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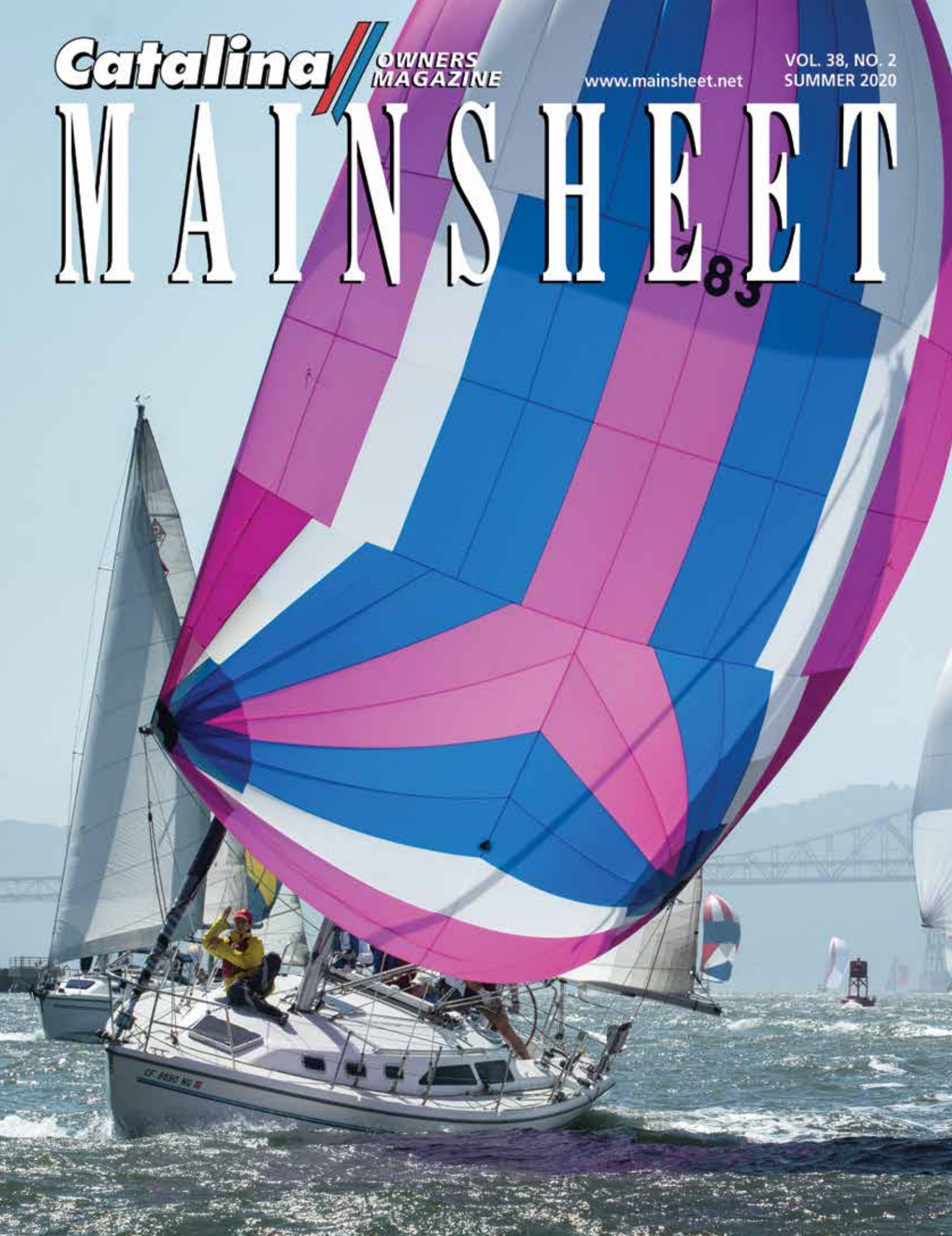
SUMMER 2020

MAINSHEET



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TECH NOTES:

ASSOCIATION NEWS:

EDITORIAL:

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Managing Editor
Frank Butler
President Catalina Yachts

Publisher / Editor
Jim Holder
3504 Amberley Trail
Evans, GA 30809
Phone (706) 951-4282
Fax (706) 651-0533
cv.jholder@mainsheet.net

Associate Editor
Carol VandenBerg
3504 Amberley Trail
Evans, GA 30809
Phone (706) 951-4282
Fax (706) 651-0533
carol@mainsheet.net

Technical Editor
Gerry Douglas
Designer & Engineer
Catalina Yachts
gerard@catalinayachts.com

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PRODUCTION:

landisproductions LLC

1911 Huguenot Road
Suite 301
Richmond, VA 23235
(804) 897-0495 phone

email:
david@landisproductions.com
website:
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***Mainsheet* is the official magazine of Catalina Yachts sailboat owners — read by thousands around the world.**
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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International All Catalina Alliance
Association News & Tech Notes: Donna Ferron, 484-678-4592, donnarferron@verizon.net

Catalina 470 National Association • www.catalina470.org
Association News: Julie Olson, (650) 504-5304, voyagerC470@yahoo.com
Tech Notes: Joe Rocchio, jjr@onward.ws

Catalina Morgan 440 National Association • http://catalina440.org
Association News: Jessie Mackelprang-Carter, sv.theredthread@gmail.com
Tech Notes: Mike Simpson, mike@threesheetssailing.com

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Association News: Ken Fischer, 503-473-7252, catalina42@mac.com
Tech Notes: Gene Fuller, gefuller42@comcast.net

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Association News: Martha and Dan Bliss, 717-676-7635 (cell), sailbrunelle@gmail.com
Tech Notes C400 Hulls: Tom Sokoloski, 860-659-3880, tomsoko@gmail.com
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Catalina 380/385/387/390 Int'l Association • www.catalina380.org
Association News: Kathy Ahillen, kahillen@comcast.net
Tech Notes C380, C390 Hulls: Todd Gaier, tgsail1@earthlink.net
C387 Hulls: Tom Brantigan, tombrantigan@gmail.com
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Association News: Chuck Finn, (518) 226-0584, charles@finn.ws
Tech Notes: Steve Smolinske, SSmolinske@rainierrubber.com

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Association News: Lauren Nicholson, lauren@nicholsonmarine.com
Tech Notes C36 Pre Mk II Hulls: Leslie Troyer, leslie@e-troyer.com
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Association News: Bruce MacGregor Whyte, bruce@yachtingmasters.com
Tech Notes: Scott Monroe, scott_monroe@verizon.net

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Summer 2020
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Photo by Erik Simonson

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Association News: Jack Hutteball (Fleet 5), jhutteball@comcast.net
Tech Notes: John Nixon, c34hull728@gmail.com
(Associate Technical Editor): Ron Hill (Fleet 12), ronphylhill@comcast.net

Catalina 320 International Association • www.catalina320.com
Association News: Rod Boer, 215-675-8286, rod.boer1@verizon.net
Tech Notes: Mark Cole, 253-446-9003, boatnboot@me.com
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Association News: Bob James, 614-481-6744, bob@advancedreading.com
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Association News & Tech Notes: Michael Dupin, dupin.catalina30@yahoo.com

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Association News: Dave Brower, 949-278-0926(H), browerd@comcast.net
Tech Notes: Ken Cox, kenneth_cox@sbcglobal.net

Catalina 27/270 International Association • www.catalina27.org
Association News: Peter Zahn, 410-431-5045, Peter.zahn@gmail.com
Tech Notes C27 Hulls: Judy Blumhorst, judyb@hydesailsUSA.com, 925.997.0786
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C25/250 & Capri 25 Int'l Association • www.catalina-capri-25s.org
Association News: Brian Gleissner, mainsheet@catalina-capri-25s.org
Tech Notes C25 Hulls: Seth Martin
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Catalina 22 National Association • www.catalina22.org
Association News: Rich Fox, 317-815-8599, rich_fox@yahoo.com

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EDITOR'S BARQUE

Reflections

As we all know, our world has turned upside down with an enemy we cannot see. This situation is hard to understand and even harder to control. However,

there are some good things happening as more and more people step up to the task of helping others. Much like sailing with a great crew. Everyone working together, doing their job to make the boat sail fast and smooth, and getting the most out of the wind.

Sailing is an unbelievable sport and teaches us many of the traits we need to cultivate to live a successful life. The first being respect of Mother Nature (wind), our fellow competitors, our boat, race committee, as well as never giving up, never stopping learning, and reaching for a higher and higher goal.

But one thing really helping Carol and me in this dark and gloomy period are the sailing memories and reflections of all the good times we have had living and enjoying together the sailing world. We often spend hours talking and laughing about all the people and little things that stand out in our minds. There is nothing like looking back to old times when life was simpler and more carefree and sailing was one of the main things. So, if you find your world a little out of control, try some reflections on the good old days and some of the things that made you happy.

–Jim Holder

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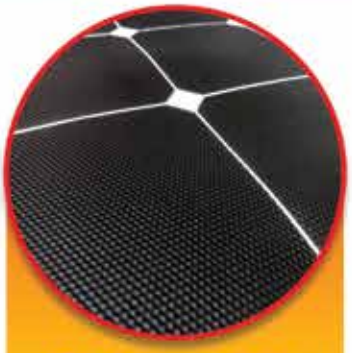

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View From the Bridge:

Sailing Memories | 32 Years 6 Catalina Yachts

By Steve and Margie Cooper • Catalina Morgan 440 • *Coop'Sloop* Hull #56

Looking back over many sailing seasons, the primary force that creates memories is not the sailing itself. Those memories are created by being with my wife, Margie, and sharing many experiences on the water with her. Don't get me wrong, we both love the feeling of the power of the wind in the sails; feeling the elements up close, whether they be friendly or nasty; and the feeling of satisfaction being able to partially "tame" that power to our advantage. And we love to be outdoors in the cockpit of our Catalina Morgan 440!

Looking back over the past 32 years, our fondest sailing memories are those connected to each of our 6 Catalina Yachts. To begin our sailing adventures, we first purchased a Catalina 22. We were living and working in Davenport, Iowa, located on the Mississippi River. That is where we sailed until I retired. On our swing keel 22, we learned by trial and error. Those experiences, however, made us better sailors. Because the course of the river in our area lay due east and west, and because the prevailing winds were from the west, we were either sailing on a "beat" and constantly tacking our way down the river dodging wing dams, skinny water, and commercial vessels, or on a run up the river fighting the current. By learning to sail on the river, we gained valuable experience maneuvering under both sail and power, which helped us to step up to larger boats. We continued to river sail on a Capri 26 and then on a Catalina 28. Since there was no rigging, or sailing repair places where we lived, I was forced to do most all of the maintenance and winterizing on our Catalinas. That was a lot of work, but it also provided great learning experiences.

Steve and Margie loving life at Point Betsie Light on Lake Michigan.

Coop'Sloop at CenterPointe Marina in Sturgeon Bay, WI.

In the late 1990s, Margie met a woman whose fiancée, John, owned and loved a Catalina 36 that he kept in Muskegon, Michigan. After listening to him tell us about sailing on the Great Lakes, and since I was by then partially retired, the time was right. We sold our Catalina 28, and moved up to Lake Michigan where we purchased a Catalina 310 and, two years later, a Catalina 350. My Catalina dealer at Nestegg Marine in Marinette, Wisconsin, loved to see us coming! He used to say, "Isn't it time for another new boat?" Well, in 2008, we finally purchased our Catalina Morgan 440, hull #56. Both our dealer and the person at Catalina Yacht's factory helped finalize our decision. We love our CM440! We have sailed Coop'Sloop to most ports in Lake Michigan, into the North Channel of Lake Huron, and into Georgian Bay. The Catalina Morgan 440 is, without question, the best liveaboard sailboat that we have owned. We've chartered Suns, Hunters, C&Cs, Jeanneaus, Sea Sprites, and Nicholsons, and none of them compare to our Catalina Morgan 440!

Sister Bay, WI

Here is a list of memories that supersedes our actual "under sail" experience:

1. **Anchorages —** endless numbers of scenic, magnificent, uncrowded anchorages in the North Channel provided us the opportunities to explore on our own. With a wing keel and shallow draft, our Catalina Morgan 440 enabled us to visit wilderness anchorages where we could kayak or use our dinghy to explore hidden creeks and Canadian parks.

2. **Harbors —** our favorites include those in Door County (the peninsula extending from Wisconsin into Lake Michigan and Green Bay); the northern small harbors in Michigan; Little Current, Ontario; and the big cities of Chicago and Milwaukee.

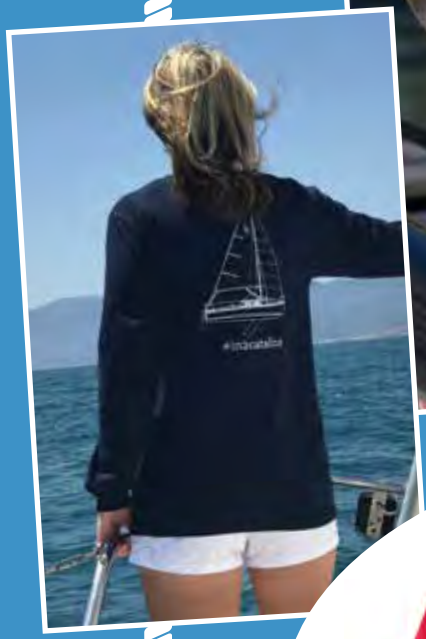
3. **Friendships —** we met many sailors and powerboaters in both anchorages and harbors who shared local knowledge with us. Some of our best friends are boaters with whom we share a common bond. Our Catalina Morgan 440 with its huge cockpit has hosted as many as 14 people to share food, drink and stories—what fun!

4. **Glorious sunsets followed by star gazing —** the mosquitos take a nap after 1:00 am, so we would set an alarm, get up and lay out on the foredeck with our star charts and laser pointer. So many stars stretch from horizon to horizon that one needs a star map to pick out the constellations.

The most important and memorable part of our many experiences is the fact that both Margie and I are sharing them together as a couple. At our age, our ability to continue sharing our sailing and living aboard is dependent on both of us staying in physically good shape. Sailing safely—especially as senior citizens—demands strength, flexibility, and balance. Our desire to continue sailing gives us the incentive to stay active. Sailing and navigation have also given us mental exercise, created team building, and improved our communication skills. Sailing keeps us young! Sailing Catalina Yachts has truly provided a memorable lifestyle that our landlubber friends cannot begin to understand.

Nowadays, we have discontinued 1000-km explorations during summer months, which were so important to us in our early sailing years. We now opt to stay put from June through September as a seasonal slip holder living aboard Coop'Sloop in Sturgeon Bay, Wisconsin. Margie and I never thought we would like staying in one port, but we love our summers in a place that offers theater, concerts, art, restaurants and an endless variety of amenities. We have made a new summer life living aboard and making new friends. Instead of being vagabonds, we now have the ability to share our Catalina Morgan 440 with family and friends who join us in our new home port. Our option to day sail on Lake Michigan or on Green Bay is always available and, if we wish, we can sail to our favorite harbors on the Door Peninsula or cross Lake Michigan. We love getting away from the Kansas City summer heat, opting instead for the cooler northern wind and weather in Wisconsin and Michigan. Sailing is fun, but the memories and sailing lifestyle are the things that make our summers—and our lives—so enjoyable.

We both thank Catalina Yachts for helping us to create countless sailing memories.



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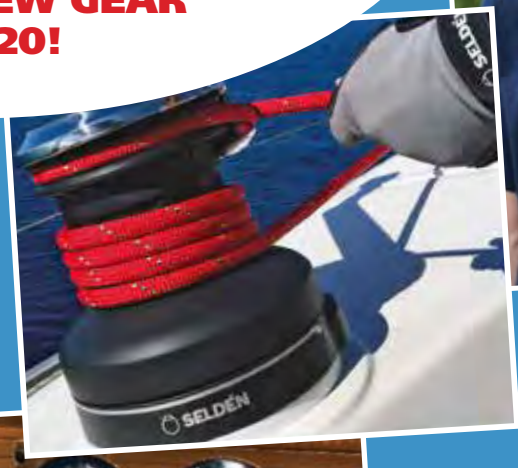

Lessons Learned:

How *Infinity* Survived The Newbie Family

By Chris and Brook • *Infinity*, Hull #222 • C350

The Family "Newbie"

They had experience in small power boats on Bear Lake in Idaho where they live. Chris is a retired civil engineer and his wife Brook is a national organizer for the Children's Miracle Network. Their goal was to cruise the east coast and the Bahamas, 2-3 weeks at a time and several times a year, while actively continuing with the Network. They bought a Catalina 350, hull # 222 in July 2019 in the Tampa Bay area and joined the Catalina 350 International Association (C350IA). This is their first sail boat and sailing experience.

