the lower dropboard should be in place and secured.

Belowdecks

The Ranger 33's cabin offers over 6 feet of standing headroom from the companionway all the way forward. The dark teak joinerwork provides a rich atmosphere below, although without the generous portlights it could be too dark for some tastes. The fit and finish are of average to good quality.

The galley lies to port of the companionway. A two-burner pressurizedalcohol stove was standard, although many have been replaced with propane stoves. The sink is inboard nearer the companionway. The icebox, which is aft of the stove, is generous. Counter space is limited but adequate when the icebox is closed and a sink cover is in place. Dual shelves along the hull provide space for dinnerware and utensils and more stowage is available beneath the stove and sink. The bulkhead between the galley and the saloon is half-height



The V-berth, at left, measures just 6 feet long and, like the boat, is fairly narrow at its forward end. The cover of the engine box, at right, doubles as a companionway step and, when removed, provides access to the auxiliary engine, an Atomic 4.



The table (stowed elsewhere) fits between the dinette seats to make a double berth.

and incorporates a post that provides support for the deck.

To starboard, a quarter berth extends beneath the cockpit seat. A forwardfacing chart table uses the forward end of this berth as its seat. The electrical panel and radio are mounted above the chart table. Two shelves along the hull over the table provide more stowage.

The interior liner forms the cabin sole and has molded non-skid in walked-on areas; sole hatch boards that give access to the bilge are teakveneered plywood. Swede and Marcia have carpeted *Drifter*'s sole.

A U-shaped settee occupies the port side of the saloon, and the dining table lowers into the U to form a double berth when needed. A straight settee lies to starboard and can serve as a single berth. The original interior was fitted with shelves behind both settees, with the lower shelf space enclosed by sliding doors. Swede and Marcia added to *Drifter*'s saloon stowage by building attractive, full-height, double-door cabinets on the forward and aft ends of both shelf sections.

Large portlights provide good light for the saloon but, as they are not opening ports, ventilation is available only through the companionway opening, the Dorade vents, and the forward hatch.

The head is to port, forward of the saloon. The marine toilet stands on

a molded fiberglass platform in the forward part of the compartment. There's stowage and seacock access under the stainless-steel vanity sink, an enclosed cabinet forward behind the toilet, and a small opening port. A teak door provides privacy and a similar door to starboard opens to reveal a generous hanging locker.

The V-berth is just long enough to accommodate a 6-foot person. It's comparatively narrow, but two people can sleep fairly comfortably in it with the center insert in place. For stowage, the cabin has narrow shelves with teak fiddles along both sides and three drawers to starboard forward of the hanging locker.

Under power

The standard engine for the Ranger 33 was the gasoline-powered Atomic 4, although a 16-hp Universal diesel was offered as an option during the last



Ranger 33

Designer: Gary Mull LOA: 33 feet 2 inches LWL: 26 feet 3 inches Beam: 9 feet 7 inches Draft: 5 feet 0 inches Displacement: 10,500 pounds Ballast: 4,500 pounds Sail area: 528 square feet Disp./LWL ratio: 259 Sail area/disp. ratio: 17.6 Fuel: 21 gallons Water: 21 gallons



Despite being a tight fit, the head compartment has all the amenities and adequate stowage.

three years of production. A 21-gallon fuel tank was standard. Swede and Marcia replaced *Drifter's* deteriorated original fuel tank with an 11-gallon polypropylene tank. This has reduced the boat's cruising range but they have made use of the stowage space the smaller tank freed up.

The engine box protrudes into the cabin beneath the companionway, where its top forms one of the steps. Removable top and front panels provide good access to the engine.

An effective and fully operational engine-compartment blower system is a must on any boat with gasoline power and should be checked carefully by anyone considering a Ranger 33. The Atomic 4 is adequate for the boat under most conditions. The 16-hp diesel option would also be acceptable since the hull is easily driven.

The boat has some fairly typical prop-walk issues when backing. Many owners who raced their boats fitted early-model folding props that performed poorly in reverse and could make backing in close quarters an adventure.

Sailing performance

Rathbun Yacht Club Commodore, Karl Fenton, skippered his Catalina 28, *Second Wind*, as the chase boat for picture taking. Winds began at only 6 to 8 knots but strengthened toward the

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Review boat

afternoon. By the end of the photo and test-sail activities, *Drifter* was showing her stuff in a steady 12-knot breeze.

With Marcia at the helm and Swede trimming the sails, *Drifter* cut a fine figure, showing her capability on all points of sail and highlighting her bright new roll-and-tip topsides paint job.

