

# Tech Notes

Q&A for Your Catalina That's Been  
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## CATALINA 470 NATIONAL ASSOCIATION

### C470 Compression Post Access Hole



C470 Association  
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In the days of yore – wooden ships, iron men, etc. – a ship's mast had a simple job: hang the sails aloft to catch the wind. In the era of the digital yacht, the role of the mast has evolved such that it seems to be as much a wiring conduit and elevated mount for sensors,

antennas, lights, and cameras. The Fall 2016 C470 Tech Note described the installation of a wire access panel at the base of the mast just above the mast step to facilitate discon-

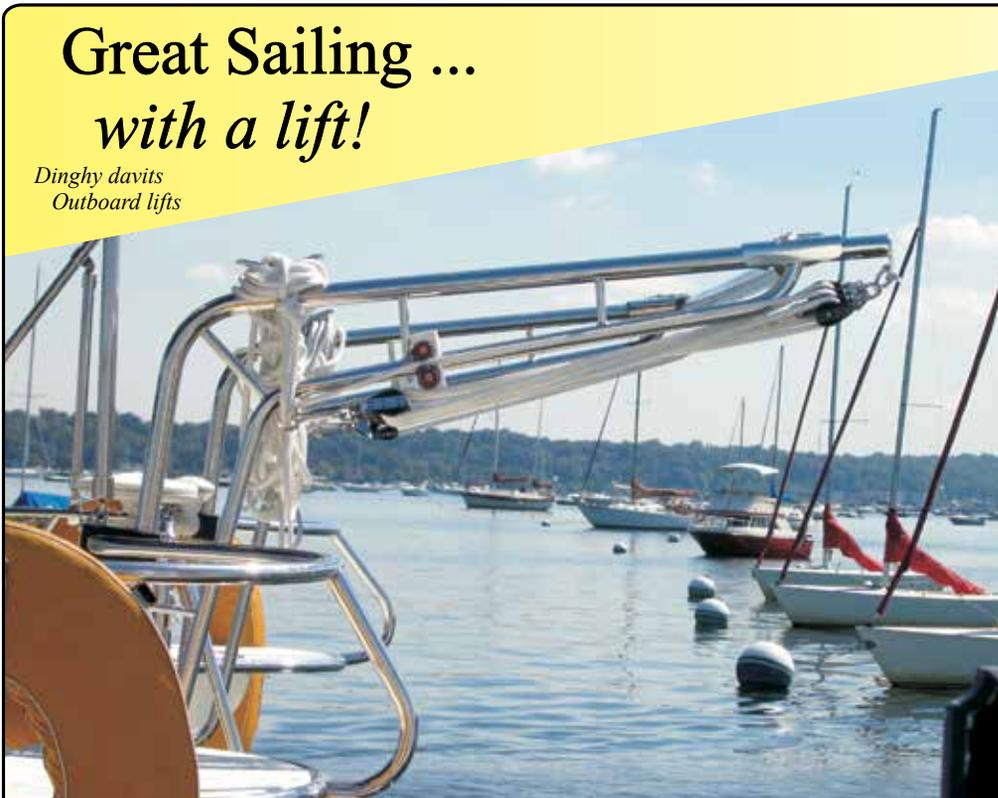
necting the in-mast cables when un-stepping the mast during the seasonal ritual, for some, of decommissioning. This sad event does have the benefit of enabling regular access to the interior of the "vertical wire trough & electronics mount". For those of us who are fortunate enough to be able to avoid the annual ritual, updating in-mast wiring is a challenge.

Recently, I found it necessary install a new in-mast VHF coax antenna cable due to damage from a problematic fixed-bridge transit (quite a story for another time). The VHF antenna had been sheared off leaving a very short stub of cable coming out of the masthead. A splice (difficult to effect at the

masthead) to a short cable was necessary to connect to a new VHF antenna. The splice worked for a couple of years, until Onward arrived in Long Island Sound for its 2016 summer cruise of New England. Salt water had apparently penetrated the splice rendering the VHF usable only for short ranges. With an extensive schedule of port visits and cruising guests planned, there was no convenient time to un-step the mast to effect a new VHF coax cable installation. I purchased a 100' length of high quality RG213U coax with factory-installed PL-259 connectors at each end from DX Engineering. My intention was to find a clever way of getting it from the bilge to the masthead without un-stepping

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the mast and, if that failed, to run it up the exterior of the mast to provide a temporary fix for the long-range VHF communication Onward's cruising requires.

