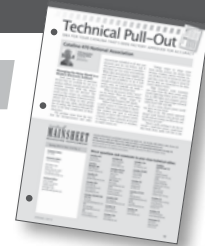


Technical Pull-Out



Q&A FOR YOUR CATALINA THAT'S BEEN FACTORY APPROVED FOR ACCURACY

Catalina 470 National Association



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Padding About in the C470, Part II

Six months ago, I wrote a Tech Note about the wonders of having an iPad or other tablet aboard. I received a good bit of positive feedback and in my many subsequent encounters with C470 owners; it is now unusual for me to not find one aboard.

I recently decided to upgrade from my iPad 1 to a new iPad Air. The principal reason was to have redundancy – I use the iPad so extensively and it is such a part of my cruising life that I felt compelled to have a backup aboard. The iPad 1 was Wi-Fi only and the iPad Air is

cellular data enabled. I chose to have the built-in GPS capability as well as the flexibility to pop in a data service SIM from one of my cellular hot spots if I need to.

Now that I have switched to the iPad Air as my primary tablet, I decided it was worth taking another look at two issues I introduced in the previous Tech Note: Navigation charts and chart plotter/navigation.

Navigation Charts

A good friend recently passed on a magazine article that made the case that the paper chart was dead and no longer had a place aboard. There were many good arguments presented including: access to the most current data; ubiquity of tablet and laptop computers aboard; ready access to the most recent chart editions; great data presentation/access. All good points but, IMHO,

nothing beats the paper chart for providing rapid large-scale situational awareness. So, aboard *Onward*, electronic charts are the primary tools for navigation but paper charts are always in the cockpit while navigating and all courses through new territory have the routes cross-checked between the paper and electronic charts.

Onward has both Navionics and Garmin /Blue Chart iPad & iPhone apps for navigation planning and monitoring as well as primary backup to the Raymarine E120 chart plotter. In addition, several apps that read free NOAA digital charts are available. These allow the most recent charts for an area to be accessed. It is possible to rely on these alone for navigation. Aboard *Onward* they are used to cross-check the somewhat “aged” chart data from the primary apps.

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Chart plotter & Navigation

It is now possible to navigate using tablet or laptop apps alone without the need for a dedicated chart plotter. The possibilities for implementing this are myriad and growing every day. I think it is still early on the technology growth curve and there is still a place for the dedicated chart plotter that is well system-integrated and is always on task. But, my opinion is colored by sailing *Onward* singlehanded most of the time, which leads me to reliance on a dedicated and integrated system with fewer parts that need to play nice together.

That said, I think the idea of connecting the tablet to the chart plotter provides a wonderful way of getting the best of both worlds. In 2011, Raymarine and Navionics teamed up to allow connecting the E120 to a tablet via a standard Wi-Fi router. Subsequently they found that supporting the tablet with data was causing the primary job of the E120 network to suffer so they discontinued support of this technique. Recently they have come out with new chart plotters that have built in Wi-Fi (and several processors) that can stream data to apps on the tablet. Having a small Wi-Fi-enabled chart plotter may be a fairly inexpensive way to go. There are several suppliers of NEMA/SeaTalk to Wi-Fi units with many options available to do this.

One Owner's Approach to Chart Plotter-free Navigation.

I recently visited with Gary Bratton who has chosen to go the chart plotter-free route aboard C470-68, Country Dancer. I asked Gary to write about his approach: Before we sailed a C470, we sailed a Newport 33. She was a great little yacht, but a little short on modern electronics. On her first sail home, we came from Houston TX to Tampa, FL using a small handheld Garmin and a PC for navigation. It was a great trip that started us on the road to our current cruising life and we actually thought our navigation system was pretty high tech!

Today *Country Dancer* carries the basic load of "modern electronics" circa 2000. Raymarine ST60 instruments and two Raymarine RL70C color plotters and radar.

Years ago, I had moved from PC's to a Mac and had found a neat program named Mac ENC for route planning. It used a serial port to hook into the Raymarine NMEA network and not only worked for creating routes, it also worked as a backup plotter. Fun, but a computer down below at the chart table didn't help much in navigating the close quarters of the ICW.

Then my business received a contract that required me to buy an iPad. Well naturally, I put some boat software on the little gizmo too. Mac ENC has a sister program for the iPad called iNavX, so that seemed a natural to try. Now things were getting interesting. I could plot using the computer, and actually work through those tight little passages using both the Raymarine, and the iPad -- just for fun.