To say that this boat was responsive in the 12-knot breeze would be an understatement. Minor adjustments in sail trim produced palpable speed gains and the feel of the helm was sensitive but not overly so. *Drifter* did very well on all points of sail, saving her best for a reach or close reach where the comparatively flat underbody comes into play.

Because of the fairly flat bottom sections, there might be some pounding when beating into heavy seas. That is not to imply that the Ranger 33 doesn't go to weather well. It has a relatively narrow beam, and needs its generous ballast to help keep it on its feet. When sailed "on her ear," *Drifter* developed a fair amount of weather helm. Easing the main helped balance the helm and improved windward performance. This boat can be sailed to 35 degrees apparent wind and perhaps slightly higher, but any crew racing a Ranger 33 will need to watch velocity made good (VMG) on windward legs. That's because footing off a bit will result in a noticeable speed increase that might just get them to the mark more quickly.

When the sails are eased and the Ranger 33 bears off onto a reach, it surges ahead with authority. It will sail deep downwind courses, but if powered up a bit and taken on a broad reach, it will likely reach that leeward mark at least as quickly as a sister ship sailed wing-and-wing. A spinnaker would add power and make a deeper course more efficient.

The Ranger 33 has the seaworthiness and accommodations to serve as a good coastal cruiser and some have performed well and safely on offshore passages. Many Ranger 33 owners race their boats, and that is understandable. With a PHRF rating of 150, the boat is very competitive. On San Francisco Bay, a C&C 33 of similar vintage carries the same 150 rating and the Tartan 33 standard rig rates 156.

Price and availability

In early 2011, at least nine Ranger 33s were available for purchase in North America. The asking prices ranged from a high of \$26,000 to a low of \$15,000, with the average price near \$20,800. The information available on the lowest-priced boats showed them to be in need of significant and very basic maintenance; the boats in the higher range appeared to be well tended. \varDelta

Tom Wells and his wife, Sandy, own and sail a 1979 Tartan 37, Higher Porpoise. They have been sailing together since the 1970s and look forward to cruising upon retirement. Tom's musical contributions at the Annapolis boat show have earned him the title of Troubadour with Good Old Boat.





Man overboard, continued from page 31

many expert opinions and recommended techniques, the real answer has to be the method that's best for your boat, your capabilities, and the conditions at hand. You are the one who has to figure out what will get you back to that person in the water the fastest, given your boat and your safety equipment. That's why it's important to try different procedures and imperative to practice them. bringing the boat head to wind. It might be easier to drop all sails, start the engine, and motor back to the person.

As I'm usually out on my own, I practice by throwing my man-overboard pole in the water and timing the retrieval. I make my best times when I release the jibsheet and use the main to sail a figure eight back to the pole. But that's me and my boat. The only way to find out what works for you is to practice.

66 Conduct drills under controllable conditions and announce your intentions in advance. **99**

Steps to recovery

Immediately, when someone goes over the side, start yelling, "Man overboard!" to alert everyone aboard to the emergency. As quickly as possible, start throwing life preservers in the water and deploy a Lifesling apparatus if you have one. Someone should be continually pointing to the man overboard and never take his eyes off him so you don't lose sight of him. Then get back to him as quickly as possible.

Exactly how you do that depends on the situation. You might be able to simply turn around and sail back. You could sail a figure-eight course to get to a position from which you approach the man overboard while

Resources

Jim-Buoy (safety harnesses) www.jimbuoy.com

Mustang Survival (inflatable PFDs/ harnesses) www.mustangsurvival.com

Spinlock (inflatable PFDs/harnesses/ tethers) www.spinlock.co.uk

Stearns (inflatable PFDs) www.stearnsflotation.com

West Marine (inflatable PFDs/ harnesses/tethers) www.westmarine.com

Wichard (tethers) www.wichard.com

When you do practice, don't create a *real* crisis situation with an impromptu drill under difficult conditions. I've seen this happen with a skipper who felt it was important to perform the drills under "live fire" conditions.

In a howling gale on a rain-soaked deck, he threw a fender over the side and screamed, "Man overboard!" What ensued was close to panic. Crewmembers were scrambling to look for someone. People were stumbling to loosen life rings from the rail and toss them. An elderly crewmember was having heart palpitations that could have triggered a heart attack. The boat was lurching and pitching as the skipper wrenched the wheel around and tried to tame a runaway boom.

While this may approximate the most extreme situation, it creates the perfect conditions for a real emergency that could cost someone his life. Always conduct your drills under controllable conditions and announce your intentions well in advance. You and your crew will gain much more confidence from the constant repetition and successful retrieval of a man overboard (*Note: use a dummy, not a real person* –*Eds.*) than you will from potentially failing in extreme conditions.