Bear Lake, ID and *Infinity* at rest below

They decided to move the boat to Titusville as a semi permanent port. Infinity, was surveyed in July and no significant issues reported (they could not attend so relied on reports with pictures).

The major factor that drove the date of their move was one we are all familiar with. TAXES. Having purchased Infinity in Florida they were required to pay sales tax, unless a 180 day tax waiver could be obtained. That meant they had to move her out of Florida by January 17, 2020.

They had to learn "[Infinity at dock]" about the boat, hardware, coastal navigation including software, marine computing and many other aspects most take for granted. Terms such as shoals, tidal currents, tidal depth changes were totally foreign to them.

Cruising on a set/tight schedule is an Oxymoron.

Preparation #1

Since they had never boated on anything other than a lake, they decided to check in with the C350IA forum. This was the single most valuable decision they made during the entire trip. This forum was very active, many questions were asked, but the first one summed up their sailing skills:

...only been aboard 1 hr under sail. With winds 15 knots do I need to be sure to reef both head and main or just run with headsail?

Consider a rope clutch for the headsail furling line to greatly ease the process of reefing the jib and let the weather helm be your guide. Esperance is wanting a reef about 18 or so but obviously your point of sail matters.

When they asked for routes from Snead Island they received plenty of advice: when to reef, at what wind speeds, heeling angle and what to do with different wind directions. Even down to what tools they should take. After all this advice, they felt ready to leave Snead Island.

Start #1

On the first day, they left Snead Island, and turned on the chart plotter, dual Raymarine e80 plotters, one at the helm and the other at the nav station below. They were advised against going around Passage Key but instead head south to Longboat Pass. But on arriving near Longboat the helm plotter showed no obvious channel and only hazy details such as depth contours but no data or depth numbers (these were available from the depth meter). The correct waypoints and routes were shown as entered by the previous owner. So, they assumed the plotter was working normally. However, Aquamap showed sufficient depth clear to the Gulf. So, they continued south towards

They had experience in small power boats on Bear Lake in Idaho where they live. Their goal was to cruise the east coast and the Bahamas, 2-3 weeks at a time and several times a year, while actively continuing with the Network.

Sarasota, staying in the channel and did not hug the eastern shore as suggested by some. They had just cleared the Ringling Causeway Bridge.

Dead Stop Grounded!

They called TowBoatUS who arrived several hours later on a fast ebb tide. "[destroyed rudder]" Pulled them backwards and just as they gained some momentum, the wheel was violently jerked on a second shoal. The rudder jammed and then bent upwards. They threw out an anchor and waited for TowBoatUS to return at midnight on a high tide. They were pulled off and towed to a marina at Sarasota for the night. That marina did not have repair facilities so the next day they were once again towed, this time to Cortez Island for repairs.

"[burnt lug shore power]"Three miserable nights were spent on board without any shore power, baking in record heat with no air conditioning. 30 amp power was available at Sarasota, but for some reason we could not use it. It was

not available when we were aground nor back at Cortez. Discovered a burnt out plug missed on survey. Incidentally, also found a rusted and broken clamp on the PSS seal.

When the boat was hauled out, it was apparent that this was going to be a full replacement. Since Catalina did not have a replacement rudder, a new one had to be fashioned which would take a week. So hey, they were in Florida, and when there you rent a car/condo at Cape Canaveral and act as tourists.

Four days later the rudder was ready. They drove back to the fabrication plant in Ocala, picked up the new rudder and took it to Cortez. Naturally, since it was Friday, the yard was closed when they arrived, so they rented another condo until Monday. The rudder was installed and they motored back to Snead Island. But not before dumping $14,000 onto TowBoatUS which then gave all of it back to them without the deductible! Apparently, this is their policy. So, after 2 weeks, our "Newbies" had 3 hours of personal travel in their new boat, stayed in 2 different rented condos on two different oceans, had driven twice across Florida, and were back where they started. So, they did the only thing they could, plan the second attempt.

The Plot(ter) Thickens

But why had they grounded in the first place? Despite their obvious inexperience, they had relied on electronic chart plotters of which there were three on board: OpenCPN on a laptop, Aquamap on an iPad, and Navionics on the e80s.

> We went aground Big Pass. Sarasota. Should not have been there. Meant to take longboat pass but could not see on chart plotter.

On returning to Snead Island they learned that one of the two e80 plotters was the master unit and the other the slave unit and there was a very strange and specific procedure for starting them:

1. Turn on the master e80 (the one at the nav station);
2. Turn off the master e80 (the same one at the nav station);
3. Boot the slave e80 plotter at the helm;
4. Turn on the master e80 (the same one again at the nav station);
5. Done.

They had only started the slave unit on leaving. Hence, the details were not shown as the master unit, which held the chip with the charts, was still off. Is this normal?

Preparation #2

While the boat was to be hauled he could go back to school. He had up to 3 months to learn more, then stock the boat. He enrolled in a comprehensive sailing course with NauticEd. This included anchoring, tides, rules of right of way, sail trimming, navigation and symbology, docking and communications. Probably should have done this prior to the start, you think?

> Tools? I got a socket set. 1 gigantic ancient screw driver and needle nose. 1 crescent.

> For tools get a fairly complete kit even with a hammer, Allen wrenches, etc. You can't really go overboard here, Spare parts and hoses, wire, duct tape...

Late December, the boat was stocked with spare parts (belts, fuel filters, some tools, a Yeti cooler, cruising books and chart books). All software had the raster charts loaded for the areas in which they would be sailing. All waypoints and proposed routes were inserted on all three navigation systems.

Now, finally, actual route planning. Lake Okeechobee was not an option. "Billy the Boat Tipper" had retired! However, it did not stop members putting in their two cents worth about that course, calculating the load on the boom to swing out sufficient weight to lean the boat under the bridge in extraordinary detail:

> Trying to recall 50 year-ago trig but if a 350 is listed to 23 degrees, the cosine of that angle is 0.92. A 53 foot mast would then require a vertical clearance of 48.76 feet to get through. I know Billy lines up 4-5 plastic 55 gallon drums on the rail, ties them to mast, handrail, etc then has a high-volume pump that fills them with water.

> Rough math 5 times 55 gallons times 8.3 pounds/gal= 2,283 pounds.

The best advice was the following which should have been known at the very start:

> A good start is to lay out distances and "next place to anchor/dock" for the trip. Make a post on this thread with distances and night stops 1-10 and those of us with experience in that area can give more specific advice. DO assume you will have several lay days for weather-- that will be decided on the fly as you see the weather forecasts for the next couple of days. Being "weathered in" at a secure marina sure beats 25 knot winds with 8' seas.

The plan was to leave Snead Island, sail south towards Key West, cut through the Channel 5 to Hawk's Channel, up to Miami and enter the ICW via the Government Cut. It was understood that the ICW could be quite narrow with some shallow areas and they thought it could be done quicker in the Hawk's Channel. The forum said NO, NO and NO, the distances were too great for a day time trip in the best of conditions.

...be sure to figure out where you can spend the night. From Channel 5 (the high bridge you will use to go from Gulf to Atlantic side of the keys) to Cape Florida where you can reasonably head back to safe anchorages or marinas is over 70 NM. Too far for a daylight sail.

Start #2

Their sister-in-law joined the crew for the second attempt. Provisioning had been completed so they could set off right after Christmas. It was an easy ride to Venice where after refueling, pumping out, getting ice, they sought advice on the best route, "Go back out and then south" which they did. No problems through to Cayo Costa, but heavy, unexpected tide current slowed them down. Anchoring behind the first green marker short of Pelican Bay at dusk, setting the anchor in 12' of water, they were woken to a bumping and found the current had turned the boat around towards the shore. This time kedging worked and they continued on the ICW. Passing Pelican Bay they saw a large sailing boat high and dry on the shore, reminding them again of what could be. From there, to St. James City then out to the Gulf.

From St. James City to Ft. Myers Beach Mooring Field, you need to be aware of the tidal current cruising the 'Miserable Mile' of the ICW (roughly from green marker 9 east of St. James City to Green marker 3A). If you happen to transit this stretch during a strong tidal flow, the tidal flow will create significant leeway and it is easy to get out of the ICW channel. And of course, there is a shallow spot near green marker 7 in the middle of that stretch.

Finally, a good night on the hook and an early start the next morning motoring past Naples to Marco Island in windless conditions. They negotiated the entrance past a grounded sail boat, (what! another reminder!), and stayed at the Marina. Local advice was to head to Little Shark River which they reached at dusk, along with the freshening wind. Threw out the anchor but it dragged overnight, again! Could not motor out and found themselves...

GROUNDED AGAIN!

OMG! An additional insult when they found the VHF radio was not working and they were reliant on the low range hand held VHF radio.

The boat gained an increasingly steep lean and everything not secured slid across the cabin. The starboard port light got closer and closer to the water and low tide was still hours away. With the help of the marine operator at the Everglades National Park, the rangers at the Flamingo Resort were contacted who set off to help. But the family decided to abandon the boat. They loaded some belongings into the dinghy and waited 3 hours for the rangers. They could not motor out in the dinghy as the stern of Infinity holding the outboard, was in the trees on the shore. The rangers arrived but could not get close enough to Infinity due to the shallows. They rowed out to the rangers, secured the dinghy on to the foredeck and had a fast 45 minute trip through the everglades to the Flamingo Resort. Fortunately, they did not swim out as no-one had mentioned the other predators in Little Shark Bay!

And yet more insults surfaced. The batteries were not holding a charge and were not charging and the refrigeration was not working. Three people, no power, food rotting, head essentially out of action.

The rangers had already contacted Bob (again) at TowBoatUS who successfully freed and anchored Infinity in mid-stream with no damage or water intrusion. Once again, the rangers ferried the family back to their home on the boat.

The next day wanting to see how far to the next mark, they grabbed the laptop with OpenCPN, pulled it off and shattered the GPS puck. It was a 20 yr old laptop, so no real loss. However, once again the rivalry with the shoals surfaced

resulting in the now almost inevitable grounding and a tow off the shallows of Bowlegs Cut. Once again Bob who came out. It was here they decided they finally understood the markings of the ICW:

1. Red markers are always on the Florida side and the green on the other;
2. Both are marked with little reflective squares;
3. Sometimes shoaling cuts into the channels which is only seen by zooming in to the highest magnification on Navionics, such as Bowlegs Cut.

By this time the holding tank was full (3 adults for 4 days), fresh water was unavailable and the refrigeration system only worked while under way. The ladies were losing some of their enthusiasm. The only pump out in this part of the ICW was at Islamadora, but that was not considered as the water was barely 4' deep. There is a mobile pump on the ocean side but they require notice. Huh! So, they continued to the Anchorage Resort at the northern end of Key Largo. Frayed dinghy lines were not sufficient to haul the dinghy onto the davits and it had been "[alligator close up]" towed the entire way. This became a problem attempting to moor at Anchorage due to the tremendously severe current. The dockmaster insisted the dinghy not be towed into the slip so by maneuvering close enough to throw him the dinghy line and it was secured to the dock. After maybe 10 attempts they finally moored the boat. You would have thought the holding tank could have been "emptied" somewhere but it was found to be clogged after 10 years of no use and was filled with solidified sludge. This had also been missed on the survey. But then, naturally by now, there was no pump out here anyway!

By this time everyone was a bit tired: tired of the issues, tired of no water, tired of no head (although the ladies spent a lot of time on the swim ladder?) and now, tired of the record cold weather! Remember, there had been record high temperatures at the start of this trip. The family was ready to park the boat and fly home for a while. But a slip in Marathon, if you can find a vacant one, runs $4,000 a month, and then only if booked two years out. So, rather than stay in the Keys, they figured they could make Miami the next day. Which they did, after a long slow day against the wind.

They Overnighted at Las Olas City Marina in Ft. Lauderdale and found a place to tie up for a month with the help of a broker we had previously used searching for our boat. So we stopped there so we could fly home.

But there was one more thing. Why could we not get fresh water when we had full tanks? We found out why. A portable fuel tank had slid when the boat had been heeled over so severely at Little Shark River. This had knocked off the barb on the cold water at the transom shower. Throughout this the water pump was running continually. Finally, not only could it be fixed, but the fix cost nothing! One for the "Newbies"!

But that led to another issue. The water in the AGM batteries was found to be low, so they added water as it appeared they needed it. They then found the batteries were split and fluids had leaked out. So, another cleaning job before they left the boat. The batteries were removed at the same time and new ones will be installed on their return. This was almost certainly present before they left on day one.

That's what so good about owning a C350. You get fantastic help from the Pod.

Issues
Chart plotters' operation unclear at the best

Survey misses:
- PSS seal, caused no issues, incidental finding, missed by survey
- Power Sarasota led to 3 days without A/C, missed by survey
- VHF inoperative, unknown
- Batteries incorrectly filled, ignorance
- Head clogged missed by survey.

This is the story as related by the "Newbie Family" to the editor. It has not been embellished. Quite the contrary. It has been shortened and simplified.

"We (Chris and Brook) decided to try publishing this in Mainsheet for three reasons. Firstly, to promote the enthusiastic responses of members of C350IA who had an amazing amount of experience, knowledge and assistance provided through the Forums. Without that resource, we would have had a far more difficult trip, if we had even completed it.

Secondly, publishing this article expresses our heartfelt thanks for all the help provided us that resulted in an ultimately successful completion of our around the Keys jaunt.

Thirdly, some of our mistakes, some reasonable, some just plain ignorant or stupid can be used as lessons. If we, by airing our experiences can assist other fellow sailors in avoiding similar situations, then our personal embarrassment will have been worthwhile."

LESSONS LEARNED CHRONOLOGICAL, NOT PRIORITISED

1. Shallow means Slow;
2. Shallow means douse the Sails;
3. Shoaling can cut into the ICW
4. Green markers closest to shore
5. Don't rely totally on electronic charts;
6. Study the route before trying it
7. Drive by braille!
8. Books are no substitute for hands on

Finally: Things WILL go wrong You WILL get through it

HEADSAIL FURLERS · MAINSAIL FURLERS

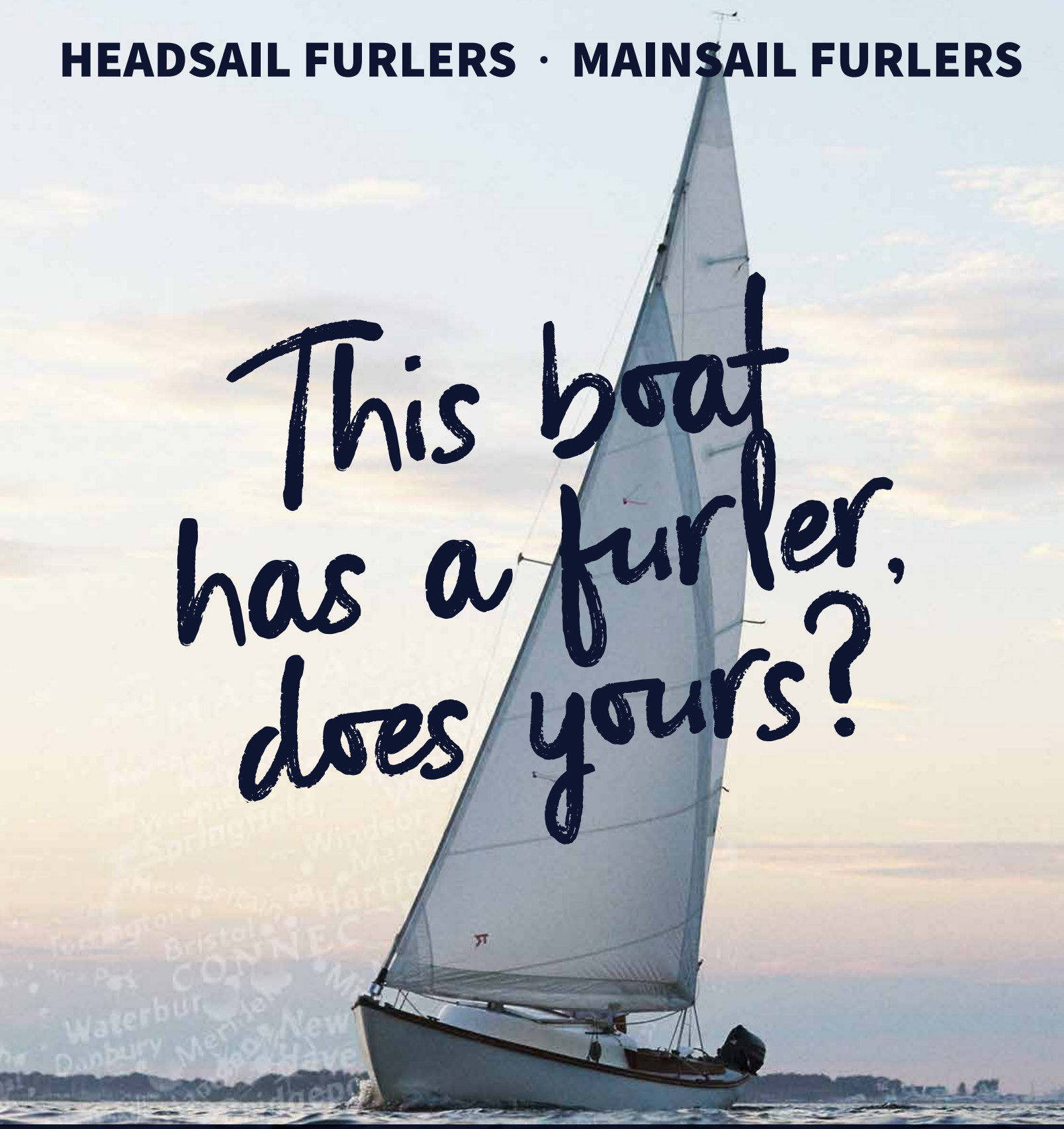

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photo by @mikeydetemple

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INTERNATIONAL

Change of Course:

Peace of Mind on the Mooring

By Scott Monroe, *Southern Yankee* #409, North Kingstown, RI • C350

This article describes a fun project for the upcoming season for all those who worry when separated from their floating homes. Enjoy.