For about two years while preparing to cruise, we used both the RL70's and the iPad for their "normal" uses. A pattern soon evolved; the iPad was getting a LOT more use. It would sit at the salon table for reviewing weather GRIBs overlaid on the chart. It attached to the internet and got Active Captain notes overlaid on the chart. And it was pretty hard to beat when working through our favorite tight little shortcut channel as Jodi held it right at eye level for me. And charts for the iPad cost about 1/10th what the chips for the RL70 did, so the iPad became our "far away dreaming" companion with charts of Ireland, and Tobago, and Sardinia.

We left Tampa in April and have turned on the Raymarine RL70C's maybe three times in the last seven months. We now have 2 iPads and they have simply become our primary navigation devices. Here are the details.

First, "consumer electronics" are not as rugged as even "marine recreational electronics" so they need some help. We have used several covers and cases, but nothing so far beats the "Life Proof" cases. They are really water PROOF up to about 15' and make the iPads a lot more drop proof as well. We now use lots of different apps, and having 2 iPads plus the computer allows us to not only have redundancy in our navigation devices, but also a way to keep navigating while checking the latest updates on the "Women Who Sail" Facebook page!

We are also in a position to take full advantage of e-charts now. After Hurricane Sandy, many paper charts became instantly worthless. There is nothing worse than an outdated chart that you are trusting with your life! We are now able to update all of our charts (we use Garmin Blue charts, Navionics, NOAA ENC's, and NOAA RNC's) at least once a month. Once we are close to an inlet, we can connect to the internet and look at a Google map overlay. You can't always see the channel, but you can see anchorage areas, and where the boat traffic is going. One never can get too much information when going into someplace new.

Our ship's systems have evolved to work with this system as well. We now use a Brookhouse ST-e MUX to combine all of the NMEA and SeaTalk data

moving through the instruments and feed it to a Wi-Fi router. This allows all of that data, and that from our new AIS as well, to be seen and used by the computer and iPads. Believe me, there is nothing finer than seeing ships lights in the middle of the night and setting down your book to check what is headed at you on AIS. Then without getting out from under that nice warm blanket, dropping a go-to mark on the iPad and have the boat turn to avoid the 900', 26 knot monster coming down on you.

When Joe asked that I write this up, he asked questions like "what were your design goals," unfortunately, it was not designed, it evolved. Like most evolutionary processes, it's been pretty messy with lots of pieces that didn't make the grade, and wiring that has been done, pulled and re-done way too many times.

Okay, so here are the pieces:

1. A computer attached to the network with Wi-Fi, or rj45 cable, or rs232 serial port. You want redundancy here. We use Mac ENC on this box.
2. An iPad 2 w IOS 6; an old screen, but easy to keep charged; used with "Garmin Blue Charts Mobile" for a second set of charts and Active Captain.
3. An iPad 4 w IOS 6. Power sucker, but shows iNavX and iRegatta apps very well; has all NMEA data on the chart, including route arrival time (to know if and when the iron jenny must come on line); full wind instruments and an anchor alarm!
4. Vesper xb-8000 AIS.
5. Brookhouse ST eMUX, connects NMEA and SeaTalk to the "network". Data is available from rs232, rj45, and Wi-Fi; sends data needed for autopilot from computer/iPad back to the autopilot computer.
6. Ubiquiti Bullet long-range Wi-Fi antenna and transceiver. (Hey, we are networked, might as well be able to use Skype from the iPad, too.)
7. Ubiquiti 4 port router. Allows all the Wi-Fi pieces to talk to each other anywhere on the boat... or even the dock if showing off to friends.
8. Wi-Fi 4G cellular hotspot; if I can't find an open Wi-Fi signal to connect to, the hotspot connects to the router and Jodi can still send that picture of my upside-down butt sticking out of the lazarette to her Facebook page.
9. Software
iPad navigation: "iNavX" full navigation with AIS and all instruments
"Garmin Blue charts Mobile" (includes Active Captain data and charts)
Mac navigation: "Mac ENC"

Pieces yet to be done:

Our friends on *Merlin* had a great idea, which I will be working on. We carry an iPhone when going into town, and leave an iPad on the boat. If the anchor drags, we want the iPad to send a "text message" to the iPhone disturbing our dinner ashore...telling us there are issues aboard. —Gary Bratton

Keep Padding Along! Cheers —Joe