As skipper, you're responsible for your ship and the lives of everyone aboard. It's a daunting responsibility. Before you leave the dock, prepare your crew to handle the worst that could happen. That way they can safely enjoy the best that can happen. \varDelta

Don Davies' bio can be found on page 24.

The Overboard Drill Challenge

D on Davies is not afraid to acknowledge the elephant in the cockpit. We all know, whenever we go sailing, there is the chance, however slight, that someone will end up in the water.

We know that preventing an overboard incident is everybody's goal, and the editors at *Good Old Boat* would like to hear about your overboard recovery techniques.

Here's our challenge:

Early this season, practice your overboard drill and report to "the rest of us" what you did and what you learned.

- How many people usually sail on your boat?
- How many were aboard when you practiced the drill?
- What technique did you use to get the boat back to the "victim"?
- How long did it take to return to the "victim"?
- Did you run the drill more than once?
- Were you able to improve the time it took to return to the "victim"?
- What worked in your drill?
- More important, what didn't work?
- Did you alter your drill after taking our Overboard Drill Challenge?

After reviewing the reports we receive, we may publish yours in the Good Old Boat Newsletter ... and send you a good old ball cap.

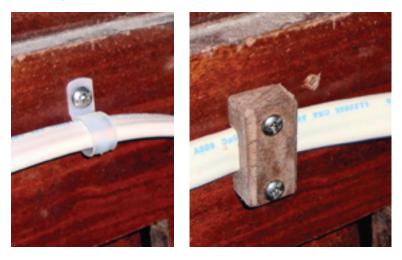
Please *don't* practice your drill with a live "victim." We're trying to save lives here, not risk them. A couple of half-filled 1-gallon water jugs tied together or a *spare* inexpensive life jacket that can be easily retrieved with a boathook make good substitutes.

Take all appropriate safety precautions. We value our subscribers ... every single one.

Simple solutions



Stephen wasn't satisfied that the commercially available devices for securing electrical wiring would hold the wires firmly enough, so he made his own to fit three sizes of wire, above. When compared against a plastic cable clip, at left below, Stephen's design is more secure and more handsome, at right below.



Classy cable clamps

Secure electrical wiring against chafe

by Stephen Thompson

hile preparing to run the AC and DC electrical wiring in the refit of my 33-foot Hallberg-Rassy Mistral, Vera May, I found few products on the market with which to securely mount marine wiring to a bulkhead or other interior surface. Plastic wire ties, small mounting pads with adhesive tape on their back faces, or round hose-mounting clamps are available but these devices tend to leave the wires loose. Restricting their movement significantly reduces chafe. I wanted to hold the wires firmly against a surface near where they passed through bulkheads or before terminal connections. The clips commonly used for household wiring are made of materials that corrode and are typically hammered about an inch deep into 2 x 4 framing. They are not suited to marine interior construction.

After one of the guys at West Marine gave me an idea, I decided to make my own. Hey, why not? I had access to a table saw and a drill — I could make my wire mounts. The design is simple and allows me to adjust the clamping force by how tightly I fasten the mounting screws. It also lends itself to making a number of clamps of various sizes at the same time.

To make handsome wire clamps to this design, the only materials you need are a ½-inch-thick wooden board and some #6 x 1-inch round-head screws.



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Each size of cable, at left, needed its own custom clamp. After cutting the grooves for the cables in the wood strips, Stephen marked them for fastener holes, center, then used a center punch to mark the hole centers, at right.

Custom moldings

First, measure the widths of the wires or cables you will be clamping. In my case, these included $3 \ge 12$ AWG, $2 \ge 12$ AWG, and $2 \ge 18$ AWG sizes. Next, cut strips from your wooden board for each wire size, making each strip the width of the wire plus an extra $\frac{1}{2}$ inch for mountingscrew holes. Write the wire size on each board for easy reference.

Set up a table saw so the blade height is just a little less than the height of the wire when laid flat. Position the fence to center the blade in the board and make an initial cut along the length of the board. Check the depth of the cut against the wire height to make sure it's correct and just a little shallow. This will ensure the clamp will bear down on the wire.

Move the table saw fence in a little to offset the blade from the center of the board. Run the board through twice, turning it and cutting from the opposite end for the second cut. This will widen the groove while keeping it centered in the board. Repeat the double-cut grooving process until the wire fits into and just slides in the groove.



For speed and precision, Stephen used a drill press when drilling the holes, at left. The cables fit snugly in their grooves, at right. Stephen cut off the individual clamps on a band saw.

Once you have grooved all your boards for the various wire sizes, mark, punch, and drill the mounting holes. I centered my holes on the outer flanges and spaced them every ³/₄ inch. A [%]/₄-inch drill bit makes a nice clearance hole for a #6 screw.

