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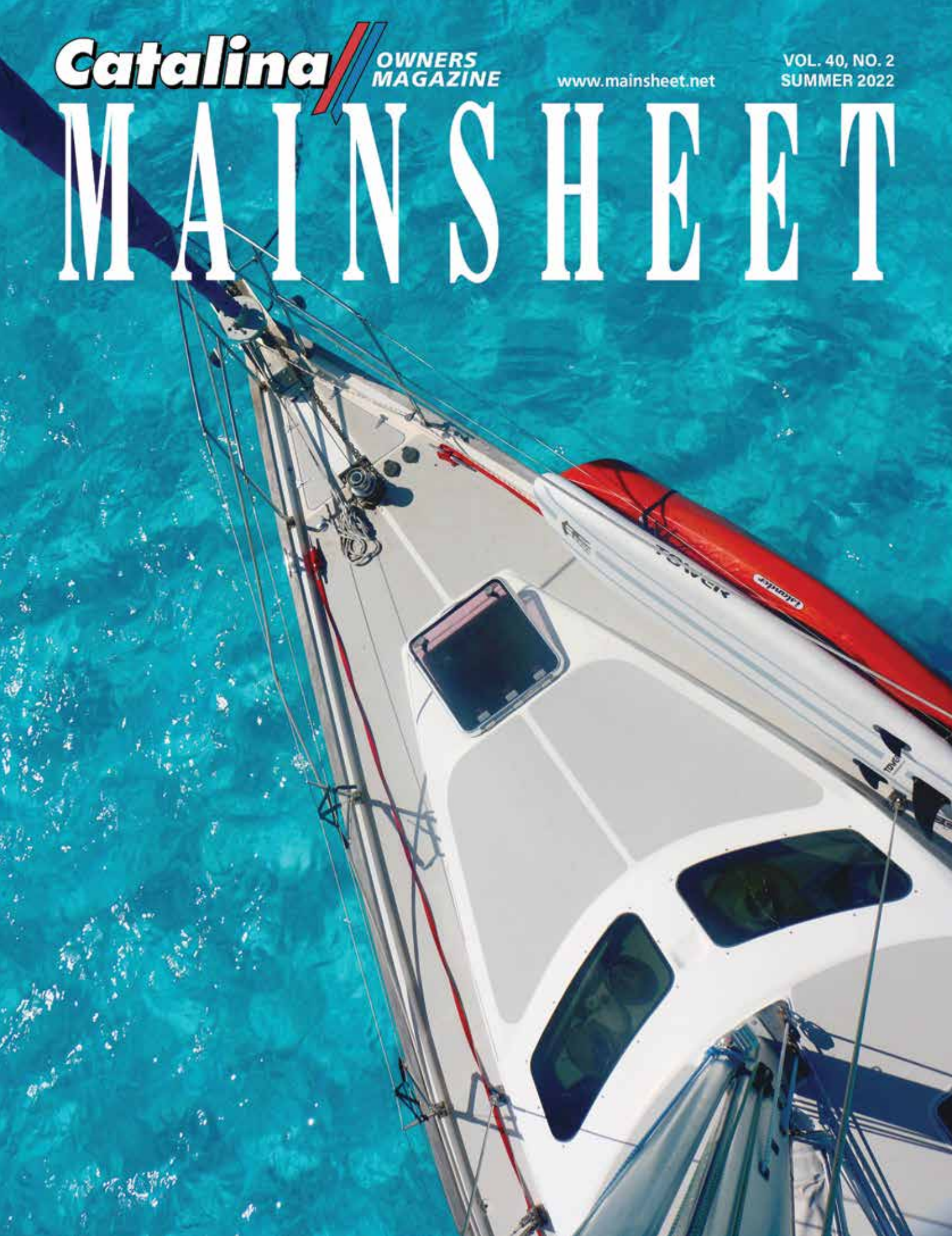
SUMMER 2022

MAINSHEET



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To submit association news or tech notes for publication in *Mainsheet* magazine, contact the appropriate association officer for your boat size listed below. Your article might be selected as a main feature or an editorial column, so please consider including a few beautiful photos to accompany your text!

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ABOUT OUR COVER:

Anchored in Bombay Sapphire Gin waters so shallow we could stand on the seafloor and press our hands on the underside of *Red Thread's* wing keel, we lost ourselves in the tropical dreamscape that is the Motu Piti Aau anchorage off Bora Bora.

Catalina Morgan 440, hull #33
Society Islands in French Polynesia
Photo by Jessie Mackelprang-Carter
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Wind In My Face

Being born and raised on the high, dry plains of Texas, water was something you only heard about. So when the US was deep into the Korean War and drafting men, I chose to join the Navy. At least

it was a different environment, and I learned to respect Mother Nature. Years later I ended up in Southern California, living on a manmade lake with sailboats. Sailing quickly became the love of my life.

It was 1988 and the America's Cup XXVII was being sailed in San Diego. As luck would have it, I attended a fundraising event for Dennis Conner, the US skipper. There was an auction for the highest bidder to join Dennis on a training exercise. My wife, Carol, would not let me miss this opportunity, punching me in the ribs till I finally won. Wow, what an unbelievable adventure. However, a phone call informed me Dennis would be out of town on the date they chose. My choice was to either postpone or sail with an alternate skipper. I chose the latter and upon arrival the most unbelievable thing happened. The skipper was Alex, a friend of mine! Now I could relax and enjoy the day.

Still inside the San Diego Harbor, sailing in moderate wind, Alex asked if I would like to take the helm. How could I say no—even though I had never steered anything longer than 22 feet? Needless to say, I was scared to death. Then came the most frightening thing. We were going to have to TACK—GULP! So I just pretended I was on my 15' footer with a crew of two and hollered out, "Stand By To Tack"—"TACKING"! I started turning the wheel as the crew of 14 jumped up and in less than five seconds all sails were full and driving on the other side. The boat was flying smoothly. With a deep breath, my heart started again. The second tack was a little easier but I felt much better turning the helm over to Alex so I could just sit back and enjoy the "wind in my face."

–Jim Holder, Publisher

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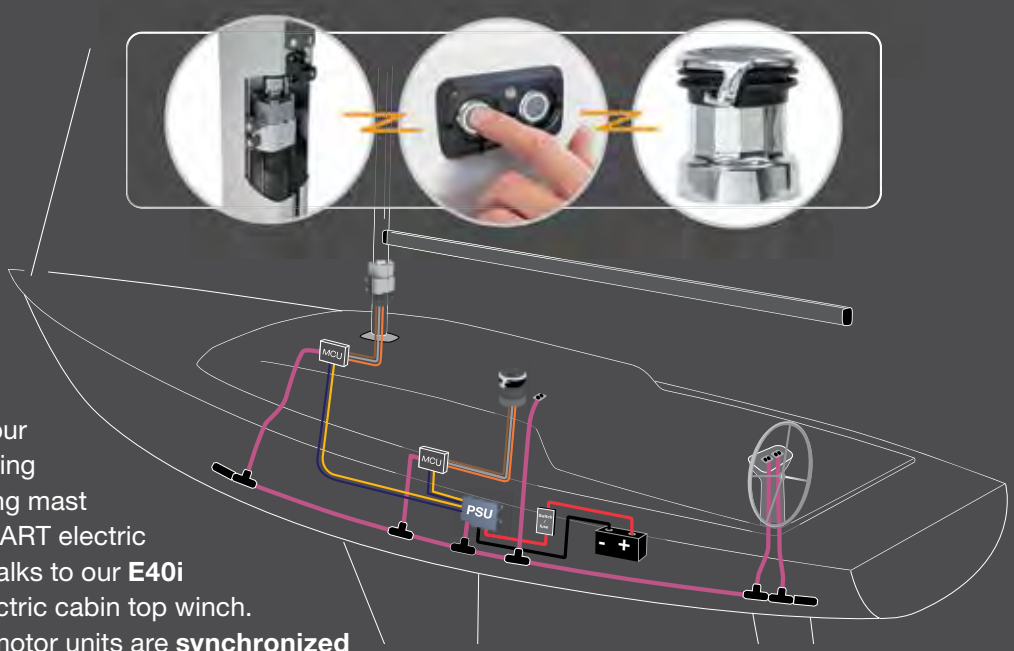

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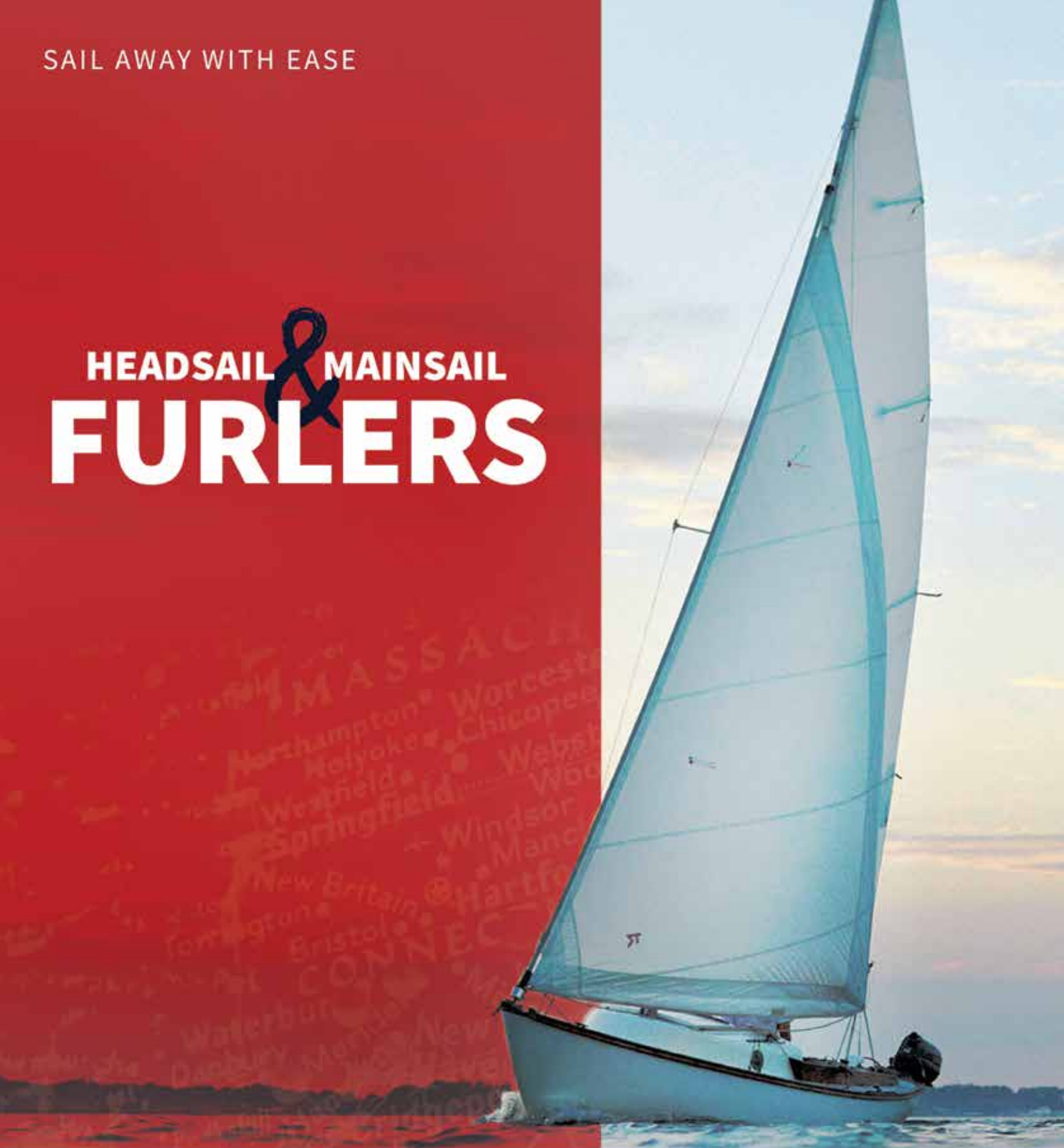

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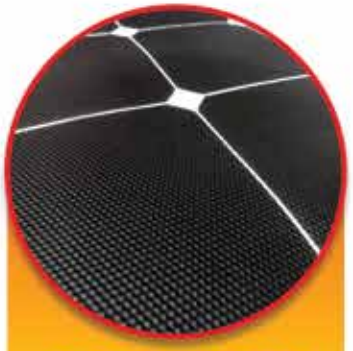

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Safe Journey:

Saying Goodbye

By Pam Brown, *Tiki* • Catalina 350

Four years ago, I wrote an article for the *Mainsheet* about how Russell and I came to own *Tiki*, our beautiful and cherished Catalina 350. I had been looking long and hard for a boat, but Russell was a bit less enthused at that time. He indulged my looking and one day I came across the listing for *Tiki*. Considering buying her was a huge decision and I just asked for a 'sign' that we should invest the money, time, and energy into purchasing, berthing, and maintaining her. One evening, I was working the daily newspaper's crossword puzzle. A clue was: Sailing Vessel – "SHIP" – , another clue was: Polynesian Image – "*Tiki*" –, and another clue was Blissful Spot – "EDEN." That was 'sign' enough for me, so I convinced Russell and we bought *Tiki*.

Tiki, our wonderful C350

In the four years we have owned her, she has been one of the loves of our lives. She came to us beautiful, sound, trustworthy, seaworthy, strong, and proud and has taken us on untold adventures, even if some were only multiple reaches back and forth across Choctawhatchee Bay. She has kept us safe and comfortable on our week-long trips, and weekend overnighters. She has been there for us when we needed to get away from traffic and people and just breathe in the fresh air that filled her sails. When Covid came on full force in 2020, she was our incredible go-to for social distancing – our amazing respite. *Tiki* has been a part of our heart and soul.

