Technical Pull-Out

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

Catalina 470

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Beckoning, #76

Davits, plus a whole lot more

Once I decided that inflating and deflating our dinghy wasn't a lot of fun, I needed to decide what do. Towing a dinghy around San Francisco Bay wasn't really something I wanted to do. After looking at numerous solutions at a number of boat shows I decided to go with davits.

I recently purchased an RIB with a helm and 25hp outboard, with a total weight of about 500 pounds. This purchase complicated things a bit as my old dinghy and motor weighed in around 150 pounds. This weight eliminated most of the bolt-on davits available, so an arch that incorporated davits seemed to be the answer. After much thought I decided that an arch made specifically for a 470 by Wells Marine fit the bill.

Wells can ship by air to anywhere because they have designed an arch that can be sent in three pieces in a knocked down state. The arch only weighs about 110 pounds, but you get to pay for shipping for something like 350 pounds because of the volume of space it takes up in the aircraft. Even at that, the shipping from Florida to me in California was less than $300.

You can have the arch assembled, welded and installed by a local craftsman or if you have the capabilities you can do it yourself. I like doing things myself and if I can't do them I want to at least be involved.

The first thing to do is unpack the parts; this gives you enough bubble pack to keep you amused for years if you like popping the bubbles. Wells supplies directions for you to build a wooden jig for assembly. You assemble the parts, screw it to the jig and square it up; this is a critical step, mess up here and you will have real problems later

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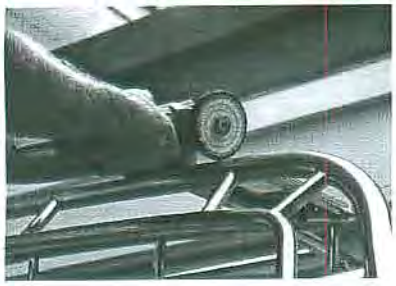

Once squared up, you weld it together and then grind and polish the welds until the joints disappear. Once finished, the arch is ready to be installed on your 470. I used the topping lift and two friends to help me get it up and into position on Voyager. The most heart-wrenching part of this is taking a hacksaw to cut your factory rails and remove parts of them. I had previously installed one of these arches on a Mason 42 and believe me, it is far easier to cut someone else's rails.

Now Wells supplies some real nice fittings to reattach your lifelines to, but

I have wanted to have solid rails back aft for quite some time and that is what I opted for. I wanted to have these rails to be able to support whatever I wished to hang on them in the future so I added an addition stanchion between the arch and the companionway. You can see this stanchion before the attachment of the aft lower rail.

For the aft seats, I found that to keep my original seat shapes I would need to narrow the straight part of the aft rails by a few inches. To make the upper seat rails fit the way I wished, I first tried to cut and section the curved portions but found I wasn't very successful in that attempt. What I ended up doing is rolling new curved portions and fitted those into place. Since I had the ability to make new pieces I didn't spend a lot of time on the cut and section attempt. Since I was making new upper rails for the aft seats I decided to raise them about four inches. I never liked the height of the original rails, I felt they were too low and would be better if they were higher. The new rails aren't as pretty as the factory rail design but they are sure way more comfortable.

I can't tell you how long this all took because while I was installing the Wells arch on *Voyager* I had Paul Klein's Beaudacious II (Hull #17) tied up alongside. I was assisting Paul with replacing water tank #3 with a fuel tank, the installation of two air conditioners, a watermaker, a 7.6kw generator, a wind generator, and a new radar mount. This all became something of a blur after awhile as you might well imagine. The bottom line is Paul by now has been in Mexico for about a month at the time of this publication and I am very happy with being able to launch and retrieve T/T *Voyager* from our davits, not to mention the ability to mount more equipment on the arch.