After drilling all the holes on both sides, cross-cut the individual clamps between the holes. I was having so much fun I even sanded them with the help of Elton John, Billy Joel, and a little Led Zeppelin. The result is a unique and attractive clamp that securely holds marine wire against its mounting surface. I can still use the plastic ties to bundle wires together and keep things tidy, but these wooden clips hold wires securely, and they do it with class.

Stephen Thompson spent four years restoring Vera May and launched her last year. He sails her on Galveston Bay and the Gulf of Mexico. As he gains experience, he will venture farther out into the blue in search of more stories to tell in Good Old Boat.



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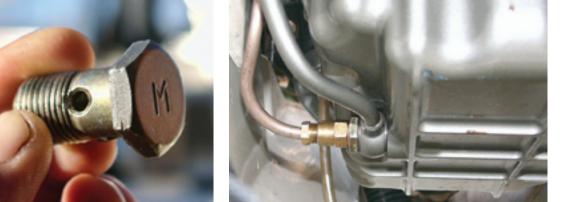
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Simple solutions

Oil change in a jiffy

A couple of add-ons eliminate the mess

by Benjy Benjamin



To add a suction line for an oil-change pump, Benjy had the banjo bolt that secures the oil dipstick tube drilled through the "M." far left. He then attached the pump tube (copper color) to the dipstick assembly, near left.

hen I first changed the oil and filter on my Yanmar 3YM20, I made a mess. The oil filter was completely hidden on one side of the engine and it was impossible to place anything beneath it to catch spilled oil. Fortunately, Pacific Seacraft had the foresight to install a drip tray under the engine or the oil would have ended up in the bilge.

Another problem is the engine has no drain plug for the sump. The oil must be removed by sucking it out from the dipstick tube. However, the diameter of the dipstick tube is only about % inch so only a very thin pipe will pass down it. It's an ineffective way to remove old oil, even when it's hot, although I did learn a canny way to make this easier. The trick is to put a larger pipe over the entire dipstick pipe and suck the oil up through the dipstick pipe itself. Obvious really. What's not obvious is the small hole at the top of the dipstick pipe that should be blocked before you can do this; that can be achieved with some electrical tape.

A permanent pump

Some engine manufacturers fit an oil pump to the engine for extracting the oil. Yanmar does not and, because there



end of the banjo bolt and fit a sump pump to that. Luckily, my local Yanmar dealer was able to make a system for me that I could bolt in place. It uses copper pipes, not hose, and is a very solid-looking installation. The copper pipe leads to a hand pump mounted on the front of the engine where it's easy to operate. A remote filter

is no sump drain plug, it is not possible to simply replace the

plug with a pipe fitting. On the Yanmar, the dipstick pipe goes

bolt. The simplest solution is to have a thread tapped into the

to the lowest part of the sump and is attached with a banjo

I solved the oil-filter issue with a remote-filter kit. I replaced the filter with an adaptor, from which two pipes lead to the filter housing, which can then be placed in a more convenient location. A great advantage to a remote filter is that it can be used to turn a horizontally mounted filter to vertical, which makes changing the filter noticeably less messy. Furthermore, if the right filter for your old or obscure engine is hard to find, you can change to a more available one.

The most logical and accessible place to locate an oil filter seemed to be at the front of the engine, so I had a



Even with the air filter removed, the oil filter was close to invisible and gaining access to change it was almost impossible.



A remote oil filter kit allows the filter to be placed in a more convenient location. The piece in the foreground replaces the filter on the engine block and the other piece is the filter mounting assembly.

stainless-steel bracket made up. This mounted to the engine using a couple of the sump bolts. The new position of the filter is lower than before and the disadvantage is that there is always oil in the pipes, so they need to be drained before the filter can be removed. The best way I have found to do this is



The new oil filter is located at the front of the engine below the crankshaft pulley. The oil sump pump is also visible at the top left of the photo.

to drill a hole in the bottom of the filter and let its contents drain into a container. I can then remove the filter and replace it. Because the filter is now so accessible, it's very easy to do this.

The whole remote-filter assembly cost about \$120. Many options are available to allow for all kinds of mounting arrangements to suit your needs. Pipes are available in 6-inch increments up to 2 feet long. There are no negative effects on the engine. Indeed, the pipes may even cool the oil slightly and the added volume of oil can't hurt either. However, if you have a new engine under the manufacturer's warranty, fitting a remote oil filter will void the warranty. To be on the safe side, I waited for my warranty to run out before fitting the remote filter. The engine has since done about 900 hours with no ill effects.