Everyone else, please remember to keep your C350 community informed when you've got a project. Please keep the articles coming! Feel free to reach out to me and I will be happy to guide you through the process. –**Scott Monroe**, Scott_Monroe@Verizon.net

When it comes to my "home on the water" I have been a slip kind of guy for as long as I had owned the Southern Yankee. A couple of seasons ago I made the move from slip to mooring. While I have come to love the peace and serenity, and have perfected the packing of the tender, I had developed a separation anxiety when I am away. The "what if's" would keep me up at night, if I forgot to turn everything off will the batteries will be dead when I get back out there again, what if the sink drain hose springs a leak how long will the batteries last while running the bilge pumps, and how strong is the mooring pendant anyway?

I have always been a proponent for all things digital and given that I do keep tabs on my children through their phones, I decided to do the same with the Southern Yankee and install the Siren Marine system.

If you are not familiar with it, it utilizes global 3G connectivity and a smart phone app to report back bilge pump activity, battery levels, GPS position, and remote control over select circuits in the boat (more on that later), plus many other bits of information. For me the overall cost of the unit and seasonal service plan was fair for the peace of mind.

What I wanted most was to keep track of the charge state of the batteries, I have a solar panel installed on the dodger and am a little concerned with both over and under charged batteries, and more importantly I wanted to know if my bilge pump was active. Didn't want the surprise of tendering out to my mooring only to find a mast sticking out of the water.

I installed the simplest package which includes the MTC device (SM-MTC-A) shown mounted behind the DC distribution panel. The unit configuration is very simple, as it has a single control module and a smart phone app. It is shipped with a single fused power cable and mounting bracket.

I opted to mount the unit behind and above the power distribution panel in the main salon. The connections are straight forward. Each device (battery, bilge pump, etc.) is connected to the MTC Terminal Board via screw terminals under an access cover. I used crimped ferrules over all the bare wires to avoid loose strands (picked up the tool and ferrules on Amazon). To monitor the battery voltages, I wanted to pull voltage from as close to the batteries as possible. I opted to connect to the back of the battery selector switch as opposed to directly to the battery posts themselves. The entire battery switch panel needed to be unscrewed and pulled out far enough to access the battery switch posts. I liken it to trying to pull a family of pythons from their nest. I connected fused conductors from the battery switch (within 7 inches from the power source per ABYC standards) to the BATT 1 + and BATT 2 + of the screw terminal on the MTC Terminal board.

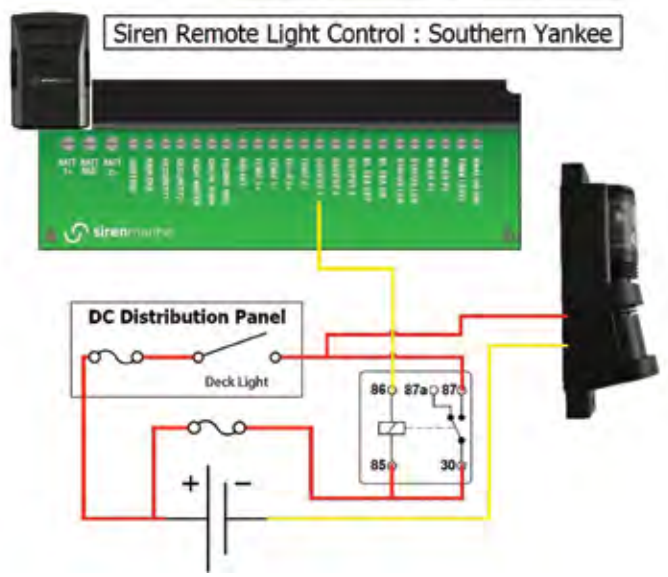
To monitor the bilge pump activity, I simply connected the power to the bilge light to the MTC unit. The light is powered when the bilge pump is activated sending a signal to the MTC unit. Besides requiring a ground connection, that was it for the critical connections. Overall, quite simple.

The phone app is quite useful. Besides real time monitoring of battery states it will also give the where-abouts of your vessel, which I found very useful to find out when she got pulled out for the winter (see lower Siren screen shot). The app also alerts you if the bilge pump turns on. I have it set to alert me with a single cycle, if I see two, I'm in my car quickly.

While the unit is great for peace of mind, I also took advantage of the digital outputs on the unit for more of a convenience. These outputs allow you to turn on and off electrical devices on your boat remotely via your cell phone. This idea originated from a trip to Block Island when I am tad bit embarrassed to say that returning from a shore visit late one evening, I lost track of the Southern Yankee in a very busy anchorage. Vowing not to let that happen again I utilized the remote switching option on the unit to turn my deck light on and off remotely via my cell phone, which makes my home on the water stand out among the many anchor lights in busy anchorage.

To utilize this function, you need to use a standard relay with enough amperage capacity to handle the deck light, or whatever device you are powering. The MTC unit internal ground switches can handle less than 1 amp through its circuitry so using a relay allows you to switch higher amperage devices, like a deck light, with low amperage switching. The relay only draws 1.8 W or 0.15 amps so well within range for the MTC. I purchased a thirty-amp relay from Amazon, which was more than enough to handle the LED deck light I have installed.

I included the wiring diagram that I worked up for the project. The overcurrent protection and switch depicted on the DC distribution panel is just the breaker on the panel. I pulled power directly off the feed to the distribution panel and then used a 5-amp inline fuse for the power to the switching coil on relay (85) as well as the power to the common on the relay (30). The normally open connection (87) on the relay was then wired to the output of the deck light breaker on the distribution panel. So, when I send a command to the MTC unit via my phone the output #1 ground switch closes allowing current to flow through the relay coils thereby causing the switch to close between 30 and 87, which then powers the deck light independent of whether the deck light switch on the distribution panel is on or off. Walla, I get a warm welcome of well-lit boat without having to leave the deck light on the full time I'm gone.



The cost of the project wasn't too bad considering the peace of mind and the coolness of turning on the deck light while motoring in the inflatable. The MTC unit (SM-MTC-A) was $599 with a $125 / season subscription for the 3G service. The relay was $5 and around $25 for wire, fuse holders and fasteners, and $27 for the ferrule crimper and ferrules. And all said and done, couple of hours of my time. Well worth it!

A Boater's Best Friend:

THE SILENT SENTINELS OF THE SEA

By Commander John D. Hooper, USCG (Ret)
Master, S/V *Liberty,* C400, #136, Deltaville, VA

They are frequently and fondly referred to by mariners as the "silent sentinels of the sea" and are intended to keep us out of trouble. No, I'm not referring to mermaids; but rather to aids to navigation placed appropriately on our coastline, our bays, channels, rivers, harbors, etc, that are vigilantly and professionally maintained by the U.S. Coast Guard. I was introduced to aids to navigation by my dad when I was six and sailing the Great Lakes, and relied on them extensively many years later as a deck officer conning large Coast Guard cutters to and from the open sea for many years. Despite many years at sea, and a license as a master mariner, it wasn't until I was assigned to an Aids to Navigation Office in the Miami that I became aware of the sophisticated "science" to the proper placement and characteristics of aids to navigation to help ships captains, harbor pilots, and even boaters find their location and way home. Much to my surprise, the placement of buoys and lights, daymarkers, lighthouses, etc is not just about "red right returning," there is quite a bit of engineering to the effort, and it is very hard and dirty work! Notwithstanding the truly remarkable "science", what follows is a very basic introduction to these wonderful, but silent, fixed and floating aids that keep us out of danger and lead us to our destinations.

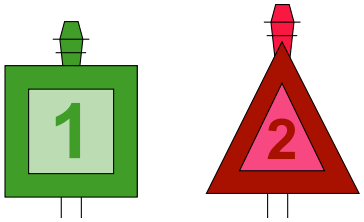
LIGHTHOUSES

Let's start with our majestic, proud, and colorful lighthouses. Did you know that there is a very deliberate reason that each lighthouse has a different color, shape, and nighttime characteristic ? Simply put, it is so mariners can easily distinguish one lighthouse from the other by both day and night. Take a look at the lighthouses near you,

they are all different in color, shape, and nighttime flashing characteristic. Even the range of the light at night, and its height will often vary depending on the predominant user and the significance of the location/ danger. I sail in the Chesapeake Bay predominantly, and our lighthouses are shaped quite differently from coastal lighthouses deliberately. As an example, in the middle of the Chesapeake Bay, near the eastern shore off "Hooper Island", there are two Hooper lighthouses: one is a cylindrical, vertical, caisson type; the other is typical for the Chesapeake Bay with a hexagonal, multiple pylon, wide, triangular steel beam foundation, and a "house". One is tall, has a white top and bronze base, the other has a low, "white house", and black steel criss-cross support structure. They are both nearby to one another, but one marks "Hooper Island", the other "Hooper Strait". At night they both have different rotating light characteristics so there is no confusion as to which lighthouse you're looking at. On your chart you'll see the lighthouse clearly marked and the "nominal range" of the light at sea (distance visible) in standard 10 mile visibility (see illustration). They are beautiful, proud, and yes, can even be romantic on occasion.

LIGHTS

In contrast, "lights" are either single steel/wood piles, or several pilings tied together, firmly fixed to the bottom, that have both a dayboard and light that flashes to mark a channel entrance, channel edge, or obstruction. Their height, color, and flashing characteristic are all important. Their height is based on the "focal plane height" of the predominant user (8'-10' for boaters, as much as 45'-60' for ships); their flash characteristic denotes either a side mark, a turn in a channel, mid-channel, or a junction with another channel, etc. Side marks typically flash every four to six seconds, turns in a channel flash every 2.5 secs, mid-channel marks flash in a Morse code "Alpha" sequence (short, then long flash), etc. The color, of course, denotes either port or starboard side of the channel, or the preferred channel for safe navigation in a junction.



RANGES

Boaters don't typically use or notice channel "Ranges". The Coast Guard typically places those for the exclusive use of large ships and the ship pilots who use them to ensure they are in the center of the channel. Ranges use the visual alignment of either two lights one above the other, or two rectangular dayboards with reference lines by day. They are deliberately tall to accommodate the height of ship's bridges and are critical tools for ships with a deep draft that must remain in the center of the channel.

BUOYS

Everyone is familiar with buoys, they are all over the place. Both lit and unlit, triangular or square in shape, red or green in color, with either an even or odd number placed thereon floating either over a wreck, or marking the side of our home channel. This is where it is helpful to remember the nautical refrain: "three R's"…. "red to the right when returning from sea." Buoys are "anchored" to the bottom by a hefty chain, and a large, square, heavy block to keep the buoy in place. And they do move and swing in a circle naturally so you can't use a buoy for position-fixing. Buoys that mark the side of a channel are either red or green, depending on whether the port or starboard edge is being marked; red buoys mark the starboard side of the channel, and green buoys mark the port side of the channel when entering. Buoys painted red and white vertically (example below) mark the center of the channel. Even if there are no green buoys, lights or daymarks visible to denote the left edge of the channel (which is rare), keep the red buoys to the right when you are entering a channel ! The channel and deep water is between them obviously. If the color is a little faded, check the numbers; port-side (green) buoys are odd numbered, red buoys have even numbers. Some buoys are lit with either a flashing red or green light to match their color and meaning.

DAYMARKS

Daymarks perform the same function as buoys. The only difference being that they are typically single or multi-pile wood or steel poles in the water marking the side of a channel, an obstruction, shallow water, a swimming area, etc. Also, and notably, they are not lit at night. Their dayboards are either triangular in shape and red in color, or square in shape and green in color. And, yes, they will have either even or odd numbers to denote the starboard or port side respectively. So, if you understand how buoys work, you got the meaning of dayboards too!

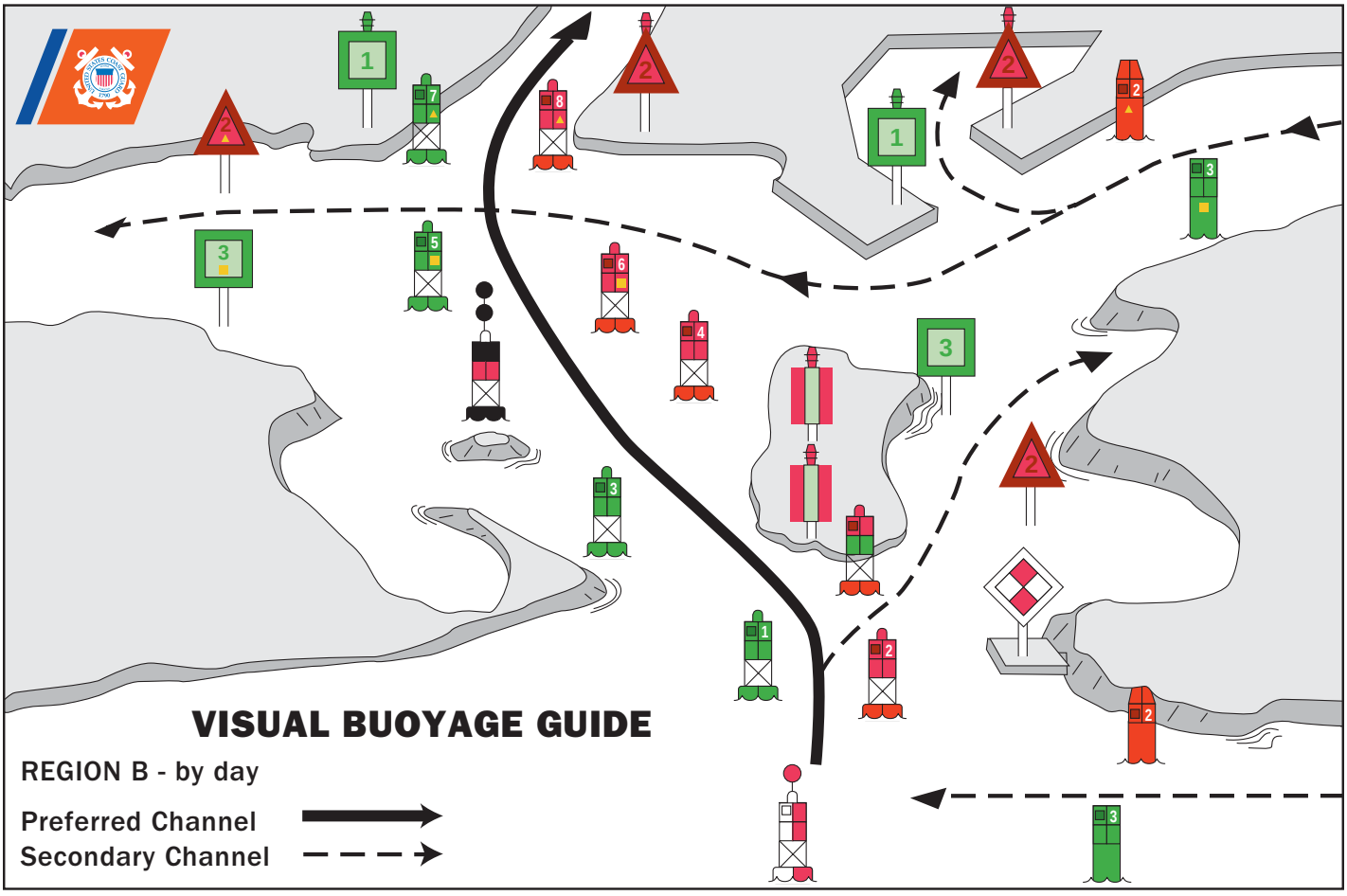
Despite many years at sea, and a license as a master mariner, it wasn't until I was assigned to an Aids to Navigation Office in the Miami that I became aware of the sophisticated "science" to the proper placement of aids to navigation to help boaters find their way.