It wasn't long after buying *Tiki* that I met Neville Edenborough, the C350 IA Commodore, who lived just across Rocky Bayou from us! He talked me into becoming the Vice Commodore for the Association, and that has been another beneficial and enjoyable byproduct of owning *Tiki*. I have gotten to welcome many, many new 350 owners to our Association, and have been lucky enough to stay in contact with many members all over the world. It was always special to me to welcome new members to our very fortunate group of 350 owners, knowing they shared the same thoughts, interests, mindsets, and beautiful boats. I felt very much a part of a great group of people.

Pam & Russell on board

In the last year or so, as you may all agree, life has become a bit stressful and challenging with the onset of Covid. What we took for granted – maskless, happy, NORMAL, and [hopefully] not unusually unhealthy lives – changed. Many lives and livelihoods were affected. We found our own lives taking a totally different tack – one that has recently involved a move, part-time, to Iowa and sailing *Tiki* less and less. We have known for a while that she needed to be used, maintained, and loved more than we would have time for, so after months of gut-wrenching discussions, we have decided, with extreme mixed emotions, to sell her.

Saying goodbye, for me, is never easy. It wasn't easy when we sold any of the boats we've had and it will not be easy to watch *Tiki* sail away. At the time of this writing, we are only beginning the process of readying our sweet girl to welcome a new captain and crew, but with each personal thing we remove from her, memories surface and tears fall. Thank goodness for those memories. We hope that new, enthusiastic, and adventurous blood will find its way to her.

Thank you, C350IA members, for communicating with me, sharing your stories, forwarding pictures of your 350s, and offering countless bits of information and expertise when Russell and I needed help or advice.

Serving as the Vice Commodore is a rewarding and meaningful way to stay involved with the 350 sailing community. If you have the time (and it doesn't take that much time) and want to make a difference in the Association, please reach out to Neville Edenborough, the Commodore, and let him know. He is a remarkable Commodore and friend, and the members of the Bridge are a great group to work with.

It is not easy saying goodbye, so I will say … sail on my friends.

View From the Bridge:

Support for Rod

By Leslie Troyer • Catalina 36/375 Commodore

By the time this gets to print all the northern boats should be splashed, and folks down under are thinking about winter projects. I would like to highlight a former C36 owner who has really given back to all boaters. Rod Collins (AKA MaineSail) his company Compass Marine and his fantastic web site MarineHowTo.com. Rod is also a featured contributor on SailBoatOwners.com where he fielded questions about batteries and wiring. Rod has gone above and beyond on giving back to the sailing community. Even if you don't do your own maintenance on you boat, reading the articles will give you the information to make sure your mechanic is doing it right. Last December Rod suffered a major stroke and, is no longer able to work.

If you would like to support Rod you can donate here **https://www.paypal.com/donate/?hosted_button_id=NLBJAT2KVK4RQ**

Change of Course:

Sailing In Scotland | From Purchase to Racing

By Timothy Seed, Dunfermline, Scotland, Jaguar-25

This article was submitted by Timothy Seed from Dunfermline, Scotland. Tim describes his journey from looking for a boat to getting it in race-ready condition. This is Tim's second installment. Tim's first article was published in the Mainsheet *Winter 2021 edition.*

Now that we had the boat purchased, delivered, and on her mooring, the real work began.

It is a 1983 Jaguar-25, built in the U.K. under a license from Catalina Yachts, her name *Blue Ice*. It is designed with twin keels to accommodate the shallow harbors and large tidal range found here. This is ideal for a mooring ball in a shallow harbor having a mud bottom. At low tide, the Jaguar-25 can settle on the hard and balance on both keels.

The next step was to learn how to sail my new boat. Luckily for me, my new friend Keith was in the process of selling his yacht and was more than happy to show me the ropes and come sailing with me. This was a real bonus as Keith was keen on a bit of racing (club level stuff mainly) and knew a good skipper.

Welcome aboard David. This was the real catalyst for me. Between the three of us, we might have a team. Over the next few weeks, I cleaned up the hull, stripped out all the various detrisis that had accumulated in *Blue Ice's* bilges and started writing lists of what we would need to go racing (or more correctly what I thought we would need at the time). Keith was just as keen to get cracking and was always in touch asking how I was getting on. Over one of the many phone calls, we decided that the time was right and we'd enter one of the clubs Wednesday evening races. Finally, the time had come to get out and race. I spent the Wednesday afternoon replacing the old Raymarine ST40 Bi-data with a secondhand Raymarine ST60 Tridata. Mainly, so I could see the depth and speed data. Keith appeared about an hour before the race and we set off out into the harbor to get her all set for the start.

Some things became very quickly obvious. The lovely Yamaha 9.9 outboard was way too heavy for the stern. It was a real mission to get up and required two people ideally. The original rudder pintles where shot and the rudder wasn't very effective. It was so lose that once you got the boat settled

Blue Ice at the dock at low tide

Old Rudder

onto a course the rudder would vibrate. The winches were way too small for getting the genoa halyard in quickly. Most of the running rigging was on its last legs and worst of all the sails were so baggy that it looked like I was using old bed clothes.

We still entered the race and finished mid-pack amazingly. Although at the halfway point we had to change the headsail as it decided to split after one tack. Luckily for me there were various bags of sails in the bow. All of them probably the originals from about 1983.

After that first race we moored up back at Limekilns and wrote yet another list of stuff to fix, replace or add. Keith was keen to get out again soon and I had been bitten by the racing bug. We'd had a great time and more importantly, learned a lot about the boat.

A few weeks passed by without much progress really. My house build project taking up the days and work commitments filling whatever time was left. By the time Keith, myself and this time David could all make our second race the season was nearly over.

Like last time, we found the engine difficult to lift. I had managed to get a better outboard bracket fitted, but this only made it slightly easier. I had some plastic inserts made for the pintles, which removed some of the slack and to be honest that was about it.

We finished mid-pack again, although we weren't so far off the leaders this time and had managed to top 5.5 Knots at one point. We also discovered whilst doing this, the boom gooseneck was cracked!!

Well, no more sailing for 5 months. The boats were hauled out for the winter, and it was time to get stuck into repairing, replacing and modifying. The list was fairly substantial, the cracked gooseneck needed replacing as did the rudder which had seen better days.

First stop was to contact the guys at Rudder craft. They'd never made a rudder for a Jaguar-25 and were a bit confused with the dimensions at first. However, they did a sterling job (although we did have to modify it a bit to get it to fit).

Next on the list was the gooseneck. Upon looking at the whole boom it was decided that a complete boom would be a better idea than repairing the original. I contacted Z-Spars here in the UK. After a few phone calls, emails and various pictures of what I wanted, we decided to manufacture a custom boom more suited to racing. With the bonus of also adding a spring-loaded vang or kicker.

I stripped the keels back to their iron base and repainted them, which took many many days and left me looking like a large blue smurf. More to come in the future with keel modifications.

The wiring was needing some attention, so I started doing localized repairs, along with fitting a chart plotter and replacing the new Yamaha 9hp with a Tohatsu 8hp. The outboard alone removed 15kg (33lbs) from the stern, so hopefully the engine would be much easier to lift.

Next, were the sails. The old ones had seen much better days and weren't really suitable for racing. A call was made to a local highly recommended sailmaker, Chic and Nicky at Saildoctor in Port Edgar Marina. Chic popped out and sat down with me and asked what I wanted from the new sails. We discussed multiple options and finally settled on Hyde's Warp Drive tri-radial sails. We also replaced the main halyard, genoa halyard and the genoa sheet lines with dyneema sk75. Winter clicked by, with lots of sanding, painting, stripping and repairing various bits and pieces. Finally the day came and the long winter was over. *Blue Ice* was back in the water! Although I did forget to order a new boom cover and the original was now far too small. A few weeks passed by and I entered the first race of the season. *Blue Ice* stormed away from the pack and took line honors and the overall win. The racing bug had truly bitten hard!

New Rudder

Sailing's Must-do List:

In Search of Solitude and Adventure

By Lavonne Luquis Shelton • *Vinyasa*, CM440 Hull #14

Before we set out on this trip to The Bahamas, Allan often said that he wanted to anchor for a month on a deserted island in the "Raggeds." He was referring to the Jumento Cays and Ragged Island, which are southwest of Long Island.

And now here we are.

CM440 *Vinyasa* at anchor in Johnson Cay in March 2022. Known for their rugged beauty and remoteness, the Raggeds require self-sufficiency and a sharp eye on the weather.

"Getting caught in the Raggeds during a strong winter front poses serious challenges and can be dangerous for even the most experienced ocean cruisers," warns the Eighth Edition of the Explorer Chartbook for the Exumas and Ragged Island. "Anchorages may become untenable with great potential to get in trouble. Help may be non-existent or days away."

Duncan Town is the only settlement in the chain. With a population of fewer than 100, fuel is not available for cruisers and most food must be ordered in advance at Maxine's store, as it has to be brought in from Nassau by mailboat.

Boats drawing less than 5 feet can travel to the Raggeds from Great Exuma, but for deeper draft vessels such as our CM440, the anchorage in Thompson Bay, Long Island, provides a better staging point. The small but well-stocked Hillside Food Supply is an easy walk from the dinghy dock. Seafarer Marine, about a half mile walk south, carries a solid selection of boat bits; diesel, gasoline, and propane can be found at Long Island Petroleum.

We spent 10 days in Thompson Bay, bracketed by two cold fronts. We made good use of the time catching up with friends over lunch aboard *Vinyasa*, visiting Tiny's Hurricane Hole for pizza and rum punch, and renting a car to roam the island. This time, we made it to Clarence Town, where we scoped out Flying Fish Marina for a potential future stay if we ever need to check in to The Bahamas from the east.

Once the weather settled, we set sail for Flamingo Cay in the Jumentos. We could see one sailboat ahead of us and five behind us that morning. The charts from Long Island to Flamingo Cay warned of coral to be avoided, and we were well-aware that not all coral heads are charted. We kept a steady lookout.

Before the sunset, we dinghied into a small cave—a first for us. We were then happy to stretch our legs with a hike across the cay to the ocean side. Along the way, Allan spotted hundreds of small, red crustaceans in a pool midway along the rocky path.

It was fun to explore a small cave on Flamingo Cay by dinghy.

Vinyasa was 1 of 11 boats anchored in Flamingo Cay a few hours later.

Before the sunset, we dinghied into a small cave—a first for us. We were then happy to stretch our legs with a hike across the cay to the ocean side. Along the way, Allan spotted hundreds of small, red crustaceans in a pool midway along the rocky path.

Strong surge rocked the boat uncomfortably overnight, so we hoisted anchor early the next morning hoping for more protection at Buena Vista Cay, a five-hour sail south.

With reefed sails, *Vinyasa* moved along at a comfortable pace until short, steep waves in Man of War Channel had us clip our PFDs to the boat for a sporty half hour. The Explorer Chartbook's channel warning "Usually Rough" was spot on. Then, our chart plotter stopped displaying details as we passed Jamaica Cay on the south side of the channel. We keep an iPad running Navionics mounted next to the chart plotter, so that device became the primary navigation, and another iPad running Aqua Map with the Bahamas Explorer Charts became our secondary. A paper copy of the chartbook was also at the ready.

We've found that the Explorer Chart depths are much more accurate than Navionics in the Bahamas, so we draw our routes in Aqua Map and then export them to Navionics,

which has more updated information on obstructions. All that said, visual piloting is key in The Bahamas. Not every coral head or rock is charted, so we were happy to relax after dropping anchor in beautiful Buena Vista Cay, alongside four other boats.

The next day, we followed a path marked by discarded flip flops and flotsam across the cay to the ocean, and we explored a ruined house, a sad reminder of the toll hurricanes take on those living in the islands. A thriving herd of goats dispersed into the bushes, and some stacked plywood and lumber inside and near the house hinted at an effort to rebuild.

Hiking on Buena Vista Cay.

We would have lingered in Buena Vista to snorkel and spear fish except for the ever-pesky surge. So we continued sailing south, thinking of anchoring off of Raccoon Cay. Once underway, we decided to press on and ended up anchoring in Johnson Cay, which the Explorer Chartbook describes as "perhaps the prettiest place in the Ragged Islands…"

We were delighted to have the small horseshoe anchorage to ourselves for two nights. We made the most of it with several hikes ashore and some excellent snorkeling right off the boat. Unfortunately, surge was annoying in Johnson Cay, too, and with the forecast calling for wind to soon shift to the northeast, we hoisted anchor and made a short 2 NM hop to Double Breasted Cay, where we anchored behind four catamarans.

That afternoon we dinghied to shore for a walk across the cay, and exchanged a quick greeting with Elayna Carausu of Sailing La Vagabonde, as her two young boys splashed in a tidal pool.

Exploring by dinghy the next morning we saw half a dozen manta rays and several speedy sea turtles.

Exploring by dinghy the next morning we saw half a dozen manta rays and several speedy sea turtles. A search for snorkel worthy coral led us towards Hog Cay, and we decided to move the boat nearer. The rare March combination of light wind and easterly protection made for a fun late afternoon paddle board session.

Taking advantage of light winds this morning, we dinghied 3 NM to Duncan Town, the settlement on Ragged Island. The island was hit hard by Hurricane Irma, and many structures still show signs of damage, though as we walked the steep incline that leads to Duncan Town from the dinghy dock, we could see some construction is also underway.

We stopped in at Maxine's Store and bought tomatoes and a green pepper. With us, we also carried back word to cruisers in the anchorage that she also had eggs and romaine lettuce for sale today. If the forecast holds true, we'll be here another four days and then retrace our route back to Long Island, from where we aim to visit Conception and Cat Islands—if the weather allows!

