

Technical Pull-Out

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



Catalina 470



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Beckoning, #76

Windlass Surprises & Underwater Lights

One of the pleasures of being the Tech Editor for a 160 boat fleet is not only the steady supply of stories from Owners but the opportunity to participate in the repair due to the proximity of numerous boats on the Chesapeake. Several weeks ago I was aboard my C470 *Beckoning...* in her slip when hailed by Larry Cohen, (*Comfortably Numb*, Hull #73) on the VHF radio. He had arrived in the small Bay right off my marina but had an inoperative windlass. From the symptoms it sounded as if he had sheared the shaft. The electric motor was spinning freely but the above-deck drum was not turning!! Thru a viewing port in the forward shower he could see

oil running down the aft side of the crush bulkhead. The only oil running thru that area "should" be from the bow thruster and getting it up as high as he had seen it was not possible. He removed the cabinet from the forward bulkhead of the forward shower and VOILA! The drive motor of the Maxwell 1200 windlass drives a shaft with a wormgear. This gear engages a gear wheel on the base of the vertical shaft which turns the windlass drum thru the clutch cones. What Larry found was that one of the four bolts which holds the wormbox of the windlass onto the spacer tube had come completely out of the wormbox and the other three bolts were very loose. As a result, the worm drive was not engaging the wormwheel and although the electric motor was spinning on command, it had nothing to drive! The oil he found on the crush bulkhead was from the worm-drive housing. It is interesting to note that Maxwell had previously informed me that the wormdrive housing was NOT an Owner-serviceable part. We found that not to be correct. The first photo is of the re-assembled windlass. Note the holes (only three can be seen)

for the Allen-head bolts which hold the assembly together. Replacement bolts were found at the local ACE hardware store. They are metric.



The second photo shows the empty lower wormbox. Here, all four bolt holes are visible.



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The last photo is the wormwheel itself which turns the windlass shaft/drum. Note that the wormgear housing/wormgear has no port or opening for servicing the oil level. The oil level is viewable thru a port on the end of the wormdrive.



This level should be checked regularly and the oil replaced every three years. Larry's windlass wormbox was filled with the required 90wt oil as we held it level near the wormgear housing. Then, using the new bolts, we pushed the wormbox up against the wormgear housing and seated it. There is an O-ring in the wormbox flange. When the two parts were seated together, the oil overflowed somewhat but the sight gauge showed full. Using a long Allen wrench, we tightened the bolts and the re-assembly was complete. Cleaning up the mess took only a few minutes and then it was time for the moment of truth...would it work??? When Larry's wife Wendy stepped on the foot switch directly above us, our efforts were rewarded with a fully-functioning windlass! The moral of the story: CHECK THE BOLTS THAT HOLD THE BOTTOM OF THE ASSEMBLY TO THE TOP!!! Also, you CAN service the drive section of the windlass; it is a bit messy but easily done. Check the oil level on the sight glass and, if it is down to less than half, get out your Allen wrench, 90 weight oil, a roll of paper towels, loosen the aforementioned bolts and slide the housing down them about 1/4 inch. Insert the end of the 90 weight oil tube between the upper and lower housings, squeeze and fill the lower housing. Push the halves back together, tighten the bolts (TIGHT!) and you are done. Pulling up your anchor by hand or cranking it up by using the emergency crank due to windlass failure because of lack of easy maintenance is not something we want to engage in.

Underwater Lights

Every once in a while an equipment purchasing bargain comes along that completely negates any argument for not buying and installing that equipment. The other term for this is "BIG-BOY TOYS". Combine a great price, hi-quality equipment and even the slightest practical usage for this equipment and the result is always the same...we buy it!!! I confess to doing this more times than I should. The latest rendition of this is the addition of underwater lights to the stern of *Beckoning*...! Certainly the use of these lights for night scuba diving, easily finding ones boat amongst many others in the mooring field by using the distinctive stern light signature as a beacon and creating an ambiance not generally found in boats our size easily overwhelmed the arguments against such a project!

At a nautical flea-market in St. Petersburg, FL this past winter I stumbled upon a serious, very heavy-duty, well-documented 12v underwater light. This light was the same light I had seen at the Miami boat show for over \$700. A local installer charges \$900 for the light and installation. I bought the light for \$150 new. Upon hauling *Beckoning*... in April for hull work I decided that one light was certainly not enough so ordered a second. It was \$50 more plus freight. So, gentlemen, buy it when you see it!!!

A circuit breaker was selected to power the lights and wires were run to the prospective installation sites. The first photo shows the 2.5 inch hole I cut with a hole saw for the installation. Should anyone ever doubt the stout hull of a C470 I am pleased to note that the hull is just shy of one inch thick in this location. I have kept the cutout for those who wish visual proof.

The hardest part of this installation was deciding where to cut the thru-hull holes. I measured MANY, MANY times, documented the measurements and measured again. Finally, the moment of truth was at hand and I drilled the pilot holes then used the hole saw and was thus committed to the installation. The lights came with what appeared to be a rubber gasket which, according to the instructions, fit between the outer hull and the light fixture itself. I was concerned about this so contacted the manufacturer and questioned this installation technique. They informed me that the gasket was actually made out of silicone and that was the recommended procedure. My advisors were strongly against doing this. Instead, I layered 5200 between the bronze fixture

and the hull. As planned, the 5200 also oozed up and filled the space (about 1/8 inch) between the shaft of the fixture and the inside of the 2.5 inch hole. Additional 5200 was layered inside the hull where the large seating washer came down against the hull. As this is the first time I have cut a hole(s) so large in the hull I was anxious to get it right. The large nut was seated tightly against the washer and, except for hooking up the wires, the job was done. These lights do not require constant immersion in water for cooling purposes. The bulbs will, however, last longer if the lens is immersed. The next photo is a view of the external installation.



The boat was out of the water for about a week so the 5200 was dry when the boat was splashed. As you can imagine, I kept the lazarette cleared of everything when the boat was launched. There were no leaks. The next photo is of the completed installation inside the lazarette.



The last photo is of the lights in action here on the Chesapeake. Admittedly, they are not as bright as they will be in the clear Caribbean waters this winter. Still, they do add a nice touch to a fine boat!!