With some careful review, the charts here (often found at your nearby boating supply store or in front of the USCG "Light List") will ensure understanding. It is wise to keep them near your conning station.

There are two key references you can use to learn more about lighthouses (eg., their location, color, shape, light characteristic, visible range, and significance); the reference, of course, is the rather voluminous USCG "Light List." There is a treasure trove of information in each "Light List" on each lighthouse, so identifying a lighthouse is easy with the "Light List." Each "Light List" covers a different coastal region, bays and sounds. At roughly $40.00 for each volume, the respective "Light List" is an absolute necessity for offshore cruising and navigation.

As you might expect, buoys, daymarks, lights, etc require constant maintenance in the marine environment, and the Coast Guard routinely maintains, moves, and sometimes even changes aids to navigation. In northern waters this occurs routinely in winter replacing summer buoys with "ice-buoys". How do you keep track of all these routine changes so you don't run across an aid that you don't recognize or remember ? The answer, of course, is the weekly "Notice to Mariners" put out by the Coast Guard District Aids to Navigation Office in writing. These weekly Notice to Mariners (NTM) are reproduced monthly to reduce the need to keep weekly updates. Urgent changes to aids that are significant to professional mariners and boaters alike are broadcast immediately over the radio by the Coast Guard through their periodic "Broadcast Notice to Mariners" on VHF channels 16, 22 and 22A. Admittedly, keeping up with the frequent changes to aids can be time consuming, burdensome, boring and accumulate a tremendous amount of unnecessary paper. My recommendation: periodically listen to the Broadcast NTM for your cruising area, be alert to changes to aids to navigation in your cruising waters, and keep your charts and GPS/NavPlotter chip current. By the way, boaters are best source to advise the Coast Guard of aids that are not working, are in disrepair, or out of position. Before closing, a few important tips: (1) never tie up to an aid to navigation (unless you are in imminent danger); (2) never take a fix on a floating/moving buoy; and (3) if you accidentally hit an aid to navigation (as occasionally happens), report that to the nearest USCG Station or aids to navigation team as quickly as reasonably possible. The mission of the Aids to Navigation teams and buoy tenders is to keep these various aids "winking and blinking" for you to help ensure your time on the water is safe and enjoyable.

So, there you have it! A very brief and rudimentary "Aids to Navigation 101" in a sea-shell. I hope this was clear, basic, and helpful. More information can be gotten in a formal, free "Boating Safety" course from the USCG Auxiliary or U.S. Power Squadron. Get familiar with these silent sentinels of the sea, they are there to help you. Be safe out there, and happy cruising!

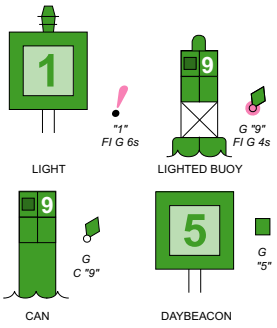


U.S. AIDS TO NAVIGATION SYSTEM
on navigable waters except Western Rivers

LATERAL SYSTEM AS SEEN ENTERING FROM SEAWARD

PORT SIDE
ODD NUMBERED AIDS

GREEN LIGHT ONLY
FLASHING (2)
FLASHING
OCCULTING
QUICK FLASHING
ISO

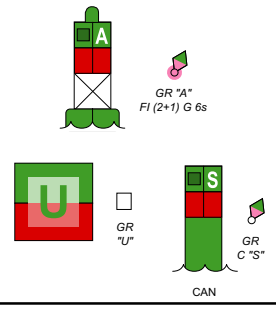


PREFERRED CHANNEL
NO NUMBERS - MAY BE LETTERED

PREFERRED CHANNEL TO STARBOARD TOPMOST BAND GREEN

GREEN LIGHT ONLY

COMPOSITE GROUP FLASHING (2+1)

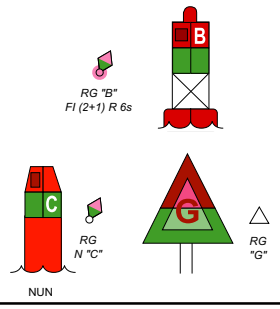


PREFERRED CHANNEL
NO NUMBERS - MAY BE LETTERED

PREFERRED CHANNEL TO PORT TOPMOST BAND RED

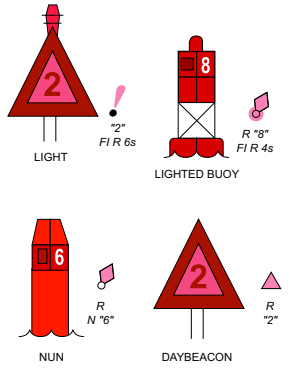
RED LIGHT ONLY

COMPOSITE GROUP FLASHING (2+1)



STARBOARD SIDE
EVEN NUMBERED AIDS

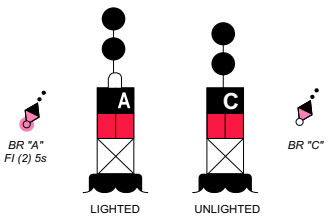
RED LIGHT ONLY
FLASHING (2)
FLASHING
OCCULTING
QUICK FLASHING
ISO



AIDS TO NAVIGATION HAVING NO LATERAL SIGNIFICANCE

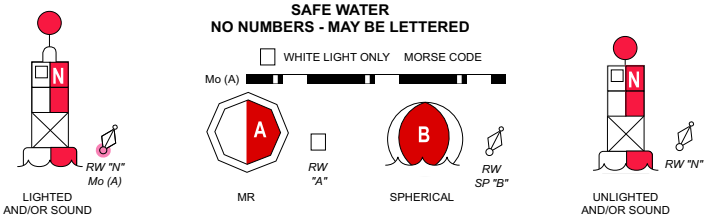
ISOLATED DANGER
NO NUMBERS - MAY BE LETTERED

WHITE LIGHT ONLY
Fl (2) 5s

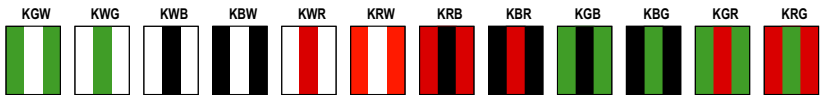


SAFE WATER
NO NUMBERS - MAY BE LETTERED

WHITE LIGHT ONLY MORSE CODE
Mo (A)



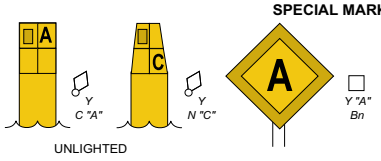
RANGE DAYBOARDS MAY BE LETTERED



DAYBOARDS - MAY BE LETTERED

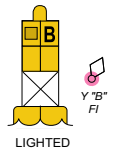
WHITE LIGHT ONLY

SPECIAL MARKS - MAY BE LETTERED

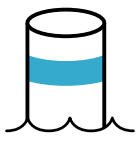


YELLOW LIGHT ONLY
FIXED FLASHING

SHAPE OPTIONAL--BUT SELECTED TO BE APPROPRIATE FOR THE POSITION OF THE MARK IN RELATION TO THE NAVIGABLE WATERWAY AND THE DIRECTION OF BUOYAGE.



Aids to Navigation marking the Intracoastal Waterway (ICW) display unique yellow symbols to distinguish them from aids marking other waters. Yellow triangles △ indicate aids should be passed by keeping them on the starboard (right) hand of the vessel. Yellow squares ▢ indicate aids should be passed by keeping them on the port (left) hand of the vessel. A yellow horizontal band ▭ provides no lateral information, but simply identifies aids as marking the ICW.



MOORING BUOY
WHITE WITH BLUE BAND

MAY SHOW WHITE REFLECTOR OR LIGHT

TYPICAL INFORMATION AND REGULATORY MARKS

INFORMATION AND REGULATORY MARKERS

WHEN LIGHTED, INFORMATION AND REGULATORY MARKS MAY DISPLAY ANY WHITE LIGHT RHYTHM EXCEPT QUICK FLASHING, Mo(A), AND FLASHING (2)

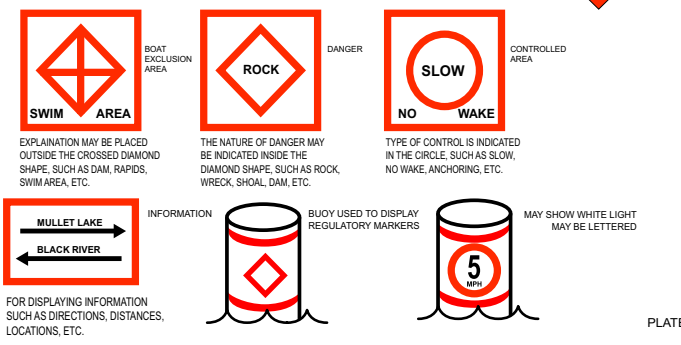
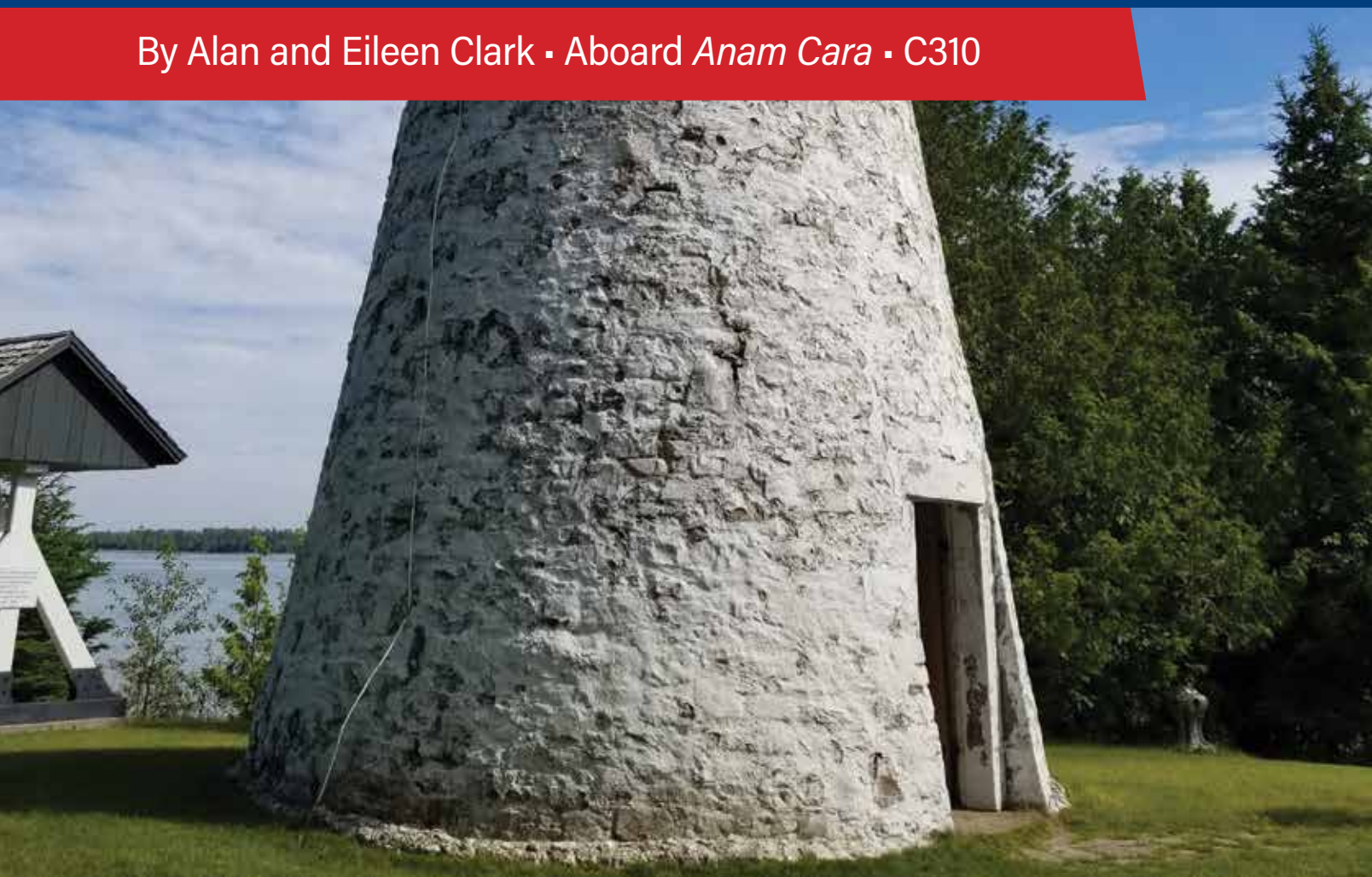


PLATE 1

Cruise Planning: Up the River

Or how we left and did not forget anything...mostly!

By Alan and Eileen Clark • Aboard *Anam Cara* • C310



Last summer, we had the opportunity to cruise our 2001 Catalina 310, *Anam Cara* to new horizons specifically to St. Ignace, Michigan, the "southernmost city of the Upper Peninsula" from our home port of Port Clinton, Ohio on the north coast of Ohio.

My wife, Eileen and I, would be gone for over 6 weeks in, for us, unchartered waters. We were confident in the boat's ability to take us on this particular journey and were very comfortable for the extended period of time. Just the reasons why we purchased her!

EARLY PREPARATIONS

Once we actually committed to this trip, charts were laid out on the dining room table as we started to gather information for our route, researching harbors as well as potential "ports of refuge" and talking with folks who already made this journey. As members of the Great Lakes Cruising Club, we have access to their "Harbor Reports" which proved to be invaluable for dockage and marine services. We made sure our paper charts were current; had an extra GPS and weather APPS on our smart phones since weather on the Great Lakes can be unpredictable. For instance, we encountered fog for 8 straight hours on two different days which were not forecasted. At times the fog was so thick we could not see 50' off the bow. Fog horns only seemed to resonate; luckily one boat in our flotilla had radar which was helpful in relaying information. The VHF was also used for Securité calls.

MECHANICAL CHECK LIST

We made sure to have extra parts on board such as filters, belts, tools, etc. and if things got really bad – call BOATUS! (Fortunately, we did not have to make that call.) Prior to leaving we replaced our battery charger (Charles Charger) with a new Pro Nautic smart charger and our unknown age two 4D batteries. After much research we decided to stay with 4 D batteries but AGM, as we felt that was what would fit our specific sailing/cruising circumstances.

PROVISIONS

We discussed and decided on the meals on board while underway, at a dock or on the hook, then shop accordingly. We always tend to over provision which

then can lead to a storage issue. Yes, that's us! But very little went to waste. Generally, we ate breakfasts and lunches aboard. Then would treat ourselves out to dinner in whatever harbor we ended up at.

COMMUNICATION

We filed a float plan with our family and regularly called to advise them of our progress and destination for the next day as plans do unexpectedly change; i.e., we actually were weathered in for three days, two in one spot and one in another. We also rode out a storm in one marina that knocked the power out for the whole county for three days- after one day without power we decided to leave!

SUMMARY

We traveled from our home port of Port Clinton on Lake Erie, up the Detroit River (against the 2 knot down current), across Lake St Clair, up the St. Clair river (again 2 knot down current), into Lake Huron. and the full length of Lake Huron and into Lake Michigan for a total of over 800 miles and 6 weeks aboard.

And, we had no major mechanical issues and really enjoyed cruising to new horizons and destinations we would have never been to. We went to harbors that we hope we will go back to and made new sailing friends. We also developed new skills that we will continue to use.

After more than 6 weeks aboard we decided we had bought our Catalina 310 for the right reasons, we still liked the boat and each other!

Looking forward to new adventures and Horizons aboard Anam Cara!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The Jazz Cup

Crew's Nest approaches the Brothers Lighthouse at the entrance to San Pablo Bay in the 2016 Jazz Cup – on the way to a 3.5 hours elapsed time finish.

The Jazz Cup is an annual 26 nautical mile down wind race from San Francisco Bay across San Pablo Bay ending in Benicia. It attracts some 100 boats, racing in 12 divisions with the slower fleet starting first. This causes the boats bunching up entering the Carquinez Straits after 20 nautical miles and some very interesting boat-on-boat actions rounding the final two marks (25NM) and then working their way upward to the finish.

Before *Wind Dragon* retired from racing in 2012, she and *Crew's Nest* fought many great battles with a few of the finishing orders being decided in the final 0.50 nautical mile upwind leg. Both had success often finishing in the top 3 in their division. After *Wind Dragon* retired, *Crew's Nest* was joined by *Sea Spirit* to continue the Catalina 34 battles.