Author bio – SV *Vinyasa* is a 2006 CM440, hull #14. Lavonne and Allan Shelton set off cruising in 2019. Follow their voyage at: http://sv-vinyasa.com.

Construction underway atop the hill that leads to Duncan Town on Ragged Island.

A large pile of conch shells caught Allan's eye along the channel to Duncan Town.

THE MAGNIFICENCE AND DANGERS OF SAILING AT NIGHT

AND HOW TO PREPARE

BY CAPTAIN JOHN D. HOOPER
S/V *LIBERTY*, C400 #136

I fondly remember sailing our first big boat, a Catalina 36 named *Inverness* from Stamford, CT down to Deltaville, VA. We took a week and a half to do the ~ 600-mile trip in September, and it was a wonderful trip and a learning experience too.

I'll always remember the sail down the 126-mile New Jersey coast, particularly passing Atlantic City, NJ in the dead-flat calm and moonlight sky five miles offshore with the skyline of hotels and casino's all a glow and full of color. So beautiful! Night sailing can be beautiful and enchanting; but, as the movie "Alone" with Robert Redford makes quite clear, it can also be terrifying !

There are many reasons why you may find yourself out on the water after dark. You may be catching the nightly gentle offshore breeze, taking a moonlit romantic cruise, or getting back after a dinner that ran long. For sure night boating is very different from day excursions and adds particular challenges and requirements. The good news is that you can prepare for most contingencies and after a nighttime outing or two with good binoculars, solid knowledge of the Rules of the Road lighting for vessels, and experienced crew, your level of confidence will grow.

NIGHT BOATING IS VERY DIFFERENT FROM DAY EXCURSIONS AND ADDS PARTICULAR CHALLENGES AND REQUIREMENTS...

SOME TIPS:

1) Slow down, visibility is reduced at night, and there are plenty of obstructions in the water you probably will not see until you've hit/run over them (eg., huge logs/flotsam floating just below the water, other debris, lobster and crab pots that are not lit, dinghy's adrift, etc).

2) Share the lookout duties by ALWAYS having two people on watch at night. In the middle of the night it is always good to have an extra set of eyes and ears to watch/listen for unusual sounds, to help keep you awake, and to handle the helm if you go overboard. Keep binoculars, sound devices and a spotlight at the ready.

3) Set up your watch schedule so that the watchstanders have ample sleep (at least six hours in 24), food and coffee, and are alert for the watch. If available, *watchstanding at night should be left for experienced crew,* those who are familiar with night-time dangers and how to handle emergencies in the dark.

4) Preserve your night vision—don't use headlights or spotlights; use only red lights at night on deck and down below.

5) When approaching another vessel, always look for the red and green—this will tell you your orientation to the other boat and who is the give way vessel. Frequently check the "bearing drift" of the approaching vessel with the compass and binoculars. Is it moving to the right, left or is the bearing staying and getting closer ("constant bearing, decreasing range").

6) Listen, listen, listen (to your surroundings) and for aids to navigation, shoal water, strange water sounds down below while people are sleeping, approaching thunderstorms, someone yelling for help on the water, etc.

7) Trust your navigation instruments (eg., compass, GPS, fathometer, anemometer, etc). Even with these instruments *you cannot underestimate the value of local knowledge* when traveling at night.

SAILING AT NIGHT

(continued from previous page)

8) Make sure your safety gear is ready to go: red lights, safety harness, life jackets/throwable Type IV's, a hand-held searchlight, and a multi-purpose tool readily available.

9) Discuss Emergency Procedures at night. Emergency procedures should be discussed before you leave on your trip and then re-emphasize those points late in the afternoon and/or when the first nighttime watch takes over. (eg. man overboard, fire, flooding, injury to crewmember, etc).

10) Build your knowledge of the Rules of the Road, *with special study of vessel lighting* at night. Merchant vessels, and cruise ships will not alter course for you; neither will a tug and barge, or a fishing vessel with their gear out. And, per the Rules of the Road, you will *not* have the right of way and must alter course to avoid them. You need to know their distinctive lights, course, bearing drift, and relative speed. Binoculars at the ready are a must here.

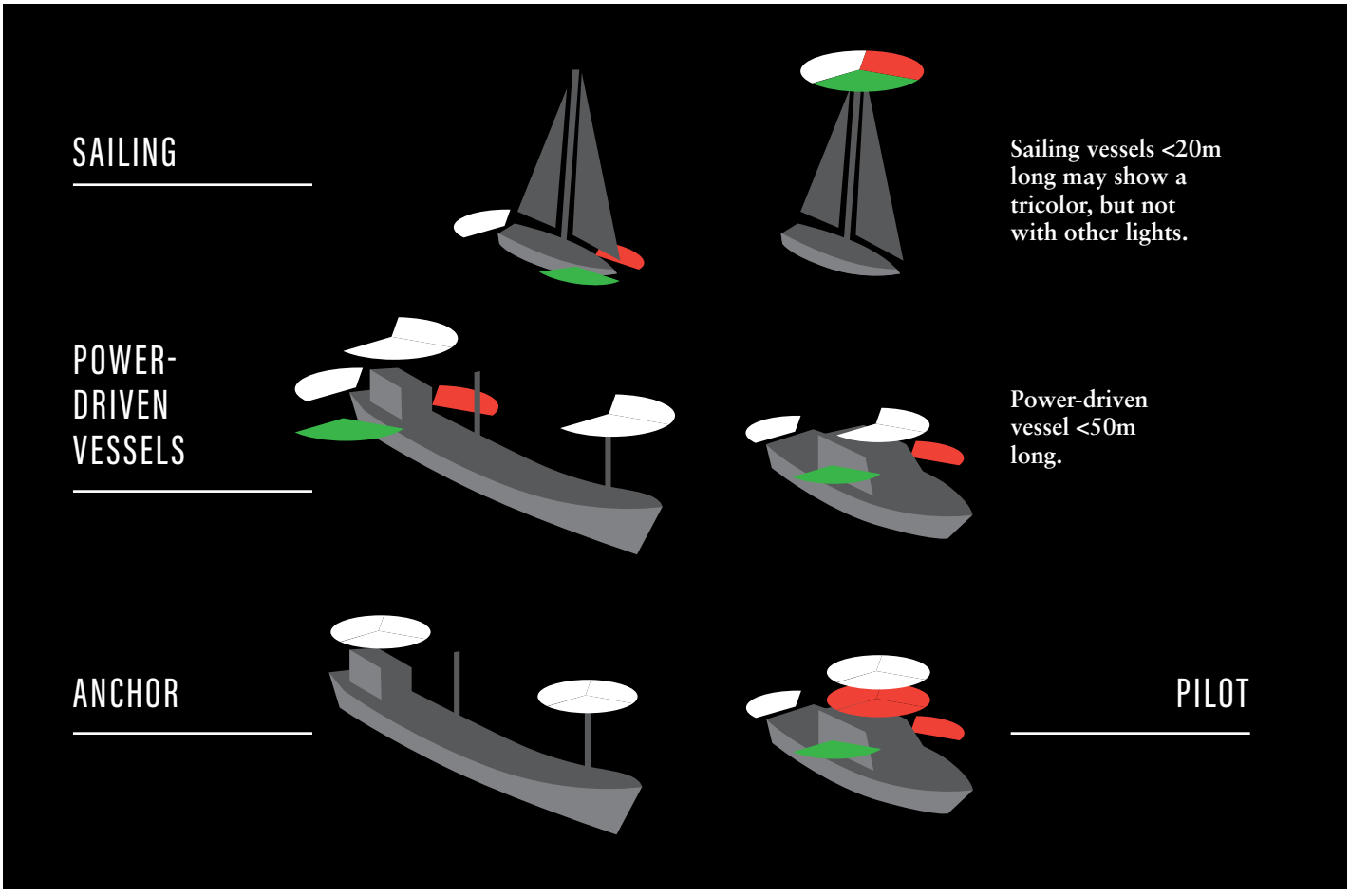
Tugs and barges have different lighting configuration depending on whether they are towing astern, alongside, or pushing a barge, the tugs length, and the overall length of the tow (eg., "articulated barge").

If you are passing or being overtaken by a sailboat or powerboat at night, you should know their lighting configuration and who is the "stand-on" and who is the "give-way" vessel.

The lighting configurations for different types of vessels are in your Rules of the Road book. Learn the lights for merchant vessels, fishing vessels, and tugs and barges, or at least have a copy of the Rules of the Road handy so you can look up the type of vessel and their lighting configuration.

11) Route Planning. When planning your route for a night sail, or night transit to another location, consider the expected weather, your crews experience sailing at night, any possible hazards (crab-pots, flotsam in the water), visible aids to navigation for reference, the expected visibility, the emergency gear and its condition on your boat, the alertness of the crew, number of crew available to stand watch, and the type and volume of traffic you're liable to encounter along the way.

12) Weather. *Sailing at night in heavy weather should be reserved for only the most experienced sailors*. Think of the potential emergencies: man overboard at night (it is highly unlikely you will recover them); crewmembers getting hurt down below by gear flying around the boat; stress on the rig; trying to maneuver on a rolling/pitching deck to address a torn sail or gear issue; lack of sleep and inability to cook meals creating watchstanders that are not alert for watch; inability to see oncoming rogue waves and adjusting



rudder to meet the boats anticipated movement; and repairing equipment while the boat is gyrating violently; hitting something in the water that causes a puncture of the hull and severe flooding, etc. And, if you are able to get off a "Mayday" there is no guarantee the rescuers will be able to find you and save you. Yes, there have been people who have sailed in heavy weather successfully (eg., ocean racers, Joshua Slocum, Sir Francis Chichester, and others). But, there have been many more who were never found or survived and no doubt regretted their decision to sail at night in heavy weather. This scenario is a dangerous situation to say the least, and *should be avoided by anyone other then a seasoned mariner.*

13) When docking at night, dock with extra caution and use a docking light; your depth perception is different at night.

IN SUM, SAILING AT NIGHT CAN BE MAGICAL AND BEAUTIFUL; PARTICULARLY IF OUR NAUTICAL FRIENDS (WHALES, DOLPHINS, FLYING FISH, ETC.) COME SHARE THE NIGHT WATCH WITH YOU AND THERE'S A CANOPY OF GORGEOUS STARS AND THE MOON ABOVE YOU. BUT, IT CAN ALSO BE VERY DANGEROUS FOR INEXPERIENCED SKIPPERS AND CREW—PARTICULARLY IN HEAVY WEATHER.
SO, THINK AND PREPARE.

ADVENTURES

Where you're closer to Cuba than you are to Walmart.

BY GARY HATTAN [C310]

It's been called an American Casablanca, a place where no one knows your name and no one would care if they did. Ernest Hemingway bought a home there and once prowled its bars. It has blue skies and warm ocean breezes that tempt you to stay forever. Although Key West is only 4 miles long and 1 mile wide, it is crammed with enough taverns and restaurants to rival New Orleans. But go out to eat and drink regularly and you'll swear your nest egg has sprung a leak. It is uber expensive in the prime season (January-March) hotels start at $600 a night! So get to know you're local Winn Dixie and make full use of your kitchen. Key West may evoke thoughts of Jimmy Buffett and parrots but chickens are what they are really known for. It's not unusual to see them clucking down the crowded streets with chicks in tow… oblivious to the revelry going on around them. What Duval Street lags behind Bourbon Street in drunks and beads it makes up for in chickens.

For my money, if you are looking at going wander south of Miami, stay at one of the upper keys and just visit Key West. You'll save a boatload of money and have some left over to tour Hemingway's house and the Mel Fisher Museum as well as a few restaurants like Bistro 245 on Mallory Square and the Geiger Key Fish Camp where the delicious Hogfish is the specialty!

We rented from Captain John Gauthier and his wife, Shelly, on Big Coppitt Key, just east of Key West. One partly cloudy day with unusually calm seas, we went out for a leisurely boat ride in their 18 foot power boat. Before long, we noticed a 43 foot sloop fearfully navigating through shallow water about a mile from shore. Apparently they were planning to anchor for the night but the boat had strayed too close to the red side of the channel and ran aground on a sand bar. We offered to help so they threw us a line from their bow to our boat on their port side. We made two full throttled tugs to port but were unable to free the keel. Finally, we had the skipper of the impaired vessel hook their main halyard to the tow rope. Capt. John gently applied power from all 115 horses directly abeam on the port side toward the channel. As the line pulled the sailboat to nearly 45 degrees, it finally freed the keel of the reef. We guided them to a good place to anchor and even helped them set an additional anchor,

IN KEY WEST

saving them the trouble of launching a dinghy. Not only did they thank us heartily but two other boats anchored nearby thanked us as well.

What would have been their options had we not been there? Probably they would have had to drop an anchor with an dinghy and used a winch to pull the mast and free the keel. If the tide was going out the time to get that done would be limited. Lucky for them we happened along and offered our services…like good sailors should.

Michigan is beginning to thaw now and it's time to call the marina and set the date to put *Mischief* back in the water. In the meantime I'm going to buy some VC-17 and get ready to paint!

Party "boat" leaving Mallory Square at sunset.

Formation of the Catalina 4 Series Association

by C4 Series Association Editor Bruce Whyte

When I joined the C400 Association I learned of the daunting merger of most of the 4 Series Catalina yachts. Prior to moving to a C400, I owned a Catalina 350 and was the Mainsheet Editor of the C350IA for 8 years. The C350IA covers only the C350 hull.