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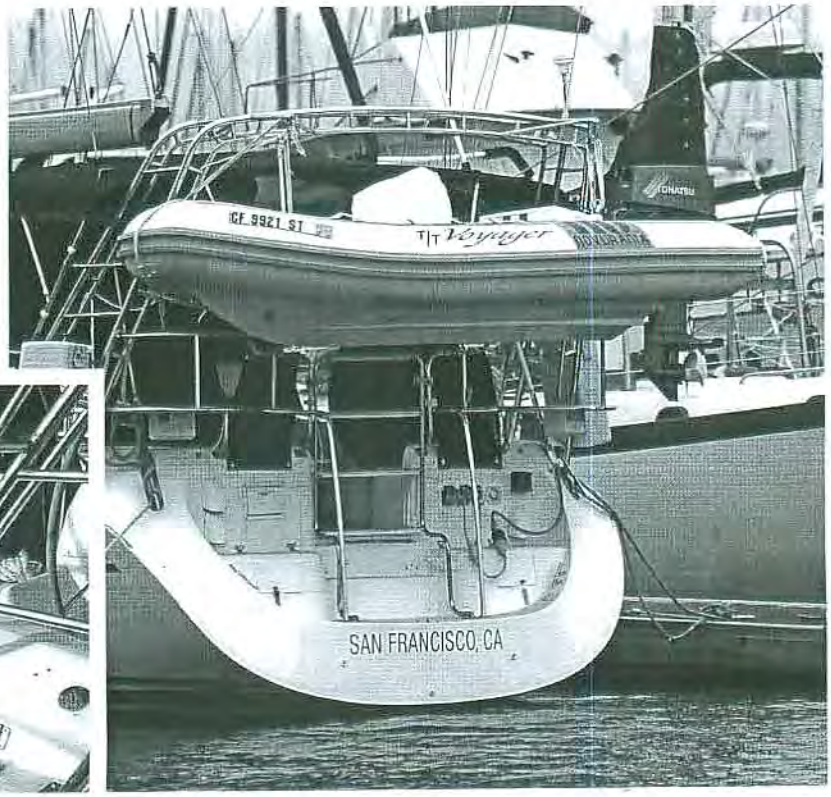

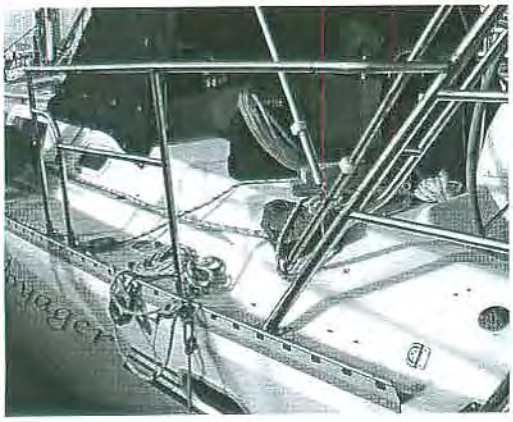

No.

C12H26

Fractional distillates, cetane, sulfur, saturated hydrocarbons, napthathylenes, akylbenzenes ....in other words.....diesel fuel!!! Our, Yanmar engines and onboard diesel gensets burn it to produce power to turn props or make electricity. It has a unique odor to it, often is colored (generally for taxation purposes), is sterile when made and with some local chemical variations, is generally available in most places where boats are found. Our C470s carry a good supply of fuel, 84 gallons being the standard tankage and additional tanks being an option. Since we prefer sail power over diesel power our diesel fuel usage and management requires a different approach from powerboaters.

Diesel fuel is a "middle distillate" of petroleum. # 2 heating oil and kerosene are its nearest cousins. ASTM #2D diesel is commonly found at the marine diesel pump; #1 diesel is used primarily in applications where stop and go conditions are encountered such as short-haul buses; #1 diesel has only 95% of the energy per unit/volume (gallon or liter) of #2 diesel fuel. Diesel fuel is heavier than gasoline and lighter than pure lubricating oil. It contains sulfur in minute amounts which is used for lubrication of fuel pumps and seals. This sulfur has been reduced in recent years by government mandate; in the early years of the reduced-sulfur diesel fuel some failures of pumps and seals which required sulfur for lubrication were reported. This anomaly has ceased to exist.

The Cetane number found on most marine diesel fuel pumps is how diesel ignition is measured. The higher the cetane number, the easier the fuel ignites when the injector nozzles spray it into the hi-compression diesel engine cylinder. However, increasing the cetane number over the engine manufacturer's recommendation does not produce either more power or more engine efficiency. The use of cetane boosters must be judiciously administered. The Yanmar 4JH3-TE engine requires a minimum cetane of 45 for proper operation.