The saga of trying to implement this plan started in Port Washington on Long Island and continued through many ports and anchorages to East Greenwich Yacht Club. By this time, I'd been up to the masthead several times, gotten access to the interior of the mast by removing the masthead cover plate (don't travel without a battery-powered impact driver/drill) and then convincingly demonstrated to myself that the existing coax cable could not be used to pull a replacement through from either the bilge or the masthead.

Attempts to use an electrical wiring snake to go from the bilge up to the base of the mast on deck were unsuccessful as were those to run the snake in the opposite direction from the topping lift exit port down the mast, through the step, down the post, and through the compression post base. By this time I was thoroughly frustrated and was kvetching to a couple of sailing buddies when a comment by one of them caused me to look at the problem from a different perspective.

The C470 mast is stepped on deck and the load is transferred to a 6" diameter heavy-walled aluminum tubing compression post down to an aluminum base molded into the box grid of the hull. Access to the post base is gained through the forward-most bilge compartment in the salon. There is a ~2" diameter hole in the aft face of the fiberglass box beam under the post base that has an 90° tubing elbow on the interior to direct wires upward through the base into

the compression post. At the mast step on deck, there is a hole where the wires emerge before being directed into wire troughs in the forward section of the mast.

My friend's comment led me to consider breaking up the problem into segments. First step: I carefully and very slowly drilled a ~0.125" dia. test hole in the base of the compression post (see photo, ~7" above the deck and ~1" aft of the starboard vertical centerline). The wall thickness was about 0.75". In several stages, I slowly drilled out this hole (taking great care that the drill bit barely penetrated beyond the tube inner wall so as not to damage the cables inside) to a final ~1" diameter, large enough to allow a PL259 connector to go through.

Second step: I was able to run an electrical snake from the wire exit port in the bilge up into the base of the compression post. There I snagged the tip of the snake through the new access hole and attached a messenger line that I pulled back into bilge.

Third step: I went up on deck, and after many tries, was able to run the snake from the topping lift mast exit port down the mast, through the mast step, and into the compression post. I again used the access hole to snag the tip of the snake and attach the first messenger line. On retrieving the snake there was now a messenger line that went from the bilge to the lower part of the mast on deck.

Fourth step: From the masthead I lowered a weighted messenger line to where it could be snagged at the topping lift exit port. Now there were good messenger lines all the way from the masthead to the bilge! Wonderful! Note that since the wire troughs are part of the mast extrusion, there is essentially no way to run a new cable through them. This necessitated running the new coax in the larger space where the halyard lines run. This isn't the best practice but I had chosen RG213U coax cable for its better low-loss transmission characteristics and this had the added benefit of a stiffer, more-robust, larger diameter cable that was unlikely to cause problems with the lines running internally in the mast. Also with furling sails, Onward's halyards don't get a lot of use.

Fifth Step: I used the lower messenger line to pull one end of the new coax cable up to the topping lift exit port in the mast. There I used the upper messenger line to pull the new coax all the way to the masthead where I attached it to the VHF antenna. Just below the point on the coax where it exited the masthead, I wrapped it with heavy walled water supply tubing for protection and used a series of cable ties to support its weight. Once the new cable was connected to the VHF: Communications Bliss! A solution until Onward stops wandering enough for the mast to be un-stepped. **—Joe Rocchio, jjr@onward.ws**

## Safe Journey: New Safety Items Update!

By Bill Martinelli • C470

Last issue I wrote an article, that was featured in the Safe Journey Column, about some new equipment I installed on *Voyager*. Since then, Yacht Protector has added a couple new sensors to their line: the Relay sensor, Temperature sensor and the Dometic sensor. The Relay sensor will allow you to remotely turn on/off other equipment on your boat. The Dometic sensor will allow you to remotely turn on/off and control a Dometic air conditioner or reverse cycle heater. This has real appeal to me as it would allow us to cool down *Voyager* three to four hours before we arrive from driving back to hot Baja Mexico. You can read more at [www.yachtprotector.com](http://www.yachtprotector.com).



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