In the Mediterranean, where we cruise, we motor a lot and sometimes have to change the oil a few times a season. Before I made these two modifications, it took me at least an hour to change the oil and filter. It now takes about 15 minutes. I won't say changing the oil has become a pleasure but, compared to how it was before, it's a vast improvement.

Benjy Benjamin's complete bio is on page 41.



Quick and easy

Buckets of innovation

Thinking beyond the pail

by Jerry Powlas

A board *Mystic* the "ship's bucket" is an important piece of gear. When it's inactive, it holds the vacuum cleaner and is buried deep in the port cockpit locker on top of the even more deeply buried fenders. We bring it out to sluice down the deck after a muddy anchor recovery. We use it with a toilet plunger to wash the laundry. And we use it to rinse the bilge after showering in the saloon. In fact, it has too many uses to list here.

At least it used to do all those things.

These days it has competition. Much as we love the old bucket, there are problems with it. It is hard to get out of the locker. It is hard to control how much water gets in it when we throw it over the side. And it is very hard lifting it up to the deck if it gets completely full. As our backs get older, this becomes more significant.

We made the "other ship's bucket" from a 4-liter plastic vinegar bottle, but you could use any number of other containers of similar shape and about 1-gallon capacity.

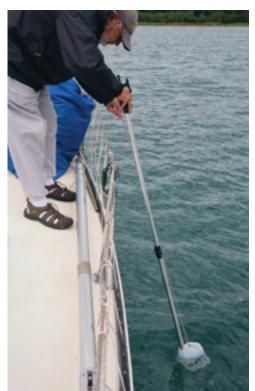
Study the construction of your new streamlined 1-gallon bucket. You need to cut two holes in it. One will enlarge the existing mouth enough for your boathook pole to fit through it. The other will be in the front under the existing mouth. The second hole is for filling and pouring. Make all holes round so you create no stress concentrations but small enough so the container retains its strength.



Fasten a cord to the jug's handle so you can retrieve it once you have pushed it down into the water with the boathook. Properly deployed, the container will fill with just about 1 gallon of water each time. This will be fairly easy to lift back to the deck. The same handle will be convenient for carrying the "bucket" and for pouring from it.

There you have it, the good old 1-gallon jug bucket. Easier to stow, easier to lift, easier to pour. Total cost should be almost nothing and your back will thank you. *A*

Jerry Powlas co-founded Good Old Boat and is its technical editor. An engineer by training, he has a bent for the practical.





Quick and easy

Pain-free de-rigging

A nifty tool preserves fingernails and patience

by Bill Jacobs

he smallest rigging job can cause the greatest pain. This is particularly so if you sail in northern waters; delaying the haulout until after the first cold front of fall arrives exacerbates the problem.

Broken fingernails, aching fingers, and cracked skin are the end result of a cold day's work. Whether trying to mate the curving end of a stainless-steel split ring and the tiny hole in a clevis pin, or trying to work cotter pins out of the endless parts and pieces of standing rigging, blocks, vangs, and assorted fittings, your patience will be tried and your tolerance for pain will be tested.

Enter the Xuron 496 Split Ring Pliers. My friend Ted Herr, a Soling sailor from Chicago, wrestles with rigging all season as he sails the regatta circuit. After watching me struggle with the rigging on my Cape Dory Typhoon last fall, he shared his secret. For \$16 and change you can order this dandy tool. I got mine from McMaster-Carr <www. mcmaster.com>. It's so easy to use you'll look forward to becoming an expert — and pain-free — rigger. \varDelta

Bill Jacobs, a writer and photographer, has spent the last 48 years in sailboats and powerboats. Winters, he cruises on a Mainship 34 out of Sarasota, Florida; summers, he can be found sailing his Cape Dory Typhoon on Lake Michigan off the shores of Door County, Wisconsin.





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



Stone Horse 23'4" 1974 Edey & Duff. Hull #53. Second owner. Two-headsail rig, both RF, custom furling staysail on club. Westerbeke 12B2 IB w/builtin 10-gal tank, 365 hrs. Loaded w/ usual gear. Spare marine battery and charger. Exc cond. In the water at the Great Lakes Naval Station, IL (Lake Michigan). \$21,000.

Perry Walcott 847-295-7565 pwalcott@sbcglobal.net

Islander 29

1967. Well maintained in good cond. Bristol brightwork. Raised dinette saloon w/ample storage throughout. New interior and cockpit cushions. New holding tank system. FWC Atomic 4 w/ electronic ignition, runs well. Vapor and high-water alarms. ProFurl RF, 3 anchors, 2 Plastimo cockpit compasses, Datamarine S/D, 3 bilge pumps, 2 VHF radios. new stereo, Raymarine GPS. Many extras! Beverly, MA. \$15,000.