So why merge? Did members request a merger? If so, why? Groups of sailors with the same type of yacht have sought cameradie, technical advice and suggestions for years. In this instance, each fleet had its own dedicated volunteers following the standard format of positions and responsibilities of their own association. These individual associations are necessarily limited in size that increases the time required to manage operations.

But these same dedicated volunteers are leaving the sailing community for reasons of health, family, or sale of their boats. Some just due to excessive workloads expected of those who have possibly already retired once. Replacement of these members has not kept pace. Each association is facing the same plight, not just the Catalina 4 series. Hence, merger of the various fleets into one association would be one way to spread the workload and continue, expand, the role of the fleets. No-one wants to see these fleets fail. We see them expanding and offering more in the future.

Before looking at the merger per se, let's look at the number of yachts we are dealing with. The number of hulls manufactured within each fleet as of March 2022 is detailed in Table 1. The numbers sum to an amazing 1,856 hulls that combined would total the Catalina 4 Series Association.

Table 1. Original Catalina Sales by Geographic Area
(Catalina Data from 2019, Excluding Incomplete Data)

	C400	C42*	C445	C440	C425	C470	Total
USA	313	920	120	52	90	161	1,656
Australasia	18	10	8	1		4	41
Canada	4	70	6	6	3	4	93
Europe	12		5	1		3	21
Cen/South America	1	5	4			1	11
Asia		0	2				2
Total	348	1,005	145	60	93	173	1,824

* Estimated number of C42 hulls)

The actual number of yachts still afloat and in use is difficult to know. You might well ask, "Why don't we know"? Each fleet had its own arrangements for billing, collecting information about members and knowing to whom to send Mainsheet magazine. Unfortunately, most of these individual arrangements have been terminated. Ken Fischer, Treasurer of the Catalina 4 Series Association and longtime Commodore of the C42/425 association has spent months trying to sort out the current membership status of all fleets. His best estimate is the one we are using for now (Table 2).

Two years ago, there were 781 members in the database. They were were spread across 5 Fleets and 14 countries. How do we reach these previous members? They include those who have sold their boat and who may be able to contact the buyer suggesting they join the Fleet.

The real question must be whether there is any value in joining the Fleet. What are the Fair Winds and Stormy Seas of this proposal? Do the Fair Skies outweigh the Stormy Seas? What do I get out of this merger? Will it cost more to be a member?

The Fair Winds (Pro's)

All the different fleets in the merger have had a previous association, such as the C400/445 Association. Some of these are still active in terms of social media but most appear to be inactive. I tried an on-line search by typing "Catalina 42 Rudder" in the search bar of Safari. There were 17 hits before page 3! Advice was all over the seas.

Table 2. Location of Association Members by Geographic Area (March 2022)

	UKN	C400	C42	C425	CM440	C445	C50	Total
USA	40	81	175	33	15	30	1	375
CAN	3	5	13	3		1		25
Australasia		1	2		1	2		6
Total	43	87	190	36	16	33	1	408

"Support" Sites for C42 Squadron	
catalina4series.org	X
catalinadirect.com	X
forums.sailboatowners.com	X
tapatalk.com	X
cruisersforum.com	X
facebook.com	X
catalina400-445.groups.io	X
catalina.sailboatowners.com	XX
mysailing.com	X
youtube.com	X
forums.sailinganarchy.com	X
practicalsailor.com	X
sailmagazine.com	X
yachtworld.com	X
spinsheet.com	X
sailnet.com	X
lifeofsailing.com	X

So, if I want some information on my boat, which site do I go to? Do I know that there may be several sites carrying information about the same problem or dream? How do you know which site(s) provide accurate information? How much easier to have one page that directs you to our website. It would save so much web trolling and frustration. That seems like a Fair Skies bullet to me. At the end of this article is a graphical representation of how the Association's technical/support web page might look generically. It would be accessed from the Home page and then you pick which Fleet you want to access.

One other area of concern is that of collecting and monitoring dues collections. That relies on accurate data about our Who has paid. What is someone's current status? What about when dues are due? Who collects the money? Who deposits monies received? So many questions that could be handled from a simple but comprehensive all encompassing Association website.

The Stormy Seas (con's)

What are the Stormy Seas (cons)? I Cannot see any. But am I just self-focused? The only Stormy Sea maybe increased expectations of the few volunteer workers. But we are hoping this explanation will tempt more members that will ease that load.

At the risk of making this sound like a new governmental department, there should be various levels of responsibility inside the Association. These are just my thoughts on how this organization could/should look like. But this is a large project to get off the ground, let alone to maintain.

So, what is the next step?

The central body responsible for overseeing the Association should be comprised of representatives of each fleet at a minimum. Steps to be included are:

- rewriting the Operating Procedures for the Association
- there should also be a representative of each fleet on all aspects of technical/support
  - all positions need to be filled by volunteers who are themselves active sailors.
  - the historical memory should be retained in the form of previous officers
- general administration of the Association should be left to an Executive Bridge

Volunteering for these positions does not need to be taken lightly. If you want to do a decent job, expand the membership, host exciting, educational and generally sociable events among the Association, and be respected within the sailing community, hold up your hand. We need you now. The pay is atrocious and the hours are as long as you make them.

This lengthy description of this merger is only one part of this discussion. The second is using this forum to reach out to current, past, and future owners of any of the Catalina 4 Series Fleet yachts and requesting you contact us. We would like to ensure we have all current members and do not accidentally drop any. Many current members must feel they have been ignored. You have not. It is just that our database in incomplete. We also want to ensure we have your correct contact information. We can then ensure you become members of the largest Catalina forum in the world.

Q&A:

- **Do you have a 4 Series Catalina Yacht?**
- **Are you still an active member of a Catalina association?**
- **Did you receive a *Mainsheet* magazine this year?**

If so, thank you, spread the word!

- **Did you have a 4 Series Catalina Yacht?**
- **Did you sell your Catalina Yacht?**

If yes, did you tell the buyer about the association?

- **Would you contact the buyer to see if they would join?**

If yes, please help us recruit that buyer

- **Do you have any ideas to help recruitment?**

If yes, contact us, and for membership information Info@catalina4series.org

FREE MARINE NAVIGATION SOFTWARE AND US CHARTS

As I hope coastal/offshore cruisers already know, the traditional NOAA paper charts, that we have known and loved for so many years, are going the way of LORAN. And with them, the Raster Navigation Charts (RNCs), that many people use on their chartplotters. The paper charts are being replaced by print on demand, "NOAA Custom Charts" **https://nauticalcharts.noaa.gov/charts/noaa-custom-charts.html**. The new charts currently lack a lot of the detail we have depended on for so many years but they are welcoming comments. As a member of America's Boating Club's (Power Squadron) Navigation Committee, I wrote a large portion of the "Traditional Navigation", section three, of our, soon to be released, Marine Navigation course. I have use traditional paper charts for over 50 years, beginning with black and white aerial photographs (24" x 36" inland) for recreational and commercial service, inland and coastal.

RNCs are essentially jpg images of paper charts. They take up a lot of SD card storage space, as every buoy has to have an individual image, as does everything else on the chart, even if it is a common item or large uniform land area. ENCs, by contrast, are more like AutoCAD, vector drawings with a common symbol library. The ENC chart contains the latitude and longitude of a buoy and a reference to the buoy symbol, picked from a symbol library, where it only has to be stored once. Large water and land areas only have boundaries and the fill color is again picked from a common symbol library. Smaller amounts of stored data mean faster retrieval and more efficient rendering. ENCs also have multiple layers of data that we used to have to pick from Light Lists, Coast Pilots, etc. If you query a specific light, you will find its ranges, any sectors, and any other useful data. For this and other reasons almost all hydrographic offices, including NOAA, are slowly converting to all ENC charts. ENCs are also easier to update with changes as they occur. The new Paper NOAA Custom Charts are now taken completely from ENC chart data.

ENCs do have a problem that we need to be constantly aware of! As you zoom out, to look at larger and larger areas, some detail must be removed to prevent the display from becoming hopelessly cluttered. Look at the two charts below and note the large difference in detail of the Ft. Lauderdale area. If you zoom out too far, important detail such as obstructions and restricted areas can be completely lost! In planning your route and especially while sailing it, you absolutely must zoom in until you are able to see all of the needed detail! You may be able to turn off unnecessary data to reduce chart clutter and the software explained below has that capability even for individual item types.

If you haven't already found it, I would like to introduce you to comprehensive, free, computerized, navigation software developed by serious offshore sailors. This software is OpenCPN **https://opencpn.org/OpenCPN/info/downloadopencpn.html** and it uses the OFFICIAL, free, NOAA Electronic Navigation Charts (ENCs) and they can be quickly updated any time you have Internet access. For inland cruisers, OFFICIAL, free, Corps of Engineers IENCs plus Coastguard buoy data (that in some places, like the lower Miss, changes monthly) are readily available. We now use this software in teaching all of the America's Boating Club navigation courses. I have successfully use it commercially, with Coast Guard approval, and recreationally for years now.

Above is an example of the Ft. Lauderdale area and here I have added a waypoint (blue diamond) and a blue route south. Clicking on a purple rectangle would let me overlay this image with the current Pilot Chart. OpenCPN can also overlay AIS data, GRIB weather file data and radar. I prefer a separate radar display but overlaying makes it easier to train deckhands or crew. The software can display engine data and keep a digital logbook with the proper plugins.

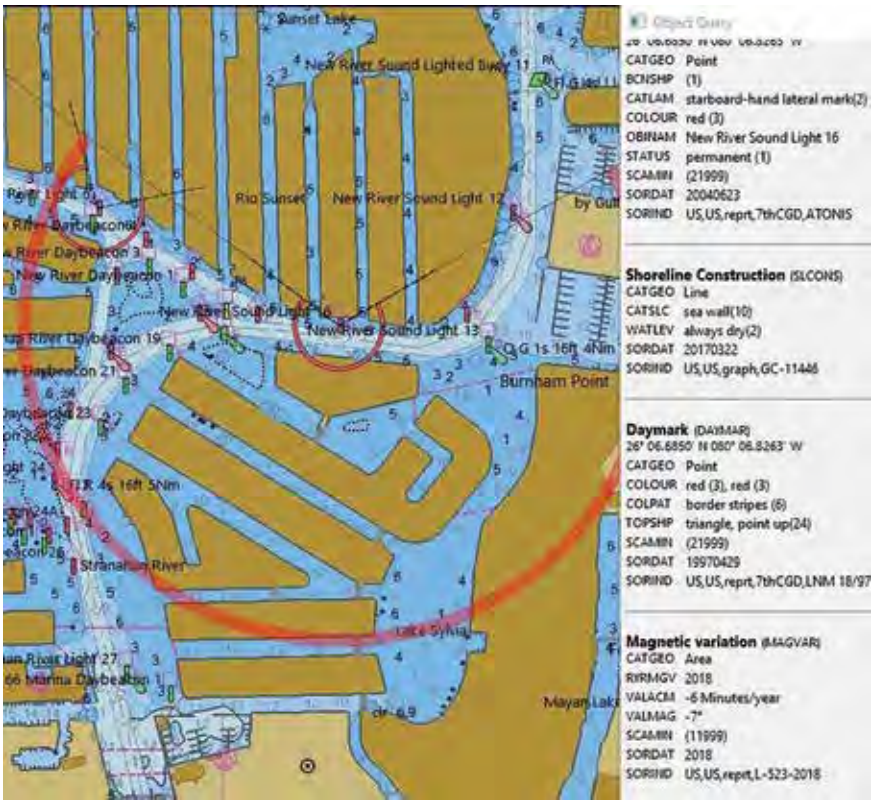
Left is an example of a short route from Ft. Lauderdale (where I bought my 1999 Catalina MKii, #624) to Miami (blue line) and the "route properties" insert for this trip. The black boat symbol has been instated as there is no GPS input now (see the red circle in the upper right on the upper chart). OpenCPN is not a full blown ECDIS, commercial navigation hardware and software system, but for smaller boats

BY CAPTAIN JOHN FARMER (RETIRED)
DEO D-17, AMERICA'S BOATING CLUB-KNOXVILLE

OpenCPN, as any sophisticated software, requires some study. It has built in help and with Internet access full, detailed, documentation.

it's as close as we need to get and then some. I have a dedicated chartplotter at my helm station on TOUCAN and OpenCPN running on a laptop in the saloon. I can easily build routs and transfer them to my helm plotter as GPX (GPS Exchange) files.

OpenCPN, as any sophisticated software, requires some study. It has built in help and with Internet access full, detailed, documentation. Its basic features are easy to teach to crew but it will require practice for your efficient use. As with most software (I was president of a computer consulting company) an overview helps give you a quick idea what is available. To get started, view one of my free navigational videos at **https://youtu.be/skVU97RvMzU** / to get a brief overview. You can find an index to all my free navigation videos at **https://sailingtoucan.org/river-navigation**.



Captain Farmer is a 100-Ton Coastguard master with 16 years of fulltime, commercial, passenger vessel experience. He and Admiral Jeanette cruised and raced a Catalina 25, inland and coastal, for 23 years winning 14 trophies. John has taught sail, marine electronics and navigation from basic through celestial.

John is now a member of the Catalina 28 group and also can be found on the Catalina 28 Yahoo group. He currently owns a Catalina MKII #624 and sails on the Tennesee River out of Knoxville Tennesee from the Concord Yacht Club. Visit his website listed above for more useful articles and video's.

FEATURED TECHNICAL SUGGESTIONS

BY JOE ROCCHIO AND BILL MARTINELLI • C470

Remote Monitoring

It has been a strange-to-me period: it is winter and I'm not sailing in the Bahamas as I have for the last 13 out of 14 years - but living by choice on land in Florida. I have a whole new set of vessel well-being concerns as *Onward* weathers the winter in Baltimore 1,100 miles away. These have been mostly assuaged by being in a good marina with an excellent dock master.