Most Catalina 34 racing on the Bay is done under Fleet 1 one design rules – non-spinnaker, only a few boats were equipped to enjoy this down wind excitement.

Tech Notes

Q&A for Your Catalina That's Been Factory-Approved for Accuracy

Tech Notes are also available at **www.mainsheet.net** in PDF format for printing or reading on digital devices. | Summer 2020 password: S382

CATALINA 470 NATIONAL ASSOCIATION

Don't Take the Starter for Granted

C470 Association Technical Editor Joe Rocchio

In the previous C470 Tech Note, I wrote about the major Yanmar diesel engine proactive maintenance carried out on Onward's propulsion system at 10,000 hours. After overcoming the adversities of securing a new oil cooler, the effort was completed just in time for a cold snap to arrive in Baltimore with temperatures in the 20s. Things looked bleak for Onward's 13th trip to Florida and the Bahamas and we began to plan for a winter stay where we were.

Then, after a sleepless night, on Thursday morning November 14 I decided I couldn't handle winter. That made me take another look at the weather forecasts and I found that a window had opened up overnight. If we left by 1300, we would be able to make it to Hampton VA to see grandkids before a strong low closed down Chesapeake travel for some time. We were out of the slip by 1300. With only an overnight anchorage at the mouth of the Severn River to check that all the engine work had not developed problems (all was well thanks to Will's great work), we anchored off Hampton at 0200 Saturday just as the winter storm moved into the area. We were able to glide laterally into berth on a T-head at the Hampton YC (a challenge in 20-30 kt cross winds) and see family. The storm wound down enough for us to head down the ICW on Monday and reach Coinjock that evening in the dark. We had a nice dinner to celebrate being underway to follow the 75F thermocline south! Early Tuesday, I got underway and was startled to find that I could not start the Yanmar. Troubleshooting revealed there was plenty of power, but the main solenoid that controls power to the motor and activates the lever that causes the drive gear to engage the flywheel was dead. What had happened? I had replaced the starter in 2014 (see C470 Tech Note September 2014) and it had given no clue of a problem since. Then, it dawned on me: the N wind had been so cold on our trip from Hampton that Peggy and I were forced to wrap ourselves in a blanket while conning from Onward's nav-seat. I believe the blanket had become wrapped around a left shoe that resting on the base of the console (to avoid the cold wind from astern) and, undetected by us, pushed the starter button long enough to burn out the solenoid. BAAAAH! Luckily we found a local mechanic who removed the starter that morning and took it off for a rebuild and by midday

New Starter and Intermediate Relay

Wednesday we were off. The weather gods were good and we were able to sail into Marco Island by mid-December. On January 29, I received a sat-phone call from Tom on C470-78 Heeling Time. The day before, he had crossed from Ft. Pierce to Great Sale Cay and anchored for the night. This morning his starter would not work! We talked over troubleshooting, but it was burned out. He slowly sailed back to West End on Grand Bahama to put into the marina and await a new starter. He could not get a tow into the marina when he arrived and was told to anchor offshore and wait until the morning. He did thorough homework on the overnight forecast and all was to be fine with an offshore wind overnight so he anchored as far offshore as feasible. Then disaster struck. At 0200 a train of freak squalls hit. Heeling Time was driven onto the rocks. Tom swam ashore and organized a rescue of Dana. The vessel was a total loss and they were able to recover nothing. What ran through my head when Dana told me of the tragedy: there, but for the Grace of God went Onward. I had now lost my starter twice. Each time I had a dialog with myself about being lucky to have it fail where there was no danger and

Onward's Cockpit Console and Engine Control Panel with Switch Protection Covers and Telescoping footrest.

repair was easy. So what actions did I take? First I ordered a new OEM starter and intermediate relay from Yanmar to carry as a spare. Second, I found covered switch protectors for both the starter button and the power switch. (I had replaced the key switch with a toggle switch because of the key being accidentally broken by a guest - rendering the switch inoperable.) Next I built a footrest that telescopes out from under the console so our feet will no longer have to rest on its fiberglass edges. Recommendations for the C470 fleet: (1) If you plan to spend any substantial time away from secure anchorages, easy repairs, and out of range of USCG and TowBoat / SafeSea, then carry a spare starter and intermediate solenoid. (2) Check access to the two mounting bolts that attach the starter to the gear housing. They are very hard to reach under the best of circumstances (a long extension with swivels may be needed to reach from the front). I assisted the mechanic by guiding the sockets to the bolt heads while he operated the tool.

Also, check to see that there is clear access to the bolt heads. In 2014, I found it necessary to cut a bracket off a raw water pipe because it occluded a bolt head. This year we discovered that during the just-completed maintenance program, a wire connector was inadvertently placed where it occluded the top bolt head. This necessitated removing part of the exhaust system and manifold to move it out of the way. (3) Install covered switch protectors on the starter button and engine power switches. (4) Consider a foot bracket for the console. (5) Don't ignore even a minor anomaly in starter operation, it is likely to get worse when conditions are bad. (6) If you are heading for a hazardous situation where you may need the engine, start it well before under benign conditions to be sure. Sail safely! Sail with proactive preparation!

–Joe Rocchio, jjr.onward@gmail.com

CATALINA 400/445 INTERNATIONAL ASSOCIATION

Great Projects

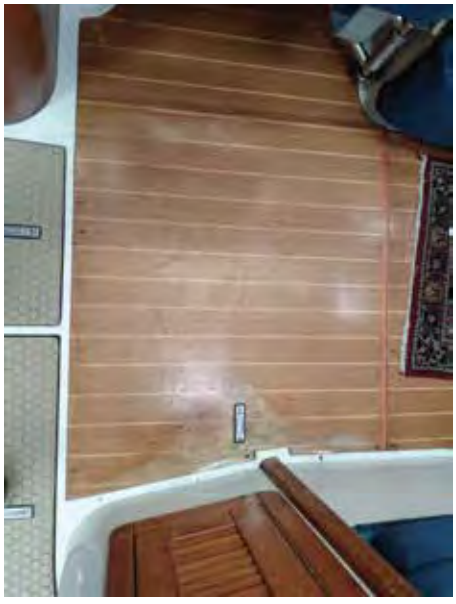
C400 Association Technical Editor Tom Sokoloski

For this issue we have a number of great projects submitted by Alan Johnson, owner of Skol, C400 MkI #130 **–Tom Sokoloski,** tomsoko@gmail.com

I was never completely satisfied with the clarity of the dodger window material on Skol, or any of the dodgers on my previous boats, until I came across polycarbonate sheets. I replaced the .040" Strataglass with .030" polycarbonate in my dodger. It is optically clear, does not get distorted by wrinkles, and is more flexible than acrylic or vinyl. I tried a destructive test with a polycarbonate strip by bending it in half, compressing it until it was down to a 1" radius. After letting go, it went back to its original shape, without distortions. I continued the test by collapsing it on itself to the point that it was flat. It had a permanent crease, but did not crack. It is not like real glass as it will scratch, and is sent to you with protective covers on each side. In the picture you will see the front panels are clear and without any distortions. These are the polycarbonate panels. The side panels have not yet been replaced and are .040" Strataglass. The difference is striking. I replaced the panels with a Sailrite LZ1 sewing machine, using a D1 leather needle and V-92 polyester thread. The polycarbonate was purchased from Home Depot, item #168461. https://www.homedepot.com/p/Makrolon-48-in-x-96-in-x-0-030-in-Polycarbonate-Sheet-168461/206792260 I can now see.

Another upgrade was to add a water meter and remote display, manufactured by Daniel L Jerman Co. in New Jersey. I chose Model #DSJSJ50C and also the LCD Remote Readout. Both are available at http://www.jerman.com/counter.html. The water meter was installed in the floor compartment inboard of the aft head and it counts the number of gallons used. The remote display shows how many gallons I have used from the current tank. I now know when I need to switch tanks and when I need to take on water. I no longer hear my wife's voice telling me that she just ran out of water in the shower. It is a blessing.

Storage is always an issue in any boat. I located additional sub-floor storage on Skol, inboard of the chart table, by cutting the floor panel into two pieces and adding a lifting ring to match the one on the battery compartment



Storage is always an issue in any boat. I located additional sub-floor storage on Skol, inboard of the chart table, by cutting the floor panel into two pieces.

hatch. This may be standard on the MkII? The area under the floor inboard of the stove/oven can also be used for storage. I probed a little to be sure it was safe, and with a circular saw made some straight cuts along the perimeter. I connected the cuts at the corners with a jig saw. I then screwed the sub floor to the finished floor and added another lifting ring. Additional storage was also found under the floor entering the aft cabin. [insert Storage (4) photo] I now have an additional storage for 3 cases of adult beverages! **–Alan Johnson**, Skol #130

The area under the floor inboard of the stove/oven can also be used for storage. I probed a little to be sure it was safe, and with a circular saw made some straight cuts along the perimeter.

CATALINA 380/387/390 INTERNATIONAL ASSOCIATION

Bimini-mounted Solar Panels

C380/390 Association Technical Editor Todd Gaier

C387 Association Technical Editor Tom Brantigan

C385 Association Technical Editor Chuck Couture

Special thanks to Jos and Jenny de Sonneville for submitting this article.
–Todd Gaier, tgsail1@earthlink.net

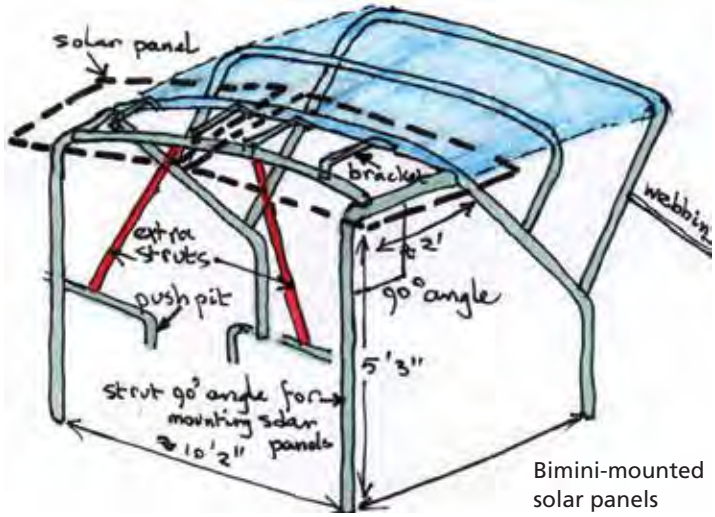
A bit of history: in 2009 I wanted to install solar panels on Halcyon. We love anchoring but did not want to use the engine to recharge the battery. Prior to 2009, I took several measures to reduce the demand on the battery to a minimum by:

1. Improving the insulation of the fridge (the early C380s were not well insulated). I drilled numerous holes in the bottom and sides of the fridge and injected foam and I doubled the thickness of the door.
2. Replacing the air-cooled compressor with the water-cooled version which is much more efficient, and silent!
3. Replacing all cabin and navigation lights with LEDs, except for the steaming lights.
4. Installing an accurate battery monitor to keep precise track of individual power usage.
5. Increasing the house battery capacity to 450 Ah. I use Trojan golf cart batteries. The first set lasted me 10 years. I am now on the second set and they are still A-Okay.
6. Replacing the battery charger with a charger/converter: 70 amps charging, maximum 1600 watts 230 V alternate current draw.

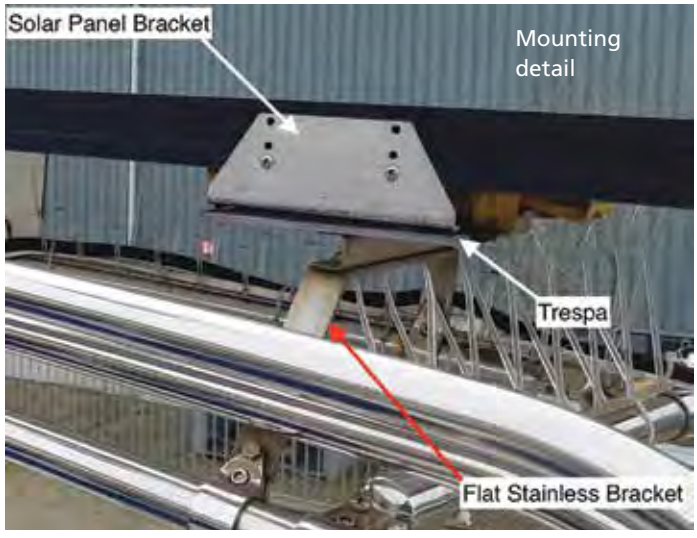
Our power demands are the usual ones: fridge, autopilot, electric winches, radar, instruments, navigation lights, cabin lights, 230 V vacuum cleaner, toaster, hair dryer, rope cutter, etc. I installed 2 solar panels, about 5' 3" x 2', or 10,5 sq ft each. With these two panels, which we have used for 10 years now, our experience has been very positive. We never need charging in foreign harbours (no desperate running to claim the last available socket) or charging using the engine. When cruising, we typically lie at anchor at least 50% of the time. The panels have a capacity of 135 W each, so 270 W total. Maximum current output is about 17 Amps. Our 450 Ah house battery drains on average down to 95% - 90% (30-45 Ah net usage measured in the morning before the sun comes up). Only occasionally – some dark days – the battery goes down to 85% (70 Ah). The same size solar panels would now have 40% more capacity, so about 380 W with a maximum output of about 23 A.

As I had no bimini yet (but you could also modify an existing bimini) I decided to try and make a combination of bimini and solar panels, I wanted a "standard" canvas bimini which normally extends from about a foot over the dodger, to the back of the cockpit, i.e. the twin backstays. My idea was to install two solar panels behind the backstays so that they would extend the bimini, providing shade for the helmsman, be out of the way and receive maximum solar radiation.

A standard bimini is supported at the rear by straight tubes connected to the pushpit and pulled tight at the front with a piece of webbing. I replaced these standard tubes with a tube



Bimini-mounted solar panels



Flat bracket, square tube, solar panel brackets and Trespa

which is bent 90 degrees to provide a horizontal platform to mount the solar panels. These two tubes are connected to each other by a horizontal one, which has the same curvature as the aft tube of the bimini frame. Four flat stainless steel brackets (see one bracket in Figure 2) connect the aft-most horizontal tube with the aft horizontal bimini tube. To each of these four brackets a flat, u-shaped square tube is bolted for mounting the solar panels. These square tubes are as long as the solar panels are wide, see Figure 3.

The brackets may be designed with less height to get the panels more in alignment with the bimini frame. The solar panels come with their own mounting brackets which I connected to the square tubes using small pieces of Trespa (cladding material). The only modification to the bimini canvas you have to make is providing holes in the canvas to allow connecting the brackets to the tubing. Before the winter season I remove the canvas of the bimini, while the bimini frame and solar panels stay, keeping the batteries fully charged.