Dean Gibbons sweetpea26@mac.com http://islander29.tumblr.com



Down East 32 1977. Detailed boat inventory, specs, and photo gallery (see link below). Cutter-rigged, full-keel, comfortable, roomy, heavily constructed, capable of coastal/ offshore cruising. Ideal for those seeking simplicity and safety. Extensive upgrades: standing and running rigging, sails, ground tackle, bowsprit/anchor platform, electric, and plumbing. 37-hp Westerbeke diesel under 1,400 hours. FB main w/Dutchman furling system. Tiller steering. 2011 season launch and mooring on Lake Champlain. \$29,900.

Duane Nealon de32ge@gmail.com http://downeasteryachts. com/forums/boat-profiles/ de32-gracie-emmett



Nonsuch 36

1984 Hinterhoeller. Freshwater boat. Well-loved, cared for by proud owner. Single-sail rig w/ wishbone-type boom makes the Nonsuch 36 perhaps the easiest sailing boat ever built. Westerbeke 58 w/600 hrs. Many new features added since '02. Included, uninstalled: new propane cabin heater and new electric sail winch. Additional photos available by email. In Muskegon, MI. \$85,000. Timing is everything!

Edward Kress 231-766-2561

amyjohn1218@comcast.net



Pearson 35

1976 keel/CB, 4' draft. Ready to cruise! Upgraded diesel. New since 2003: standing rigging, sails, rubrail, ST winches, double lifelines, gates, stanchions, windlass, anchor washdown, Treadmaster non-skid, dodger, Bimini, screen enclosure, Frigoboat fridge/ freezer. Rewired and new fixtures, replumbed, holding tank and Lectrasan. Reverse-cycle central AC/heat, spacious teak interior, custom cabinets, storage, interior and exterior cushions, Origo stove/oven, Isotherm water heater and more. MD. \$48,000.

Dorothy Royer 717-393-9489 Royerappraisal@comcast.net



Dana 24

2005 cutter rig, hull #345. Bristol. Extensive equipment. Yanmar 3YM20 w/Max-Prop, '08 North main and genoa, asymmetrical w/ ATN, Harken 2-spd winches and furling, removable inner forestav, dodger, Raymarine C80, knot/ log, Icom VHF w/remote, Balmar 80A alternator w/Balmar Duo Charge and regulators. Varnished interior. Force 10 stove. Delta #25 w/custom bow roller, 3-AGMs, Tillerpilot, Forespar pole, spares. Always stored indoors and loved. Photos and detailed list available. OH. \$97,850.

Alan Zelina a2sail@yahoo.com



www.goodoldboat.com/resources for sailors/sailing classifieds/



Pearson 30

1974 sloop. Tiller steering. White hull w/dark green trim, very clean. Bottom barrier coated, new VC 17. New North mainsail '06: new 153 Genoa '07. Many upgrades including new cushions, Anderson #40 ST winches. New Moyer water pump w/Speedseal, new Moyer thermostat conversion upgraded '07. New S/S shaft and Martec MK III bronze folding 2-blade prop. New Cutless bearing '08. Sailed in fresh water only. Des Moines, IA. \$14,000.

John Leiendecker jpl02@mchsi.com

Pearson 26

1977. Freshwater boat. White on white, newer RF w/genoa, mainsail, 9.9 Mercury OB, steel cradle, marine radio, newer/nice foam cushions w/upholstery fabric. A great comfortable boat ready to play. Safe for your family. Holland, MI. \$5,000.

John Reikow 616-399-7362 jreikow@gmail.com http://pearson264sale. wordpress.com



Grampian 34

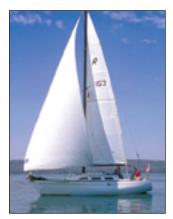
Elysian is a rare 1973 Grampian 34 center-cockpit ketch. Solid comfortable cruising boat with lots of storage, easy handling, full aft cabin. Recent upgrades (too many to list) include new electrical systems, sails, 2-anchor bow roller, and all-new LED lighting (cabin and tri-light). All new SS opening ports. New epoxy barrier coat. Thunder Bay, ON. \$26,000 CND.