However, as more time passes in our connected world, I am craving more real-time information about *Onward's* health and thus have begun my research for next winter. There are many options commercially available today that provide the ability to be able to provide various levels of remote monitoring and control. Many are costly and focused on yachts much larger, more complex, and costly than the C470 (…but not as beautiful). Most approaches require a monthly subscription service to operate.

A couple of years ago, I stumbled on a concept for a networked approach designed and built in Italy. In the interim the promise has matured into the reality of a commercially available building-block system that is simple, affordable, reliable, easy to install and maintain and with no recurring coasts. The Zigboat system is based on the Zigbee (IEEE 802.15.4-based) specification for simple wireless networks that are lower cost than those using Bluetooth or WiFi.

A basic Zigboat system is composed of the network gateway that wirelessly connects to a number of remote modules. A variety of sensor modules can be combined with control modules (e.g. for shore power and individual AC receptacles.) A communications module sends alerts from the gateway via SMS. The US version is powered from the ship's 12V with a battery backup. A monitoring system with gateway, communications, high water, battery power status, low temperature, and intrusion modules would cost ~ $1300. Not bad. Time to think about spring… more research to come…

Life-Railing

A number of the cohort of C470 owners are interested in reconfiguring the lifeline railing system to all solid SS tubing. I spoke a former C470 owner who replaced the lifelines aft of the side gates with stainless steel tubing using standard end fittings in lieu of welding. He subsequently specified solid SS for life-rails when he had a Hylas 65 built. His motivation was that when offshore he did not feel secure enough to walk forward holding lifelines. However, the solid life-rails now allow him to walk vs. crawl forward. Owners since 2000, Bill and Julie on C470-11 *Voyager* converted to solid SS top life-rails while they prepared for cruising life. They enjoy both the greater physical security offered by the solid rail and find that it provides lots of secure real estate to attach various items including rail-clips.

I'd call C470 Assocation Commodore Bill Martinelli one of the C470 Patriarchs – but then he might not offer me that drink. Here he has described his experience on building solid life-railings – impressive for his skill and innovation.

C470 Solid Top Rails

by Bill Martinelli

In 2010, I installed solid upper rails on *Voyager*, C470-11, just before we sailed the Baja Ha-Ha Rally from San Diego to Cabo San Lucas, Mexico.

I opted for only doing the upper rails, with 1" stainless steel tubing, for a couple of reasons. It was cheaper, easier, and to my mind looked better than all-solid rails. I kept the stainless steel lower lifelines; they were wearing out so I replaced them with 316 stainless. The tubing was 60 feet of .065. (Do not buy .049, as a thinner material it is much harder to weld.)

There are three ways to join a solid upper rail. One is to make new stanchions. Two is to cut off 6" to 8" of the old stanchions and add a section machined to fit the new rail. Three is to cut off the top of the existing stanchions and weld on the new rail.

I chose option three. First, I removed the upper lifelines. Next, I used a 4½" grinder with a thin cutoff wheel to remove the top of the stanchion to the bottom of the hole that the top lifeline went through. I sliced at an angle through each upper hole the lifeline went through so as to leave a V-shaped stanchion top to easily fit the tubing. This area of the stanchion is solid stainless and because of its thickness is easy to weld.

I started at the bow and worked my way back. At the bow pulpit I cut and removed the curved section of the aft uprights where they come up and become the upper rail. Where you cut off the rail is where to start the new solid rail. I added a new piece to the upright that was cut off, this piece needed to be ground or machined to fit the new upper rail.

The first stanchion will not line up to make a smooth curve from the pulpit and the rest of the stanchions. To remedy this, I removed these two stanchions both port and starboard and had them bent to align them with all the rest.

I TIG welded from the front and worked my way aft until I reached the last stanchion at the companionway. I cut off the top rail, leaving about 1/2" past the stanchion to cap off with a small piece of flat stainless sheet and welded a loop on for the lifeline closure cables.

I TIG welded from the front and worked my way aft until I reached the last stanchion at the companionway.

Here I cut off the top rail, leaving about 1/2" past the stanchion to cap off with a small piece of flat stainless sheet and welded a loop on for the lifeline closure cables.

One problem is that as you weld the rail it will distort, so I have included photos of a welding jig made by a fellow here in Mexico. This jig consists of two Vise Grip welding clamps that are welded to a piece of angle iron and flat bar that clamps over the top rail. A small piece of flat bar is welded to this jig - that piece sits above the stanchion while it is being welded. This piece pre-loads the tubing while it is being welded. I did not have this when I did my rails and straightening them out proved to be a challenge!

Tech Notes from Association Technical Editors

Tech Notes are also available at **www.mainsheet.net** in PDF format for printing or reading on digital devices. | Summer 2022 password: S402

CATALINA 4 SERIES ASSOCIATION

Binnacle Grab Bar Installation for C400 MkI

C4 Series Association Technical Editor
C400 Hulls
Tom Sokoloski

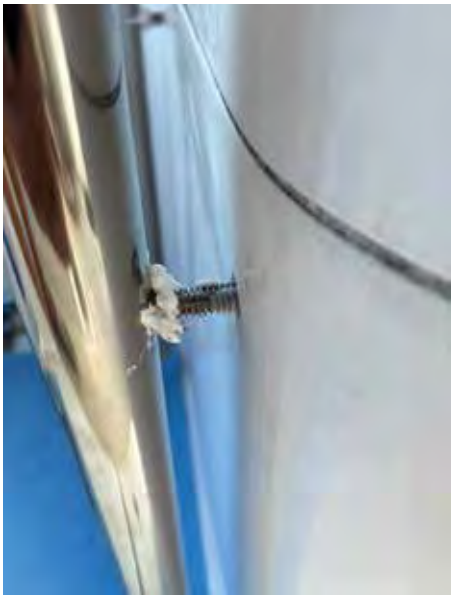
Special thanks to Allen Wrench and Bob Kempe for submitting Tech Notes this issue.
–Tom Sokoloski, C400 #307 *Juniper*, Noank, CT

Of everything I've done on my 1999 Catalina 400 MkI, I consider Binnacle Grab Bars #1 on my 'must do' upgrade list. There are many options for custom grab bars, but for a pre-made kit, you can't go wrong with the Garhauer Marine Binnacle Grab Bars. They're excellent quality and the majority of what's been installed on other C400s. Be aware, I'm not a 'Pro' boatyard guy, I'm just an average DIY'er that did this in what I consider a logical manner. Access to the inside of the binnacle is through the access panels on each side of the aft bulkhead of the aft cabin. I did not have to remove top of the binnacle or compass in the cockpit area. *(Ed Note: Access on the MkII is by taking off the large fiberglass "pan" above the aft berth – it's bulky, but very light)*

Looking inside, I saw that the upper binnacle "cap" molding curves inward and could interfere with the upper mounting bolts and washers of the grab bar. I wanted to be as high as possible to clear the seat cushions, but still have space for the fender washers. I eyeballed the final location after using a level on the sides of the binnacle and drilled the holes. Once I dry-fitted the grab bars to the holes, I applied some 3M 4200 Sealant. Do yourself a favor and stay away from the 5200. I've had some bad experiences in the past with unlubricated stainless steel bolts and various fittings, so now with any threaded stainless steel, I use Tef-Gel. I thought Tef-Gel was only sold in a 'syringe' applicator, but I recently discovered it also comes in a small jar size. After working with both, I prefer the jar container. In other situations I've used Permatex Anti-Seize as a lubricant, but a really good marine stainless steel welder told me the metal content of Permatex Anti-Seize might develop electrolysis and to stay with Tef-Gel. After partially inserting the studs, I added a bead of 3M 4200 on the outside and a bead of Butyl Tape on the inside.

Russell from C400 #351, (2010 MkII) had a really cool idea and installed a nut and fender washer on the outside face of the binnacle to be able to adjust the fore/aft angle of the grab bars. Not only is there added adjustment, I think it looks a little better than my install. Russell also installed his grab bars to match the height of his cockpit table grab bars, so that's another thing to consider. Mine are at a slightly different height, but even when single handing, I'll dash across the cockpit, swing myself around to the helm with one hand on the binnacle grab bar and the other on the cockpit grab bar. The difference in height is not noticed.

The Garhauer Grab Bars come with ¼-20 through-post welded studs. From a local hardware store I picked up ½ x 2" SS Fender Washers, ¼ x 1" SS



Washers, ¼-20 SS Nyloc hex nuts, ¼"SS Lock Washers (and yes I know I used lock washers with Nylocs), and Butyl Tape (inexpensive and a MUST!). Tools used: ¼" drill bit, 7/16" offset wrench, 7/16" deep socket, and a Milwaukee Cordless Ratchet. The Milwaukee Cordless Ratchet made getting to the top nuts on the inside of the binnacle easy. Final tightening was done with the offset wrench. From the inside you can see the Butyl Tape squeezed out from between the binnacle and the fender washers. You can also see the 'height' of my installation. This height was basically determined by how close I could get to the upper cap curve in molding.

I've heard that a point of concern has been clearance between the cockpit cushions and the grab bars. I have stock cushions and they're pushed forward about 1". My snap strap still snaps in place with a slight angle and stretch. I consider the spacing a non-issue, but do your own measurements. Garhauer makes the best gear there is. **–Allen Wrench**, 1999 C400 MkI #154 *Danty Propper*, San Diego, CA

CATALINA 4 SERIES ASSOCIATION

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Keeping up the Charge

In my world, redundancy, options and the KISS principal are king. The almost complete refitting and rebuilding of the electrical and electronics systems on *Drift Away*, our C400 Mk1 over the last 6 years produced a charging ecosystem that isn't as green and state-of-the-art as one might like, but it meets our current needs. Further evolution is possible, but after adding solar panels last year, I have moved on to other projects. Here is what my system has evolved to:

Batteries:

- House bank: (2) 4D AGM (380AH)
- Start: (1) Group 31 FLA
- Batteries can be combined via a mechanical switch if needed.

Charging:

- Shore: 2000W/80A Inverter/Charger
- Engine: 140A alternator
  - Connected directly to house bank
  - Serpentine belt
  - External smart regulator configured for AGM batteries
  - Spare 120A alternator on board
- 12V DC-DC charger (15A):
  - Used to charge start battery
  - Configured for FLA battery type
- Solar:
  - (2) 190W rigid panels mounted on radar arch
  - MPPT 30A controller
- Generator:
  - External Honda 2000 bolted to stern seat
  - Adapter to connect to shore power inlet
- Monitors:
  - Blue Sea Systems – AC/DC, tank (combined)
  - Panel DC volt and amp
- Loads:
  - Refrigeration
  - Autopilot
  - Lights (all LED), tv, stereo, phone and computer charging
  - Pumps, fans and miscellaneous
  - Windlass – mostly used when engine is running
  - Electric winch
  - Drip coffee maker (inverter)
  - Short runs on microwave (inverter)
  - Water heater – engine underway, Honda 2000 at anchor

140A Alternator w/Serpentine Belt

Solar Panels on Stern Arch

Operation:

With sunny days at anchor solar panels cover the load, except for the water heater. Using the generator for about an hour provides hot water for showers and provides some charge to the house bank. When the sun is missing, we have a choice of either running the engine or generator, usually choosing the generator because it is quieter below.

Yes, there are other options, and I am aware of the disadvantages of AGM and lead-acid batteries compared to newer technologies. LiFePO4 batteries, additional solar panels, internal genset and wind machines have all been considered and dismissed for now. Cost, complexity and actual need were all decision factors.

We can now be at anchor for extended periods of time with minimal mechanical noise intrusion. There are three ways to charge (options) with a spare for one of them (redundancy). Everything is hardwired. I think systems requiring Bluetooth connected phones for control and monitoring are cool…. until you drop the phone overboard (KISS)! **–Bob Kempe**, S/V *Drift Away*, C400 #30

RACOR 500 MA Fuel Filter Modification

C380/390 Association Technical Editor Todd Gaier

C387 Association Technical Editor Tom Brantigan

C385 Association Technical Editor Chuck Couture

Thanks to Ed Reimbold for submitting this article. **–Todd Gaier** C380, #30 Long Beach, CA

I took delivery of my third Catalina, a C-387, Sea Witch, in August of 2021. She was purchased from the original owner who took great care of her and was very helpful and just a wonderful person. The C387 is a super upgrade from my beloved Catalina 30 Troika.

One of my first maintenance items was to drain the water from the Racor filter. Due to the difficulties getting to and draining the Racor filter, I made two modifications.

First I added the Racor RK 11–1570 water detection and filter restriction monitor kit which sounds an alarm and turns on a light indicating that the filter needs to be replaced or water needs to be drained from the bowl of the Racor. Second was the addition of a drain extension and valve.

> Due to the difficulties getting to and draining the Racor filter, I made two modifications.

MATERIAL LIST:

- Racor RK 11–1570
- 1/4" brass Tee
- 1/4" close nipple
- Fuse
- Wire
- Wire Loom
- Mounting hole cable ties
- SS screws
- 1/4" Street Elbow
- 1/4" x 3" nipple
- 1/4 inch ball valve
- 1/4 inch hose barb
- 1/4 inch plug
- A small piece of tubing
- A tube of thread sealer

Preparing the assembly

I removed the Racor filter assembly and thoroughly cleaned it. Then I removed the bottom drain plug and assembled the brass fittings and valve as shown below. It was necessary to add a close nipple and tee to the outlet of the Racor as the fitting supplied in the kit does not fit our model. Although not visible in the photo, the water sensor is installed in the secondary plug in the bottom of the bowl.