In 2009 I sailed this contraption with two plywood boards the size of the solar panels to test if they could withstand winds up to 50 knots. No problem. The next year I installed the panels. The combined width of the solar panels stays well within the width of the stern, so no problem docking. I added two extra struts connecting the frame to the pushpit (see the red struts in sketch and in Figure 4). The steel supports of the solar panels give great handholds in rough seas. Our solar panels are still going strong after 10 years and give us the freedom we wanted. **–Jos and Jenny de Sonneville**, C380, Halcyon, #33, The Netherlands

Figure 4 Extra tubes to pushpit

CATALINA 36/375 INTERNATIONAL ASSOCIATION

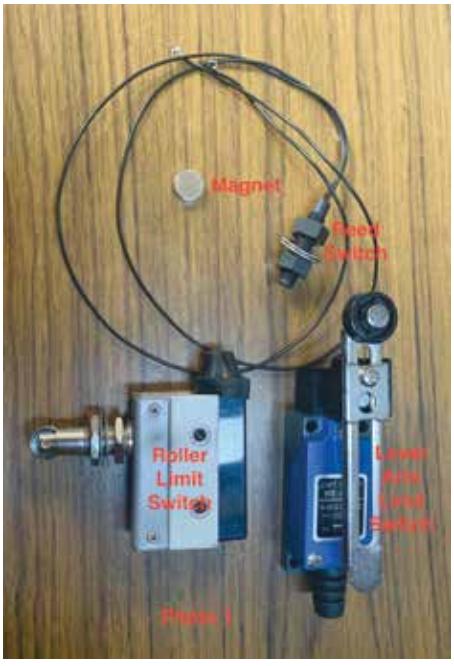
Neutral Safety Switch

C36 Association
Technical Editor
Pre Mk II hulls
Leslie Troyer

C36 Association
Technical Editor
Mk II hulls
Chic Lasser

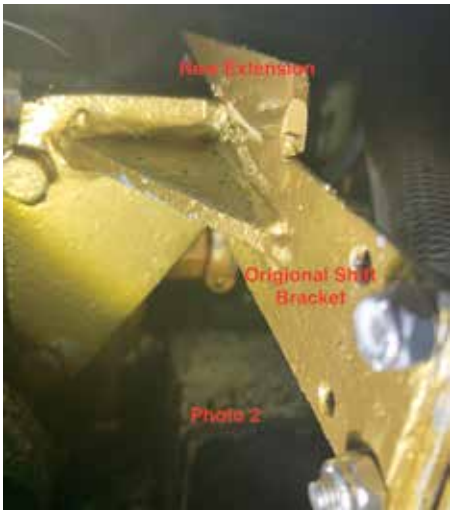
Most if not all our boats are lacking a minor safety device – a Neutral Safety Switch like on a car, this device prevents starting the engine while it is gear. This was brought home to me last summer on my cruise from Hades. After being anchored securely for three days, I decided to run the engine to warm up water for a shower and to do the dishes. The engine fired right up and I pushed the throttle up to ~1600 to also top off the batteries. I went down below and started on the dishes, the water was warm enough to rinse the dishes when I felt the boat lurch. Yup, I had started the boat in reverse, never noticed and now had grounded. Unfortunately the rudder was the first point of contact and it bent the rudder shaft forward. After re-anchoring I discussed the issue with my fellow cruisers, 2; decided to go to their next port of call. Stu Jackson of C34 fame, agreed to follow me over to Ganges, which is the closet location with cell coverage and services. The helm was very difficult to run through the neutral position as the rudder was rubbing on the small skeg. Docking was a real challenge as I was afraid I would break the steering chain with every course correction. After discussing the problem with a trusted boat yard, I found they don't straighten rudders, so I got a diver to go down and file a bit off the top forward portion of the rudder – steering wasn't so frightful. Success! I cut the trip short and headed home. Unfortunately 3 hours from home I blew a hole in the exhaust riser (but that is a different story).

So if Universal/Hurth provisioned their transmissions with a neutral safety switch, I would have never grounded, and starting the engine in gear is never a good thing. Inattention to details like this is tough to avoid. So how to add a safety switch to the existing Hurth transmission that was never built to take one? I first got a swing arm limit switch and tried various mounting options for the shift lever. Nothing looked like it would do the job reliably. Then I tried a rolling wheel limit switch – which would have worked, but there was insufficient room to mount it. Finally I hit upon a reed switch that was small enough and could take the environment.



Mahalo is currently on the hard to replace the rudder and do bottom and drive line maintenance/upgrades. While examining the bottom I found that the rudder almost punched a large hole in the boat. It has been seeping water that I attributed to the centerline water tank. When sufficiently ground out it is about a 1x2" hole – enough to overwhelm my bilge pumps – lucky I didn't hit harder. Due to all this work I don't have a finished electrical diagram. If anyone is interested in doing this upgrade I'd be happy to discuss the electrical with them.

I removed the shift mounting bracket from the back of the transmission and welded a 5"x1"x1/8" piece of flat stock to the top of the bracket pointing forward. I did cut a notch in the flat stock so it would align with the top of the shift lever. I took this opportunity to



clean up and repaint the bracket and fit it with new hardware. Photo 2 shows the back side of the bracket and the extension. The bracket should be ~1" past the shift lever in neutral and centered on the space above where the shift cable connects and the top of the bracket. Finally a hole is drilled in the bracket extension to fit the reed switch. My hole ended up oversized due to trying to fit the roller switch earlier, so a pair of stainless fender washers was used to bridge the gap. A strong rare earth magnet was stuck to the top of the shift lever. I will epoxy this in place when the weather gets a bit warmer. After tightening things down and checking clearances and function with a VOM meter I put super glue on the threads of the reed switch to lock them in place. With the mechanical part of things set I turned my attention to the electrical layout.

I haven't completed the electrical and would like your help on deciding which of two options I should use.

OPTION 1: Traditional Setup

The Neutral Safety Switch is located between the start switch/button and the starter. The Normally Open. (NO) contacts of the neutral safety switch prevent the starter from engaging unless the transmission is in neutral. Here you would pull the red/yellow wire from the starter solenoid route it to the Neutral Safety Switch and back to the starter solenoid. With the switch I used this is not possible due to the load required by the starter solenoid (30A inrush +

10A: holding). The reed switch can only handle 1A max so a relay is required. The relay coil would be driven by the red/yellow wire, which is removed from the start solenoid and jumpered to the reed switch, and then to the relay coil. The other side of the relay coil goes to ground. {Power from the main starter (any hot or switch hot source will work) to the relay common. Finally the relay normally open contact is routed back to the starter solenoid.}

Now the engine starter solenoid can only get power if the shift lever is in neutral, closing the reed switch and pulling in the new start relay. I like the very common 60/40 automotive relays for this usage. Mahalo already has a relay like this installed from a previous rewire to aid in starting (to avoid voltage drop on the trip up to the panel and back), so it would be easy to splice this into this relay. I attached this relay to one of the manifold studs.

OPTION 2: Alarm

The reed switch can be used to drive a horn to alert you that the transmission is not in neutral. The trick here is to find a power source that is only on when you're in the process of starting the engine. I chose to tap into the power for the glow plugs. The glow plugs are typically powered on prior to engine start and off the rest of the time, making them perfect for this application. Here we pull power from either side of the glow plug relay coil or the output of the relay, and rout it to the common wire of the reed switch. The normally closed (NC) wire of the reed switch then goes to the horn hot, and a ground wire to the horn completes the wiring. Select a 23VDC horn that pulls 1A or less.

Note: Most reed switches are Normally Open, and closed when in a strong magnetic field. Option 2, requires just the opposite, so you'll need a Normally Closed reed switch or one that has both NO and NC contacts.

Which to Choose

I'm heavily leaning to the Alarm solution. It's simple and fairly non-obtrusive to normal operation of the engine. I've read many accounts where the traditional method leaves you with an engine you can't start or is flaky on startup. I strongly believe this is due to the switches inability to handle the large amount of current to the solenoid, so this design should avoid that issue, but I want my engine to start when the key is turned. One problem with the horn option is you may not need to use glow plugs heat to start the engine, so the alarm would never sound. Mahalo's glow plugs are wired to come on for 15 seconds every time the key switch is turned on, so this won't be a problem. Another issue may be trying to differentiate the in-gear alarm over the low/no oil pressure alarm. Mahalo disables the oil pressure alarm when the glow plugs are on, thus mitigating this issue.

I look forward to hearing from you on which method you think is best.

–Leslie Troyer, leslie@e-troyer.com

CATALINA 36/375 INTERNATIONAL ASSOCIATION

(continued from previous page)

Valuable Storage Alternative

Hey lets face it, "If you own a boat you better be handy!" I don't know about you but I am always going below for a tool, might be pliers or wrench or screwdriver. I keep my big tool box on the engine cowling in the aft cabin but I must admit, it's a pain in the you know what going in and getting a tool all the time.

With this in mind I was always looking for a quick easy storage alternative for my everyday tools. One day while sitting below the idea struck me to build a drawer under the first step of the cabin ladder.

Off to the lumber yard and after a few boat bucks I came home with a couple of pieces of teak. I routed a quarter inch slot in the four perimeter pieces for the drawer bottom which I made out of ¼" homosote. For the slides I used aluminum extrusion in a "U" shape and routed a quarter inch slot in both sides to slide the drawer.

Once built and loaded with my everyday tools I realized I could store my winch handles. A few pieces of scrap let me build a slot for them stacked. This has worked out great and now I find I am not in the big toolbox unless it a major project. Which if you have been on my boat you know its pretty much all the time. **–Chic Lasser**

Marine Toilet Upgrade

C34 Association Technical Editor
John M Nixon

C34 Associate Technical Editor
Ron Hill

Special thanks to David Sanner for submitting this article.
–John M Nixon, c34hull728@gmail.com

Replacing a 30 year old standard manual Jabsco toilet with a modern electric model is a nice upgrade and only requires a bit of electrical & plumbing work. It can be done in an afternoon if all goes smoothly. For the upgrade, I chose a Johnson Pump Brand part # 80-47231-01 (similar to Albin Pump Marine). The new compact style bowl is noticeably larger and 3 inches higher than the Jabsco. As a bonus this puts it just above the water line when the boat is level. They also sell a comfort style bowl that's similar to a domestic toilet I believe. The toilet was purchased from Anchor Express, delivered for $254 (Feb 2020) which is about as cheap as you can find it. I had no issues with them though I would call ahead to make sure they have the item in stock as I've read some complaints.

The New Pump

Old Jabsco

New Toilet Mounting

After removing the old Jabsco toilet, the old mounting holes were filled with epoxy, and then I drilled 3 new holes to the pattern of the new toilet. The included new pressure pump was mounted on 2 wood strips epoxied to the hull under the head sink. The pressure pump was fed by the old ¾ inch water supply line that connected to the Jabsco.

The new pressure pump was powered by DC power lines that also feed the shower diaphragm pump. The power to the pressure pump was 12 AWG wire for both 12v and ground. The 12v power wire ran first to the pressure pump switch module and then on the to the pump. The new pressure pump also includes a macerator function.

Remote Mounted Pump

New wiring and Control Panel

The macerator is powerful and clears a full bowl in just a few seconds. The diaphragm pump takes 5-10s to fill the bowl so holding the top control button pretty much is all that is needed when flushing & rinsing. The bottom control button provides the option to only add water to the bowl or to only pump out. While rinsing with both pumps running it draws about 6 amps and about double that when pumping out a full bowl.

The only extra parts I needed to purchase were 6-8' of electrical wire, some connectors and 2' section of waste hose.

If you want to use sea water make sure you get the setup w/ 12v diaphragm pump, model 80-47231-01. The model 80-47231-01 comes w/ solenoid. One model from Albin Pump doesn't come with a solenoid but can be purchased separately, see below.

My rinse/fresh/seawater setup is different as I use raw/sea water which is pulled in from a tee just above the thru hull that the head sink drains through. With the seacock open I pump sea water to rinse the head. With it closed (typical

CATALINA 34/355 INTERNATIONAL ASSOCIATION

(continued from previous page)

position), I run some water in the sink before and/or after rinsing my hands which is then drawn through the diaphragm pump and pumped through the bowl. Before I leave the boat I fill the sink a bit over 1/2 way and pump everything through to fully clear the lines & reduce odor. Since the toilet macerates it can also pump out through a provided 1" hose fitting as well as make any aerobic processes in the holding tank potentially go a bit quicker.

As mentioned there are other versions of this toilet/head including one marketed by Albin Pump which use a solenoid tapped into the onboard fresh water to rinse / provide water to the bowl. If you're only using this with your holding tank & fresh water that model is $30 cheaper (Albin brand 07-03-010) but you'll need to pick up a solenoid (https://www.amazon.com/gp/product/B018WRJYUE/) and some fittings so it's about the same in the end. It might be a bit easier to install as I imagine the solenoid wouldn't have to be mounted securely to the hull and perhaps could just sit inline in the hose (teed from the head sink cold water hose?). A vented loop might provider further isolation from the fresh water side though I believe the solenoid would do the trick.

There are also similar toilets that have the rinse water pump that runs off the same motor inline with the macerator pump and have a single control button.. I believe they use impellers which might run dry at times causing extra wear & maintenance. In the model I used the macerator pump is made of a hard material so I'm hoping only the shaft seals will need maintenance and not nearly as often as an impeller might. These inline units might be a bit easier to install but I also like the independent control with my setup. Finally, the Jabsco Lite Flush Electric Marine Toilet which goes for $600+ has a foot switch and is fully self contained and programmed w/ a feed water pump. 2.5X the price but looks nice assuming it fits.

New and Bigger Toilet installed

Will my/your days of explaining & demonstrating how to use the head be gone? Just press the button! The unit has a posh soft close lid so we'll loose the "we're moving now" sound the old one would make when we heeled hard to starboard and it came crashing down ... everything is a trade off on a boat. – **David Sanner**, Queimada #611

Where Do We Go From Here?

C320 Association Technical Editor Mark Cole

C320 Association Technical Editor Jason Reynolds

I have always been fascinated by the art of navigation and chartwork. When I started boating, it was all manual work on paper charts. In less than 30 years, I have helped install and use computer-based navigation systems on three commercial vessels and have moved to an all-electronic helm on my C320, doing most of my navigation work on an iPad!

When starting the search for my current sailboat, I had a pretty clear vision of how I wanted to configure my helm and nav station, so I was hoping to find a boat that had old, tired electronics that needed replacing. Most boat brokers thought a recently installed electronics suite was a big selling point, but I was happy when I found the C320 we ended up buying had what looked like original (1994) electronics. Autohelm ST50 Tridata, ST50 Depth and ST4000 autopilot at the helm plus an ancient VHF radio below and that was it. Great! I won't feel bad ripping them all out!

The instruments at the helm are still doing their jobs so they have a temporary reprieve, but the barely functioning VHF identified the starting spot for upgrading my electronics. I was aware of the safety benefits of digital selective calling (DSC) and wanted the new VHF to have that feature. For DSC to supply these safety benefits, the installation must have two things: First, it must have GPS information, from either an internal or external GPS receiver. Second, it must be programed with an owner-specific Maritime Mobile Service Identity or MMSI. Of these two, GPS information is the most important as that gives rescuers your current position, but including MMSI information in the DSC emergency broadcast tells those rescuers who you are and what type and size boat they are looking for. It also gives them the ability to directly contact your VHF to arrange help.

Having a DSC radio with GPS data and MMSI information programed in, the Mayday call is completely automated and all crew onboard can be shown how to lift the red "door" and push the red button for 2 seconds. This is much simpler than trying to get crew comfortable with making an actual Mayday call on the VHF.

Another new technology I wanted to install was an AIS transponder. The idea of every commercial vessel and most larger recreational boats showing up on my chart plotter, complete with vessel name, course, speed and closest point of approach (CPA), was even an easy sell to my accountant wife. A class B AIS transponder (Class A is for commercial vessels) broadcasts vessel information over VHF radio frequencies so uses a VHF antenna just like the VHF radio. Some boats install a second, dedicated, VHF antenna for AIS use, but most sailboats already have a VHF antenna at the masthead and that is by far the best location for VHF transmission. Luckily, there are VHF "splitters" that allow both the VHF radio and the AIS transponder to share the same antenna, with the radio taking priority when broadcasting. Now I just needed to wade through all the products on the market to find the best pair.

It didn't take much research to realize that the AIS units by Vesper Marine were getting lots of positive press. After a quick comparison, I decided on the Vesper WatchMate XB-8000. There was a less expensive version, the XB-6000, that didn't include

A combination of old and new electronics at the helm of Fiddler's Green

New VHF, AIS and Splitter installed

CATALINA 320 INTERNATIONAL ASSOCIATION

(continued from previous page)

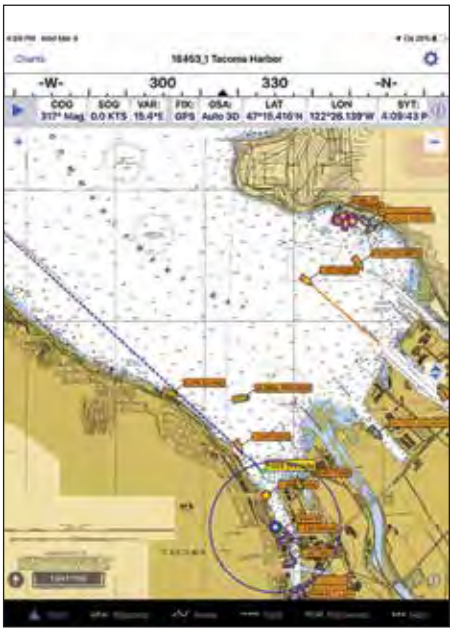
WiFi network capabilities but I really wanted that feature so I could view all data flowing through the NMEA 2000 network on my smart devices. The XB-8000 combines all data on my NMEA 2000 network plus data from older NMEA 0183 instruments and broadcasts it over a local area WiFi network that I can connect up to 5 mobile devices to. It also boasts very low power consumption so I can leave it on all night while at anchor to take advantage of an excellent anchor watch feature plus let wayward boats know where I am. Both the anchor drag alarm and the CPA alarm come from the unit itself, so no other electronics need be left on.

I have always been a fan of Standard Horizon VHF radios. I looked at their line of fixed mount VHF radios and landed on the Explorer GX1600. It has a full set of DSC features and is very thin so can mount in shallow spaces. I wanted to mount the VHF at the nav station and add a remote mic at the helm and this unit allows connection of the RAM3 remote mic. The screen of the GX1600 displays lat/lon, course and speed from the GPS, so that data would be available at the nav station.