Michael O'Reilly 807-474-5321 elysian_sale@helplink.com http://elysian.ca



Golden Era Petrel 21 1980. Limited-production daysailer, #10 of 20 built. Classic lines of a Nathanael Herreshoff design in a fiberglass hull. Well maintained. Green Awlgrip hull, white oak brightwork, Sitka spruce spars. Club-footed jib and main with two reef points in good cond. Long-range Elco electric motor w/new (2010) battery bank. Trailer and cradle. St. Michaels, MD, \$35,000 OBO

Rasmus Apenes rnaship@atlanticbb.com



Ranger 28

1979. Gilded Lily. Fully restored. Feature boat Sept. '06 issue. Many upgrades. Beautiful, fast, comfortable sailor. Enhanced A4. New bottom paint. Dinghy, davits. On the hard, Atlanta. \$12,500. **Walt Hodge 770-498-1678** walt@wingnwing.com www.wingnwing.com

Soverel 28

1968. Veteran of numerous crossings between Florida and the Bahamas. Well equipped w/new main and 155 genoa. Harken cars for genoa. Spinnaker and pole. Recent VHF, D/S meter. Autopilot, head, sleeps 4. Solar vents and 8-hp Evinrude Yachtwin OB. 3'6" draft with CB up, 8' w/CB down. Plenty of docklines, bumpers, related gear. Folding saloon table and removable cockpit cocktail table. 8,000 lb displacement. Kentucky Lake, Gilbertsville, KY. \$7,500.

Michele Guthrie jmguthrie@bellsouth.net



Lafitte 44

1979 cutter. Rugged blue-water cruiser, good sailing characteristics, seaworthy, seakindly Perry design. Good cond. Quality upgrades, good sail inventory. Yanmar 4JH turbo diesel under 1800 hrs. Nice teak interior, large galley. Strongest hull, deck construction. Needs some work for A+ cond. Good value for right owner. See article: http:// bluewaterboats.org/lafitte-44. Long Island, NY area. \$95,000. **Ken**

> 917-453-1343 smkbklyn@aol.com



Classic Yacht 26

1992. Roomy 26-footer. Standing headroom throughout. Channel cruising. Boat and gear in excellent cond. King-size bed in stern. Fantastic storage. Great ventilation through 8 side ports w/ screens and Beckson rain shields. Includes 8' WM/Zodiac dinghy. Dual-axle trailer. '04 Nissan 4-cycle long shaft, 9.8hp, electric start OB. '09 Dometic portable toilet w/deck pumpout. Bimini top, CDI furler. Monticello, IN. \$15,900. Lee Kreul

lkreul@comcast.net



Nicholson 32

1967. Traditional full-keel heavy-displacement cruiser. Tiller steering, Aries windvane, Tillerpilot. '88 Volvo 28-hp diesel, Kyocera solar panel, D/S, GPS, 5 headsails, 3 anchors, chain, manual windlass, mast steps, boom gallows, awning and dodger. Shipmate 2-burner, gimbaled stove w/oven. Force 10 cabin heater. Comfortable interior; wood floors and furniture. Good storage and engine access. Dinghy. 300# mooring. Long Island, NY. \$22,000. **Peggy Clark**

516-313-8470 aliza_616@hotmail.com

Catalina 27

1975 tall rig. Beautiful, well-caredfor classic coastal cruiser. Fresh bottom paint and brightwork January '11. Reliable Atomic 4 w/ electronic ignition. Extra engine included with this sale (used, but functional). Easy to sail w/furling sails. Good cond. All lines lead aft. I've upgraded to a classic 30'. Need to find a good home for her! Hudson, FL. \$8,000.

Peter Wierzbicki 352-637-4018 wierzbickip@netscape.net



Vancouver 27

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Jack Lavallee 204-771-2068 jacklin@mts.net www.yachtworld.com/core/ listing/boatMergedDetails. jsp?boat_id=2298478&ybw

C&C 38 MkIII

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

> Lewis Gravis 704-896-9735 indgov@bellsouth.net



Pearson Invicta 38 1965 Bill Tripp design. CB yawl/ Sail No. 21. Furlex RF, '98 Yanmar 3GM30, Lewmar ST winches, Furuno radar, Seaward 3-burner stove and oven w/vented propane locker. Deck solid w/no soft spots. Port hull could use rework from previous grounding but still seaworthy as is. Bridgeport CT. \$32,000.

> Brian Flanagan 203-414-0935 bflana@aol.com

Catalina 27

1988 Standard Rig. Purchased '04; 3'6" draft wing keel; Universal M18 diesel (690 hours). RF jib, wheel steering, lines led to cockpit. Pressure H/C water, holding tank, freshwater tank. Standing and running rigging replaced, new Simrad AP, new BottomSiders cockpit cushions, new cabin cushions from Catalina, new aluminum fuel tank. Many other items replaced/upgraded. Off South River in Maryland. \$12,500.