Installation

In the master stateroom I removed the large fiberglass access cover to the quadrant in order to get to the wire chase, I then loosened the engine gauge panel for access in order to fish the wires up.

Note: I added an extra ground wire and attached it to the outlet fitting on the Racor using a hose clamp, as the RK 11-1570 was designed to be used on diesel vehicles and the Racor technician thought it would be a good idea. (Editor's note: The ground wire is likely necessary as diesel fuel is a poor conductor of electricity. It is preferable to use a screw on the housing to attach the ground wire rather than the hose clamp in the photo. However, the only screws into the housing are the recessed flange screws holding the bowl to the housing, making for a difficult connection. The method pictured is effective and simpler, but will require monitoring).

Ground wire and pressure sensor placement

I installed the gauge with alarm and fuse below the instrument cluster by drilling the proper holes on the engine panel and making the electric connection to the ignition switch as specified.

After running all the wires I covered them with a small wire loom and fastened the bundle with mounting hole cable ties for a nice clean installation.

Racor prepared for installion

Racor gauge at pedestal

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With this setup an alarm will sound and a light will notify me when I need to change the filter or drain the water and I can place a small plastic tub in an open area and easily drain the water through the hose into the tub. After draining I replace the hose barb with the plug in case the valve is accidentally opened.
–Ed Reimbold, *Sea Witch* C-387 #126, Lake Lanier, Georgia, chromeed@aol.com

(Left) Drain valve and catch tub. (Above) Racor assembly installation.

Lithium Iron Phosphate Battery System Design

C36 Association
Technical Editor
Pre Mk II hulls
Leslie Troyer

Lithium Iron Phosphate (LiFePO4 for short) batteries have come a long way in the past few years, and are at a point where I can recommend them with some cautions. Tossing in LiFePO4 to replace your current set of Flooded Lead Acid or AGM acid battery is a sure way to be disappointed, and spend lots of extra money fixing broken alternators, and poor life on the LiFePO4 batteries. To do this successfully you need to look at the whole 12V system from the Battery Charger & Alternator thru to the Batteries, fuses and connections to batteries of other chemistry you may have on your boat (I.e. AGM start battery).

So let's look at the major systems along the way and decide if something different is required. I'm assuming you already know the current capacity your existing system, to translate that capacity to the LiFePhO4 batteries take the rated Amp-hour rating and multiply by 0.55. That's right you need less Ah rating on the batteries because the LiFePO4 batteries because you can draw them down to 10% state of charge where you can only draw 50% from your current batteries. I had 4 6V GC2's at 235Ah – so a capacity of 470Ah at 12V. 55% of this is about 250H so I'm installing 3 100Ah LiFePO4 drop-in batteries. Of course, you can go as big as budget and space allows.

Battery Charger

Depending on model and age of your charger it may have the proper charging profile for the LiFePO4 batteries, ideally it will allow you to modify some of the charging parameters. Mine is a fairly new 40A Sterling Charger (Pro Mariner) that does have two different profiles for Li batteries. This charger is considered slightly undersized for the 300Ah I'm putting in the boat. Ideally you want to charge somewhere between 20-50% (0.2C-0.5C where C is the Capacity of your batteries) of your capacity (ignoring the A-Ah difference). I chose to stick with the undersized charger for now. It will take me 7.5hrs to charge my batteries from full discharge to full capacity.

Alternator

This is where things start to get a bit expensive (other than the batteries themselves). If you currently have a big alternator with an external programable regulator your probably ok. You absolutely MUST have a temp sensor on the Alternator. The LI batteries can accept so much more current than lead acid batteries your Alternator will overheat and fail without proper regulation to prevent overheating the alternator, this typically means external regulation is required because none of the internal regulators do and adequate job of temperature control.

Since our stock Alternators are driven from the engine using a 3/8" V belt this is another area of concern. The 3/8" belt can drive an ~90A alternator under perfect conditions, and typically 75-80A is more realistic. When using the alternator to charge your house bank you usually want this done in the minimum amount of time possible, a 100A charger will take 3hrs – which is about the longest I'd want to run the engine to charge the house. This means you need a different method of spinning you alternator. Luckly Balmar makes a serpentine belt system for most of our engines that can handle alternators bigger than my pocketbook. Notice I said MOST of our engines, and since I represent the MK1 owners – some M25's (at least until 1997) do not have the proper mounting holes on the crank pulley to attach this kit (even though the advertise the kit to fit M25's). My 1983 is one of these. Looking around on exploded parts I saw the M25-XP crank pulley is the same as on my M25. My plan is to swap out the crank pulley from one designed for the XP. I will let you know how it works. And NO I didn't pay $500+ for a new pulley from TOAD Marine – I found a used one on E-Bay for much cheaper. So, I now have a way to drive my 105A Compass Alternator at its full rating.

While we are on Alternators – hopefully connected directly to your house bank. You need to think about a service disconnect. This is a device that removes serious power potential from the alternator to allow someone to work on our around the Alternator without getting shocked or causing a major arc incident. A simple on-off battery switch located on the deck below the alternator, that can disconnect the alternator output line from the batteries (or the Common terminal on A-B-Both switches).

I bet you thought you were done with the alternator. Nope one more consideration. Have you ever been told never to switch the A-B-Both Switch (or maybe even the ignition switch (not true)) to off while the engine is running, because you'll toast the diodes in the Alternator? Well the same dynamic is in play with the BMS (Battery Management System) used in most LiFePO4 batteries. Note: Victron has some systems that don't, but you must buy into the whole Victron line of products. I'm designing arount this issue with two additions: 1) a Sterling Alternator Protection Device and 2) a Sterling Battery to Battery Charge (I don't know if this functions that way

I'm assuming you already know the current capacity your existing system, to translate that capacity to the LiFePhO4 batteries take the rated Amp-hour rating and multiply by 0.55. That's right you need less Ah rating on the batteries because the LiFePO4 batteries because you can draw them down to 10% state of charge where you can only draw 50% from your current batteries.

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yet). The Sterling Alternator Protection Device connects the Alternator output and absorbs to "shock" or voltage spike caused when the LiFePO4 batteries disconnect from charging (once full, they abruptly cut of all charging).

Other Non-LiFePO4 batteries

I still have AGM batteries for start the engine and running the windlass. These are connected to the house batteries via ACR (Automatic Charge Relay) to maintain charge. Neither the AGM's or ACR's will function on the voltages used in charging the LiFePO4 house batteries (so the battery charger nor the alternator will charge these up). Charging these batteries is taken care of by a Battery to Battery Charger (B2B). With this device you set the type batteries your using for input power (LiFePO4) and the chemistry of the output (AGM). I the B2B charging a new 100Ah AGM "house" battery that the ACR's for the Start and Windlass connect to. Is this necessary – well no its not. You could just as well connect the B2B to either the start or windlass eliminate one ACR.

So why add a new battery [bank] into the system. It has to do with how the BMS for your LiFePO4 battery works. As stated above the BMS disconnects the charging when the battery is full. It also does the opposite; it disconnects the battery from the battery output when the battery is depleted. If you run your LiFePO4 battery all the way down, you do not get reduced voltage like you do with lead acid batteries you get absolutely NO voltage. I do not' want to be in a position where I'm without power to key safety system like VHF/RADAR etc., and I do not want to compromise the Starting battery charge to run these systems. This new bank is just Belt and Suspenders to make me comfortable with going LiFePo4

Wrapping it up

I now have 4 battery banks.

1. house (LiFePO4)
2. house (AGM)
3. start
4. windlass

I will have disconnects for all batteries from their associated banks, and cross overs between 1)LiFePO4 house(AGM)-Start, 2) House(LiFePO4)-House(AGM). This will allow me to eliminate the LiFePO4 batteries and have basically the same configuration I have currently. The House(LiFePO4) bank will feed the circuit breaker panel.

My 24x7 set of fuses (for Bilge Pumps, VSM, Battery Monitor...) will be fed by the House(AGM) bank – distributing the load.

Since I bought Mahalo, I've had one battery cable failure and one near miss. There is a real mishmash of sizes currently on board, so I'm installing 2/0 for all new cables and replacing undersize and "dodgy" ones. 2/0 cable is oversize for my needs, but I could not source 1/0 cable, so I went with the next size bigger. The cable and terminals are Ancor brand to avoid problems with imports.

I'll continue this in the next issue but right now I'm on Vacation with my very understanding wife in Nuevo Vallarta, MX on a romantic getaway and the sunset outside is wonderful.

NOTE: The charging and battery monitoring system are critical to performance and especially SAFETY. The Equipment selection and installation should be done by a professional ABYC Certified marine electrician unless the owner installer is very knowledgeable. –JH

Lithium Battery Terms

Lithium Iron Phosphate
This is the most common type of chemistry used in Solar, RV, and Marine use.

LiFePO4
The chemical composition for the batteries above.

Lithium Ion (LiON)
A different chemistry than above and common in small devices.

BMS Battery Management System
a circuit that is between the battery cells and their connection to the outside world.

The BMS should

1) Prevent charging in freezing conditions
2) Shut-Off charging when batteries are full
3) Shut-Off battery output when cells are very depleted
4) Balance state of charge of the individual cells in the battery

Top Balance
Balance individual cells when they are nearly full.

Bottom Balance
Balance individual cells when they are nearly empty.

C
I think of this as Battery Capacity in Ah. Charging and Discharge rates are often given in C ratings – so a 1C charge rate on a 100Ah battery is 100A.

CATALINA 350 INTERNATIONAL ASSOCIATION

The Impeller In Peril

C350 Association
Technical Editor
Scott Monroe

This quarter's technical article is more of an experience and reflection from our fellow C350 owner Carol Wolfe in Arkansas. We hoped to provide some how-to from our cumulative experiences to help everyone work through exhaustive issues.

Everyone else, please keep those submissions coming. Your projects and experiences are benefit to all in the C350 family. **–Scott Monroe,** *Southern Yankee* #409, scott_monroe@verizon.net

What started out as a perfect day sailing on my 2005 350 MKII on beautiful clear Beaver Lake, Arkansas, with friends suddenly became an "adventure, turned terror, which turned into "how to replace the impeller" or "The Saga of the Tired Impeller".

Forever is our third CATALINA moving up from a Catalina 22' to a Catalina '27 to our wonderful floating condo the 350.

Last October 2021, sailing was a perfect thing to do in a pandemic. What could be better for three experienced sailors on a weekday than a sailboat, sunshine, 20-25 knot winds, no Covid worry, and no weekend boat traffic? Geri, Len and I have all belonged to the same boat clubs for 35 years and all have bare boated a sailboat in the Caribbean and Pacific Oceans. We knew all contingencies. Right? Wrong!

We backed out of the dock, turned into the narrow cove, and headed into the main channel. This was going along nicely until we all noticed at once there was copious "smoke" coming up from the cabin into the cockpit!

We cut the engine while two of us raced into what we were sure was going to be a fire. Len dove down first into the cabin and headed for the back berth. The air was so thick with "smoke" there was no visibility. Len, who was most familiar with the systems on board, quickly pulled up the aft mattresses and could tell the problem was 'steam' coming from that compartment, not smoke.

With no fire, we ill-fatedly decided to resume our sail.

Nosing into the wind we restarted the engine to hoist the sails and started the engine again, I went full throttle and yikes, 'steam' was pouring back into the cockpit again at a healthy rate. I began to open hatches as fast as I could as the 'steam' engulfed the cabin and Geri was screaming down at us, as to what was going on.

After about 5 minutes and considering all the trouble we decided to listen to Geri's reasoning and head back to the dock. The main channel of our cove is not in the main lake. It is more like a narrow wind tunnel. We furled the jib and thought running the engine on low would keep the engine happy until we returned, a distance of about a half mile away, but the engine cut off again!

Okay, we are all sailors, right? We will sail back. Stress levels now were rising to cardiac arrest levels because the side channel is narrow, the boat is 35' long and the wind was 24 knots. Furthermore, the edge of this channel is lined with remnants of trees once growing in a lake that was created in 1965. We had to tack back and forth, probably 20 times, just to avoid the trees and get to our tiny cove.

Now came the business of finding out what caused this distress. From close examination Len deduced it was the impeller.

What is that? This is a round small 2" diameter rubber paddlewheel that spins water inside a pump that brings cooling water from the exterior water to the engine. This impeller had been so badly burned from heating up, that it was disfigured and smelled of burning rubber. Removing it from its location was a challenge.

I had had the boat 12 years. In retrospect, the impeller should have been changed out at least 3 times already. This Catalina 350 has a Universal 35 HP Diesel engine. Len was used to replacing the one in his boat every other year.

I begin calling suppliers. Sailboats are few and far between here on a basically fishing and water sports lake and local sourcing parts is difficult. I learned that Catalina Yachts finished the boat at their Florida location and found a supplier there who got us all we needed. If we were going to replace this part, why not replace the air filter, fuel filter, anode & change the oil? The sales representatives were all very helpful and patient with our long-distance repair.

When all the parts came in, it took a couple of days to install and replace everything. Some of this had to be completed in the back of the engine under the aft berth. The parts & oil to

Damaged impeller

CATALINA 350 INTERNATIONAL ASSOCIATION

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be replaced were easily accessible after removing the companionway stairs and the engine cover. The reward was that the engine started up and purred like a kitten, discharging water from the proper exit starboard aft.

The really big surprise was that my husband had stocked parts at home and had absolutely everything, the impeller, anode, fuel filter and more right there at my house!
–Carol Wolfe, *Forever* - 2005 C350

Comments:

Exhaust systems are an often-overlooked part of our boats, but as *Forever* found out, keeping it maintained is critical. Len was able to discern steam from smoke, perhaps by smell, but in most instances, we can only see it coming out of our exhaust port on our starboard side. Steam will always dissipate quickly into the air as it cools, "smoke" doesn't, it lingers as it is carried off by the wind.