Hardware decisions made, now I just needed to break out the charge card. I ordered the VHF from Fisheries Supply in Seattle for $170, plus $135 for the RAM3 mic. I had heard of Doug Miller a few years back. He is a local AIS expert and runs Milltech Marine in Port Orchard, Washington and has a great website. When you purchase an AIS unit, the provider should apply for your MMSI and program that number into the AIS unit before turning it over to you. Milltech made this all easy. The XB-8000 sold for $740 and the VHF antenna splitter for $229. These prices are still the same.

The open shelf just forward of the electrical panel looked like the perfect

The new XB-8000 with all connections made



View from above while replacing the VHF antenna and screen shot from the iPad at the helm showing AIS targets

spot to install the AIS, splitter and VHF. Access to power was convenient, and I rededicated one breaker on the DC panel to supply power to a small buss bar and connected all new hardware to that buss. The old VHF hung in this same space, so the cable from the masthead antenna was already run and easily connected to the antenna side of the splitter. The splitter has connections for both the VHF radio and AIS unit on the other side. DC power connection to the buss bar and the splitter was ready.

Connecting the AIS unit wasn't much more difficult. Starting from the top of the unit in photo 3, the VHF antenna is the first cable. Second down is the "power/data" cable. This is a 10-pin cable supplied with the unit and has wires for DC + and - and wires for NMEA 0183 data + and -. These last two wires connected to the new GX1600 radio to supply it with GPS data. These were the only wires I needed to connect for my installation and the AIS unit's manual made this clear by showing exactly what all wires were used for.

The third connection goes to the NMEA 2000 backbone. I don't yet have other NMEA 2000 electronics, but I went ahead and built a mini backbone. Hopefully, more information will flow through this network soon. The small white cable in the photo is from the external GPS antenna that comes with the XB-8000. This cable is terminated with a small SMA connector, not much bigger than the cable itself. This made drilling a hole in my deck to run the cable much easier to accept. There is also a USB connection below the GPS port for hooking up a laptop computer.

Now all that was left was installing the GX1600 VHF. I plan to build a pair of doors to cover all the wires and bits that don't need regular access and the VHF will flush mount in the left door. Until that woodwork is done, the VHF is mounted with the included bracket. Power comes from the DC buss and GPS data from the AIS. Finding the best place for the remote mic in the cockpit was the hardest part of this installation. Ideally, the mic would mount on the helm pedestal, but running the thick wire proved difficult. I ended up mounting it on the port side just behind the storage hatch. I can hear VHF transmissions from the helm and just need to reach down a little to grab the mic. This location made running the wire to the main VHF unit much easier.

Installation complete, there was a little configuration to do. The XB-8000 automatically ran a signal strength test on the VHF antenna and mine failed. A quick check with binoculars and it was apparent that the masthead antenna was missing. This required a trip up the mast to replace! Now the XB-8000 started broadcasting it's WiFi signal. I had downloaded the Watchmate app to my iPad and was able to log onto the AIS WiFi easily and the unit's manual walked me through the final setup. The GX1600 VHF was just as easy to configure and I quickly had position, course and speed showing on it's screen.

I use the iNavX app on my iPad for navigation. It displays NOAA Raster charts and has all the functions of a dedicated chart plotter. Once I learned how to access the AIS feed through iNavX, all vessels transmitting AIS signals magically appeared on my chart! I can click on any AIS target and get vessel name, course and speed displayed. No more calling "tug and tow rounding Brown's Point…" on the VHF. I now know the name of that tug and can make direct contact on the VHF. The navigation system on Fiddler's Green is off to a great start and those old Autohelm instruments are starting to look pretty tired now… **–Mark Cole**, C320 Fiddler's Green #8

CATALINA 30/309 INTERNATIONAL ASSOCIATION

C30 Mast Step: Deck Depression Fix

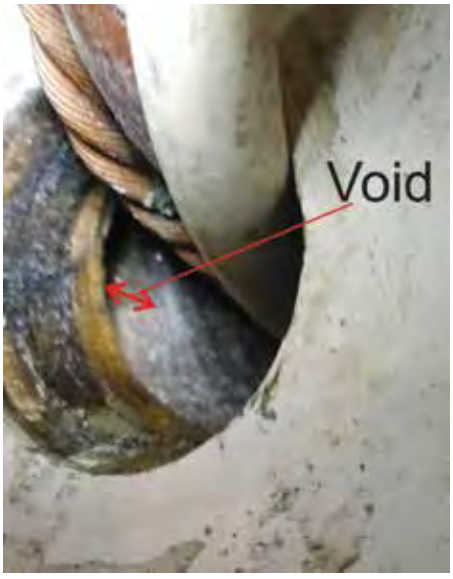
C30/309 Association Technical Editor Michael Dupin

Special thanks to Jan for submitting this article. **–Michael Dupin**, dupin.catalina30@yahoo.com

I was in the final step of purchasing the new to me C30: 'Dream On'. During the inspection, I noticed a slight depression in the deck area around the mast step (the mast was down at the time). This is where the mast meets the deck and is supported underneath by the compression post all the way down to the keel.

The surveyor said that the compression post and cabin floor at the base looked good so he wasn't concerned. I had read that this depression could be due to the compression block in the bilge failing, but there were no obvious signs of this at the base of the compression post or in the bilge, and the gap between the door and the bottom of the door frame was still uniform, so I assumed the deck core under the mast step was in need of attention, and put that on my to-do list.

The plan was to remove the mast step and organiser plate, cut out an area in the deck slightly smaller than the organiser plate, epoxy in a replacement deck core, and put it back together. However, on removing the organiser plate (using a 2" plaster knife and a mallet to slice through the sealant), there was no mushy plywood as I was expecting, but there was an evident void in the composite deck. I drilled a hole using a 1" hole saw (removed centering bit once ~20mm down) about 3" forward of the hole for the wires to inspect the condition of the deck, and extracted a core. To my pleasant surprise, it was dry and solid. FYI, the core is about 27mm thick at that point on our C30s.



The problem therefore had to be the gap in the composite deck and the support structure below. The plan then changed to raising the existing top deck surface (in a controlled manner) to where it seemed it was originally, while minimizing damage to the original deck surface

To raise the deck surface around the mast step, the holes for the four lag screws that held the mast step in place on the deck were drilled to a depth of 28mm. The ends of four 5/16" lag screws were rounded using a grinder, and these lag screws were then used as jack screws to raise the deck surface to where it looked like it should be. This was done in two stages a week apart, each raising the deck surface about 2-3mm.

To fill the void under the mast step between the composite deck and the support structure below, I decided to inject thickened epoxy (margarine consistency) into this void. Five additional 1" holes were drilled under the mast step through the deck composite. This was to insert as much epoxy in the gap as possible, since the loads from the mast onto the

compression post are pretty high. Each hole was wetted out with straight epoxy, and then filled with the thickened epoxy. A 1" length of 1" diameter epoxy coated hardwood dowel 'piston' was pressed into each hole, thus ejecting the thickened epoxy into any voids in the deck sandwich. This worked well, with some of the thickened epoxy showing up at the edges of the hole through which the wiring came through the deck. The tops of the dowel plugs were coated with thickened epoxy and struck off flush with the deck surface. All in all, this was a fairly clean project.

After the epoxy had cured, the jack screws were removed. The holes were bored out to accept threaded inserts (rather than reuse the original lag screws to hold the mast step in place). In retrospect this was probably not necessary. The interior of the mast step had some thickened epoxy added and shaped to direct any water to run off the outside of

the base, and drain holes added to allow water to escape.

Summary: This repair has worked well. This was done in 2015, there was no visible damage to the deck and this repair has been worry free since. The total time to complete the job was around 4 hours over two weekends.

–Jan Huissoon sails Dream On, a Catalina C30 1987 (#4918) out of Dutchman's Cove Marina in Penetanguishene, Ontario

This repair has worked well. This was done in 2015, there was no visible damage to the deck and this repair has been worry free since.

CATALINA 28 INTERNATIONAL ASSOCIATION

Mid-Season Considerations

As I sit here in March and listen to the winds of 30-35 with gusts up to 45 mph I write for the summer season. I can't help but think to myself, if I were sailing today, what might break!

C28 Association Technical Editor Ken Cox

I always go through the boat well when I commission for the summer, but I also know that I can't check everything or may have forgotten or overlooked something as time to launch drew short, so I ponder.

In my head I go over every part of my boat. In the past I have had some minor issues from high wind, a broken bimini strap, sail slugs towards the top of the sail that have degraded from UV. This year I seem to fixate on my steering equipment and the pedestal in general.

While I know that I'm due to re-tighten that tension on the throttle that seems to need it every couple of years, maybe send the compass in as it's getting a little low on oil.

But I can't remember the last time I went over all the steering gear! Starting with the emergency rudder, yes, I have one and yes, I know exactly where it is but I haven't taken it out of the bag for a while, maybe a good cleaning is due and maybe a little mist from some WD-40 is in order.

Since, I'm going to take the compass out any way and have it serviced to remove 'the bubble', maybe I should look a little deeper in the tube. Maybe look at the chain see if it looks for feels a bit dry. Maybe clean and check the brakes while I'm there. Center and mark the wheel for center while I'm there.

At this point I think I will go below and open it all up, maybe take some tension off of the chain, carefully counting the number of turns on each end so I can return it to the same tension for a starting point. While it's loose, go back to the cockpit and see if the wheel feels smooth and loose, check the side play on the bearings and see if it looks a little dry as well. While I know they would be better off with grease a little spray of oil might be all that's needed or if they seem dry and a little stiff, maybe center, mark and capture the chain and remove the shaft and put some fresh grease in or new bearings if they look or feel bad.

Go back below and check that packing for the rudder shaft, is it leaking? Look dried out? Next move to the cables and inspect them from one end to the other and check for nicks, meat hooks, flat spots, rust on the cable or at the crimp fittings and inspect the thimbles for deformation, rust or distortion, maybe a little WD here as well to keep the rust down. Making sure all the bolts are nice and tight as well.

Now move on to the pulleys and pins. The cables should be loose enough you can pull the cable tension off of them one by one. Give them a cleaning with some brake clean maybe and put a little grease on the load bearing pins.

How about the stops, most of them have a rubber grommet on them to dampen the slam should you or a crew let go of the wheel in reverse and it slams over so as to mitigate damage or a jumped cable. Check the stop bolt as well, damaged? Tight? Properly adjusted?

Now tension the cable all back up equally on each side, the cables should be tight enough that the pulleys turn and you can't pull the cable out of the pulley slot enough to derail it, if it is loose enough to jump one pulley it all goes slack and you will for sure need that emergency tiller you cleaned and lightly lubed. It should adjust back roughly the same number of turns pretty closely to what you loosened it, if not, go back over everything and make sure the cables are on all of the pulleys and still with the same routing that it had when you took it apart. Most likely it will be a few more flats in as the cables stretch with time just like standing rigging. That is another good reason why inspections are a good idea.

While you may have a little different process and that's fine, the important thing it to insure that everything moves that is supposed to as well as stays where it belongs. Something as small as a displaced cotter pin can create havoc and as you know it is never at a convenient time.

With a little bit of time and money you should have gained some serious piece of mind from the project and most likely a better sense of what all is going on down there and should you ever have something happen by surprise you will have more confidence that you can set it right.

Also know that Edson does have maintenance manuals with step by step instructions and schematics on their website.

Fix it fast and sail it faster, **–Ken Cox,** kenneth_cox@sbcglobal.net

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!*

CATALINA 36/375 FLEETS:

C36/375IA Board Member, Fleet Relations
jblyth2@mindspring.com
#1, Santa Monica Bay, CA
smwyc06@gmail.com
#2, Long Beach
mbierei@pirnie.com
#3, Chesapeake Bay
wjhomes@zoominternet.net
#4, Puget Sound
rodj2@msn.com
#5, Long Island Sound
tjl2000@optonline.net
#6, San Diego
dmumby3@cox.net
#7, Lake Ontario
crew@ceibaone.ca
#8, New Jersey Coast
calypso36@comcast.net
#9, San Francisco Bay
jennai1@sbcglobal.net
#10, Gold Coast (Ventura & Channel Islands)
jshapiro@kirkhill-ta.com
#12, Punta Gorda, Florida
jblyth2@mindspring.com
#14, Low Country (S. Carolina)
jblyth2@mindspring.com
#15, Lake Texoma
jblyth2@mindspring.com
#16, Texas Coast
jblyth2@mindspring.com
#17, The Netherlands
e.scheffelaar@marineobjects.nl
NEW FLEET – Lake Huron / Cheboygan
jenweber33@charter.net

CATALINA 34/355 FLEETS:

#1, San Francisco Bay
C34irvine1383@comcast.net
#12, Chesapeake Bay
fpoa34@aol.com
#13, Lake Lanier Georgia
toneydot@me.com
#14, Florida East Coast
bob@s-i-inc.com

CATALINA 30/309 FLEETS AND ALL CATALINA FLEETS WITH C30 MEMBERS:

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www.southbeachyachtclub.org
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salcerniglia@optonline.net
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#42 Cheney Reservoir, KS
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clubmanager@scyc.org
#45 Columbia, SC
szymanskim@msn.com
#46 Grapevine Lake, TX
atanua.sail@gmail.com
South Shore Yacht Club, Milwaukee, WI
http://2011ic30anationalregatta.com

Other regional C30 Fleets

CRACA Columbia River, OR
celtic-myst@attbi.com
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doncourtney1@aol.com
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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 470 NATIONAL ASSOCIATION

Mucho Frio!

C470 Association Commodore Bill Martinelli

Well, Brrrrrr, M! F! (Mucho Frio) it is cold outside! Today is the 24th of February and at 10 am the temp outside is 69F. Yikes! It's tough to be in Mexico while everyone in northern climes is saying to yourselves what a jerk this guy is, complaining about 69 degree weather.

We arrived back to Voyager a few weeks ago from a trip up to California where the temps were in the 40 to 50F range and for three weeks I had to wear big boy long pants as opposed to my usual shorts. Upon returning to the boat I had expected warm temperatures but as you all know patterns have changed and none of us can depend on traditional weather anymore.

Usually when we go home there are always little surprises for me like heating, air conditioning, washing machine, refrigerator, or something I would never have thought of decides to roll over and die. This time nothing had issues for the first few days. Then when I opened the refrigerator door the light didn't go on. Holy Frijol, something I have to repair! Took all of five minutes to ascertain that the light switch that functions when you open and close the door had failed after 30+ years. Took 10 minutes to locate and order a replacement on Amazon and the next day took another five minutes to install the new one. That was it the whole time we were home. That's a bit worrisome and makes me scared to see what dies by the next time we're home in July.

Coming back to the boat on February 10, the boat was still in its slip. Good! Now what little surprises did Voyager have for me? Ah, hmm? Everything seemed to be functioning correctly. Brought down a new fresh water pump from the U.S, installed it, and the new pump turns out to be a defective pump from the factory. Dios Mio!

Put old pump back in, which works great with a two gallon accumulator tank. Forget about buying marine pumps that are supposed to run great without an accumulator tank and

should not short cycle, they actually do short cycle and many other odd very annoying things.

OK, we haven't started the generator for three weeks, hmm. At genset startup we hear snappy, electrical arcing sounds; not good. Sounds like a capacitor gone bad. Turns out that's the correct diagnosis, replace with new. Decide to replace zincs while genset is open. Start genset and it runs fine but the low water alarm is going off, malisimo! We have water flow alarms on both the genset and propulsion engines; if water flow is low they'll alarm so we can shut down before they eat an impeller.

To make a long story a bit shorter, after replacing the zincs, air entered the raw water intake and the pump could not prime itself. Had to remove pump's cover and check the impeller, you'd think an impeller with only two blades out of six still attached would continue to work but how would I know. Chased down four loose impeller blades, replaced old impeller with new, works fine now. We had three years and 900 hours of service out of the old impeller, not bad!

Well anyway, almost one more thing. The grey water box that pumps the aft shower water overboard stopped working. Well, it's either the float switch or the pump. Checked the float switch, it's good. Next, pull the pump out of the box. While turning the impeller it seems a bit hard to turn, try harder. A dead short - luckily discovered while holding the pump to the side as it exploded and blew the top of the pump off. Need a new one!

Finally, Julie takes our Dodge Magnum out shopping the other day; calls me to say the gearshift is stuck in Park. Ay Caramba! Hitch a ride from a friend to rescue her; meanwhile she's searched YouTube on her smartphone to find a temporary fix. Try that, it works! Next day search for a replacement part, nobody stocks it but can order and have one in seven days, which could mean three weeks in Mexico. So, the next day I take apart the entire shift mechanism, repair a little plastic part, and reassemble in reverse order and low and behold after two hours of work it works. Maravilloso.