Robert Musson 301-523-0146 ebolean@verizon.net http://mysite.verizon.net/ sailorbob/for-sale/index.html

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Bill and Nancy Brogden 802-436-2785 nancybrogden@vermontel.net

Gear Wanter



Cheoy Lee Hatch Hinges I have a 1979 Cheoy Lee 44 designed by Robert Perry. I need 6 of the hatch hinges, preferably with pins (see photo). Unfortunately, these are no longer available from the factory. **Michael Sawyer** 818-203-3113 msawyer1005@gmail.com

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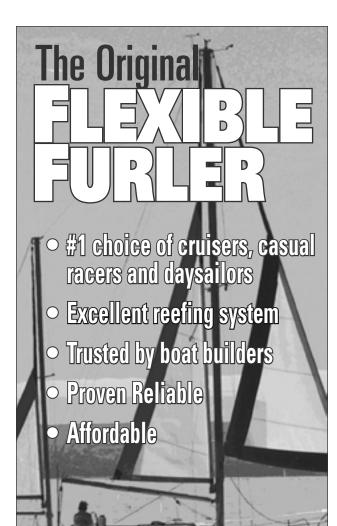












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Our community of sailors

Shared experiences a world apart

by Homer Shannon

s we worked our way inshore at Lovell's Island to anchor for the night — after spending a day ashore in Boston — I waited too long to give the order to drop the anchor and we drifted into an area where the bottom was strewn with boulders. With a little crunch, the keel of the boat became entangled among them; we couldn't go forward or back out.

"Uncle Homer," Maiya, my 9-year-old niece, yelled. "We hit something!"

"Yes, I know. We're in some rocks but we'll float out on the rising tide," I replied.

"I'm scared," Aaliyah, Maiya's 5-year-old sister, said. "The boat will sink!"

"No, it won't," I said. "We're stuck in some rocks. but it's dead low tide and we'll float off."

This was accurate, but I had noticed a slight current that would move us toward a rocky shoal as we floated off the rocks.

"Maiya," I said, "I'm going to put an anchor down so we stay put while the tide comes in. Come help Auntie Dee hand down the anchor." After a little instruction, I got into our dinghy, rowed to the bow to pick up the anchor, and rowed up-current 100 feet or so and dropped the anchor. In less than a half hour, we floated free and moved to another area to set the anchor for the night.

At bedtime, I asked the girls what story they would like to read before bed. We had stocked a dozen or so children's books from our town library for the trip.

"I want this one," Maiya said, handing me a copy of Orcas Around Me by Debra Page.

"This looks like a good one," I said. "It's about some children who help their parents on a fishing boat."

"Kind of like us," Maiya said.

"Very much like us," I agreed. I began to read a page, then alternated with Maiya, who read the next.

"One major boat rule," she read, "we always wear our life jackets unless we're in the cabin."

She looked up. "Uncle Homer," she said, "those are the same rules we have on our boat."

"They're good rules, Maiya," I said. "Children

66 I got into our dinghy, rowed up-current 100 feet or so and dropped the anchor. **99**

and adults should wear life jackets. They could save your life. You noticed that I put on my life jacket before going in the dinghy this afternoon, didn't you?"

"Yes, you did," said Maiya. We read on about how the young boy and his little brother lived and worked with their fishermen parents in Alaska. The story detailed an incident with a pod of orca whales that caused them to take their boat into a shallow bay.

"I awoke when I heard a bump," I read. "The boat teetered to one side in slow motion. We had run aground on a rock ... My dad had made a wrong turn ... 'Drop the anchor,' Dad told Mom. 'We can put in Cat's Paw (their

dinghy) and look for a way out.'"

"Uncle Homer, you're making that up," Aaliyah said.

"No, I'm not," I said and asked Maiva to re-read the passage.

"That's amazing," Maiya said. "They got stuck on the rocks just like we did, and they wanted to use their dinghy to get off, just like we did, except they were afraid of the whales."

It was amazing. We had chosen the story by chance and it retold a situation so similar to our own that the children identified deeply with the story's characters. They were getting a valuable life lesson that staying, even living, aboard a boat is unusual but not unique. Other people, perhaps in faraway places, experience the same joys and dangers of life at sea. Dee and I are part of a worldwide community of people who may have different cultures and different languages but share a common bond with the ocean.

Shortly afterward, Aaliyah and Maiya climbed into their

bunks. As the sea gently rocked them to sleep, they knew they were part of something much larger than our little boat. \varDelta

Homer Shannon grew up "messing around in boats" in Hingham Harbor, Massachusetts. Today, he and his wife, Denise, sail a Bristol 29.9 out of Newburyport, Massachusetts. Aaliyah and Maiya have been sailing with "Uncle Homer and Auntie Dee" for about five years, several times for extended trips along the New England coast.



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