What's an impeller? This is a round small 2 in. diameter rubber paddlewheel that spins water inside a pump that brings cooling water from the exterior water to the engine. Our impeller had been so badly burned from heating up, that it was disfigured and smelled of burning rubber. Removing it from its location was a challenge.

The color of the "smoke" is another clue to the mystery. Black is poorly burned fuel; white smoke is unburned fuel. White smoke is very common from a cold starting engine as injected fuel into the cylinder doesn't initially burn until the engine has warmed and not to be overly concerned about. Black on the other hand is poorly burned fuel that either incompletely combusted in the cylinder from poor compression or not burned at all and ignited in the hot exhaust.

In the case of *Forever*, the most probable cause of the white steam was low water flow through the heat exchanger, potentially due to a failing impeller. The raw water flow is supposed to be sufficient to cool the exhaust but if low it just vaporizes into steam.

Either way, smoke should not be coming out of the engine compartment and if it does, it indicates a severe

problem with the exhaust components and/or the engine cooling system that includes the raw water impeller pump. The raw water impeller is critical to engine cooling and should be replaced annually, or at least inspected. Also, during spring commissioning, it is smart to check it and put a little bit of dish soap on the blades before the initial start of the season (don't use petroleum-based lubricants), or after any extended layup. The raw water in the pump acts as a lubricant for the rubber impeller and will be non-present during the initial start. Without that the blades will wear until it finally draws enough water to properly lubricate. If you do find during the inspection that there is wear or even missing blades it behooves you to replace the impeller promptly. Always have a spare on board. Westerbeke/Universal has a nice kit, Part #: 200522, that include the impeller, plus spare belts, filters etc.

In the case of *Forever* if you do find a destroyed impeller it is imperative to find the pieces! Chunks will go down stream and lodge in the heat exchanger, significantly hamper its ability to cool the engine and potentially will experience over-heating problems, which ultimately lead to engine component failure.

The other major concern in this case is that the exhaust did overheat and based on the exhaust release in the engine room probably burned a hole, best case in the hose, worse case in the exhaust elbow. Either way once you overheat like this it is very probable that the exhaust hose can be compromised by the 800-degree exhaust and delaminate from the inside. Outside of the exhaust hose may look fine but inside can be significantly restricted, reducing engine performance.

One other concerning issue that *Forever* experienced was the lack of over temperature alarm on the overheat. Overheating causes a switch to close on the thermostat housing, closing a ground-switched alarm to sound on our pedestals. I have found on my 350 that the wire connecting to the high temp switch on the housing is a captive spade connector that often disconnects at will. Something that I need to check often.

Everyone should remember no failure in our yacht's systems is ever unannounced. Rattles, fumes, smoke, unusual behavior all are little cries from our boats letting us know there is a problem. Listen to them! **–Scott Monroe & George Thor**

NOTE: The fiberglass inlet and outlet tubes of the aqua lift muffler must be inspected after a sever overheating incident. A failure of these tubes can cause a carbon monoxide leak into the interior with possible fatal consequence. –JH

If you do find a destroyed impeller it is imperative to find the pieces! Chunks will lodge in the heat exchanger, and potentially cause problems.

CATALINA 320 INTERNATIONAL ASSOCIATION

In Search of a Good Drink

C320 Association Technical Editor Jason Reynolds

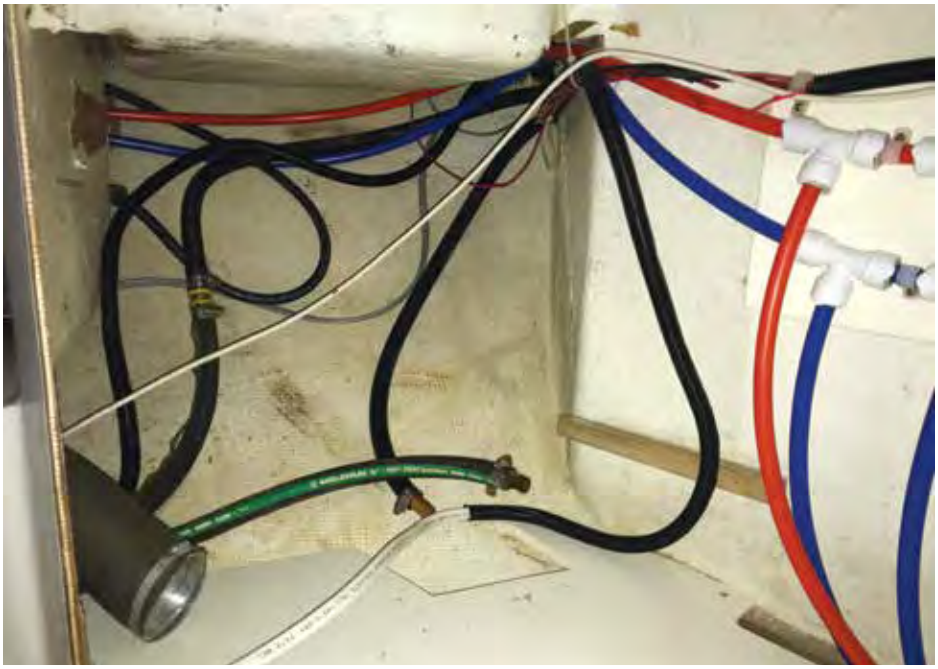
Special thanks to Mark Cole for submitting this article. **–Jason Reynolds**, jereyns@hotmail.com

I knew a rebuild of the fresh water system would be high on the project list when I bought *Fiddler's Green*, but I didn't expect everything would fail at the same time. The surveyor predicted the demise of the water heater during the survey of the boat. He noted stray AC electrical current in the shore power cord when the hot water tank was on, but not when it was off. Electricity is magic to me, so I just nodded and we moved on with the survey.

During the first cruise, my senses were on high alert as I got used to the noises our new boat made. One of the first noises that made a repeated intrusion on my sense of hearing was the cycling of the fresh water pump. The pump would cycle on every 10 minutes or so to bring the pressure in the supply lines back to the set point; often enough to indicate a leak in the system somewhere. So, instead of opening a beer, I got out a flash light and knee pads and started tracing out the fresh water system to find the leak.

First stop was the water pump. I hope this has been changed on hulls after #8, but my water pump was mounted on the galley cabinet bulkhead, just PAST the hot water tank. It was all I could do to reach the fittings and feel for moisture. The input and output fitting both felt a little wet, but I saw no active leak. The rust on the pump told that there had been leaks over it's life and that life had been a long one.

After tracing the water supply lines through the boat, I finally found the leaky fitting, but not before deciding that all the hoses were ancient and the hose barb/hose clamp fittings were all on the verge of leaking. Time to start planning a water system rebuild. Good thing I started researching parts and pieces, because two trips later, both the pressure water pump and the water heater failed. Time to move that project to the top of the list!



Water heater and supply pump removed and the beginning of the new PEX manifold. Note the engine heat hose running to the upper right - this would go away as part of project creep.

I have used PEX (cross-linked polyethylene) pipe and fittings in home plumbing projects and seen complete PEX systems installed on new boats, so I decided quickly that this was the path to take. My favorite local chandlery, Fisheries Supply, carried the complete line of Whale water system components, so I based my design work on Whale parts and pieces. Their website (whalepumps.com) has lots of information to help with the design, including a handy chart of all fittings they make. It was easy to pick the parts I would need from the Whale chart, look up the parts on Fisheries' website and build the complete system in one order.

New location for the water supply pump.

I used Whale's 3.2 GPM Pressure Demand Pump WHA UF1215 (currently $216) as my supply pump because it came standard with PEX fittings on the input and output side of the pump - no conversion necessary. It was a good thing I was already planning to replace the water heater because I had to remove it just to access the water supply pump. I knew I wasn't going to put the pump back in the same location, so I searched for a new location and decided to put the pump in the same compartment as the port water tank. With two shutoff Tee fittings just below the pump, it is easy to switch between the two water tanks in this same compartment.

I was tempted to buy the PEX tubing at my local hardware store as it was just a little less expensive there. A sales rep told me that US and European PEX standards where just enough different that it wasn't a good idea to mix and match parts in my project. The US pipe was just a little larger diameter and would not fit into the European fittings and the European pipe was a little loose in US fitting and could leak (or, was it the other way around?). I ended up using all Whale components in my new water system.

Fisheries Supply carried the exact replacement for the water heater, the Seward S/W S600, $285.42 a couple years ago, with my meager discount. All design finished and parts selected, my order totaled $660.52 and included 50 feet of blue 15mm tubing, 32 feet of red, 21 various PEX fittings, the water pump, water heater and a 20psi accumulator tank. Time to get dirty.

New water heater installed and the PEX supply manifold complete. The small, black tank in the center foreground is an accumulator tank.

Hose and filter used to fill water tanks at the dock.

This really was one of the easiest projects I've done on *Fiddler's Green*. I started by draining all the water from the two water tanks. All parts are relatively easy to reach (after removing the water heater!), light and flexible enough to remove without requiring a Sawzall. Removing the old water heater and installing the new one was the trickiest part because the input and output connections were on the back of the tank and tightening the hose clamps was all by feel. A new boat yoga pose was required. Other than relocating the water pump, all lines went back in the same locations as the old came out of and PEX is almost as flexible as the water hose used in the original installation. The fittings sure are quick and easy to use. I already had a good quality pipe cutter and that was the only special tool needed.

There was very little project creep, but once into the removal phase, I decided to relocate the Red Dot heater. It was located in the main cabin, across from the dining table. This location required the hot water hose from the engine to run up through the electrical space by the nav table putting it at a height above the heat exchanger on the engine, leading to possible vapor lock if the system developed an air leak. The Red Dot is now mounted under the range, making for a simple hose run from the engine to the Red Dot then to the water heater and back.

PUR water filter on galley sink faucet. Note small, flat switch at right of filter. In this position, water bypasses filter. Move switch down for water to pass through filter.

A second objective for this project was to see how close I could get to good tasting water coming out of the taps on the boat. All of the supply pipes have been replaced and a new pump installed. Now I focused on cleaning the two water tank. Both had access ports on top and, with minor pain, my hand would squeeze inside the tank. I scrubbed the inner walls with bleach water and rinsed well. For years, I have used an in-line water filter on the dedicated potable water hose I use to fill the tanks on my boats and I think that helps ensure that the water going in tastes good. I also installed a PUR water filter at the galley tap as the final step in getting a good drink on the boat without carrying gallons of drinking water. After the project was complete, I can report that I'm OK drinking straight from the tap, without even using the PUR filter.
–Mark Cole, *Fiddler's Green* #8, Tacoma, Washington

NOTE: There are instructions for sanitizing the tanks in the Catalina Owners Manual. It is important not to exceed the recommended amount of chlorine bleach for potable water tanks. –JH

CATALINA 28 INTERNATIONAL ASSOCIATION

Not All Blisters Are Created Equally – and What Can Go Wrong

C28 Association
Technical Editor
Ken Cox

There are basically three types of blisters. Pseudo, absorption and osmotic. I will cover both identification of each as well as it's repair. The first step is always pulling the boat and giving it a good wash down, if the boat is smooth, it's your lucky day you have none. But in many cases, you may have blisters in one form or another. The bulk of them will normally be in the upper two feet below the water line but can be anywhere on the hull. I have also seen boats that had more on one side than the other. Usually, the shady side is the more active side.

The first step I use is to stick the blister with either an awl, icepick or similar pointed object. If you get a colored acidic fluid, it is an osmotic blister, if you get only water, it is an absorption blister and if the blister is dry, you have a pseudo blister. The age of the blister can also be judged by both size and color of liquid. If the blister is larger, it is older, if it contains fluid the darker and smellier it is the older it is. Know also that there can be a blister in progress that you cannot see at this time but will present in the future, maybe after a repair is done. You may be able to find them with a moisture meter if you're good with it.

In the first type, pseudo blisters it can be of any size, it can be round or irregular in shape. If you stick it and it is dry, peel off the layer and look underneath. I have seen these with shiny new fiberglass underneath. This tells me that the surface was never sanded, probably never de-waxed and cleaned and the cover coat be it barrier paint or bottom paint had no chance to adhere to it. It may also have not been painted in the time parameters for the products used or as referred to as 'hot coated'. For these, simply sand, de-wax, barrier coat and apply bottom paint.

All paints be it barrier coat or bottom paint out gas, if the paint is applied too thick for the gas to escape it creates voids and delamination's along the way making room for the next blister. Our goal is to create and end the cycle and prevent an environment that blisters cannot begin a chemical reaction.

Absorption blisters can be either round or irregular in shape, you stick it, and it has clear fluid in it. More times than not they are irregular, they are non-reactive. This type has had a void that absorbed water but had nothing to react to and turn into an osmotic blister. In time there is a high probability that it may turn osmotic but not always. For these, grind it out, solvent wash it out and let it dry out for as long as you can, over winter would be great. When ready do a final solvent cleaning, fill it with repair material maybe leaving it a little proud, sand fair you should not feel a ridge or lip of any kind. Then barrier coat and bottom paint. These are normally caused by a missed spot, maybe where the cloth meets or a bubble developed in manufacturing numerous ways, just a benign void.