I'm so relieved, if I didn't have the above problems when I got back to La Paz, I would really be dreading going home in July to find what was waiting for me there! Hasta luego. **–Bill Martinelli**

CATALINA 400/445 INTERNATIONAL ASSOCIATION

C400/445 Commodore Frank Falcone

Special thanks to Rick Peterson of Deltaville, Virginia for submitting this teaser!
–Frank Falcone, Silver Eagle, Catalina 400 Mk. II

Sunrise in the Bahamas

On a night passage last summer from Bimini to The Great Abaco Island, our morning watch was rewarded with this sunrise view of the "Hole in the Wall" light house on the southernmost tip of the Island. This was the fifth leg of our Galveston Bay to Chesapeake Bay delivery of "Exit Strategy", our new to us Catalina 400, Hull Number 1! Watch for the full story in a future issue of Mainsheet. **–Rick Peterson**, Deltaville, Virginia

CATALINA 36/375 INTERNATIONAL ASSOCIATION

Commodore Report Spring 2020

C36/375 Commodore Les Troyer

We now have 774 members from 23 countries! Most of the growth is from Facebook with many of these converting to full paid members. We are in need of a few volunteers especially to manage the web site and the vice-commodore position. A push was made to see if we can get more fleet submissions. By the time you read this winter will be over, and boats will be going back in the water. I wish everyone a safe and fun-filled Sailing Season. **–Les Troyer**, leslie@e-troyer.com

We now have 774 members from 23 countries! Most of the growth is from Facebook with many of these converting to full paid members.

CATALINA 34/355 INTERNATIONAL ASSOCIATION

Secretary's Report

C34/355 Association Secretary Stu Jackson

Mystery Electricity:

We've had a relatively uneventful winter, but did have one snowstorm in early February. By the time I got down to the boat only a few days later as soon as the roads cleared, the snow had already melted off Aquavite. However, my power and the heater was off. When I checked the main electrical panel, which feeds at least ten boats, I found that my own 15A/30A adapter between my 30A shorepower cord and the marina's 15A receptacle was missing. I found my 30A shorepower cord plugged into another power feed. Other boats connections had also been rearranged. I did not know who had made the changes, or where my adapter had gone.

I left the wiring as I found it and immediately reported the situation to the harbormaster, followed by a detailed email. Having found this situation and not knowing how it had occurred, perhaps performed by marina staff, I felt it prudent to leave it as I had found it. In any event, it appears that unless marina staff had it, I would be obliged to purchase a new 30A/15A adapter. If they did have it, I needed to know before I bought a new one.

The harbormaster immediately and courteously replied to my emailed report and advised me: "I spoke to maintenance and a Marinco 30 amp adapter was turned in over the weekend. Someone said they found it on the dock. We are not sure why some boat's plugs were re-positioned to different outlets though. I appreciate you reporting the issue. I will leave the adapter at the office as I'm sure it is probably yours."

The next day I went back to the marina. The very helpful harbormaster joined me at my slip and we both looked carefully at the electrical connections. This is my email with our conclusions:

"I took your advice and retrieved the pigtail (not an adapter) from the office, and then I joined you when you inspected the electrical connections on the dock. I showed you the cross connections that had been made for the other boats' power feeds. I pointed out the line (the white string) that I had installed that was still in place and which had held my receptacle, adapter, and the shorepower cord together. I installed the pigtail without needing to undo the string.

"You then investigated the other incorrect connections, and replaced one other boat's shorepower cord into their proper feed after we had removed my cord from it. You also investigated two cords from a boat in yet another slip: a yellow 30A cord and an orange 15A cord. You removed the yellow 30A cord from that boat from a 15A receptacle high on the upper left side of the electrical pedestal enclosure.

"I was very, very surprised when you removed that yellow 30A cord and found that my missing adapter was on the end of it! I pointed this out to you, and returned the pigtail from the office to you. Had you not removed that cord from the receptacle, we would not have found my adapter because it was essentially hidden from view behind many power cords above the metal electrical breaker panel itself.

"We agreed that it was unlikely that my adapter had "fallen out" by itself, because of two facts: 1) my connecting string was still intact; 2) my adapter had somehow found its way physically higher up the panel to one of the highest and hidden 15A receptacles.

"Thanks again for your help in "playing detective" and resolving the issues for power to my boat. Much appreciated."

She later emailed me that she thought she knew what had happened and who had done it, but since she wasn't there she couldn't prove it. Sounded fair to me.

Yes, there is a difference between an adapter and a pigtail. And, yes, there are helpful harbormasters out there, willing to help in trying times.

Trust you are well into the new 2020 season. C34IA Membership dropped to 426 from the 491 last quarter, and includes 28 C355s.

And, as always, many thanks from all of us to all of you for supporting the C34IA. **–Stu Jackson**

CATALINA 320 INTERNATIONAL ASSOCIATION

Annual Meeting

C320 Commodore David Allred

The Bylaws of the Catalina 320 International Association provide that officers of the Association be elected at the annual meeting and that the results of the election be published in *Mainsheet*. Abiding by those directives, I am providing the following information. The Governing Board of the Association held its annual meeting on February 25, 2020, by teleconference, as is permitted by the Bylaws. By great fortune all of the current officers agreed to serve another year, subject to additional nominations and election. Thus, the following nominations were made by the Board: Commodore--David Allred; Vice Commodore--John Santana; Secretary/Treasurer--Bill Culbertson; Web Masters--Jeff Hare and David Prudden; Association *Mainsheet* Editor—Mark Cole; and Association Technical Editor—Jason Reynolds. On February 26, those nominations were submitted to the Association membership through our web site with the provision that the floor was open for additional nominations until March 3, and voting would be concluded on March 10. As has been the case at least since I have been Commodore, no additional nominations were made. Therefore, I am delighted to announce that the Board's proposed slate was elected unanimously by all the members who chose to vote.

I also note that with respect to our election there appeared to be no interference or attempted influence by any foreign country or other entity, and there was no sign of voter fraud, voter intimidation, or voter suppression. Further, there were no dirty tricks or bitter recriminations and no calls for recounts or contests of any sort. In short, we seem to have had an admirably free and fair election that would be the envy of any elective body.

In addition to nominating officers for 2020, the Board heard from Bill Culbertson, our secretary treasurer. Our membership stands at approximately 230 which is consistent with our most recent years. Our financials are in excellent shape. And Bill has made significant improvements in membership services, including directly and personally handling membership renewals by check, which were previously conducted through a third party. These changes mean more work for Bill, but much better service for our members.

Jeff Hare and David Prudden, our webmasters, reported on updates to the website including future improvements as they have time to implement them. As you know, the website, particularly the discussion list, is an enormous benefit to every Catalina 320 owner. Jeff has been doing this time consuming job for many years and would welcome any help that any of you could provide. If you are able to assist with this valuable part of our association, please contact Jeff or me.

Mark Cole, our *Mainsheet* editor, described the process for getting articles into *Mainsheet*. He also noted that the technical articles depend upon your willingness to document, especially with photos, your projects and to submit those projects to him and Jason Reynolds, our Association technical editor. They are always willing and able to help you create a first-rate article if you will contact them with your project. Many of you know how valuable the technical articles are to those of us who have considered or are considering undertaking a particular task. If you have made an improvement or a repair, please consider having it published in *Mainsheet*.

We also discussed maintaining or increasing our Association membership. In that regard, we encourage you to reach out to other Catalina 320 members in your marina or area and tell them about our Association. If you are selling your boat, be sure to include information about the Association in the documents you provide to the new owner. We want every Catalina 320 owner to know of the benefits of Association membership.

Finally, thank you to all of the officers for agreeing to serve another year. Your willingness to spend your time for the benefit of our members is truly appreciated. We believe that we have a terrific Association that provides a great service to every owner of a Catalina 320. If you are not a current member, please consider joining. If you are a current member, please consider recruiting other 320 owners to join. Membership details are readily available at our website, www.c320.org. Thanks for your support. **–David Allred**

CATALINA 310/315 INTERNATIONAL ASSOCIATION

Officers' Messages

C310
Association Editor
Bob James

As I pen this, I am waiting for a sale on bottom paint so I can hopefully paint and then launch by mid-April. No issue this year as Lake Erie never froze. That does not mean the weather was good, it wasn't.

So, what's happening with your officers? Alan Clark, your Commodore, completed a six week, 800 mile cruise last summer that included three of the Great Lakes. Stay tuned to see where this summer takes him. Note: unlike Alan, Bob James (editor) and Curt Sawyer (Treasurer), two or your other officers, both Alan and Admiral Eileen are retired. Maybe someday! Jesse Krawiec and Admiral Stacey continue living the dream, living aboard and cruising in Smitty, their C310, in the southern Caribbean. Follow them at https://svsmitty.wordpress.com/. Curt and Bob work and sail in some order and quantity.

Fast forward to May when you may be reading this, the 310-315 flotilla in Lake Erie are hoping to put together our second rendezvous somewhere in the Western Basin of Lake Erie. Stay tuned on this one. We would love to know what you are planning in the summer and/or what great things you accomplished last year. Send me your plans and stories to bob@advancedreading.com. **–Bob James**

We would love to know what you are planning in the summer and/or what great things you accomplished last year. Send me your plans and stories.

C310
Treasurer
Curt Sawyer

The C310 IA currently has 78 dues-paying members who own 310s and 19 who own 315s. While you certainly know your dues pay for this magazine, did you know our dues are among the lowest of all the Catalina Associations? And did you know, we also maintain a web site? Just visit catalina310.org for the current membership list, burgee order forms, technical documents, and more. Finally, please feel free to contact me if you have any questions or suggestions for the association - curtis.sawyer@gmail.com. Thank you, and Happy Sailing!
–Curt Sawyer

CATALINA 30/309 INTERNATIONAL ASSOCIATION

Take Pictures of your Boats

C30/309
Association
Editor
Michael Dupin

Hello C30ers! By the time this gets to you, I hope we are all enjoying our boat neither shrunk wrapped or in isolation. If not, I know that *Mainsheet* is a good way to dream about our next adventures on the water, if that's any consolation.

In this issue, Jan Huissoon shows us how he addressed a deflection in the mast step after buying his C30. This could be useful, the next time we take the mast down.

Also, a plug for the Nationals this year (assuming they'll go ahead): August 14-16 in Milwaukee. Last year was a great event (see the Fall edition of MS), consider joining if you're in the area.

As the summer approaches, please don't forget to take pictures of your boats (action shots!), it'd be awesome to publish a few. Be safe. **–Michael Dupin**, dupin.catalina30@yahoo.com

Advertising Index

CATALINA 22 NATIONAL ASSOCIATION

Commodore Report

As spring approaches, I hope everyone is looking forward to the upcoming season.

Here in Region 8, we have a full calendar of events this season. People are getting ready to sail. We had a booth at the boat and travel show in Tulsa this year and were promoting the Catalina 22 sailboat and the upcoming Catalina 22 National Championship Regattas in Fort Walton Beach, Florida. By the way, if you have not registered yet, you need to get online and get this done. My crew and I were the first boat registered. It is going to be a great event this year. I want to thank everyone that has been working hard on all the preparations.

C22 Commodore Duncan McBride

There are many great events planned this year for both racing and cruising. If you have not ever come to a National Regatta, or gone to a local regatta or a cruise, this is the year to try. You don't know what you are missing. It is some of the best and most enjoyable time you can spend on your boat with family and friends. You get the chance to see new places and meet new people. We have enjoyed everywhere we have traveled and all the people we have met.

There are many new articles on the website at www.catalina22.org that you need to check out. Lots of technical stuff and some fun history facts. The new Rudder Craft Catalina 22 class-approved rudder is available. So, start thinking about the upcoming season and getting your boat ready.

I hope to see you out sailing soon.

–Duncan McBride

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Catalina 22 Rigging to Race Clinic

The Catalina 22 National Sailing Association is excited to see the growing interest in Catalina 22 racing on Lake St. Clair / Detroit, Michigan. Lots of credit to Catalina 22 Fleet 130 Captain Mike Bracket and the members of the North Star Sailing Club.

C22 Association Editor Rich Fox

On Saturday, May 30, Mike Bracket and I will be hosting a Catalina 22 Rigging to Race Clinic at the North Star Sailing Club in Harrison Township, Michigan (Lake St. Clair). The agenda will include a presentation and discussion on a variety of topics including – rigging from trailer to launch ramp, mast raising techniques, tuning the mast and standing rigging, basic sail trim controls, racing tips, with lots of questions and answers along the way. The clinic begins at 10:00 AM at 32041 South River Road, Harrison Township, Michigan.

A second Catalina 22 Rigging to Race Clinic will be held in Indianapolis at the Eagle Creek Sailing Club on Saturday, June 27 beginning at 10AM. The address is 8901 W. 46TH Street, Indianapolis, Indiana. Same agenda, only the location is different.

–Rich Fox, rich_fox@yahoo.com

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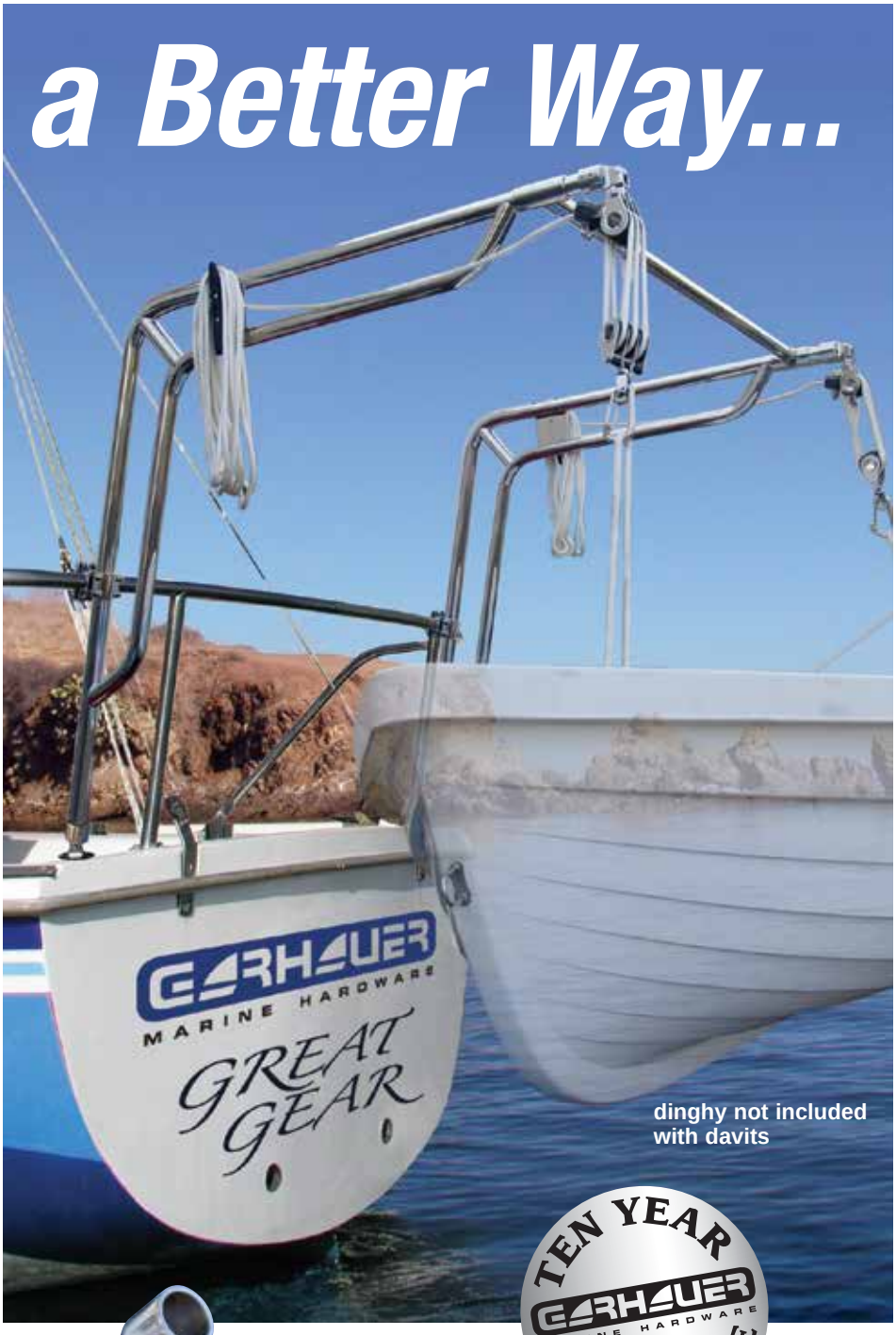

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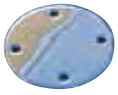

Stern Rail Davit Clamp

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