Sailboat diesel fuel storage and management has unique requirements. Often, our diesel fuel sits unused for months and months. When good sailing conditions are encountered, diesel engines frequently see minimum usage resulting in fuel problems which must be addressed by the owner. The fuel filtering system which is standard equipment on our C470s provides excellent filtering and fuel transfer capabilities. The dual Racor 30 micron system (shown in photo with suction gauges) allows fuel to be transferred from one tank to another (with the engine running) by setting the "return" to a tank different from the "feed" valve setting. Several owners have installed additional fuel pumps and lines which allow for fuel "polishing" without operating the engine. Adding biocides and other Yanmar approved additives while operating these additional pumps can help in keeping the fuel fresh and clean. However, diesel fuel is unique in its ability to gather contaminants, grow microbes and become troublesome...all issues which can be countered with proper owner action.

Contrary to popular belief, diesel fuel does not grow algae! Algae requires water, food and light to grow. There is no light in a diesel fuel tank. Microbes grow in diesel fuel at the "fuel-water interface". The microbes need water which can be introduced to the fuel during transport, from condensation in a tank which is not full or from faulty seals on the deck fill fitting. These microbes will, if allowed to grow unchecked, produce a black slime which descends to the bottom of the tank and builds up. When the boat encounters significant pitching and rolling this material is stirred up and pulled into the fuel filters where it is stopped. Filters have finite limits and, if this situation is not rectified, will eventually clog and engine performance will suffer or cease. No diesel fuel system is immune to this issue. A common fallacy is that if fuel is treated with biocide the problem will be resolved. This is often not the case. A biocide must attack the microbes in both the water and the diesel in the tank; even so, if the growth has had enough time the biomass produced in the bottom of the tank will harbor live microbes and the biocide will be defeated. If an owner is constantly seeing black material in the Racor filters over a period of time even with diligent fuel treatment, then the only solution is to burn the fuel tank down, remove the remainder of the fuel and clean the tank. Most "fuel polishing" businesses cannot completely remove the biomass in the bottom of the tank. To do so requires opening up the tank and physically removing the bio"mess". This is not a difficult job!

To clean the standard fuel tanks, prop up the mattress/board assembly to allow access to the fuel tank gauge pickup assembly after turning all the fuel valves to the OFF position. Place OilSorb pads around the opening then loosen the Allen bolts holding the gauge assembly to the tank and gently remove it. To remove the remainder of the fuel you will need a hand or electric pump, a Jerry can(s) and a proper place to dump the contents for disposal. After removing the fuel you will see the black biomass in the forward, lower section of the tank. Using the same hand or electric pump with which you removed the last amounts of fuel, suck the biomass out of the tank making sure to work the suction tube into the corners and up into the tank as far as you can reach. Dispose of this in the same manner as the fuel. Then, using OilSorb cloths cut into 4 X 5 inch squares, a piece of steel threaded rod about 2 feet long and some heavy rubber bands, tie the OilSorb to the end of the rod and work it vigorously into the tanks corners and seams. When the OilSorb comes out quite clean, then soak new cloth(s) in a diesel biocide and repeat the process thereby washing the inside of the tank with biocide and eliminating the threat to the new fuel. A tip: add the new biocide (double the amount required for initial tank treatment) now thru the fuel tank pickup gauge opening. This technique will allow the biocide to slosh around in the area of the tank where the microbes are toughest to get at. Wipe down the gauge gasket and the opening; then reinstall the gauge assembly being very careful not to tighten down the Allen bolts past "snug" since this will distort the gasket and can lead to leaks. Spray the area down with 409, wipe it down and properly dispose of the materials. Then take the Racor filter apart and clean it, wipe it down with biocide and reassemble with a new 30 micron filter. Replace the O-ring on the deck fill fitting after checking the races it sits in for nicks and your fuel system should be good to go for quite some time. Always add the correct amount of biocide when topping off tanks even if there is no evidence of microbial growth...you cannot buy cheaper insurance against a fuel-generated engine problem! *–Jim Wohlleber*