The most complex of the three and hardest to do a quality repair is the osmotic blister. This type is always proud, when stuck produce a colored fluid that is acidic and has an odor. These are a reaction to different types of contaminations. The cause is generally from but not limited to, a poor grade of gel coat, poor molding skills or practices or pour craftsmanship, excessive catalyst in the molding process, a workshop that is too cold or too humid, impurities or solvents in the glass fibers or resins. It is almost impossible to make a perfect hull, due to the sheer size and multiple layers and processes that are done. But once a defect or contaminate is there a blister is almost inevitable. Once formed, all contaminated substrate material must be removed. If it is not totally removed a new blister will form and exit the hull right next to the old one. Once removed it can help to let it dry out as long as possible but not absolutely necessary.

Normally they are opened up with a die grinder of some size. When you open them, I believe it is better to leave them concave shaped and not square sided. If you use say a drill bit, this leaves hard edges and it is unlikely you can get the void fully filled without leaving air in it, with leaving them concave, you can press the filler in from more than one direction and have a better chance that no air is left inside to create the next blister. Fill it to slightly proud, then let them cure. As the material cures it will warm and expand. Once hardened then sand flat, but sure there is no hard edge left. It is almost easier to get a proper repair with a larger one than a smaller one. If there are any divots left from out gasses or air, grind lightly, solvent wash and apply another coat. Once it is fully cured, sanded and fair, apply an epoxy barrier coat and bottom paint. Be sure to adhere to coating times and not 'hot coat' it as this can create pseudo blisters.

There are two methods of barrier coating that I use. You can fill and then coat with barrier coat, or you can barrier coat and then fill. When I have only a few blisters I will fill and coat. But when I have many, I do a combination of the two. The reason for this when you are working many blisters and a large boat, your eyes adjust and you get to the point you can't see them all and can miss some, kind of like snow blind. By barrier coating with a different color

Absorption blisters can be either round or irregular in shape, you stick it, and it has clear fluid in it. More times than not they are irregular, they are non-reactive. This type has had a void that absorbed water but had nothing to react to and turn into an osmotic blister. In time there is a high probability that it may turn osmotic but not always. For these, grind it out, solvent wash it out and let it dry out for as long as you can.

it refreshes your eyes and you will see some you missed, can fill them, light sand and solvent wash and continue on with your final coats and bottom paint. Also be sure and observe any induction times a product may have; this can ruin a job as well and create pseudo blisters.

Finally, what to use for a filler. For the larger and deep ones, you will need to fill with both mat and an epoxy. Be careful as all epoxy's do not use the same mix ratio's and this needs to be right. For the smaller ones you can use an epoxy filler or compound. While I don't like to name names, my favorite products for the shallower ones are Marine Tex and Petit's EZ Tex and note they have different mix ratio's. For the deeper ones I use the old stand by's of West Systems and MAS. I keep both in stock and when I do a large fill I lean towards the MAS as it does not get as hot in a thicker or larger application or have as much if any amine blush, this is important to an area that you can't get too very well to clean the amine blush, like inside a rudder or something like that. What I refer to as a blind pour or injection.

Blister repair is labor intensive, not really hard but very time consuming and lots of wait time for cure times. I think people tend to shy away because it seems so Voo do science, or are uninformed about how to do it and are afraid to tackle it. It can seem overwhelming and daunting but in reality it's like a walk around the world it just begins with the first step.

If you have questions I can be found on the C-28 Yahoo site or you can contact me diretcly at kenneth_cox@sbcglobal.net. Fix it fast, Sail it faster.

–Ken Cox, *Acadia* #317

NOTE: Fortunately blisters are rare on Catalinas manufactured after approximately 2000 when Catalina started laminating all hulls with vinyl ester resin shin coats directly below the gel coat. –JH

Association News

News That's Specific To Your Catalina

Catalina Fleet Rosters

We are printing one point of contact for each fleet (a phone number, email address, OR website address). Fleets are a great way to learn about rendezvous, cruise ins, raft ups, tours, and concerts in your area. *Mainsheet Editors, make sure to submit your current info in this format next issue!*

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#5, Long Island Sound
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http://www.catfleet69.com
GC3, Alabama
GulfCoastCatalinaCruisers.com

Let us know where you sail!

To have your fleet listed here, send the information to your Association Editor for inclusion in the next issue.

CATALINA 34/355 INTERNATIONAL ASSOCIATION

Secretary's Report

C34/355 Association Secretary Stu Jackson

C34IA Membership dropped slightly to 475 from last quarter's 508, and includes 31 C355s.

In the August 2021 secretary report I included Paul Jacobs' (*Pleiades*, #1068) comments on a "first sail of the season." In another recent topic on the forum, Paul offered his observations on "The Cost of Sailing."

"I learned a long time ago that when you truly love something it is pretty much impossible to put a price on it. How much is the memory of your first kiss worth? Is it $1.27, or $54.95, or $727.15, or perhaps it is priceless! How much do you LOVE sailing? I am now 83 and have been sailing for 68 years. How much is it worth to be out on a sunny day, with 12 knots of wind, some whitecaps, the sails beautifully trimmed, and that magical sizzle of the water past the hull? Is it $42.19, or $87.94, or $242.71?

"I cannot predict the future. How many more magical such days do I have left? How much money is each of those days worth?

"The Earth is about 4.5 BILLION years old. If we are really lucky, MAYBE we live for 100 years. Whatever it is, it is a blink in the eye of the universe. We are so incredibly fortunate to be alive, to breathe in and out, and to be able to SAIL. Yes, it is expensive, but simply living in 2022 is expensive. After we are gone, if any of us could come back from the grave - just for a single day - I think we would hug and kiss our wives and children, go for one last sail, and we would pay every penny we had for the opportunity.

"Every once in a while, I run into someone who calculates the cost of absolutely every expense related to their boat for a given year, then they divide this total by the number of days they actually went sailing and are truly horrified at the resulting number. I know, because I used to be one of them! Finally, about 20 years ago I stopped doing what I now call "the terrible arithmetic" and consider a new engine, new standing rigging, a new furling jib, and new interior cushions to be simply the price of a love affair."

I have kept rigorous track of the things I have purchased for *Aquavite* since we bought her in 1998. It's in a spreadsheet, and I can sort it by any number of different column combinations. It came in handy many years ago for tax purposes. But I've never even considered doing it since. I figured once the costs of the first few years started dropping, after the significant electrical upgrade, I was happily more than just fine with that.

Trust you're planning for a fun-filled 2022. And, as always, many thanks from all of us to all of you for supporting the C34IA. **–Stu Jackson**, #224 *Aquavite*

CATALINA 320 INTERNATIONAL ASSOCIATION

Incoming C320 Association Commodore

Some things have changed within our C320 Association since you last read Commodore David Allred's editorial in the Spring issue of *Mainsheet*. In that article he indicated that he was waiting for someone to step forward to relieve him of his post. Well, since fools rush in where angels fear to tread, I have become that person. With the consent of the Governing Board of the Catalina 320 International Association, I am now your Commodore. Having served as Commodore of the Seattle Singles Yacht Club, I am not unfamiliar with the broad outline of the task ahead.

I have been a fan and owner of Catalinas for the past 47 years. After owning a 22 for five years, with growing children and tiring of hitting my balding head, we moved up to a swing keel, pop top Catalina 25. While waiting for that boat, I had the opportunity to visit the Woodland Hills factory where I met Frank Butler.

When I separated from my wife in 2003, I was faced with the choice of alternate living accommodations. My first thought: "I'll buy a bigger boat!" And so, I did.

Odyssey #772, a three-year-old wing keel Catalina 320 with only 115 engine hours came on the market. Rebranded *Whisper*, (that's a story for another time) she has been my home for over 18 years. We make our "home" at Westlake Landing on Lake Union almost in the heart of Seattle. This is fresh water connected to the salt water of the Salish Sea through the Lake Washington Ship Canal under two bascule lift bridges and through the Hiram Crittenden Locks. Some friends extol the virtues of direct access from either Elliott or Shilshole Bay marinas, but life is not without tradeoffs. Their saltwater moorage is colder and requires more frequent haul outs and zinc replacement. Fresh water is much kinder to gelcoat.

With nearly 1600 engine hours and her third suit of sails, Whisper has ranged as far south as Olympia in Puget Sound and north through the Washington San Juans to the Canadian Gulf Islands, the Broughtons, Desolation Sound and Princess Louisa Inlet.

Joe and *Whisper* #772

With nearly 1600 engine hours and her third suit of sails, *Whisper* has ranged as far south as Olympia in Puget Sound and north through the Washington San Juans to the Canadian Gulf Islands, the Broughtons, Desolation Sound and Princess Louisa Inlet.

Here in Seattle, after a two-year hiatus, there will be an Opening Day to Yachting Season celebrated in the Montlake Cut ship canal sponsored by Seattle Yacht Club during the first week in May. *Whisper* holds 6 trophies for Dressed Sail and 2 for Decorated Sail; my salon bulkhead is full.

We have raced and placed twice in the Sloop Tavern "Race Your House" for liveaboards.

In 2004 I discovered bareboat chartering, when, with a group of friends, we chartered a 46.4' sailboat out of Nice, France. Since that experience, there have been on six trips to the British Virgin Islands as well as French Polynesia, Croatia, and St. Vincent & the Grenadines. The most recent BVI trip was just last May. With two vaccinations and 2 PCR tests, imagine our surprise when we were denied return access to the water taxi to St. Thomas without yet another PCR test. We were able to return after the negative test, two days at the luxurious Scrub Island Resort and a private airplane charter to St. Thomas. It was an adventure!

I have a lot of catching up to do with the resources of the Catalina 320IA. We are here because of you. If you peruse the hull list, you will see that we are truly an "International" Association. There were 1,167 boats manufactured of which 37 are here in Washington State. We have about 250 members. We need to locate and encourage one another to join and share in our association. You have likely made modifications to your vessel to more fully meet your needs; I know I have. We need to share that information through photos and information on the blog.

Like Winter for some of you, Covid-19 has affected all of us. Cruising plans have been put on hold or at least curtailed for over two years. Hopefully, as you read this, you will be able to actively pursue your summer cruising plans. Sail on. **–Joe Grande**, Incoming C320 Association Commodore, *Whisper*, #772, Lake Union, Seattle, 6 March 2022

We have about 250 members. We need to locate and encourage one another to join and share in our association.

CATALINA 22 NATIONAL ASSOCIATION

Commodore Report

C22
Association Editor
Rich Fox

Congratulations to Dora McGee, Secretary/Treasurer of the Catalina 22 National Sailing Association, who received the US Sailing John H. Gardiner Jr. One Design Service Award in recognition of distinguished service and leadership in the promotion of one-design sailing and class organization. The award was presented to Dora during the US Sailing Association Awards presentation on March 24 at the St. Francis Yacht Club in San Francisco

Chris Snow, US Sailing One Design Committee Chair wrote "On behalf of US Sailing and the US Sailing One Design Committee, I am honored to inform you that you have been selected to receive the 2021 John D. Gardiner One Design Service Award. It is clear from reviewing your nomination that your service to the Catalina 22 National Sailing Association and many other one design groups and events in the Southeast over many years is simply exceptional. From Catalina 22 events (both racing and cruising) to supporting a whole host of events and classes you set the example for others to follow. Without dedicated folks like you and your selfless dedication to supporting our sport, sailing would not be the same. On behalf of our committee at US Sailing and the many one design sailors you have touched over the years, thank you for all you have done!"

Dora McGee photo by Ted McGee

Dora's nomination letter was submitted with the support of representatives from several one-design classes, including:

Advertising Index

CATALINA 22 NATIONAL ASSOCIATION

(continued from previous page)

- Dan Fink, Rear Commodore - MC Sailing Association
- Martine Zurinskas, Laser Class
- Reid Collins, Southeastern Governor, Thistle Class
- Hal Smith, US Sailing Certified National Race Officer
- Duncan McBride, Commodore, Catalina 22 National Sailing Association
- Ted McGee, Vice Commodore, Catalina 22 National Sailing Association
- Rich Fox, Editor/Webmaster, Catalina 22 National Sailing Association

It has been a very busy season for the McGee family as Dora's husband Ted has been very busy preparing for the 2022 Catalina 22 Catalina 22 National Championship Regatta that will take place the week of June 18 to 24 at 'the Fort Walton Yacht Club in Fort Walton Beach, Florida. The Fort Walton Yacht Club has hosted this event at least a half-dozen times during the past twenty years, and the Association is very grateful for their warm hospitality by the club and its members. Thank you!

Looking ahead to 2023, Ron Nash is preparing to take the helm as Vice Commodore and organize the Catalina 22 National Championship Regatta on DeGray Lake in Arkansas the week of May 27 to June 1, 2023.

A big shout out to our National Cruising Captain Stuart Weist who is organizing a fun week of Catalina 22 cruising with this year's Catalina 22 Apostle Islands Cruise. The event will take place the week of August 22-27. With over 20 Catalina 22s expected to attend the event, Stuart has demonstrated exceptional leadership in organizing and promoting the event and attracting new Catalina 22 sailors to the class.

It is time to make some noise and build the class! I am very excited to see Catalina 22 Region 8 Commodore Mark Goodwin is on the ballot to serve as the Association's new Rear Commodore. Several years ago, the Rear Commodore position was updated to focus on building the relationship between the Association's Board of Directors and the Catalina 22 racers at the regional and local level. As Region 8 Commodore, Mark has done an outstanding job in promoting and building up Catalina 22 racing in Texas, Oklahoma, Arkansas, and Louisiana. I expect that Mark's enthusiasm about racing will pump new life into Catalina 22 racing at across the United States.

With the addition of Mark Goodwin to the Catalina 22 National Sailing Association Board of Directors following the elections in June, and the continued splendid work by all the other members of the Board, the Catalina 22 National Sailing Association will have strong leadership in-place with excellent potential and enthusiasm to engage more Catalina 22 sailors and grow the class.

Check out our events calendar at www.catalina22.org and get involved. **–Rich Fox**

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